

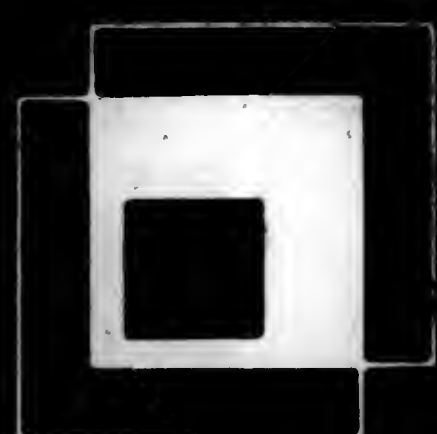
U. S.
OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE

VOL. 888

JULY

1971

MICRO PHOTO DIVISION



BELL & HOWELL

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

July 6, 1971

Volume 888

Number 1

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PATENT OFFICE NOTICES

Environmental Quality

The National Environmental Policy Act declares that it is a continuing policy of the Federal Government to use all practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. The Act further directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policy set forth in the Act.

Following the enactment of the National Environmental Policy Act, the Patent Office initiated an Environmental Quality Program under which it accorded, upon request, "special" status to all patent applications for inventions which materially enhance the quality of the environment of mankind by contributing to the restoration or maintenance of the basic life-sustaining natural elements—air, water, and soil.

It seems apparent that not all patent applicants are aware of the availability of such special handling under the program. While over 381 patent applications have already been approved for accelerated processing by the Patent Office, a substantial number of patent applicants whose inventions would qualify have not requested special status for their patent applications.

In order to participate in the program, applicants must request that their applications be accorded "special" status in writing, identifying the applications by serial number and filing date, and should submit affidavits or declarations under Rule 102 explaining how their inventions contribute to the restoration or maintenance of one of the three life-sustaining elements mentioned.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

June 7, 1971.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,441,960, P. Elsler, MANUFACTURE OF ELECTRIC CIRCUIT COMPONENTS; Re. 24,165, same, filed Oct. 18, 1961, D.C. Md. (Baltimore), Doc. 13358-C, *Technograph Printed Circuits, Ltd. and Technograph Printed Electronics, Inc. v. Martin-Marietta Corporation*. Same, filed Sept. 21, 1962, D.C. Md. (Baltimore), Doc. 14084-C, *Technograph Printed Circuits, Ltd. and Technograph Printed Electronics, Inc. v. Westinghouse Electric Corporation*. Same, filed Dec. 19, 1962, D.C. Md. (Baltimore), Doc. 14298-C, *Technograph Printed Circuits, Ltd. and Technograph and Telegraph Corporation v. International Telephone & Telegraph Corp.* Same, filed Jan. 28, 1963, D.C. Md. (Baltimore), Doc. 14374-C, *Technograph Printed Circuits, Ltd. and Technograph Printed Electronics, Inc. v. McDonnell Aircraft Corporation*. Motion and order on above suits, cases dismissed with respect to said patents, Dec. 23, 1970.

2,544,246, G. H. Butterfield, CORNEAL CONTACT LENS, filed Feb. 24, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70-C-101, *George H. Butterfield, Sr. v. Wisconsin Optical Service, Inc.* Record sent to the N.D. of Ill. (Chicago), Apr. 10, 1970. Same, filed Mar. 3, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70-C-119, *George H. Butterfield, Sr. v. Ray-Con, Inc.* Case transferred to the U.S. Dist. Court, N.D. of Ill. (Chicago), Apr. 10, 1970. Same, filed Oct. 22, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c2185, *George H. Butterfield, Sr. v. Fused Contacts of Chicago, Inc.* Stipulation order, action dismissed with prejudice, Rule 41(a)(1) of F.R.C.P., Dec. 14, 1970.

2,617,705, Coombs and Tompkins, DATA STORAGE APPARATUS; 2,629,827, Eckert, Jr. and Mauchly, MEMORY SYSTEM, filed Nov. 30, 1970, U.S. Ct. of App., 4th Cir., Virginia (Richmond), Doc. 15,320 and 15,321, *Iowa State University Research Foundation, Inc. v. Control Data Corporation*.

2,629,827. (See 2,617,705.)

2,653,526, W. E. Peery, PRINTING SYSTEM FOR PHOTO-COMPOSING MACHINES OR THE LIKE; 2,787,654, same, ELECTRONIC PHOTO-TYPE-COMPOSING SYSTEM, filed

Aug. 7, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c1961, *Compugraphic Corporation v. Eltra Corporation and Logan Square Typographers*. Judgment by consent, plaintiff owner of patents, said patents are valid and infringed, Dec. 16, 1970.

2,685,954, T. H. Curtis, PROCESSING MACHINE; 2,709,512, same, filed Dec. 4, 1969, D.C. Del. (Newark), Doc. 3318, *Kewanee Oil Company v. M & T Chemicals, Inc.* Stipulation and order, dismissed without prejudice, pursuant to, Rule 41(a)(1) of F.R.C.P., Jan. 14, 1971.

2,709,512. (See 2,685,954.)

2,787,654. (See 2,653,526.)

2,790,362. (See 3,332,617.)

2,841,394, A. R. Stobb, COLLECTOR FOR FLEXIBLE SHEETS; 2,933,313, same, METHOD AND MEANS FOR COLLECTING FLEXIBLE SHEETS; 3,188,082, same, APPARATUS AND METHOD FOR COLLECTING FLEXIBLE SHEETS, filed Dec. 24, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2227, *Stobbs, Inc. v. Western Printing & Lithographing Co. v. Newton Christmas and Industrial Design & Engineering, Inc.*

2,905,465, Armstrong and Wiener, CARD PROCESSING APPARATUS; 2,985,299, Wiener and Wilcox, same; 2,997,173, Nelson, Stern and Wiener, same; 3,032,750, Nelson and Redondo, same; 3,173,129, Hayes and Stalder, same; 3,016,140, Peck and Wilson, same; 3,039,681, Nelson and Stern, same, filed May 31, 1968, D.C., N.D. Ill. (Chicago), Doc. 68c1001, *The Magnavox Company v. The National Cash Register Company, C. P. Clare & Company*. (The amended complaint deleted Patent 3,005,632.) Order, action dismissed as moot, Dec. 21, 1970.

2,922,883, E. C. Glaimo, Jr., ELECTROSTATIC CHARGING MEANS AND METHOD; 3,052,540, H. G. Greig, DYE SENSITIZATION OF ELECTROPHOTOGRAPHIC MATERIALS; 3,052,539, same, ELECTROSTATIC PRINTING, filed Mar. 5, 1965, D.C., S.D.N.Y., Doc. 65-C-686, *SCM Corporation v. Radio Corporation of America*. Final judgment, Patents 3,052,539, 3,052,540 and 2,922,883, each and every claim is invalid; defendant RCA is permanently enjoined. First counterclaim of RCA is dismissed with prejudice on the merits and each of the 2nd and 3rd causes of action of plaintiff SCM Corp. is dismissed with prejudice on the merits, Dec. 11, 1970.

2,931,532, R. H. Gapp, RIVETS AND METHOD OF RIVETING; 3,285,121, G. Siegel, BLIND RIVET, filed Jan. 15, 1971, D.C., S.D. Ohio (Cincinnati), Doc. 7827, *Olympic Fastening Systems, Inc. v. Textron, Inc.* Same, filed Jan. 15, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-125 WPG, *Olympic Fastening Systems, Inc. v. Textron, Inc.*

2,933,313. (See 2,841,394.)

2,985,299. (See 2,905,465.)

2,997,173. (See 2,905,465.)

3,016,140. (See 2,905,465.)

3,032,750. (See 2,905,465.)

3,039,681. (See 2,905,465.)

3,052,539. (See 2,922,883.)

3,052,540. (See 2,922,883.)

3,060,264, Zimmie and Bloecher, METHOD OF REMOVING SILT FROM TANKS; 3,085,916, METHOD OF REMOVING AND PREVENTING ACCUMULATION IN COOLING SYSTEMS, filed Jan. 7, 1971, D.C., S.D. Ohio (Cincinnati), Doc. 7819, *W. E. Zimmie, Inc. v. Ohio Valley Chemical Corp. and Charles J. Kennedy*.

3,085,916. (See 3,060,264.)

3,173,129. (See 2,905,465.)

3,188,082. (See 2,841,394.)

3,285,121. (See 2,931,532.)

3,332,617, Higonnnet and Moyroud, TYPE COMPOSING APPARATUS; 2,790,362, same, PHOTO COMPOSING MACHINE, filed Sept. 16, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2278, *Photon, Inc. v. Compugraphic Corp. and Ottawa Publishing Co.*

3,483,617, J. Krampe, TOOL FOR CUTTING AND STRIPPING CABLE, filed Jan. 8, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c47, *Josef Krampe v. Ideal Industries, Inc.*

JULY 6, 1971

U. S. PATENT OFFICE

3

3,535,927, Mahon and McMurtrie, COMPENSATED THERMISTOR SENSOR, filed Dec. 29, 1970, D.C.N.J. (Newark), Doc. 1746-70, *Fischer & Porter Company v. Eastech, Inc. et al.*

Re. 24,165. (See 2,441,960.)

D. 211,018, D. D. Granger, CHAIR OR SIMILAR ARTICLE; D. 211,633, same, SIDE paneled CHAIR OR SIMILAR ARTICLE; D. 211,785, same, WINGED ARMCHAIR OR SIMILAR ARTICLE; D. 211,786, same, CHAIR OR SIMILAR ARTICLE, filed Sept. 6, 1968, D.C., W.D.N.C. (Charlotte), Doc. 2391, *Maxwell Royal Chair Company v. Clayton Marcus Company, Inc.* Consent judgment, Design Patents valid and owned by plaintiff; defendant enjoined, Jan. 6, 1971.

D. 211,633. (See D. 211,018.)

D. 211,785. (See D. 211,018.)

D. 211,786. (See D. 211,018.)

Patent Application Branch Service

In order to expedite the processing of newly filed applications, improve the efficiency of the Office, and assist in the effort to normally dispose of patent applications within 18 months of their filing date, cooperation from the patent community is solicited with respect to recent procedural modifications.

Prior to examination concerning patentability, patent applications are now examined for compliance with formal requirements, and actions are mailed requiring correction of stated informalities. Many inquiries have arisen concerning the effect of such actions. Since the actions concerning correction of informalities include the setting of a period for response, failure to respond within the period set results in abandonment of the application.

Inquiries directed to the Application Branch, either in person or by telephone, concerning patent applications should not be made during the morning hours between 8:30 and 10:30.

The letter of transmittal accompanying the filing of continuing applications, particularly streamlined continuations and Rule 147 divisionals, should include such additional information as the identification by serial number of the parent

application, its status, and location in the Patent Office. The supplying of this information will permit the processing of these new applications more rapidly than at present.

When a new application is filed with a request to transfer drawings under Rule 88, the application papers should include drawing prints to enable the Application Branch to process the case before transfer of the formal drawings is effected.

RICHARD A. WAHL,
Assistant Commissioner.

June 1, 1971.

Certificates of Correction for the Week of July 6, 1971

Re. 27,071	3,547,118	3,560,137	3,565,869
3,432,302	3,547,500	3,560,176	3,565,924
3,438,773	3,547,946	3,560,536	3,566,095
3,477,380	3,549,110	3,560,604	3,566,529
3,481,087	3,549,498	3,560,635	3,566,587
3,494,377	3,549,784	3,561,093	3,567,222
3,495,024	3,549,845	3,561,750	3,567,283
3,503,959	3,551,105	3,562,176	3,567,287
3,509,265	3,551,441	3,562,352	3,567,761
3,510,424	3,552,041	3,562,473	3,567,815
3,510,749	3,552,601	3,562,499	3,568,167
3,522,281	3,553,678	3,562,521	3,568,559
3,522,749	3,554,523	3,562,574	3,568,588
3,523,828	3,554,547	3,562,650	3,568,709
3,528,909	3,554,804	3,562,778	3,568,939
3,530,111	3,554,935	3,563,274	3,569,754
3,531,632	3,555,493	3,563,351	3,570,667
3,531,909	3,555,515	3,563,402	3,571,841
3,536,826	3,556,040	3,563,464	3,572,121
3,537,390	3,556,069	3,563,734	3,572,491
3,538,090	3,557,120	3,564,585	3,572,693
3,541,145	3,557,350	3,564,658	3,572,711
3,541,794	3,557,860	3,564,903	3,573,397
3,541,876	3,557,927	3,565,118	3,573,894
3,542,780	3,558,536	3,565,266	3,574,546
3,543,836	3,558,683	3,565,277	3,574,835
3,543,844	3,558,893	3,565,296	3,575,515
3,544,577	3,559,130	3,565,420	
3,544,733	3,559,190	3,565,449	
3,545,266	3,559,652	3,565,798	

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JUNE 15, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-22-70
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-01-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	2-17-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	4-09-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-12-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	10-01-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordinance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors; Powder Metallurgy; Rocket Fuels; Radio-Active Material.	1-20-70
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-01-70
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 240—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	3-02-70
PHYSICS, GROUP 250—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	2-17-70
DESIGNS, GROUP 260—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	6-23-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Apparatuses; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	5-01-70
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding; Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	2-02-70
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	3-03-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	7-09-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	3-03-70

Expiration of patents: The patents within the range of numbers indicated below expire during June 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 660, 79th Congress, approved August 3, 1948 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1964 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 161.

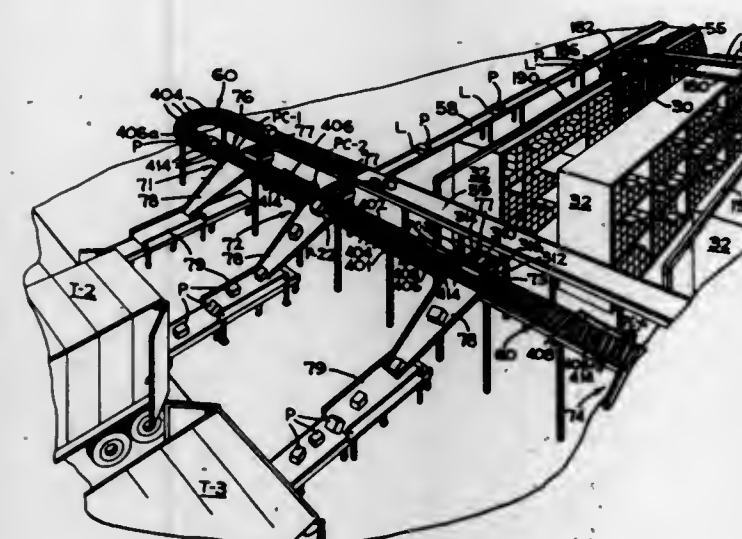
Patents..... Numbers 2,670,645 to 2,682,657, inclusive
Plant Patents..... Numbers 1,282 to 1,287, inclusive

REISSUES

JULY 6, 1971

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

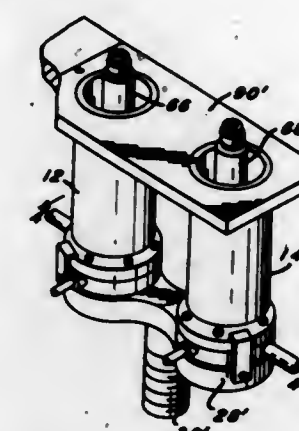
27,152
METHOD OF SELECTING A PLURALITY OF ARTICLES IN A WAREHOUSE
Stanley M. Weir, Palo Alto, Calif., assignor to FMC Corporation, San Jose, Calif.
Original No. 3,424,324, dated Jan. 28, 1969, Ser. No. 705,247, Nov. 3, 1967, which is a division of Ser. No. 530,057, Feb. 25, 1966, now Patent No. 3,379,321, dated Apr. 23, 1968. Application for reissue Oct. 2, 1970, Ser. No. 77,681
Int. Cl. B65g 1/06
U.S. Cl. 214—152 10 Claims



A method of selecting a plurality of articles in a warehouse with storage bins therein, for filling orders, by using a separate label for each article to be picked, recording data on each label indicative of the quantity of articles to be picked, the location of the article in the

warehouse and the destination of the picked articles. A label is attached to each article at the location recorded on the label.

27,153
GLASS FORMING APPARATUS WITH SELF-ACCOMMODATING AND UNIVERSAL PLUNGERS
Joseph W. Donnelly, Vineland, N.J., assignor to Maul Brothers, Inc., Millville, N.J.
Original No. 3,323,891, dated June 6, 1967, Ser. No. 573,125, Aug. 17, 1966, which is a continuation of Ser. No. 411,889, Nov. 17, 1964, which in turn is a continuation-in-part of Ser. No. 51,829, Aug. 25, 1960. Application for reissue May 6, 1969, Ser. No. 830,894
Int. Cl. C03b 11/00, 11/06
U.S. Cl. 65—167 2 Claims



Glass forming apparatus wherein a pair of plunger casings are free floating so that the plungers within the casings which form the glassware may be individually self-accommodating with respect to their respective molds. The plungers are universal so that they may be used regardless of the size of the mold cavity in the apparatus.

PATENTS

GRANTED JULY 6, 1971

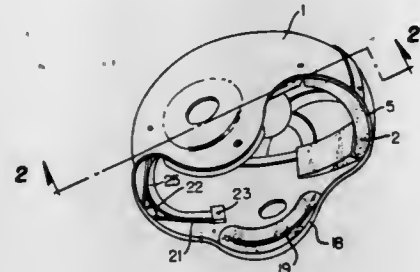
GENERAL AND MECHANICAL

3,590,388 ATHLETIC HELMET

Mike C. Holt, c/o Southern Athletic Service Inc., P.O. Box 46,
Leesburg, Fla.

Filed Feb. 4, 1969, Ser. No. 796,336
Int. Cl. A42b 1/08, 3/00

U.S. Cl. 2-3



The athletic helmet is made of a hard, strong material, such as a molded plastic. A snap-in padding corresponding to the forehead and temple areas is attached to the inside of the helmet. This is formed preferably of more than one section, the ends of which padding taper off. Extending rearwardly from the respective ends of the padding is a head suspension of web structure, which affords not only a good fit of the helmet to wearer's head but a space between the latter and the shell. At the rear of the helmet and below the level of the head suspension is a detachable web neck protector. Both the head suspension and the neck protector are formed of a chordal web band attached to the shell, and attached to the chordal bands a head and a neck web contacting band respectively. At the top, inside of the helmet is a soft crown piece from which radiate spaced sling straps of the same soft material which are attached to the shell between the latter's inside surface and the chordal head band.

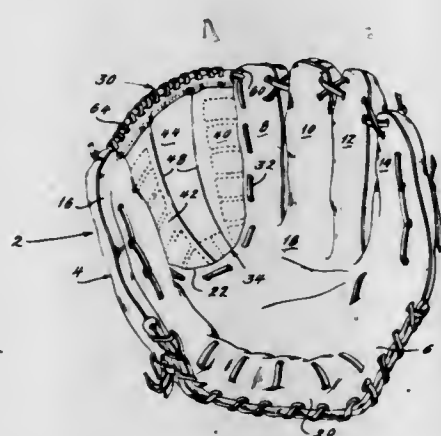
3,590,389 BALL GLOVE BACKSTOP

Roland N. Latina, Belleville, Ill., assignor to Rawlings Sporting Goods Company, St. Louis, Mo.

Filed Jan. 23, 1970, Ser. No. 5,231
Int. Cl. A41d 13/10

U.S. Cl. 2-19

10 Claims



A ball glove having spaced finger and thumb sections with a backstop connected to and substantially closing the area between those sections. The backstop includes a pair of spaced side segments which are joined to a connecting segment at bellowslike folds. The folds permit the connecting segment to move rearwardly with respect to the side segments when a ball strikes the backstop and, in addition, en-

ables the side segments to spread away from the connecting segment. This displacement between the segments permits the backstop to more closely conform to the shape of a ball which enters it, and to expand upon ball impact which absorbs some of the energy. It also allows the segments to work relative to each other, which affords greater control over the glove and enhances its retention capabilities.

4 Claims

3,590,390 ANCHOR TAPES

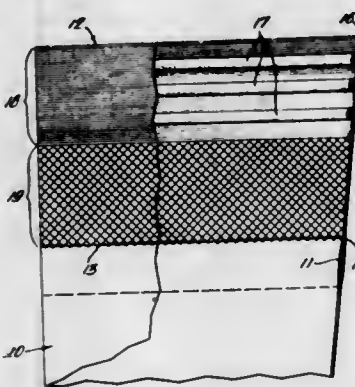
Robert C. Howard, Wyomissing, Pa.; Erika H. M. Kelly, West Lafayette, Ind., and Oliver N. Seelig, Wyomissing Hills, Pa., assignors to Wyomissing Corporation, Reading, Pa.

Continuation of application Ser. No. 593,866, Nov. 14, 1966, now abandoned. This application Mar. 4, 1969, Ser. No. 804,253

Int. Cl. A41f 9/02

U.S. Cl. 2-312

9 Claims



This application discloses a tape particularly adapted to be secured to extend beyond the free marginal edge of clothing and similar items to anchor them relative to the underlying surface. The tape comprises a strip of elastic fabric having stretch in at least one direction, and beads of elastomeric material physically bonded to the strip by depositing the material in fluid state upon the strip and drying and curing it in situ into a predetermined form.

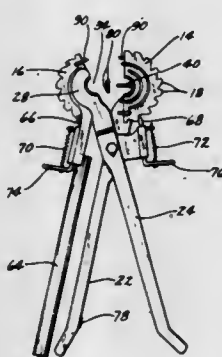
3,590,391 WIRE TWISTING DEVICE

Roy H. Winegar, Runnells, Iowa

Filed Feb. 20, 1969, Ser. No. 800,947
Int. Cl. B21f 15/04

U.S. Cl. 140-119

8 Claims



A device including a pair of wheel half sections having teeth on their outer peripheral edges and concentric guide

JULY 6, 1971

GENERAL AND MECHANICAL

7

ances on opposite faces in which a pair of scissorslike levers engage races on opposite sides thereof through semicylindrical guide portions. A third lever has a pair of semicylindrical guides received in races on opposite sides of the wheel. Spring biased dog elements are provided on the levers for engagement with the teeth on the wheel and as the levers are worked back and forth the wheel is rotated and wires or the like extending along the diametrical center thereof are twisted by a pin carried by one of the wheel half sections and limited against movement by the other wheel half section.

3,590,392

PREFABRICATED BATHROOM ASSEMBLY

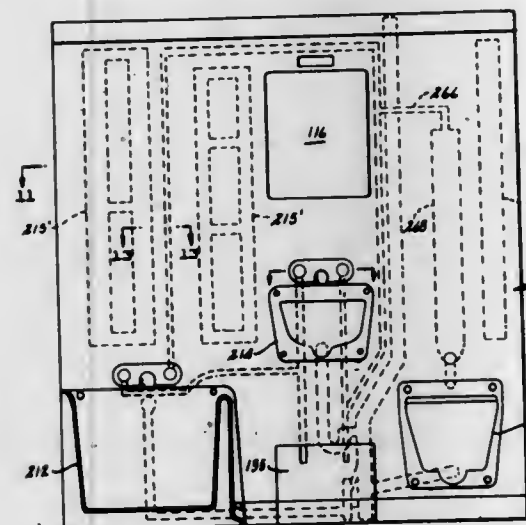
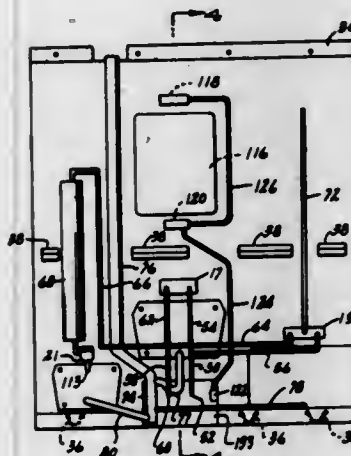
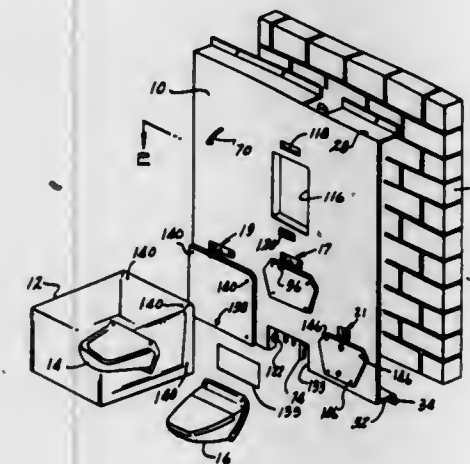
Milton B. Hollander, Stamford, Conn.; Victor Buell, Briarcliff Manor, and Norman B. Judelson, Hartsdale, both of, N.Y., assignors to American Standard Inc., New York, N.Y.

Filed June 12, 1968, Ser. No. 736,319

Int. Cl. A47k 4/00

U.S. Cl. 4-2

10 Claims



This invention proposes a prefabricated bathroom component built on the order of an appliance such as a clothes washer or dishwasher so that it may be plugged into place in

a matter of minutes, as opposed to hours or days. The concept is to build the bathroom appliance as one single preplumbed panel which can be set against an unfinished bathroom wall and bolted or otherwise secured in place with a minimum of time and effort. This enables the operations requiring skilled effort and know-how to be performed at the factory where precision equipment is available to make low cost mass production operations most feasible.

3,590,393

PREFABRICATED BATHROOM ASSEMBLY

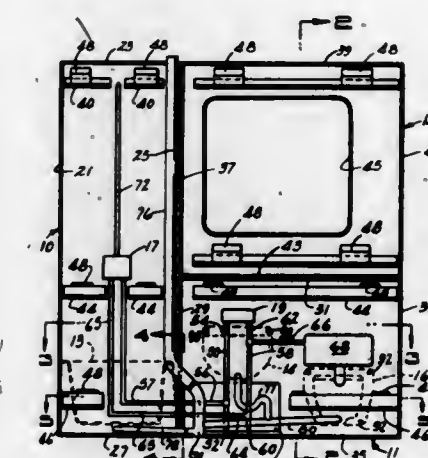
Milton B. Hollander, Stamford, Conn.; Victor P. Buell, Briarcliff Manor, and Norman B. Judelson, Hartsdale, N.Y., assignors to American Standard Inc., New York, N.Y.

Filed Nov. 1, 1968, Ser. No. 772,484

Int. Cl. A47k 4/00

U.S. Cl. 4-2

7 Claims



This invention proposes a prefabricated bathroom component built on the order of an appliance such as a clothes washer or dishwasher so that it may be plugged into place in a matter of minutes, as opposed to hours or days. The concept is to build the bathroom appliance as a number of preplumbed panels which can be set against an unfinished bathroom wall and bolted or otherwise secured in place with a minimum of time and effort. This enables the operations requiring skilled effort and know-how to be performed at the factory where precision equipment is available to make low cost mass production operations most feasible.

3,590,394

ANTISPLASH DEVICE

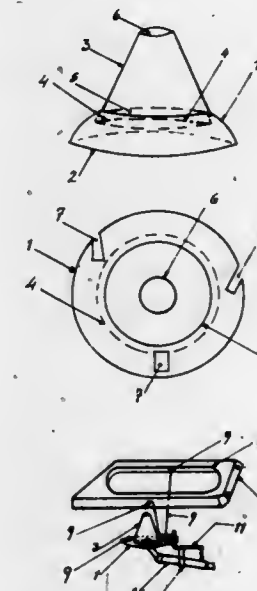
Ernst Olof Andersson, Radhusgatan 14, S-827 00, Ljusdal, Sweden

Filed Apr. 1, 1969, Ser. No. 812,245

Claims priority, application Sweden, Apr. 1, 1968, 4325/68
Int. Cl. A47k 3/22

U.S. Cl. 4-7

7 Claims



An antispash device for use in conjunction with a douching or rinsing apparatus includes a substantially conical

or frustoconical hollow shell member received in an upper opening in a guard ring in the form of a section of a sphere. The inner concave surface of the shield member controls and guides the water issuing from the douching apparatus while the outer surface thereof cooperates with the guard ring to prevent slashing of returning used water and to shield the fresh water from this used water.

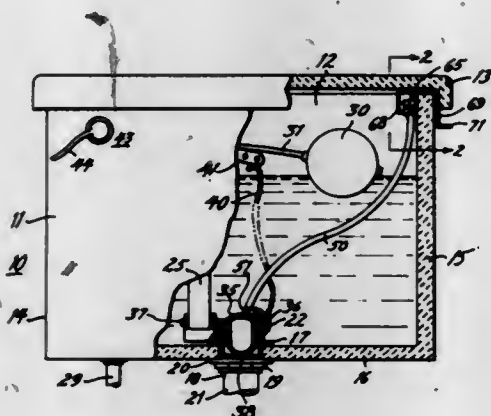
3,590,395

TOILET TANK FLUSH VALVE APPARATUS

William E. Wustner, 421 Sylvania Ave., Glenside, Pa.
Filed July 8, 1969, Ser. No. 839,958
Int. Cl. E03d 1/34

U.S. Cl. 4-56

2 Claims



An adjustable toilet tank flush valve apparatus is provided wherein the discharge of water from the tank is controlled by setting a control member connected to the flush valve whereby the flush valve buoyancy is selected to permit of full or partial tank discharge.

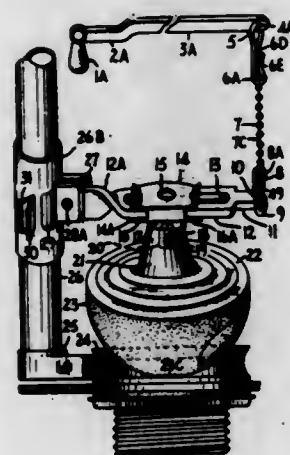
3,590,396

WATER CONTROL DEVICE

Michael Graziosi, 383 Second Street, Jersey City, New Jersey, Hudson County, N.J.
Filed May 31, 1968, Ser. No. 733,578
Int. Cl. E03d 1/34

U.S. Cl. 4-57

5 Claims



The invention comprises novel and useful improvements in an automatic flush guide and more specifically pertains to a guiding attachment adapted for mounting in a toilet flush tank upon the overflow tube in order to provide an improved guiding means and therefor by enhancing the efficiency of operation of the flush valve ball member.

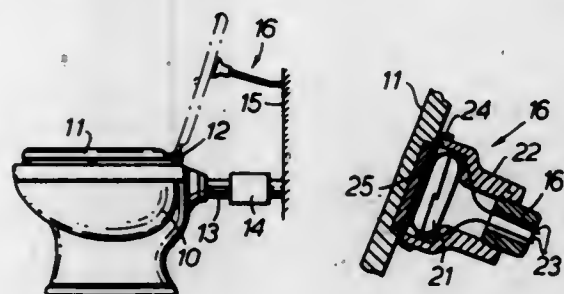
3,590,397
AUTOMATIC FLUSHING DEVICE FOR TOILET FACILITIES

Hiroo Akamatsu, Saburo Takechi, and Masuo Ichimori, all of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

Filed June 20, 1969, Ser. No. 835,156
Int. Cl. E03d 13/100

U.S. Cl. 4-100

6 Claims



An automatic flushing device for a toilet, wherein the flushing of water is controlled by a switch so disposed as to be actuated by a lid mounted on the toilet bowl so that when the lid is opened for use of the toilet, a control circuit opens a flush valve for a predetermined period of time to flush the toilet prior to use, and when the lid is closed after use, the control circuit again opens the valve for a predetermined period of time to flush the toilet again.

3,590,398

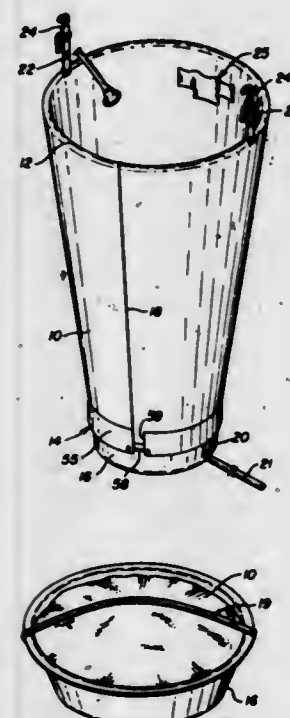
PORTABLE SHOWER ASSEMBLY

Harold M. Jetter, 605 Stagecoach Road S.E., Albuquerque, N. Mex.

Filed June 9, 1969, Ser. No. 831,364
Int. Cl. A47k 3/14, 3/23

U.S. Cl. 4-154

3 Claims



A portable shower assembly having a rigid circular base with a short upstanding sidewall and a top lip includes a circular curtain outwardly tapered from bottom to top with a

flexible ring securing the curtain to the base in a leak-proof connection, and a top ring for securing the curtain in open position for use. By using flexible rings the curtain folds into the base for storage.

3,590,399

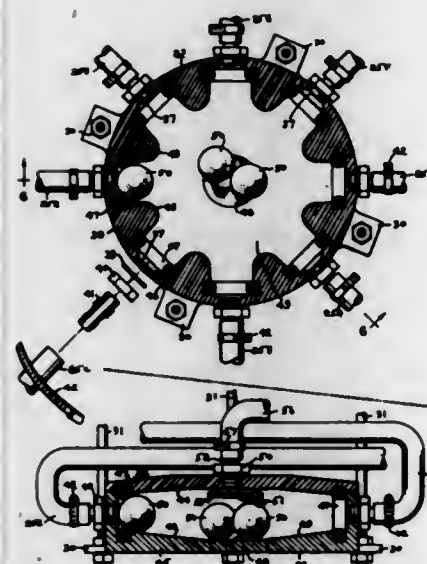
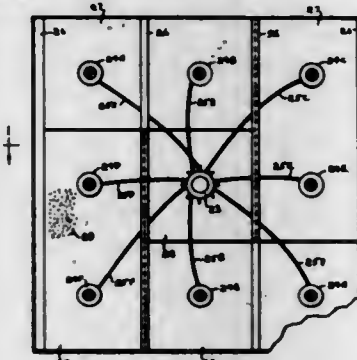
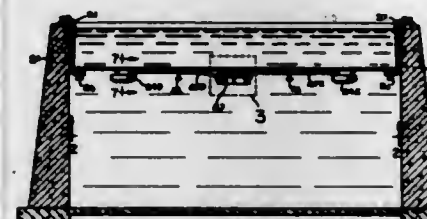
ATTITUDE CONTROLLED FLOTATION SYSTEM

Bernard G. Madden, 860 Valley View Road, Flourtown, Pa.
Filed Oct. 14, 1969, Ser. No. 866,196

Int. Cl. E04h 3/19

U.S. Cl. 4-172.13

11 Claims



A flotation system including a plurality of gas/liquid ballast tanks secured to the underside of a platform and all connected to a novel gas distribution valve also secured to the platform which selectively delivers gas to the ballast tanks in such manner as to maintain the desired attitude of the platform within the liquid medium. The ballast tanks are open bottomed and function as air traps, the degree of flotation afforded to the platform being controlled by injecting or withdrawing air or other gas to respectively force water out from and take water in through the bottom of the tank and thereby control the displacement. The open bottom construction of the ballast tanks provides a self-limiting tilt feature to each tank because inclination of a tank above a predetermined critical angle causes air to spill out through the bottom and limit the flotation. The valve is a novel type of ball check valve and provides attitude control by automatically selectively controlling the ratio of gas to liquid within each ballast tank through the check ball feature, while elevation control is effected by simultaneously changing the

ratio of gas to liquid in all ballast tanks. The control valve is formed with a plurality of ports spaced peripherally about the sidewall of the valve body. The upper surface of the valve body bottom wall is provided with a central horizontal platform region disposed at a level below that of each of the ports, from which the floor extends radially outward and slopes upward toward the ports. A plurality of spherical balls are seated on the central platform when the latter is in a horizontal position, and when the valve body is tilted are free to roll outward and block any of the ports disposed at a lower elevation than the central platform. The mechanism may be adjusted to provide a slope to the platform or other controlled device where such an arrangement is desired.

3,590,400

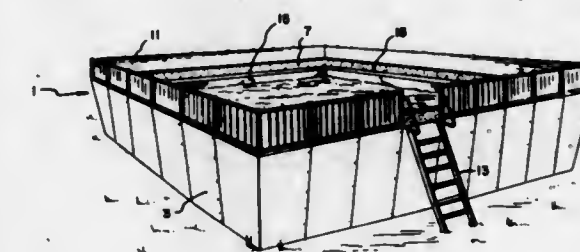
SWIMMING POOL COPING

Frank L. Kessler, 17 Vassar Road, Broomall, Pa., and Stephen F. Kendall, 536 Sprague Road, Penn Valley, Pa.
Filed May 28, 1969, Ser. No. 828,493

Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4-172.21

2 Claims



The disclosure relates to a swimming pool which is prefabricated and is assembled on site from the component parts. The shell of the pool containing the water during use is formed from a flexible inner liner which is attached to the sides of the pool. The construction also includes a one-piece coping which is placed around the deck of the pool and at the inner edge thereof in order to give the pool a rectilinear appearance despite the bowing caused by outward pressure exerted on the pool walls by the water within the pool.

3,590,401

TOILET SEAT AND HINGE ASSEMBLY

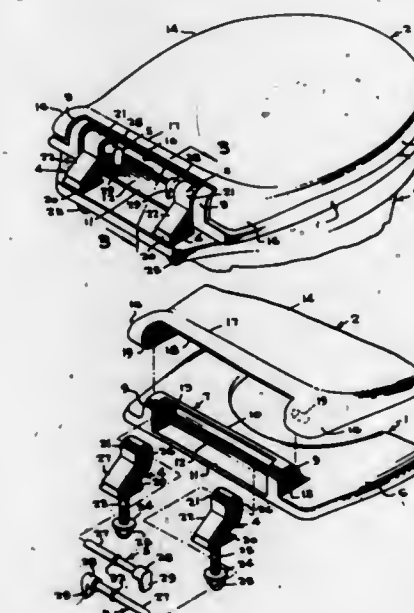
William O. Brown, Columbus, Miss., assignor to Beneke Division, Beatrice Foods Co., Columbus, Miss.

Filed Feb. 10, 1970, Ser. No. 10,470

Int. Cl. A47k 13/12

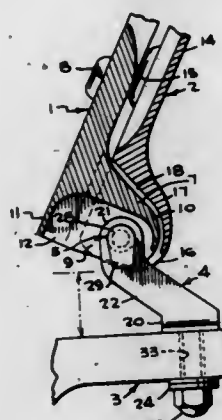
U.S. Cl. 4-236

6 Claims



A toilet seat and cover assembly wherein the pivot axis in the seat is a considerably greater distance above the seat bottom than from the plane of the seat back edge, so that the

back edge of the seat will be spaced a substantial distance above the top surface of a toilet bowl upon which the seat is mounted, when the seat is swung about its pivot to an upright position. The seat, cover and hinge posts are pivotally connected by removable hinge pins having yieldable means to prevent accidental displacement.



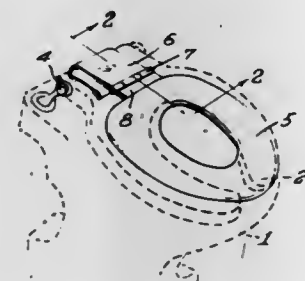
3,590,402 AUXILIARY TOILET SEAT

Clifford R. Penkey, Rte. 410, Box 923, Newsome Road, Salisbury, N.C.

Filed Oct. 4, 1968, Ser. No. 765,094
Int. Cl. A47k 13/06

U.S. Cl. 4-239

1 Claim



For use of young children an auxiliary toilet seat is pivotally mounted above the main seat and below the lid. Then, the main seat may be lowered to rest on the stationary toilet bowl, and the auxiliary seat may be lowered onto the main seat when desired, and the lid may be lowered to cover both seats when desired.

3,590,403 CRIB

Clyde E. Mixon, Jacksonville, Fla., assignor to Pedicraft, Inc., Jacksonville, Fla.

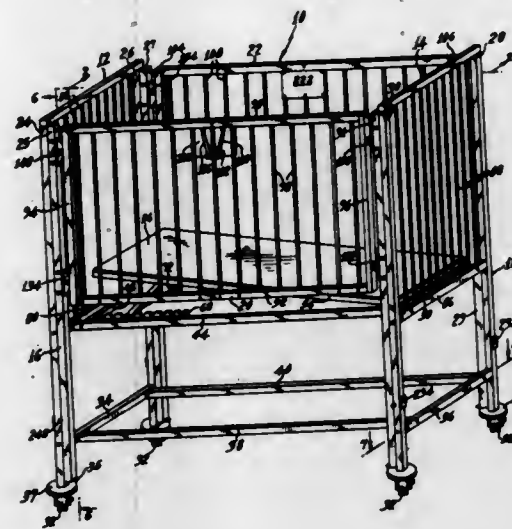
Filed May 7, 1969, Ser. No. 822,449
Int. Cl. A47d 7/00, 9/00

U.S. Cl. 5-100

17 Claims

A rectangular crib having opposite end walls terminated by four generally upright corner posts, opposite sidewalls positioned between the corner posts, and mattress supporting means extending between the corner posts and positioned generally midway between the top and bottom thereof, with one sidewall including a side gate movable from an upper closed position to a lower open position. The crib has U-shaped channel members attached to the corner posts in which the side gate slides between its upper closed and lower open positions by means of rollers attached thereto and positioned within the channel members. Catch means are included within the corner posts and engageable with the rollers on the side gate to maintain the upper edge of the side gate in a position spacedly above the upper surface of a mattress positioned on the mattress supporting means to provide a short sidewall portion for the side gate to prevent the accidental falling of a child from the crib. The crib additionally has selectively releasable means positioned within and adjacent to the upper portion of the side gate for maintaining

the same in its upper closed position. The crib is provided with a mattress supporting member which is raisable at one end and pivotally attached to other portions of the crib at its opposite end.



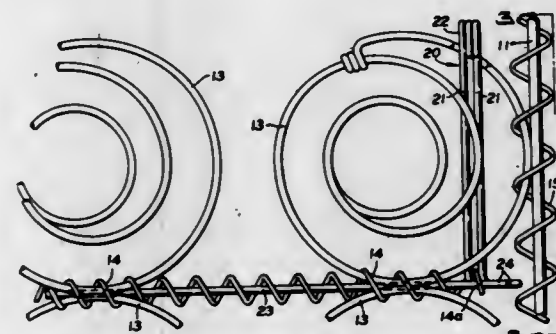
3,590,404 EDGE-REINFORCED INNER SPRING FOR CUSHIONS

Wendel E. Dreve, Jr., 1592 College Hill Drive, Columbus, Ohio

Filed Mar. 11, 1970, Ser. No. 18,520
Int. Cl. A47c 23/04, 25/00

U.S. Cl. 5-260

4 Claims



An inner spring unit for padded cushions, such as inner spring mattresses, which includes reinforcing springs for the edge or border wire frame members, but recessed to the unit within said frame members.

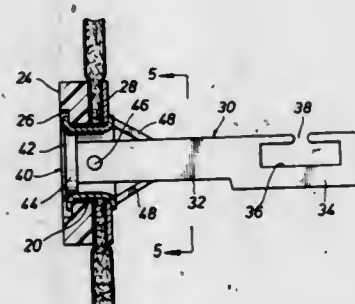
3,590,405 HANDLE STRUCTURE FOR BED SPRINGS AND THE LIKE

Edward O. Kerr, Houston, Tex., assignor to Ther-A-Pedic Associates, Inc.

Filed Mar. 27, 1969, Ser. No. 811,182
Int. Cl. A47c 23/00

U.S. Cl. 5-345

4 Claims



A handle for bed springs of the inner spring mattress type. The handle structure includes a straplike handle member and handle connector elements adapted to be extended through openings adjacent the ends of the member and through

spaced apart grommets in the mattress cover, and a connecting member engageable with springs of the mattress and to which the connector elements may be connected to secure the handle to the springs. The connecting member is designed to enable the handle to be used with bed springs having springs of different sizes or which are spaced apart at different distances.

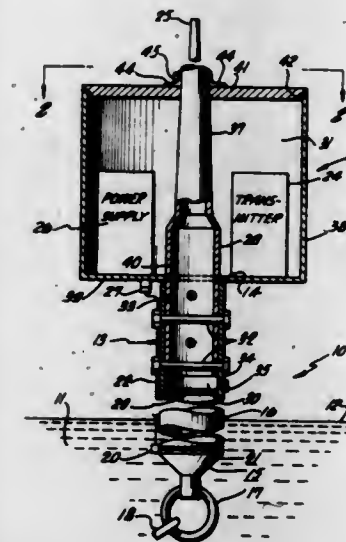
3,590,406 LONG SPAR BUOY

George S. Lockwood, Jr., Carmel Valley, and Klemme M. Jones, San Pedro, both of, Calif., assignors to Global Marine Inc., Los Angeles, Calif.

Filed May 22, 1968, Ser. No. 731,156
Int. Cl. B63b 21/52

U.S. Cl. 9-8

5 Claims



An oceanographic long spar buoy including a plurality of elongated tubular members connected to each other in an end-to-end relationship to define a body of the buoy. A weatherproof data handling instrumentation container is demountably secured to an upper unsubmerged end of the body. The instrumentation container houses equipment which is coupled to instrument transducers mounted at selected locations along the buoy. The container is removable as a unit from the buoy for ease of servicing or repair of the contents thereof.

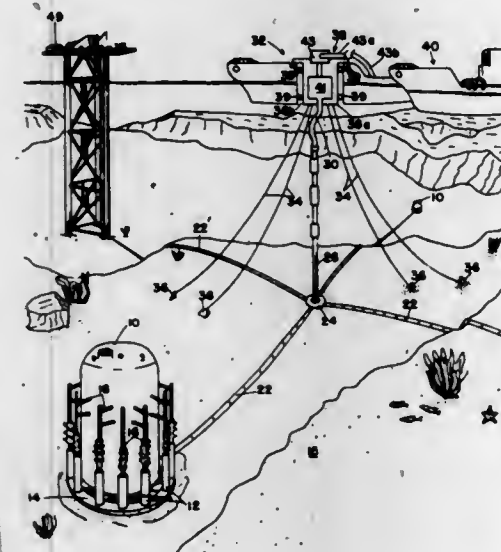
3,590,407 SWIVEL TANKER FLOATING STORAGE SYSTEM

Vintila Bratlanu, New York, N.Y., and Lewis A. Rupp, Wellesley Hills, Mass., assignors to Mobil Oil Corporation

Filed Nov. 13, 1968, Ser. No. 775,351
Int. Cl. B63b 21/50

U.S. Cl. 9-8

1 Claim



The specification discloses a fluid storage system which includes a floating storage vessel having a swivel assembly

mounted in its bow structure. The stationary core of the swivel assembly is moored to the water bottom by means of anchor lines extending through hawse tubes, while the storage structure is free to pivot about the stationary core in response to the combined forces of wind and water. Mounted centrally in a hollow portion of the stationary core of the swivel assembly is a liquid-gas separator unit. The liquid and gas outputs of the separator unit pass through swivel joints to the storage tanks of the floating structure. The separator unit comprises a main pressure vessel and a surge vessel which absorbs shock loads from the riser flowlines.

3,590,408

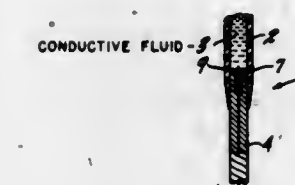
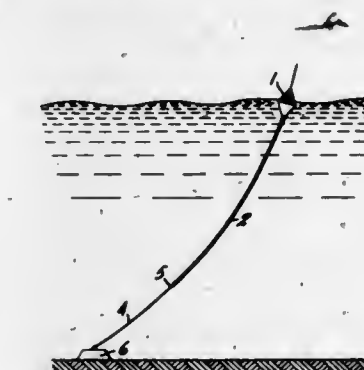
ANCHORING DEVICE FOR A FLOATING BUOY

Cornelis M. Verhagen, Heemstede, Netherlands, assignor to Datawell N.V., Haarlem, Netherlands

Filed Feb. 24, 1969, Ser. No. 801,849
Claims priority, application Netherlands, Mar. 1, 1968, 6,803,005

Int. Cl. B63b 21/52; H01b 1/00, 7/06
U.S. Cl. 9-8

3 Claims



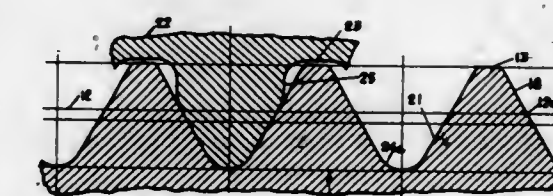
The invention relates to an anchoring means for connecting a buoy with a fixed point below the water surface, which anchoring means contains at least over part of its length an elongated elastic member that can be elongated over 100 percent and consists of natural rubber mixed with polybutadiene and/or a plasticizer, and is able to withstand at least 30,000 elongations of more than 100 percent without tearing or breaking. The anchoring means according to the invention enables the use of smaller buoys that nevertheless are not submerged by current and waves.

3,590,409 METHOD OF THREAD ROLLING

Emric W. Bergere, 2324 Nottingham Ave., Los Angeles, Calif.

Filed Nov. 4, 1968, Ser. No. 773,192
Int. Cl. B21h 3/02, 3/04, 3/08; B23g 7/00, 9/00
U.S. Cl. 10-152

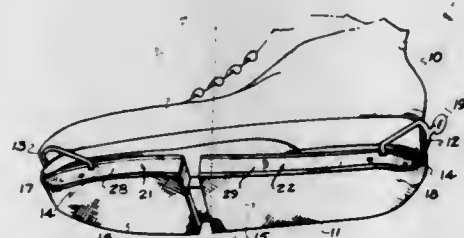
2 Claims



A method of forming threads on ultra high strength metal alloys by preforming the threads in the annealed condition while allowing a segment of material below the pitch diameter to be compression cold rolled after heat treatment espe-

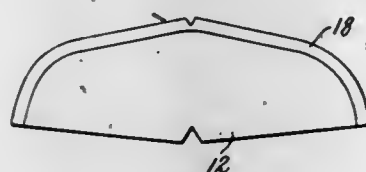
cially at the root radius. Thread forming at Rockwell C50 to C65 hardness greatly reduces the life of thread rolls. This method entirely overcomes this failure while maintaining the required tensile fatigue life of the bolt threads.

3,590,410
BOOT TREE
Michael Peter Shields, Encino, Calif., assignor to Walk-On Corporation, Hollywood, Calif.
Filed July 26, 1968, Ser. No. 747,956
Int. Cl. A43d 5/00
U.S. Cl. 12-120.5 4 Claims



A boot and shoe tree having a platform for rigidly receiving the bottom of a boot or shoe in a flat position, means for adjusting the length of the tree to the length of the boot or shoe, means for attaching the boot or shoe to the platform; the tree being curved upwardly toward the boot or shoe at the forward and rearward ends thereof so as to enable the boot or shoe to be worn and readily walked in while attached to the tree.

3,590,411
STIFFENING PROCESSES
John C. Zemlin, Reading, Pa., assignor to USM Corporation, Boston, Mass.
Filed Dec. 26, 1968, Ser. No. 787,175
Int. Cl. A43d 00/00
U.S. Cl. 12-146 D 9 Claims

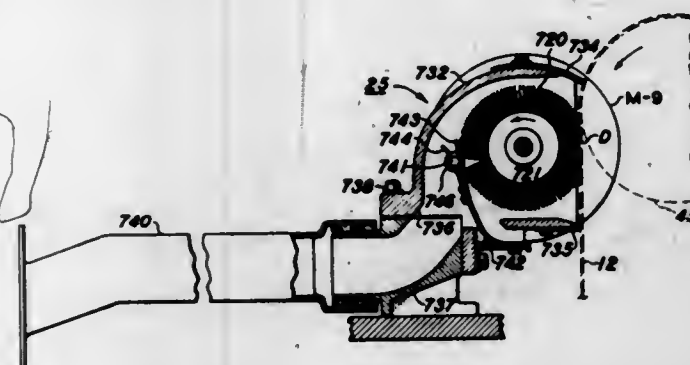


Stiffening process for sheet material particularly for parts of shoe uppers. In the stiffening process, liquid reagents are mixed and formed into a pliable plastic stiffener layer at an intermediate stage of cure. With the stiffener layer disposed against the material to be stiffened, the assembly is shaped and heated to soften the plastic and establish adhesion between the plastic stiffener layer and the sheet material and the plastic is thereafter cured to heat resistant, shape-retaining condition.

3,590,412
BRUSH CLEANING DEVICE FOR ELECTROSTATIC MACHINES
Dennis Paul Gerbasl, West Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed May 24, 1968, Ser. No. 732,002
Int. Cl. A47l 13/40
U.S. Cl. 15-1.5 1 Claim

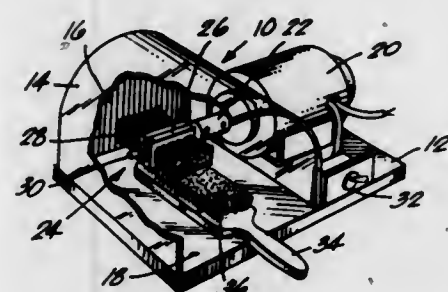
A brush cleaning device for use with the developing system of an electrostatic reproduction machine includes a rotating flicker bar in the path of movement of the tips of the bristles

of a cleaning brush. As the bristle tips engage and slide over the bar, toner particles on the bristle tips are flicked-off and



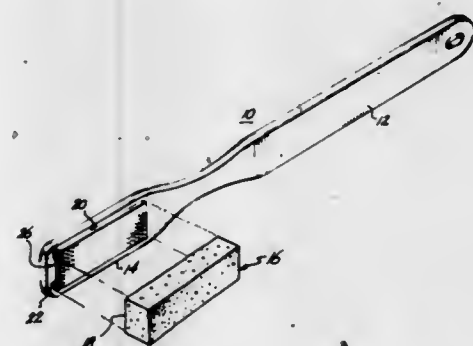
are extracted from the vicinity of the brush by a vacuum system.

3,590,413
HAIR BRUSH CLEANER
Joseph P. Coulson, Jr., 18233 Sherman Way, Reseda, Calif.
Filed Jan. 27, 1969, Ser. No. 794,080
Int. Cl. A46b 17/06, 1/00, 13/02
U.S. Cl. 15-38 2 Claims



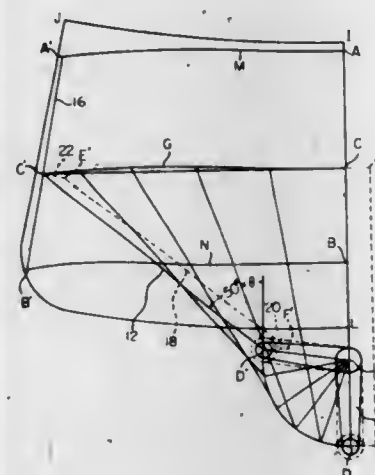
A hair brush cleaner device having an irregular rectangular mounting block detachably affixed to a rotary shaft with rows of embedded bristles of such length and stiffness to break and remove hair from a hair entangled brush without entangling the embedded bristles and wherein the embedded bristles deteriorate before those of the hair entangled brush.

3,590,414
ORAL APPLICATOR
Kenneth W. Gores, Bellevue, Wash., assignor to Kirkman Laboratories, Inc., Portland, Oreg.
Filed Jan. 21, 1969, Ser. No. 792,375
Int. Cl. A47k 7/02
U.S. Cl. 15-244 1 Claim



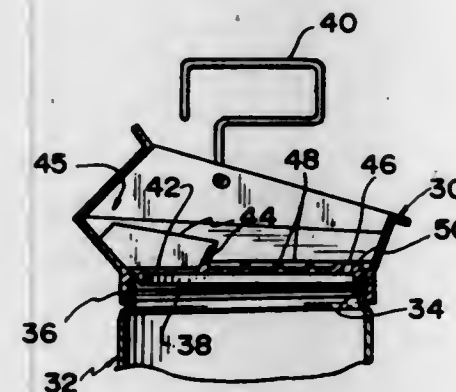
Apparatus for the oral application of medicinal compositions, fluorine compounds, dentifrice and the like includes a handle to which a spongy block of porous material is removably, but tenaciously, secured by a plurality of small, hooklike members carried by said handle and interengageable with and into reticulations on a surface of said block. The applicator is particularly useful in applying fluorides in viscous gellike form to the teeth.

3,590,415
AUTOMOTIVE WINDSHIELD WIPER
Yotchi Mori, Yokohama, Japan, assignor to Nissan Motor Company Limited, Kangawa-Ku, Yokohama, Japan
Filed Dec. 30, 1969, Ser. No. 889,183
Claims priority, application Japan, Jan. 9, 1969, 44-1467
Int. Cl. A47l 1/00; B60s 1/02
U.S. Cl. 15-250.21 6 Claims



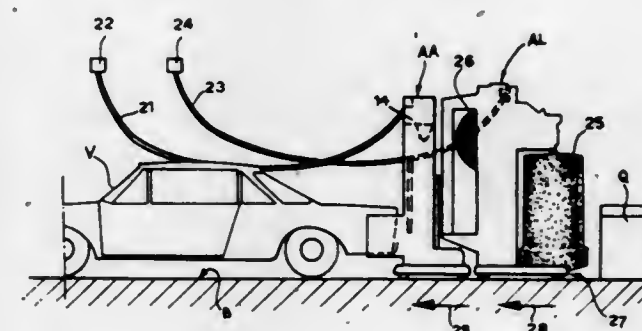
An automotive windshield wiper oscillating along a substantially straight horizontal trochoidal curve. The wiper blade sweeps practically the total area of one-half of the windshield. The trochoidal curve is drawn by a crank arm oscillating about a fixed point and a wiper arm mounted pivotally on the periphery of the crank arm, oscillating in a direction opposite to the oscillation of the crank arm. A quadric chain mechanism is formed by the wiper arm and hinged connected links to hold the wiper blade in a position substantially perpendicular to the horizontal line.

3,590,416
PAINT TRAY AND PAIL COMBINATION
Erik Henningsen, Milwaukee, Wis., assignor to EZ Painter Corporation
Continuation-in-part of application Ser. No. 616,892, Feb. 17, 1967, now abandoned. This application Nov. 14, 1968, Ser. No. 775,817
Int. Cl. B44d 3/12
U.S. Cl. 15-257.06 15 Claims



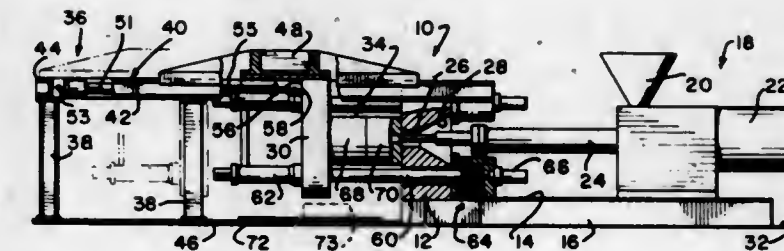
A paint tray for use in loading paint rollers and painting pads which can be or is assembled with a pain pail to receive a proper amount of paint directly therefrom. The tray has a sealing system on the bottom for removably sealing it to the pail and also has a valveless inlet properly disposed for permitting flow of the paint from the pail directly into the tray upon tipping the tray and pail assembly, and the tray also includes an end hood portion for containing the paint during tipping. The inlet can also function as an overflow return for returning paint to the can.

3,590,417
WASHING AND DRYING PLANT FOR MOTOR VEHICLES
Giovanni Emanuel, Turin, Italy, assignor to Societa Per Azioni Emanuel, Turin, Italy
Filed Oct. 20, 1969, Ser. No. 867,813
Claims priority, application Italy, Oct. 29, 1968, 53668 A/68
Int. Cl. B60s 3/06
U.S. Cl. 15-302 10 Claims



An automatic washing and drying plant for vehicle bodies has separate washing and drying units movable along a common guide track spanning the vehicle-receiving area, the movements and operation of the units being controlled in a predetermined sequence to effect washing and drying of a vehicle without the latter having to be moved.

3,590,418
MOLDING MACHINE
Helmut G. Hoeschel, Newark, Del., assignor to Improved Machinery Inc., Nashua, N.H.
Filed Oct. 21, 1968, Ser. No. 769,222
Int. Cl. B29f 1/00
U.S. Cl. 18-30 LA 7 Claims



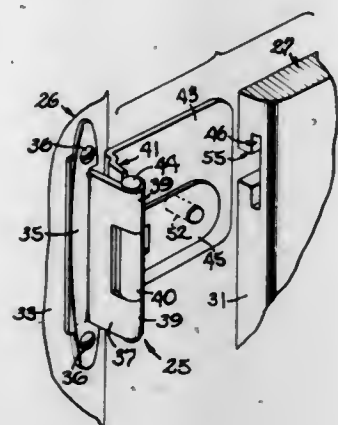
An injection molding machine comprising a first platen mounted upon a base, a second platen suspended from a supporting frame by shoe means, and cylinder-and-piston means connected to the supporting frame and to the second platen for driving the second platen and shoe means relative to the first platen.

A plurality of tie rods mounted to one of the platens longitudinally project therefrom towards the other platen; and the latter is provided with clamping means which apply the clamping force through the tie rods.

3,590,419
QUICKLY ATTACHABLE AND DETACHABLE HINGE ASSEMBLY
Carl J. Dargene, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed June 6, 1968, Ser. No. 735,127
Int. Cl. E05d 5/06
U.S. Cl. 16-135 29 Claims

A quickly attachable and detachable hinge assembly for hanging a swinging door on a cabinet includes a retainer insertable into a slot in the edge of the door and adapted to be clamped to the door by a bolt extending through an opening in the face of the door and threaded into the retainer. By loosening the bolt slightly, the retainer may be unclamped

from the door to permit removal of the latter from the hinge assembly and the cabinet. Another version of the hinge as-



sembly is quickly and easily attachable to the cabinet as well as the door.

3,590,420

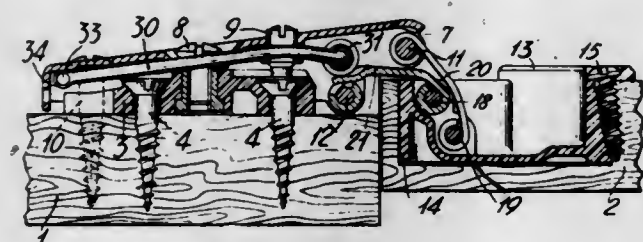
SELF-LATCHING HINGE

Luciano Salice, Cantu, Italy, assignor to Arturo Salice S.p.A., Cantu, Italy

Filed Nov. 20, 1967, Ser. No. 684,294
Claims priority, application Italy, Nov. 21, 1966, Oct. 6, 1967, 30192A/66; 21332A/67
Int. Cl. E05d 3/06

U.S. Cl. 16-164

21 Claims



A device for a concealed twin-linked hinge suitable to automatically block a door, flap door or horizontally bowed door at its closed position, wherein the device is comprising a resilient member, secured to a stationary part of the hinge, and one or two cams acted upon by said member and pertaining to one of the movable elements of the hinge, particularly to the innermost of the two links forming one of the oscillating rods for the twin-linked hinge system.

3,590,421

MACHINE AND METHOD FOR CLEANING AND CUTTING OPEN GIZZARDS OF SLAUGHTERED BIRDS

Peter Loth, and Kjeld Loth, both of Skovsgaard, Denmark, assignors to Gordon Johnson-Stephens Limited, Gloucester, England

Filed Oct. 17, 1968, Ser. No. 768,291

Claims priority, application Denmark, Nov. 9, 1967, 5597/67

Int. Cl. A22c 17/14, 21/06

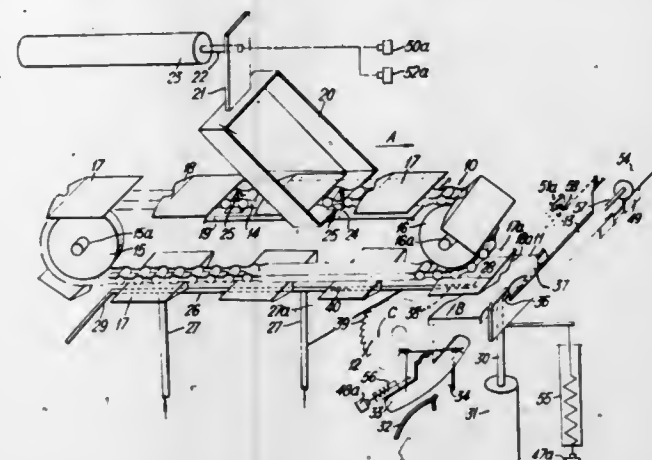
U.S. Cl. 17-11 R

8 Claims

A machine for cleaning and cutting open the gizzards of slaughtered birds by first cleaning the gizzards by flushing them with a fluid under pressure, and then cutting them open.

A means for both supplying the fluid under pressure and for guiding the gizzards in a hollow feed pipe which skewers the gizzards. A feed conveyor for presenting them to the

skewer has a conformation so that the orientation of the gizzards is correct. The feed pipe has a second set of outlets for



the fluid so that the gizzards can be rinsed after cutting but while still guided by the feed pipe.

3,590,422

METHOD AND APPARATUS FOR PROVIDING CONSTANT INFLATION AIR

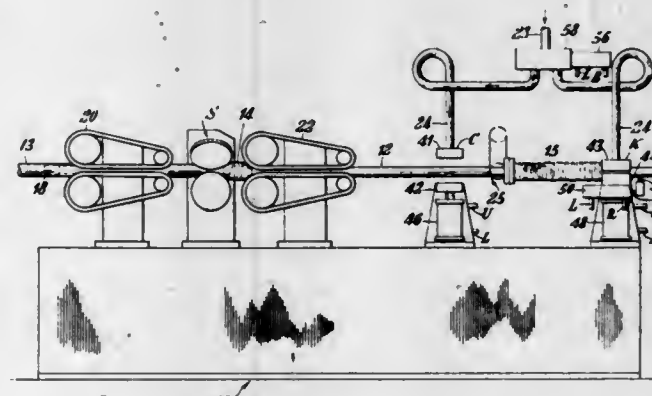
Edward Andrew Matecki, Evergreen Park, and Verner Edwin Pearson, Oak Lawn, both of Ill., assignors to Union Carbide Corporation, New York, N.Y.

Filed Feb. 7, 1969, Ser. No. 797,419

Int. Cl. A22c 11/02

U.S. Cl. 17-42

4 Claims



The shirring mandrel of a shirring apparatus is provided with ports and is adapted to house within its bore a reciprocating valve assembly which serves to alternately open and close the mandrel ports thereby permitting inflation air to be constantly supplied to and through the mandrel ports to and through the mandrel bore without interruption.

3,590,423

CLEANING APPARATUS FOR FISH

Thomas V. Messer, 747 Olympic Ave., Edmonds, Wash.

Filed Jan. 2, 1970, Ser. No. 350

Int. Cl. A22c 25/06

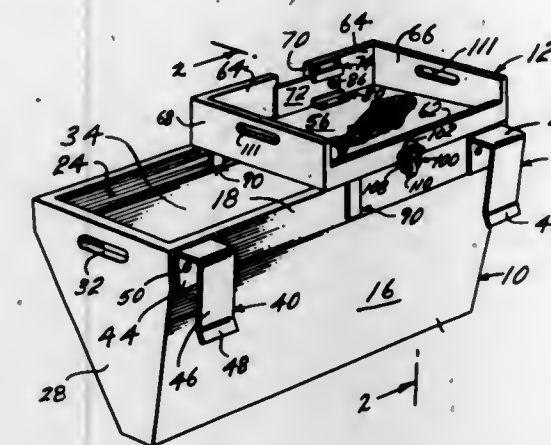
U.S. Cl. 17-53

9 Claims

My invention is directed to a cleaning apparatus for fish and which apparatus may be attached to the gunwale of a small fishing boat. The apparatus comprises a rack having a wide, open top and a small or narrow, open bottom. It is possible to clean the fish so as to allow the waste products to fall through the narrow, open bottom. However, the narrow, open bottom prevents the fish from falling through and out of the rack.

In addition, there may be placed a tray on top of the rack. The tray provides a working platform for cleaning small fish. The waste products of the small fish may be pushed outside of the tray so as to fall into the water. Further, the tray provides a working platform for cutting up fish and other materials to use as bait while fishing.

When the rack and tray are no longer needed in the fishing trip, the tray may be removed from the rack and washed in a blending action therewith and then directing the reaction-



the water. Then the rack may be removed from the gunwale of the boat and washed in the water. Then, the rack and tray may be stored until needed on the next fishing trip.

3,590,424

FISH SCALING DEVICE

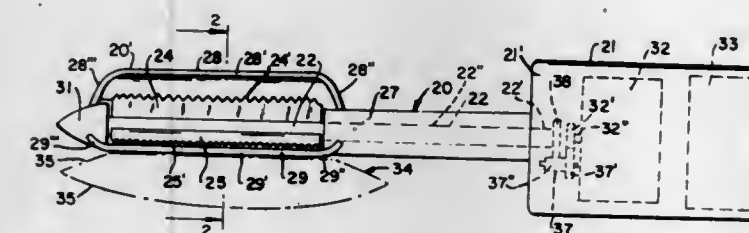
Ralph T. Shults, Hettinger, N. Dak.

Filed July 19, 1968, Ser. No. 746,022

Int. Cl. A22c 25/02

U.S. Cl. 17-67

2 Claims



The invention comprises a fish scaler which is power operated and includes a handle, a shaft rotatably mounted to one end of the handle, a sleeve fixed to said one end of said handle and covering an inner portion of the shaft, three elongated blades fixed to the outer end of said shaft beyond said sleeve, three elongated rods spaced equidistantly and radially about said shaft and having their inner ends extending toward and mounted to said sleeve and having their central portion extending across the blades and spaced radially beyond the outer edges of said blades, a nose cone rotatably mounted to the outer end of said shaft, said rods having their outer ends fixed to said nose cone whereby said nose cone remains fixed relative to the rotation of said shaft.

3,590,425

APPARATUS FOR PROCESSING A FLUID COMPOUND FOR PRODUCING FOAM MATERIAL FOR THE MANUFACTURE OF PRODUCTS HAVING A CELLULAR STRUCTURE

Abraham Buddy Lieberman, 4755 Boulevard des Grandes Prairies, St. Leonard, (Montreal 457) Quebec, Canada

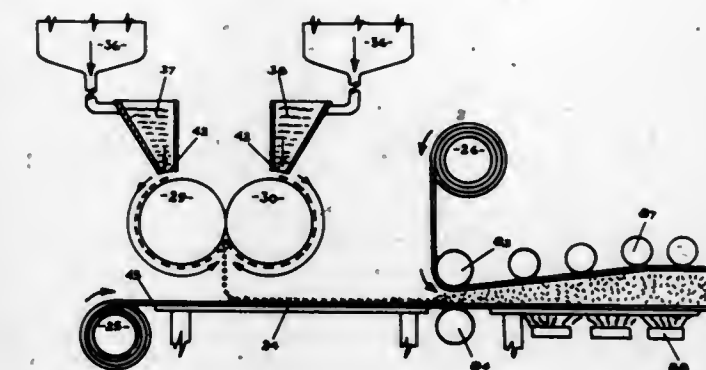
Filed Mar. 24, 1969, Ser. No. 809,601

Int. Cl. B29c 27/00

U.S. Cl. 18-4

8 Claims

The herein described method and apparatus of processing a fluid compound from two or more chemical charges for producing foam material, such as polyurethane foam, for the manufacture of products having a cellular structure, which briefly consists in the metering of these chemical charges, two contrarotating film-carrying rolls are in intimate contact with one another, each roll being in contact with one of the two chemical charges, which are located in their respective receptacles, picks up or is applied with films of the metered chemical charge from its receptacle and forces it into intimate contact with the films of the metered chemical charge



ing foam mixture onto the surface of a moving paperboard or other casting surface.

3,590,426

APPARATUS FOR FORMING PLASTIC ARTICLES

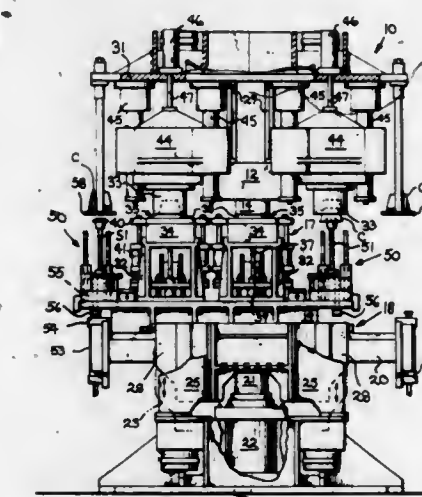
Casimir W. Nowicki, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Filed July 26, 1967, Ser. No. 656,116

Int. Cl. B29d 23/03

U.S. Cl. 18-5 BM

3 Claims



Apparatus is provided for injection molding, at one station, a substantially flat, disc-shaped parison while simultaneously blow molding, at a second station, a cup-shaped container from a previously formed parison. The apparatus has common clamping means for closing the injection mold and the blow molds with the clamping means arranged to provide maximum clamping force at the injection mold and only minimal forces at the blow molds.

3,590,427

MACHINE FOR FORMING CAPSULES

Maharaj Krishen Mehta, Cardiff, Wales, assignor to P. Lelner & Sons (Encapsulations) Limited, Treforest, Glamorganshire, Wales

Filed Aug. 26, 1968, Ser. No. 755,420

Claims priority, application Great Britain, Sept. 22, 1967, 43,312/67

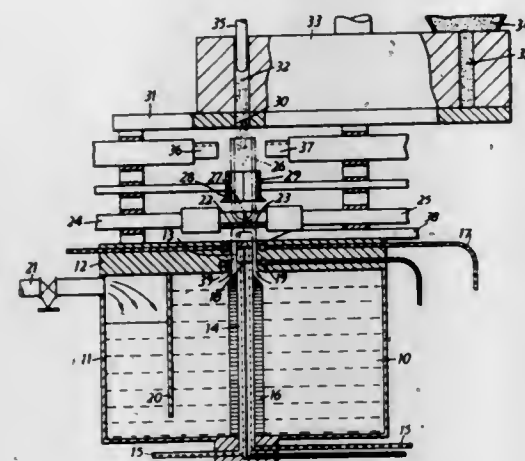
Int. Cl. B29d 23/04

U.S. Cl. 18-5 R

10 Claims

A method of and apparatus for forming filled gelatine capsules by extruding a tube, sealing together the walls of the

tube to form one end of the capsule, filling the capsule through the open end of the tube, sealing off the open end



and detaching the capsule from the tube before repeating the process to form a further capsule.

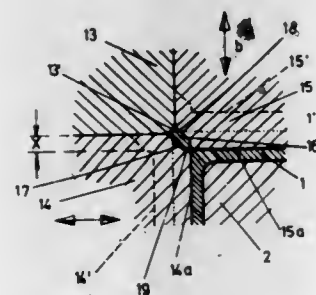
3,590,428 METHOD AND APPARATUS FOR MOLDING CONTAINERS

Edmund Munk; Herbert Haas, and Gerd Weinberg, all of Oberstenfeld, Germany, assignors to Furnier-und Sperrholwerk, J. F. Werz Jr. R. G., Oberstenfeld, Wurttemberg, Germany

Filed Nov. 12, 1968, Ser. No. 774,747
Int. Cl. B29g 7/00

U.S. Cl. 18-5

13 Claims



The molding of an angular container with an open top and with sidewalls which are outwardly inclined or provided with an outwardly projecting rim on their free edges in an upside-down position on a stationary mold core by means of horizontally movable dies and a vertically movable bottom-forming die of a mixture of a comminuted fibrous material and a hot-setting binder, wherein the dies are made of a shape so that in their compressing position the front ends of their adjacent sides overlap each other, whereby the dies not only mold the container itself but also compress and cure the mixture which has been filled into the area between each edge of the core and two adjacent retracted dies so as to form thin solid strips which extend along and project outwardly from edges of the molded container and which are to be broken off after the dies have been retracted and the container has been lifted out of the mold.

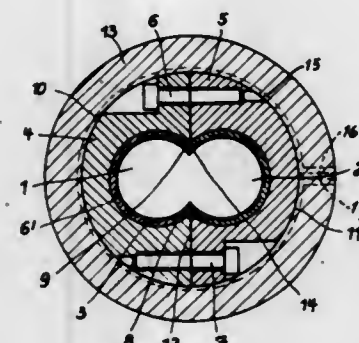
3,590,429 CASINGS FOR DOUBLE CONVEYOR WORMS FOR EXTRUDERS OF SYNTHETIC MATERIALS

Wilhelm Bammert, Homberg, and Walter Wimmers, Krefeld, both of, Germany, assignors to Schloemann Aktien-gesellschaft, Dusseldorf, Germany

Filed Nov. 19, 1968, Ser. No. 776,899
Claims priority, application Germany, Dec. 1, 1967,
P 17 29 345.7
Int. Cl. B29f 3/08

U.S. Cl. 18-12

6 Claims



The wear-resisting lining may consist of an alloy having a basis of boron with additions of nickel and silicon, or a basis of nickel and cobalt.

3,590,430 SCREW EXTRUDER

Hartmut Upmeyer, Tecklenburg, Germany, assignor to Windmoller & Holscher, Westphalia, Germany

Filed Nov. 25, 1968, Ser. No. 778,476
Claims priority, application Germany, Nov. 29, 1967,
P 17 29 394.6
Int. Cl. B29f 3/02

U.S. Cl. 18-12

4 Claims



A screw extruder for processing thermoplastic compositions comprising a feed screw having a homogenizing zone, which succeeds the melt zone. The feed screw comprises at least one additional land, which is substantially restricted to the homogenizing zone and has the same lead as the main feed land or lands of the screw. A homogenizing land having a larger lead than the feed lands branches from each feed land at the beginning of the homogenizing zone and joins the next following feed land in the longitudinal direction of the screw at the rear end of the homogenizing zone. The clearance between the homogenizing lands and the extruder cylinder is somewhat larger than the clearance between the feed lands and the extruder cylinder.

3,590,431 MACHINE FOR EXTRUDING POLYETHYLENE ON WOOD

Harold Miller, 3235 Emons Ave., Brooklyn, N.Y.; Jack Miller, 2055 Center Ave., Fort Lee, N.J., and Michael Miller, 2055 Center Ave., Fort Lee, N.J.

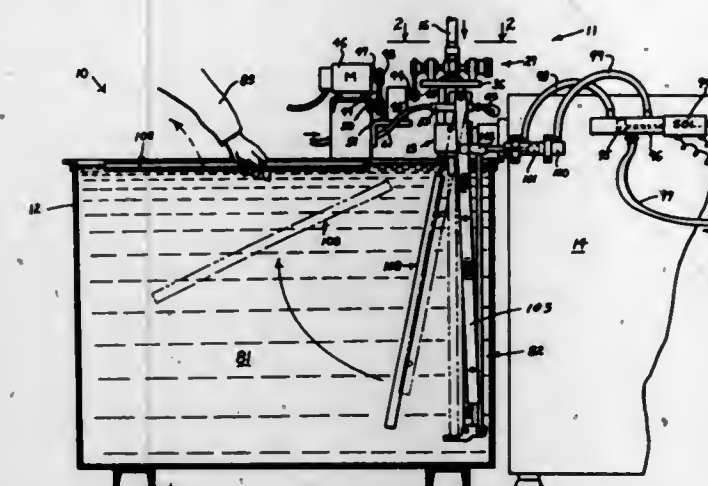
Filed Jan. 21, 1969, Ser. No. 792,285
Int. Cl. B29f 3/10

U.S. Cl. 18-13

8 Claims

A machine and process for extruding polyethylene directly around a wooden core such as a broom handle that is moved vertically downward through a plastic extruding die placed close above a water surface of a tank containing cold water to cause a shrinking of the extruded plastic for a tight fit

upon the wooden handle as the coated handle descends into the water. Provision is made to keep the wood handle cool conjointly and uniformly relative to each other to maintain the tire beads and the tire carcass in centered relation with



during the coating operation and any moisture therein that would effect blistering of the coating.

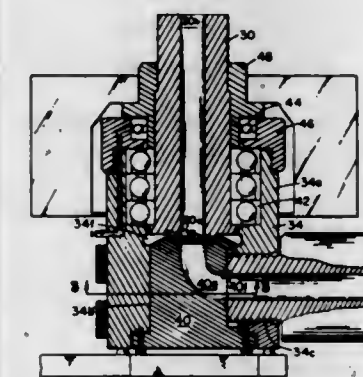
3,590,432 ROTARY ASSEMBLY FOR MOLTEN PLASTIC

Charles M. Schott, Jr., Gloucester, Mass., assignor to Gloucester Engineering Co., Inc., Gloucester, Mass.

Filed Dec. 19, 1968, Ser. No. 785,118
Int. Cl. B29d 23/04

U.S. Cl. 18-14

13 Claims



Rotary apparatus for molten plastic having sealed transition between stationary and rotary sections. A removable insert forming the stationary conduit supports the seal or transition member, the extruder adapter directly engages and seals against the insert member, and this member also is loosely fitted in its housing and held against an alignment surface by the adapter; the transition member provides a smooth bore transition from the stationary to rotary conduit surfaces; a sintered spherical bronze base filled with a mixture of fluorocarbon plastic and lead provides a sealing surface at the point of relative movement; spaced-apart stationary and rotary sections are sealed by low friction plastic sealing members or sealing members of hard material, and in the latter case the rotary and stationary members are preloaded toward each other, advantageously using conical springs urged against the bearing assembly.

3,590,433 TIRE MOLDING MACHINE

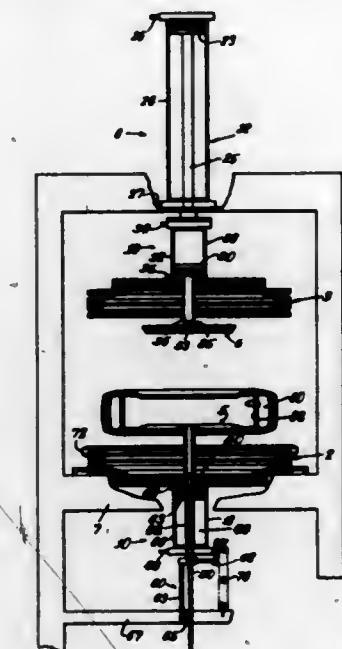
Vaughn Rawls, Lima, Ohio, assignor to National-Standard Company, Niles, Mich.

Filed Feb. 1, 1968, Ser. No. 702,224
Int. Cl. B29h 5/04

U.S. Cl. 18-18

10 Claims

Tire molding machine embodying relatively movable tire vulcanizing molds formed with desired tire tread matrices for receiving therebetween a tire carcass having tread material applied thereto, including opposed tire bead guides movable



respect to the molds and thus provide an accurately centered tread for the tire.

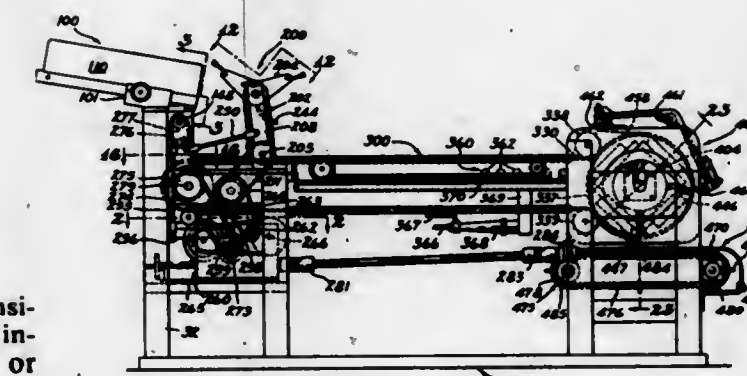
3,590,434 PACKAGE FORMING MACHINE

Ridley Watts, Jr., Cleveland, and John F. Berry, Bedford, both of, Ohio, assignors to The American Packaging Corporation

Filed Jan. 13, 1966, Ser. No. 520,485
Int. Cl. B29c 17/00

U.S. Cl. 18-19

24 Claims



Pockets are formed in cards with plastic windows by feeding the cards from a magazine to a conveyor, heating the plastic window while the card is conveyed, transferring the cards to forming dies on a rotatable drum and vacuum forming the pocket. The cards are fed to the conveyor by vacuum cups oscillated toward and away from the card magazine and rotated toward the conveyor. Cards are then supported by rails and moved in timed relationship with the rotatable drum and are transferred to the forming dies. Rotation of the drum sequentially controls vacuum forming of the pockets and ejection of the finished cards.

3,590,435 ROTARY MOLDING

Philip N. Dunham, Biddeford, and Ansel W. Dunham, Saco, both of, Maine, assignors to Phillips Maine Corporation, Biddeford, Maine

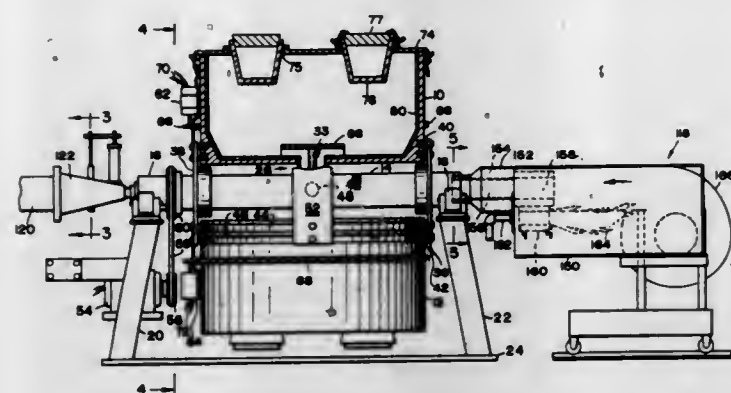
Filed June 24, 1968, Ser. No. 739,396
Int. Cl. B29c 5/04

U.S. Cl. 18-26

10 Claims

Drums are mounted for simultaneous rotation about a first axis and independently about a perpendicular second axis and are adapted to contain molds each having a charge of

thermosetting plastic. The drums are mounted on a common shaft through which a heating and cooling medium is separately delivered with one drum being heated while the other drum is being cooled in alternating sequence. A valving arrangement automatically shifts the mediums from one



drum to another in automatic controlled sequence whereby one drum is heated while the other is being cooled. The drums are rotated about the common first axis at the same speed while driven about the perpendicular second axis by separate driving means whereby they may be rotated at different speeds about the second axis.

ERRATUM

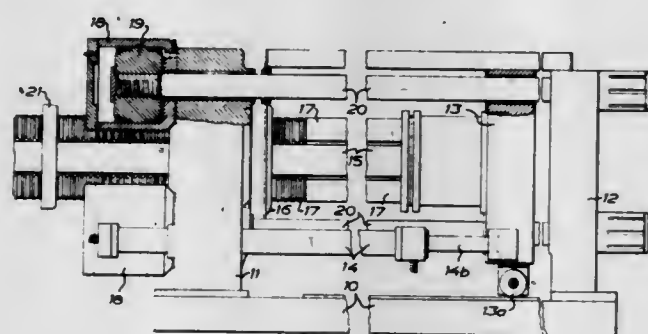
For Class 18-30 see:
Patent No. 3,590,418

3,590,436

ARRANGEMENT IN AN APPARATUS HAVING A STATIONARY AND A MOVABLE PRESS PLATEN, PARTICULARLY AN INJECTION MOLDING MACHINE
Karl Gustav Bertil Akesson, Halsingborg, and Nils Gunnar Norsson, Hittarp, both of, Sweden, assignors to Broderna Akessons Maskinfabrik AB, Halsingborg, Sweden
Filed Jan. 15, 1968, Ser. No. 697,912
Claims priority, application Sweden, Jan. 19, 1967, 788/67
Int. Cl. B29f 1/00; B30b 1/34

U.S. Cl. 18-30

2 Claims



In an apparatus having a stationary and a movable press platen, a movably arranged backing member is penetrated by an element which is movable together with the movable platen and which can be clamped to the backing member for exerting pressure on the movable platen via the backing member.

3,590,437

INJECTION MOLDING PRESSES

Rupert E. Annis, Jr., Salem; Adolph S. Dorosz, Beverly; Richard M. Elliott, Beverly, and Frederick S. Sillars, Beverly, all of, Mass., assignors to USM Corporation, Boston, Mass.

Filed Aug. 8, 1968, Ser. No. 751,147

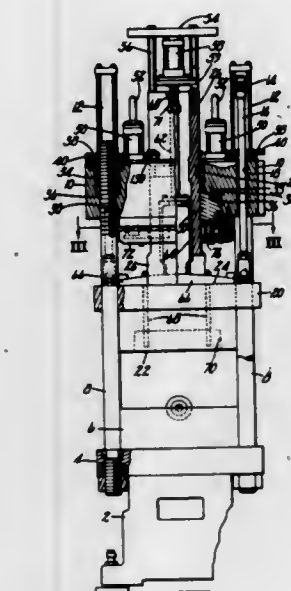
Int. Cl. B29f 1/00; B29c 3/00; B30b 1/18

U.S. Cl. 18-30 LA

7 Claims

An injection molding press including stationary means for mounting a portion of a mold assembly, movable means for

mounting the remainder of the mold assembly for movement toward and away from the stationary mold mounting means, means for moving the movable means whereby to bring the



mold assembly portions into engagement or near engagement with one another, and a second moving means for urging the mold members together under high force.

3,590,438

INLET AND NOZZLE APPARATUS FOR A MOLD

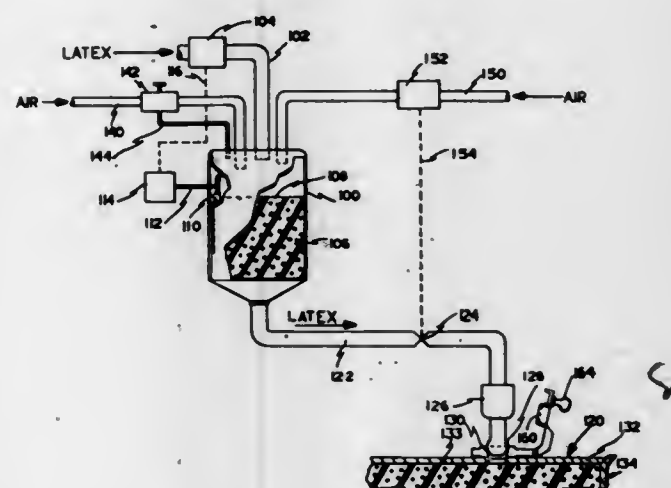
Gerald R. Ritter, South Bend, and Gilbert C. Zion, Mishawaka, both of, Ind., assignors to Unroyal, Inc., New York, N.Y.

Filed Mar. 18, 1969, Ser. No. 808,278

Int. Cl. B29b 5/04

U.S. Cl. 18-30

2 Claims



Low density foam objects are made from a material so highly frothed that it is difficult to pour into a mold. It is therefore delivered to the mold under pressure by means of system having a holding tank with appropriate foam inlet and outlet means, a mechanism for maintaining constant pressure in the tank, a mechanism for preventing overfilling of the tank, and a control which allows air to enter the tank to replace the foam material displaced during filling of the mold. The foam delivery hose has a special nozzle which rapidly couples to and decouples from the mold filling port. The mold has special provision for preventing leakage of foam between the mold cavity and its top plate.

3,590,439

SHUTOFF DEVICE FOR AN INJECTION MOLDING MACHINE

Eskil P. Swanson, Potter Road, North Kingstown, R.I.

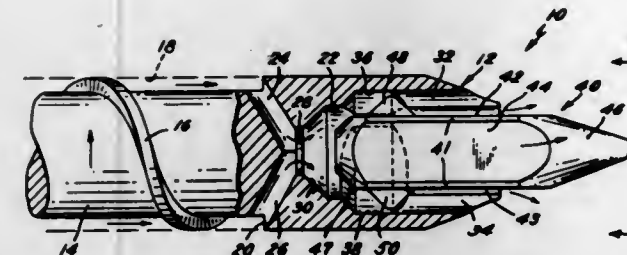
Filed Apr. 28, 1969, Ser. No. 819,915

Int. Cl. B29f 5/04

U.S. Cl. 18-30 AC

9 Claims

U.S. Cl. 24-11



A shutoff device for use with a rotating feed screw of an injection molding machine including a head portion in which a chamber is formed for directing a plastic material to a mold or die, a pin being located within the chamber, and the pin and head portion having relative movement so that upon rotation of the feed screw during the feeding operation, the feed screw has open communication with the mold or die, but during the injecting operation, the feed screw is sealed against backflow of material from the mold or die.

3,590,440

CLAMP MECHANISM FOR A PLASTICS INJECTION-MOLDING MACHINE

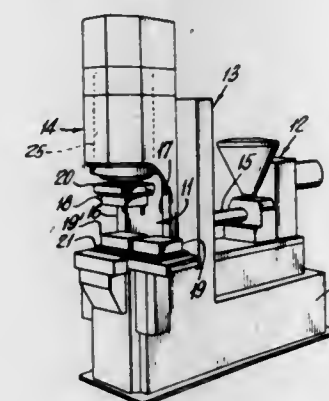
Francis W. Cook, Jr., Newington, Conn., assignor to The New Britain Machine Company, New Britain, Conn.

Filed May 22, 1969, Ser. No. 826,910

Int. Cl. B29f 1/00

U.S. Cl. 18-30

6 Claims



The invention contemplates vertical-action hydraulic mold-positioning and clamp mechanism carried above the region of mold-filling, in a plastics injection-molding machine having provision for selective horizontal discharge of plasticized melt. The nature of the mold-clamp mechanism is such that it will self-adapt to bending deflections of frame parts, in the presence of high clamp-force pressures. In the hydraulic mechanism disclosed, major displacements are achieved by a relatively low-pressure system, whereas clamp forces are generated by a relatively high-pressure system. For safety, the high-pressure operation involves a minimum of displaced fluid, and means are provided to automatically vent the high-pressure system in the event of such downward positioning of parts as is indicative of failure to install a complete mold.

3,590,441

EMBLEM ATTACHMENT DEVICE FOR POCKET CLIPS

Myron B. Goldberg, Aurora, Colo., assignor to Meler & Frank Merchandise Co., Inc., Denver, Colo.

Filed Jan. 22, 1970, Ser. No. 5,036

Int. Cl. B43k 25/00; G09f 3/04

5 Claims



An emblem attachment device for use on pocket clips of pens, pencils, and other penlike articles, is an elongated body attached to a pen clip, having upstanding sides and an elongated slot therein, by means of a rib on the inner surface of the body with undercut edges forming lips engaging in the clip slot. The outer face of the attachment body carries appropriate indicia, symbols, initials and the like.

3,590,442

BUNDLING STRAP

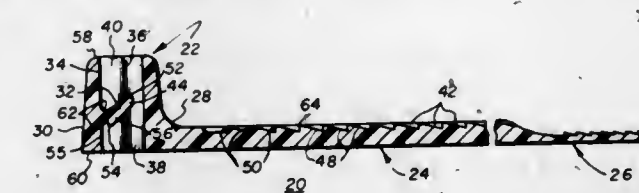
George H. Geisinger, Mountainside, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Jan. 7, 1970, Ser. No. 1,143

Int. Cl. B65d 63/00

U.S. Cl. 24-16 PB

13 Claims



A bundling strap for looping about articles, comprised of an elongated, flexible, serrated body integral with and extending from an apertured head and terminating in a tail extension. One end of a dual-ended, obliquely angled, unidirectional locking means is hingedly coupled within a first transverse aperture in the head and is integral therewith, being adapted to lockingly engage the serrations on the elongated body inserted within a second transverse aperture in the head proportioned to conveniently receive the body therein, said locking means thereby preventing the attempted withdrawal of the body from the apertured head.

3,590,443

HAND-RELEASEABLE SAFETY COUPLING FOR ANNULATED MEMBERS

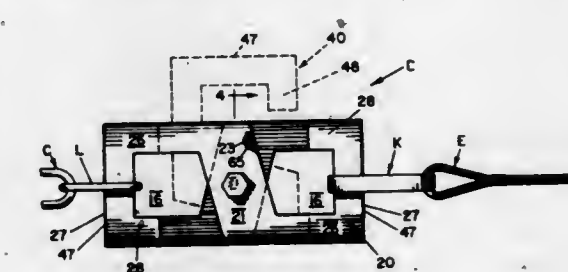
Erwin H. Kubsch, 2111 Brookside Ave., Omaha, Nebr.

Filed Apr. 23, 1970, Ser. No. 31,157

Int. Cl. A44b 21/00

U.S. Cl. 24-73 HH

8 Claims



There is provided a secure coupling between annulated members such as a multilink flexible chain, a rope carrying

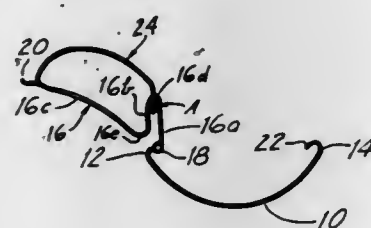
circular rings, etc. The coupling provides a secure connection between the annulated members whether such members to be taut or slack under use conditions; however, the coupling can be released manually, without the use of ancillary tools, to effect relative detachment between the annulated members. The safety coupling comprises a pair of nestably broadly abutable generally S-shaped mirror-imaged plates, a medial portion of the respective plates being pivotally attached to provide relative rotation about a common transverse-axis, there being moderate tension means tending to resiliently urge one plate toward the other plate and maintaining the interplates nestable abutment.

3,590,444
CLASPS

Abraham Goodman, Essex Fells, N.J., assignor to H. Goodman & Sons, Inc., Kearney, N.J.
Filed Jan. 7, 1970, Ser. No. 1,181
Int. Cl. A45d 8/24

U.S. Cl. 24-248

5 Claims



A clasp adapted to be employed as a ponytail holder having a pair of arcuate pivotally interconnected 18 sheet metal parts 10, 16 provided with locking means 20, 22, spring means 24 and a guard portion 16a, 16b to house the free end A of the spring.

3,590,445

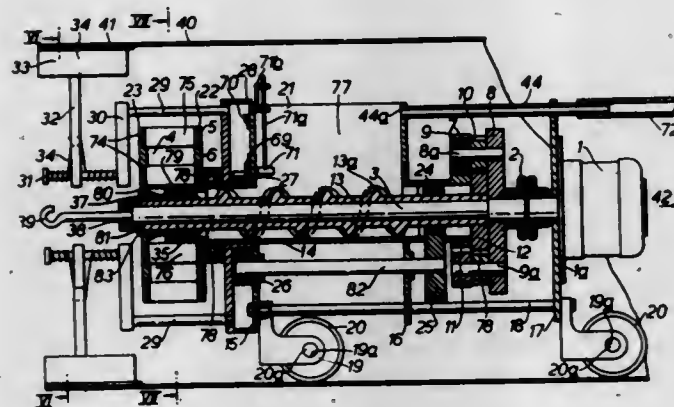
APPARATUS FOR APPLYING A MORTAR COATING AND TROWELING SAME ON THE INTERIOR WALLS OF PIPE LINES AND ENCLOSED CONDUITS

Walter Heinrich Braun, Seebachstrasse 65, 8036 Dresden, Germany

Filed July 15, 1969, Ser. No. 841,808
Int. Cl. B28b 21/92

U.S. Cl. 25-38

13 Claims



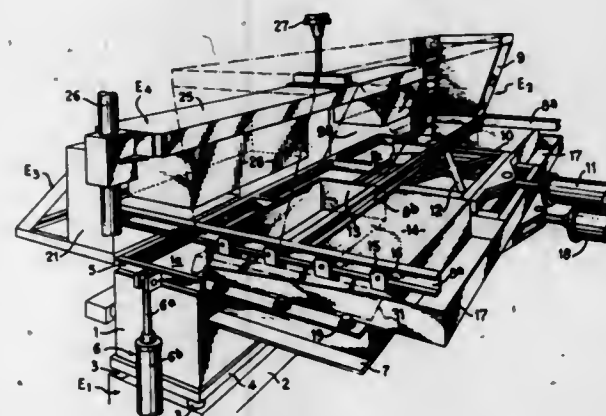
An apparatus for applying a mortar coating and troweling same on the entire circumferential wall, or on a part thereof, of enclosed pipes and conduits of varying shape and size. A single drive means conveys the mortar to the distributor head and rotates the distributor head as well as the subsequent troweling assembly. In a preferred embodiment a rotating troweling assembly is replaced by at least one troweling element dragged behind the apparatus moving through the pipe.

3,590,446
MACHINE FOR THE MASS-PRODUCTION OF MOULDED REINFORCED CONCRETE ELEMENTS
Roger Paul Sonnevill, 5 Rue Maurice Ravel, 92 Saint Cloud, France

Filed June 18, 1968, Ser. No. 737,918
Claims priority, application France, June 22, 1967, 111434
Int. Cl. B28b 23/02

U.S. Cl. 25-41 J

6 Claims



Method for moulding a concrete element having reinforcing means, comprising pouring in a mould a measured amount of concrete for producing the element, vibrating the concrete, introducing to the required depth at least a part of the reinforcing means, tamping the concrete. Support means for the reinforcing means are engaged with the latter during the vibration and tamping and disengaged from the reinforcing means a few seconds before the end of the vibration and tamping.

3,590,447

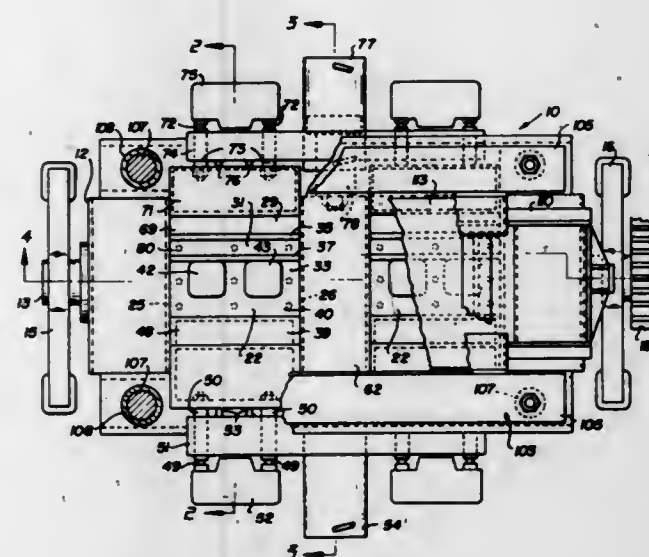
APPARATUS FOR MAKING FACED CONCRETE BLOCKS

Ernest J. Taylor-Smith, 2905 West 37th Avenue, Vancouver, British Columbia, Canada
Division of Ser. No. 608,459, Jan. 10, 1967, Pat. No. 3,497,580, which is a continuation of Ser. No. 393,014, Aug. 31, 1964, abandoned.

Filed Sept. 17, 1969, Ser. No. 858,610
Int. Cl. B28b 7/08

U.S. Cl. 25-41 R

19 Claims

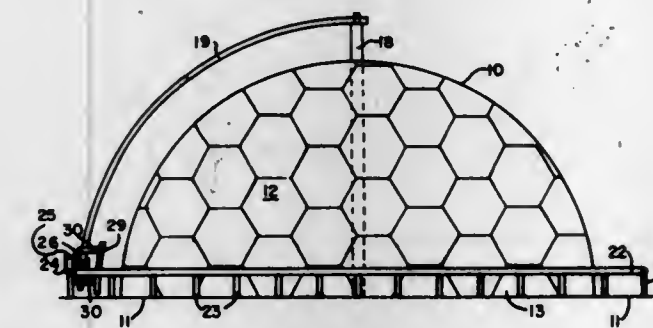


Apparatus for making a concrete block faced with rocklike material. Adjacent, initially opened top first and second compartments sharing a common wall receive rocklike material and a quantity of concrete, respectively. The apparatus is then rotated to position the rocklike material compartment below the concrete compartment. The common wall is then removed and the rocklike particles are moved toward and into the concrete.

3,590,448
CONSTRUCTION APPARATUS
Donald R. Bryant, 926 24th Ave. North, Texas City, Tex.
Filed Dec. 30, 1968, Ser. No. 787,661
Int. Cl. B28b 7/04

U.S. Cl. 25-118 R

10 Claims



An apparatus and method for the construction of circular structures of moldable materials. The apparatus comprises a first mold member having a shape and size substantially similar to one surface of said circular structure to be constructed, a second mold member spaced apart from said first mold member and substantially parallel to the surface thereof, the four edges of said second mold member intersecting at substantially right angles with one another, said second mold member having a horizontal length less than one-fourth the circumference of that portion of said first mold member adjacent said second mold member and having a vertical height less than one-fourth the vertical height of said first mold member as measured along the surface thereof, said second mold member being connected such as to permit vertical movement thereof to carrying means for horizontally moving said second mold member about the entire circumference of said first mold member while maintaining said second mold member at all times throughout such horizontal movement substantially equidistant from the surface of said first mold member.

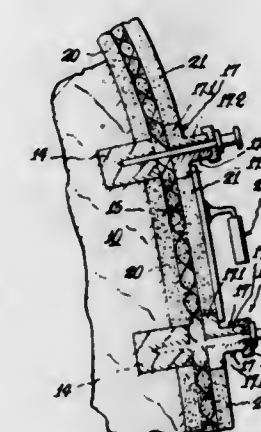
3,590,449

APPARATUS FOR FORMING THIN, REINFORCED SHELLS OF CEMENTITIOUS MATERIAL

Adam J. Whitley, III, 8040 S. W. 109th St., Miami, Fla.
Filed Oct. 1, 1969, Ser. No. 862,799
Int. Cl. B22d 19/02

U.S. Cl. 25-130 S

8 Claims



Apparatus for forming thin cementitious shells, such as boat hulls, having metal reinforcement mesh embedded therein. The invention utilizes a mold having a forming surface complementary to that of the shell to be formed and is provided with longitudinally extending, spaced-apart spacer members for supporting the reinforcement in spaced relation from the forming surface of the mold. Elongated guides are removably secured to respective spacer members, with the reinforcement interposed therebetween, and such guides provide a dual function of retaining the reinforcement in position on the mold while the reinforcement is embedded in a plastic cementitious material and also provide surfaces for guiding a smoothing and compacting device over the cemen-

tious material whereby complex, curved contours of the desired thickness can readily be formed by relatively unskilled workmen.

After the cementitious material has at least partially set, the guides are removed and the resulting grooves in the shell are filled with additional plastic cementitious material and the latter faired to the previously applied material. When the thus formed body has set up sufficiently to permit handling, it will be removed from the mold and the grooves resulting from the spacer members will be filled with cementitious material and the latter faired into the adjacent cementitious material.

3,590,450

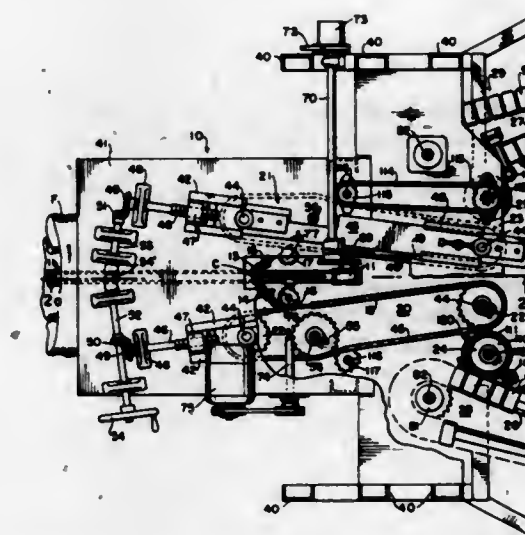
OPENING TENTER, FOR TUBULAR KNITTED FABRICS AND THE LIKE

David Pernick, Brooklyn, N.Y., assignor to Knitting Specialty Machinery Corp., Brooklyn, N.Y.

Filed Jan. 21, 1969, Ser. No. 792,656
Int. Cl. D06c 3/02; D06h 7/08

U.S. Cl. 26-51.3

16 Claims



The invention is directed in part to a tenter apparatus, particularly for the slitting and opening of tubular knitted fabrics, in which there is provided a divergent tenter section, for conveying slit edges of an initially tubular fabric to an open width condition and a second, integral tenter section for further conveying the fabric at a predetermined open width dimension during the processing stage. Importantly, the opening and processing stages of the tenter, at each side, are constituted by a single tenter chain, so that the fabric is uninterruptedly controlled by the tenter throughout the opening and processing sequence.

3,590,451

PROCESS FOR FABRICATING AN OFFENSIVE AND DEFENSIVE PROJECTILE HEAD, AND PROJECTILE HEAD PRODUCED ACCORDING TO THIS PROCESS

Louis Dessart, 27, rue de Charatte, Vivegnis Lez-Liege, Belgium

Filed Mar. 20, 1968, Ser. No. 714,586
Claims priority, application Belgium, Mar. 31, 1967, 696,464
Int. Cl. B21k 21/06

U.S. Cl. 29-1.21

3 Claims



Process for fabricating an offensive and defensive projectile head for antipersonnel use comprising a hollow metallic body and provided with reducing slits, consisting of stamping out a metallic blank of definite quality, thickness and form; of striking, impressing or marking, by pressing or rolling, one

or both faces of this blank with a set of impressions determining the reducing slits; and in swaging the said blank to give it the desired form.

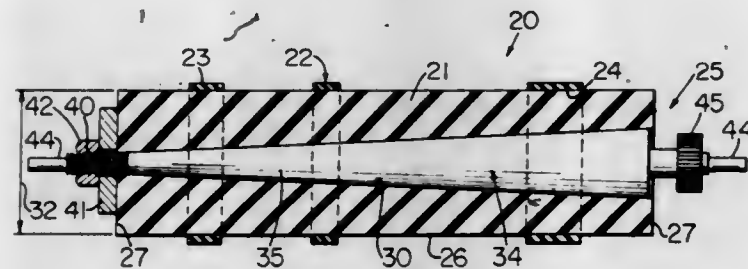
3,590,452

ROLLER APPLICATOR DEVICE

John A. Macleod, Edinburgh, Scotland, assignor to Dayco Corporation, Dayton, Ohio
Filed Jan. 9, 1969, Ser. No. 790,123
Int. Cl. B41g 1/04

U.S. Cl. 29-115

8 Claims



A roller applicator device wherein the device has readily changeable liquid-applying outer surface means.

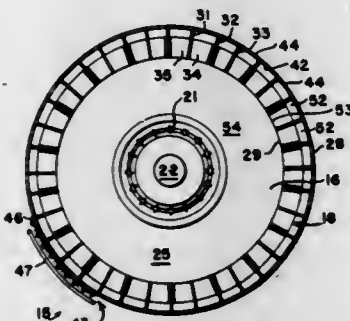
3,590,453

HONEYCOMB ROLL

Edward T. Bryant, South Portland, Maine, assignor to Metal-Tech, Inc., Biddeford, Maine
Filed June 19, 1968, Ser. No. 738,213
Int. Cl. D21f 3/10

U.S. Cl. 29-121

10 Claims



An improved cylindrical suction roll suitable for carrying a foraminous screen thereon for forming paper, said cylindrical roll being of the type formed by alternating straight and undulating strips attached to one another and running axially between end members, and the improvement comprising the projection of said straight strips radially beyond said undulating strips to form unitary, circumferentially spaced, continuous axial supports for outer meshed layers. The projecting straight strips are firmly anchored in the honeycomb openwork of the roll by notching the nodes of the undulating strips and applying fillet welds in the notches to create a countersink, or tapered edge, in the area of attachment.

3,590,454

TURBINE ASSEMBLY FABRICATION

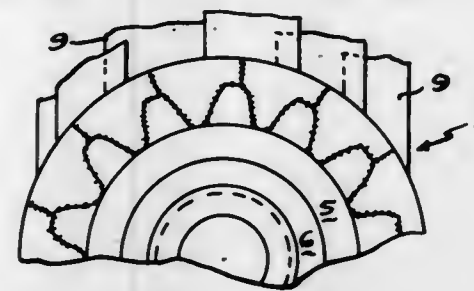
Edward A. Brass, Tustin, Calif., assignor to The United States of America as represented by the Secretary of the Air Force
Filed Mar. 3, 1969, Ser. No. 803,901
Int. Cl. B21k 3/04; B23p 15/02, 15/04

U.S. Cl. 29-156.8 B

2 Claims

A small turbine for a jet engine is disclosed in which each bucket or blade is carried on a metal block which has a base portion conforming to a gear tooth shape. Slots in the hub of the turbine which receives the blade portion are cut on a gear cutting machine, this machine being indexed in a highly precision manner. When the tooth-shaped portions of the

blocks are assembled in the hub slots, the assembly is placed in an electron beam welder and the joints between the blocks



and the hub, also between the abutting blocks are welded to form an integral structure.

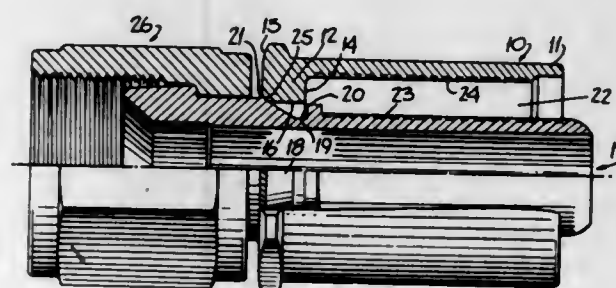
3,590,455

METHOD OF PRODUCING A HOSE FITTING HAVING A DEFORMABLE SOCKET

John B. Harris, Clifton, N.J., assignor to Resistoflex Corporation, Roseland, N.J.
Division of Ser. No. 666,249, Sept. 8, 1967, abandoned.
Filed May 15, 1969, Ser. No. 824,987

Int. Cl. B21d 53/00; B21k 29/00; B23p 15/26
U.S. Cl. 29-157

5 Claims



This invention relates to a method of producing a hose end fitting by welding a radially inner edge adjacent the external edge of a flange on a fitting socket to an abutment on a nipple and of providing a hose assembly therewith by radially contracting the socket while bending the flange until a sidewall of the flange engages a sidewall of a groove in the nipple to form an interlock.

3,590,456

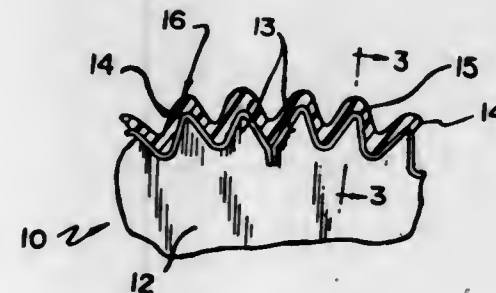
METHOD OF MAKING A COMPOSITE DRIVE WHEEL

Thomas R. Seaman, Baldock, England, assignor to Borg-Warner Corporation, Chicago, Ill.
Division of Ser. No. 678,800, Oct. 30, 1967, Pat. No. 3,469,467.
Filed Apr. 2, 1969, Ser. No. 831,802

Int. Cl. B21d 53/28; B21h 5/00; B21k 1/30; B23p 15/14; B29d 15/00

U.S. Cl. 29-159.2

1 Claim



A composite drive wheel device is disclosed herein to provide an illustration of this invention. This wheel provides a stamped circular plate having a complemental peripheral tooth root ribbon secured to said teeth with a plastic toothed rim which may be molded over the ribbon tooth roots.

3,590,457

APPARATUS FOR ASSEMBLING ANODES FOR ELECTROLYTIC CELLS

Stanley J. Gustetic, Euclid, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Sept. 15, 1969, Ser. No. 857,834
Int. Cl. H01r 33/00

U.S. Cl. 29-203 R

9 Claims



Relates to an apparatus for securing threaded anode sections to a threaded anode in an electrolytic cell in which the anode clamping assembly is floatably mounted relatively to a supporting structure so that contact pressure between the anode section and an anode in the electrolytic cell will not exceed an amount sufficient to fracture the anodes.

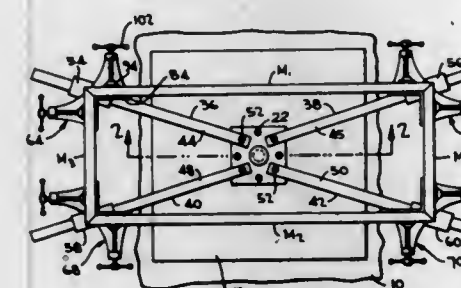
3,590,458

FOUR-CORNER PICTURE FRAME ASSEMBLY UNIT

Clifford H. Day, Box 602, McLean, Tex.
Continuation-in-part of application Ser. No. 635,114, now abandoned. This application May 29, 1969, Ser. No. 828,833
Int. Cl. B23p 19/00

U.S. Cl. 29-200

20 Claims



A four-corner picture frame assembly unit comprising a workbench rotatably mounted on a base or support. The workbench supports an arm mounting means from which extend four pivotally mounted outwardly extending arms or bars. Freely slidable on each of these arms or bars is a rider or runner that pivotally carries a conventional corner clamp. Each corner clamp has two fixed flange members extending therefrom at right angles to each other and a screw-actuated clamping means associated with each flange. The screw-actuated clamping means are arranged to temporarily secure sections or lengths of molding in place against the flange members and in abutting relationship until they are permanently held together by conventional means, such as, nails, screws and/or glue.

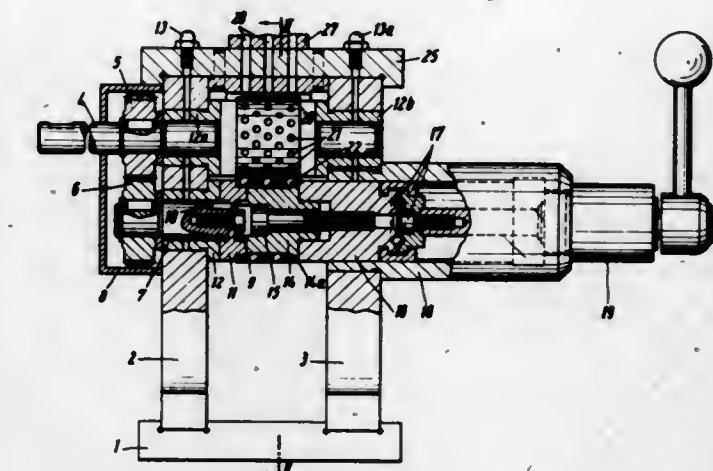
3,590,459

APPARATUS FOR INTRODUCING ROLLING ELEMENTS INTO CAGES OF ANTI-FRICTION BEARINGS

Wolfgang Katz, 722 Dauchingen, Germany
Filed Sept. 19, 1968, Ser. No. 760,795
Claims priority, application Germany, Sept. 23, 1967, P 16 25 567.7
Int. Cl. B23p 19/04

U.S. Cl. 29-201

13 Claims



Apparatus for forcibly introducing balls into concave sockets of cylindrical cages for use in anti-friction bearings wherein the cages consist of elastically deformable synthetic plastic material and comprise sockets whose open ends have diameters smaller than the diameter of a ball includes a support which rotates a cage about a horizontal axis adjacent to the periphery of a rotary drum having pockets which receive balls from chutes and introduce such balls into successive sockets of the cage. A quick-release device is provided to permit rapid removal of a loaded cage and rapid insertion of a fresh cage.

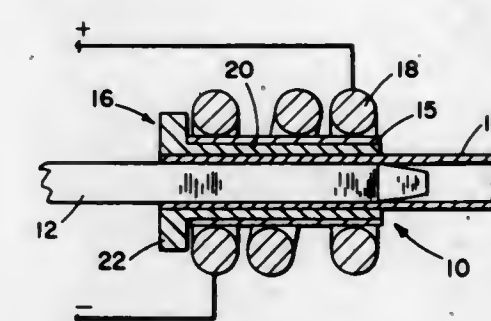
3,590,460

APPARATUS FOR ASSEMBLING FLANGES TO WAVEGUIDES

Albert E. Highducheck, Syracuse; Ralph L. Busto, Scotia, both of N.Y., and Raymond G. Rushing, Mentor, Ohio, assignors to The United States Government
Filed Oct. 6, 1969, Ser. No. 863,865
Int. Cl. H05k 13/00; B23p 19/00; 17/00

U.S. Cl. 29-203 D

4 Claims



Apparatus for assembling flanges to waveguides which utilizes electromagnetic forming means for producing the bond between the waveguide and the flange assembly. The flange assembly includes a collar portion which is mounted about the waveguide adjacent the end thereof and a flanged portion extending from the collar portion. A tapered mandrel is inserted in the waveguide and the electromagnetic forming device is mounted around the collar of the flange assembly and energized for application of a magnetic field across the flange collar and waveguide. A primary varying magnetic field is generated which is inductively linked with the workpiece, in this case, the flange collar. The primary varying field induces eddy currents in the collar and the eddy currents create a secondary magnetic field which interacts with the primary field to produce a high uniform pressure which swages the flange assembly against the

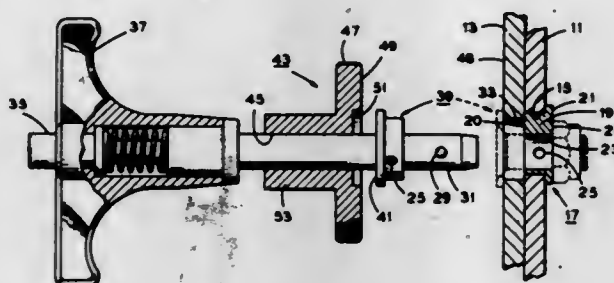
waveguide. The mandrel prevents collapse of the flange collar and waveguide during the assembly and is removed subsequent to completion of the assembly.

3,590,461 ALIGNMENT MEANS FOR BUSHINGS HAVING ECCENTRIC BORES

Joseph T. Siler, P. O. Box 11, Bowling Green, Ky.
Continuation-in-part of application Ser. No. 722,114, Apr. 17, 1968, now Patent No. 3,509,618. This application Dec. 19, 1968, Ser. No. 785,323
Int. Cl. B23p 19/04

U.S. Cl. 29-240

4 Claims



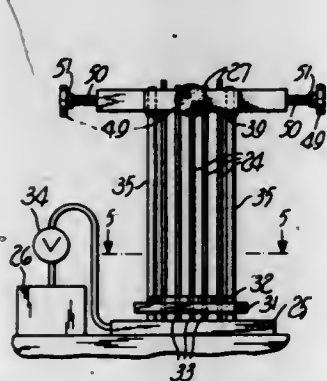
Following is disclosed a method and apparatus for improving the alignment of "work" and "blind side" bushings with eccentric bores through utilization of a shaft sized to extend into the bores. A latch element is laterally carried by the shaft and adapted to extend into and retract from indentations in the bores for orienting the bushings. An alignment collar is also carried by the shaft and has an aperture that receives the shaft, with the collar having a larger diameter than the diameter of an engaged bushing to enable application of torque and to give a visual reference for axial angularity misalignment between said bushing and its receiving hole in the structural member. The alignment collar makes more exacting alignment of the bushings possible, particularly when an initial limited interference fit between the bushing and its receiving hole (before final seating) is utilized in the installation procedure.

3,590,462 METHOD AND APPARATUS FOR EXPANDING AN ARRAY OF ARTICLES

Jaroslav Mracek, Trenton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Nov. 18, 1968, Ser. No. 776,743
Int. Cl. B23p 17/00, 19/00; B23q 3/00

U.S. Cl. 29-400

16 Claims



A method and apparatus are provided for expanding a compact array of beam lead devices in such a manner as to maintain original relative orientation between the devices, thus permitting the easy removal of the devices from the expanded array. The devices are initially held by a vacuum on the ends of a compacted, flexed, array of tubes which are subsequently spread apart, either in groups or simultaneously, into an expanded configuration.

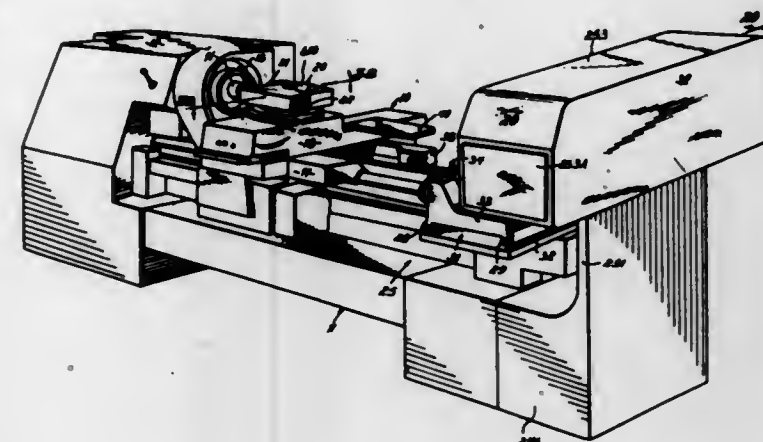
3,590,463 TOOL CHANGING METHOD

Robert K. Burroughs, Batavia, Ohio, and Timothy A. Wakefield, Stillwater, Okla., assignors to The R. K. LeBond Machine Tool Co., Cincinnati, Ohio

Division of Ser. No. 632,055, Apr. 19, 1967, Pat. No. 3,443,310.
Filed Mar. 3, 1969, Ser. No. 803,744
Int. Cl. B23p 17/00, 7/00, 19/04

U.S. Cl. 29-400

13 Claims



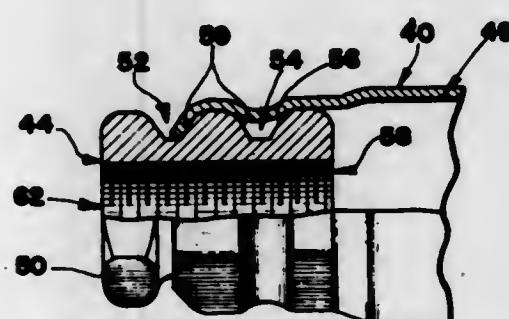
A method of changing tools on a lathe or other machine tool having multiple cutting tools mounted in a tool turret. A tool changer which practices and carries out the method is operative to remove and replace a tool in the turret while simultaneously another tool in the turret continues the machining cycle so that the cutting operation is not interrupted for a tool change. To this end, a tool transfer slide for transporting tools between the tool turret and a storage matrix is operative to seek, track, "lock onto" and move in synchronization with the tool turret during removal of a tool from the turret and replacement of a new tool.

3,590,464 THREADED FASTENER AND METHOD OF MAKING THE SAME

Paul Wildt, and Lesley L. Seyler, both of San Diego, Calif., assignors to Gulf Energy & Environmental Systems, Inc., San Diego, Calif.

Filed Mar. 7, 1969, Ser. No. 805,247
Int. Cl. B21d 53/24, 39/00; B23p 11/00, 17/00
U.S. Cl. 29-421

16 Claims



A threaded fastener and a method of making the same are provided in which an outer member with an opening therein receives an internally threaded female member which in turn is adapted to receive an externally threaded male member screwed in an entry end of the female member. The female member is disposed at least partially within the opening of the outer member. A time varying magnetic field is established outside of the outer member to compress the outer member, thus simultaneously joining the outer member and the female member and increasing resistance to rotation of the male member in the female member.

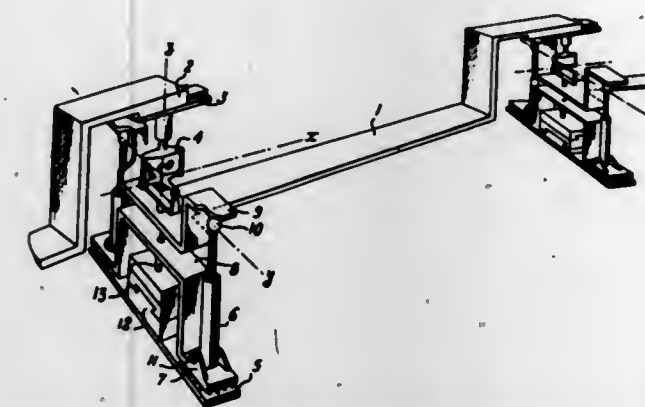
3,590,465 METHOD AND APPARATUS FOR READJUSTING THE RELATIVE POSITION OF A GROUP OF MEMBERS INDIVIDUALLY CONNECTED TO THE EARTH

Andre Cartier, Verrieres-le-Buisson; Philippe Guillet, Francville, and Daniel Godin, Fontenay-aux-Roses, all of France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed June 11, 1968, Ser. No. 736,943
Claims priority, application France, June 5, 1967, 109162
Int. Cl. B23p 19/00, 19/04; B23q 17/00

U.S. Cl. 29-434

11 Claims



Method for readjusting the relative position of a group of members individually connected to the earth according to a given diagram, consisting, while the group of members are interconnected for constituting an isostatic system, in determining the changes in the coordinates of each member according to the remaining degrees of clearance, in calculating the displacements to be effected according said degrees of clearance for bringing back said members in a diagram identical to said given diagram, and in achieving said displacements with the aid of mechanisms allowing movements according any one of the degrees of clearance.

Device according to the working process.

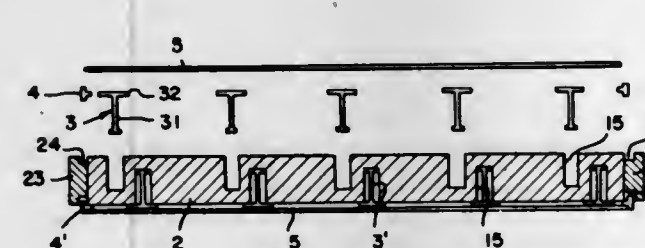
3,590,466 METHOD OF MAKING FLAT REINFORCED STRUCTURES

Hermann Moshammer, and Jaroslav Koser, both of Braunau-Raushofen, Austria, assignors to Vereinigte Metallwerke Raushofen-Berndorf Aktiengesellschaft, Postfach, Wien, Austria

Filed Apr. 21, 1969, Ser. No. 817,883
Claims priority, application Austria, Apr. 22, 1968, A 3866/68
Int. Cl. B23k 31/02

U.S. Cl. 29-471.3

10 Claims



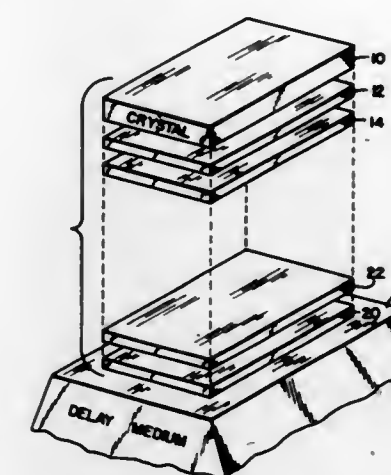
A flat panel-shaped structure with a single face plate reinforced by parallel webs on one side, or with a pair of parallel face plates interconnected by such webs, is formed by removably inserting one or more web-forming profiles in slots of a pressure-resistant supporting plate, these profiles having flange portions coming to rest against opposite surfaces of that plate; two sheets are then placed on the plate surfaces in contact with these flange portions, and the resulting stack is repeatedly passed at elevated temperatures between one or more roller pairs whereby the sheets are laminated under heat and pressure onto the profile or profiles to form two symmetrical panels or a single panel upon removal of the composite from the supporting plate.

3,590,467 METHOD FOR BONDING A CRYSTAL TO A SOLID DELAY MEDIUM

John R. Chase, and John A. Rimer, both of Bradford, Pa., assignors to Corning Glass Works, Corning, N.Y.
Filed Nov. 15, 1968, Ser. No. 776,190
Int. Cl. B23k 31/02

U.S. Cl. 29-472.7

12 Claims



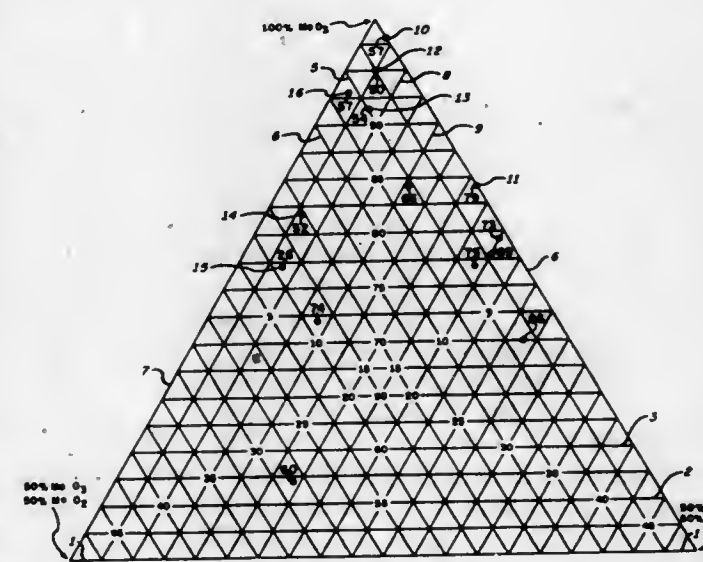
A method by which metallic base layers are first deposited on the mating surfaces of a crystal and delay medium which layers are suitable for bonding with indium. Thereafter, a layer of indium is deposited on at least one of the mating surfaces in a substantially nonoxidizing environment. The mating surfaces are then pressed together at a pressure of at least 90 p.s.i. while the indium is heated to a molten state and maintained in such a condition for at least 15 seconds. Thereafter, the temperature of the indium is reduced below its melting point to solidify the indium and form the bond.

3,590,468 GLASSY PHASE METHOD FOR MAKING PURE ALUMINA-TO-METAL HERMETIC SEALS

Robert W. Buck, Wheat Ridge, Colo., assignor to Sperry Rand Corporation
Filed Feb. 19, 1969, Ser. No. 800,649
Int. Cl. B23k 31/02

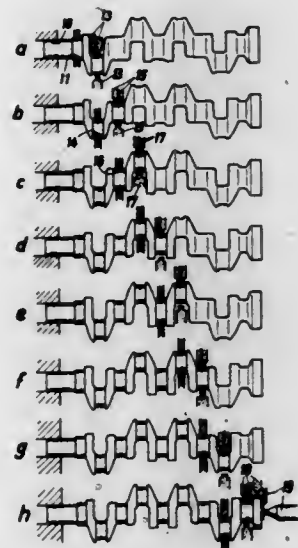
U.S. Cl. 29-473.1

9 Claims



A method is described for making reliable hermetic seals between essentially pure alumina and metal. The method comprises applying a metallizing paint to the alumina, sintering the metallizing paint, placing a molybdenum trioxide-manganese dioxide coating on the metallizing layer, sintering the coating, and then bonding the metal to the coated alumina. The metallizing paint comprises molybdenum trioxide and a glass frit in an alcohol suspension containing a nitrocellulose binder, the glass frit constituting from about 2 percent to about 40 percent of the paint by weight.

3,590,469
METHOD FOR MACHINING THE STROKE BEARINGS AND LINE BEARINGS OF A CRANK SHAFT
 Hans Gunther Rohs, 9 Richard-Wagner Strasse, 7324 Rechberghausen, Germany
 Filed Oct. 16, 1969, Ser. No. 866,922
 Claims priority, application Germany, Oct. 17, 1968, P 18 03 703.1
 Int. Cl. B23p 13/04
 U.S. Cl. 29—558 2 Claims

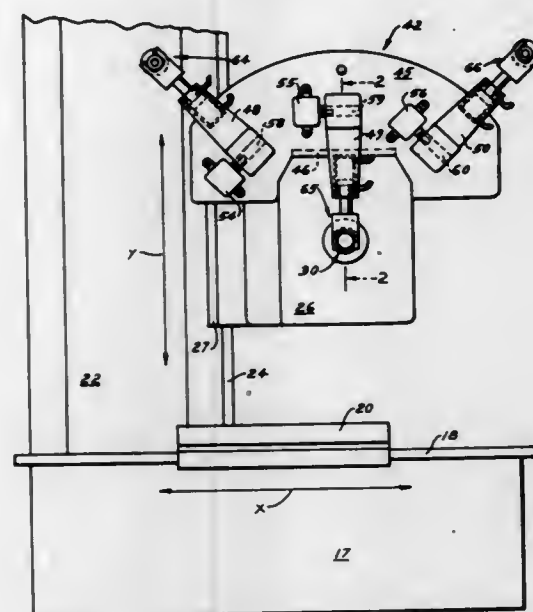


The line bearings and stroke bearings of a crankshaft are machined consecutively starting with the line bearing adjacent to one end of the crankshaft and proceeding bearing by bearing towards the other end of the crankshaft. In this operation the section of the crankshaft between the bearing in cutting engagement with the tool or tools and the other end of the crankshaft is left radially unsupported and free to undergo any deformation that may result from the removal of stock by the tools, whereas the other section of the crankshaft including the bearing machined in the preceding operation is held by engagement with suitable clamping means. As a result of this method any distortion of the character just explained is eliminated by the subsequent machining operation and the end product is free from any deformation. Therefore, it is no longer necessary, as heretofore, to subject the crankshaft after the roughing operation to a truing and finishing operation before the heat treatment and the grinding.

3,590,470
UNITARY TOOL STORAGE AND CHANGING MECHANISM
 Wallace E. Brainard, New Berlin, Wis., assignor to Kearney & Trecker Corporation, West Allis, Wis.
 Filed May 12, 1969, Ser. No. 823,732
 Int. Cl. B23q 3/157
 U.S. Cl. 29—568 12 Claims

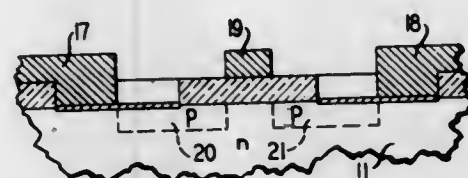
This invention relates to a greatly simplified tool storage and changing mechanism for a machine tool. To accomplish this, a plurality of cutting tools are disposed in a radial array relative to a tool receiving operator. Each tool is carried at the outer end of a single pivotal support with each respective support being individually pivotal to insert a tool carried thereby into the tool operator. After insertion by a single movement of its associated support, securing means are actuated to releasably secure the inserted tool to the operator for performing a desired machining operation. The inserted tool can be returned to a parked or storage position by simply releasing the securing means and pivoting the associated tool support outwardly for returning the tool carried thereby to stored position. In other words, each tool support is pivotal in

one direction for inserting a tool into the operator, and is pivotal in open direction for inserting a tool into the opera-



tor, and is pivotal in the opposite direction for returning that tool to a radially disposed storage position.

3,590,471
FABRICATION OF INSULATED GATE FIELD-EFFECT TRANSISTORS INVOLVING ION IMPLANTATION
 Martin P. Lepselter, New Providence, and Alfred U. MacRae, Berkeley Heights, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
 Filed Feb. 4, 1969, Ser. No. 796,404
 Int. Cl. B01j 17/00; H01g 13/00
 U.S. Cl. 29—571 4 Claims

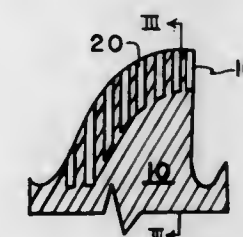


An insulated gate field-effect transistor is made which utilizes both Schottky barrier connections and ion-implanted zones. The resultant structure incorporates source and drain zones, which are formed by ion implantation and whose spacing is fixed by the gate electrode, and source and drain electrodes which make ohmic connection to the implanted source and drain zones and rectifying connections to unimplanted material.

3,590,472
COMPOSITE MATERIAL FOR MAKING CUTTING AND ABRADING TOOLS
 Joy R. Nix, Fort Worth, Tex.; Michael R. Sargent, Raleigh, N.C., and William T. Kaarlela, Fort Worth, Tex., assignors to General Dynamics Corporation, Fort Worth Division, Fort Worth, Tex.
 Filed Apr. 24, 1968, Ser. No. 723,657
 Int. Cl. B26d 1/00; B24d 5/00; B21k 21/00
 U.S. Cl. 29—103 1 Claim

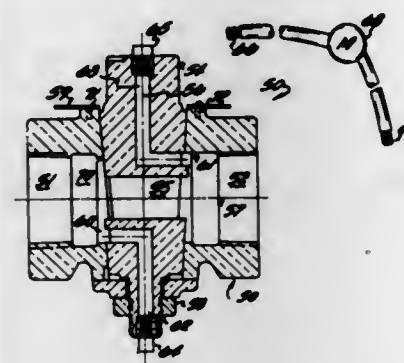
A superindurate, texturally stable abrasive composite material useful in the making of cutting and abrading tools, such as oil well drills, industrial metal cutting bits, mills, planar knives and abrasive grinders. The superficies of the object tool is comprised of the outer face of a tough matrix material and the projecting ends of a preferentially oriented indurate fibers or filaments, such as boron or the indurate intermetallic compounds of boron endowed with a hardness closely approaching that of industrial diamonds, which have

been dispersed in collocated array and embodied within a tough matrix material such, for example, as in a sponge iron matrix which has been briquetted in the configuration of the object tool and then heated at temperatures sufficient for incipient fusion to occur to form the composite tool. Other ductile metals such as aluminum, nickel and cobalt, including



certain of their alloys, together with steel and titanium are further examples of matrix materials which may be employed. The indurate filaments are so dispersed and collocated that the outer ends of the fibers or filaments are aligned normal to the tool's work-taction surface and consequently to the surface of the object material to be cut or abraded.

3,590,473
METHOD OF MANUFACTURING HYDRAULIC VALVE WITH FLUID METER CONNECTIONS
 Gilbert Fritz Carlson, Skokie, Ill., assignor to International Telephone & Telegraph Corporation, New York, N.Y.
 Filed Mar. 14, 1968, Ser. No. 718,295
 Int. Cl. B21d 53/00; B21k 29/00; B23p 15/26
 U.S. Cl. 29—157.1 7 Claims

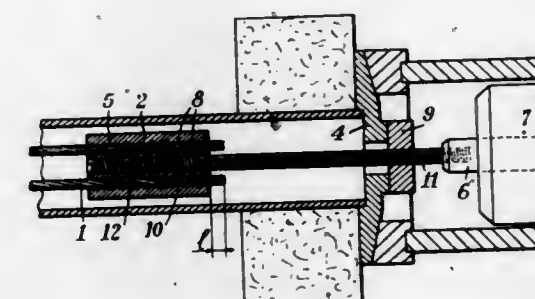
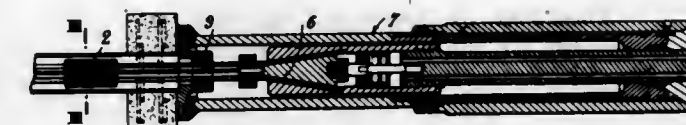


The rotor in a square cock head valve has the usual main fluid passage. In addition, it also has upstream and downstream orifices communicatingly connectable to a meter attachment point on the valve rotor. This way, a meter may be attached or removed by merely closing the main valve. There is no need to provide pressure tapping valves for controlling the flow of fluids when the meter is attached to or removed from its connections with the housing. When the meter is not attached, nonleaking plugs seal off the valve.

3,590,474
METHOD OF ANCHORING PRE-STRESSED WIRE ROPES
 Rene Beghi, Bois Colombes, France, assignor to Societe Des Grands Travaux De Marseille, Paris, France
 Filed Feb. 14, 1968, Ser. No. 705,381
 Claims priority, application France, May 19, 1967, Dec. 27, 1967, 107,013; 133,900
 Int. Cl. B21d 39/00
 U.S. Cl. 29—452 7 Claims

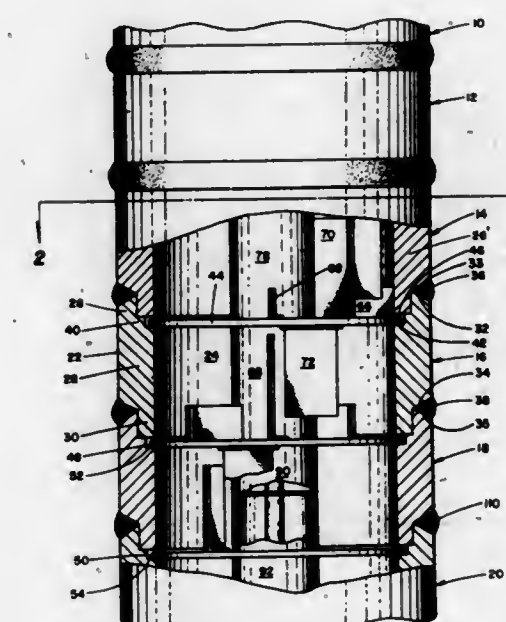
To obtain a prestressed anchorage of wire ropes in concrete works, a barrel-shaped cylindrical anchoring socket is used in which preferably parallel through passages are formed, these passages being adapted to receive the wire rope strands of which the free projecting ends are secured to an anchoring head on which the tensioning traction is ex-

erted until the socket can be fastened to the work. The strand or wire rope fastening to said anchoring head may be



replaced by that of a screw-threaded rod rigid with, and projecting coaxially from, said socket.

3,590,475
METHOD OF MAKING CONTACTING COLUMN
 Jacob M. Geist, Allentown; Roy A. Paul, Bethlehem, Pa., and Robert M. Thorogood, West Horsely, Surrey, England, assignors to Air Products and Chemicals, Inc., Allentown, Pa.
 Continuation of application Ser. No. 585,796, Oct. 11, 1966, now abandoned. This application June 2, 1969, Ser. No. 829,469
 Int. Cl. B23k 31/02
 U.S. Cl. 29—471.1 2 Claims



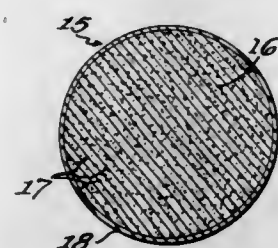
Disclosed in a small diameter contact column having a vertical series of contact chambers separated by perforate plates. Fully erected columns of this type are substantially inaccessible for subsequent placement and attachment of internal parts. The column is achieved by superimposing a plurality of interengaging cylindrical sections adapted along their outermost engaging edges to be rigidly joined and along their innermost engaging edges to receive and support a perforate plate. The perforate plate support means permits free relative movement of the plate due to temperature change and at the same time prevents liquid from passing between the column wall and the peripheral edge of the perforate plate.

3,590,476 METHOD FOR PRODUCING A TELLURIUM STEEL ARTICLE

Bernard S. Levy, Chicago, and Gary W. Henger, Homewood, both of, Ill., assignors to Inland Steel Company, Chicago, Ill.

Filed Feb. 27, 1969, Ser. No. 802,798
Int. Cl. B23k 19/00; B23p 17/00
U.S. Cl. 29—527.7

7 Claims



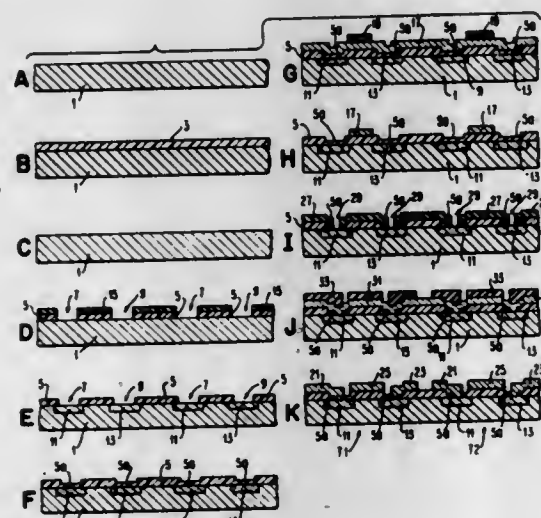
A method for producing a hot rolled tellurium steel article having an interior with a relatively substantial amount of tellurium dispersed throughout and a skin relatively devoid of tellurium and free of surface checking. The article is hot rolled from an ingot to which tellurium is added after a solid skin has formed on the sides of the ingot mold. When made from rimming steel, the article is not only highly machinable but also readily extrudable.

3,590,477 METHOD FOR FABRICATING INSULATED-GATE FIELD EFFECT TRANSISTORS HAVING CONTROLLED OPERATING CHARACTERISTICS

George Cheroff, Peekskill, and Frederick Hochberg, Yorktown Heights, both of, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 468,481, Pat. No. 3,445,924.
Filed Dec. 19, 1968, Ser. No. 798,551
Int. Cl. B01j 17/00; H01g 13/00
U.S. Cl. 29—571

11 Claims



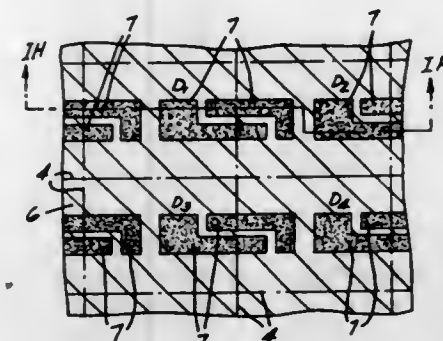
A method for fabricating electrical circuit components, field effect transistors, for example, in which the operating characteristics of the field effect devices are tailored by eliminating or passivating surface traps along the conduction channel. A layer of an active metal aluminum, for example, is deposited on the surface of an insulator, the latter being disposed in overlying relationship with the surface of a field effect transistor which has spaced source and drain regions. The active metal is disposed between the source and drain region. The transistor is subjected to heating for a time and temperature sufficient to passivate or eliminate surface traps. By heating for a temperature in a specified range, varying degrees of passivation can be attained. Heating in the absence of metallization does not alter the operating characteristics of the insulated gate field effect transistor.

3,590,478 METHOD OF FORMING ELECTRICAL LEADS FOR SEMICONDUCTOR DEVICE

Yoshito Takehana, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed May 20, 1968, Ser. No. 730,412
Int. Cl. B01g 17/00; H01l 5/00
U.S. Cl. 29—578

8 Claims



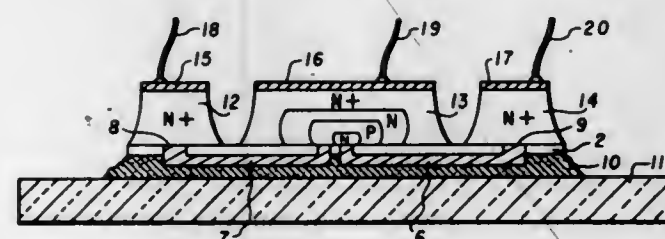
In the method of forming electrical leads for a semiconductor device, an insulating layer is formed on the area of a semiconductor substrate except at the electrode portion of each semiconductor element, and a parting or releasing agent is then coated over the insulating layer and electrical leads for the said respective elements are then fixed to the substrate in the positions where they extend over the semiconductor substrate of another or other elements. The semiconductor substrate is then divided into respective semiconductor elements and as a result, a semiconductor device, in which electrical leads are projecting outwardly from the circumference of the semiconductor element to which the leads are fixed, is provided.

3,590,479 METHOD FOR MAKING AMBIENT ATMOSPHERE ISOLATED SEMICONDUCTOR DEVICES

Dale Byron Devries, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 484,535, Sept. 2, 1965, Pat. No. 3,475,664.
Filed Oct. 28, 1968, Ser. No. 810,412
Int. Cl. B01j 17/00; H01l 7/10, 7/48, 5/00, 7/12, 7/54
U.S. Cl. 29—578

5 Claims



Disclosed are methods for making integrated circuits which use the ambient fabrication atmosphere as an isolation medium between elements of the circuit, such methods advantageously produce devices having improved mechanical structure, improved surface area for attaching lead wires, reduced collector area, and lower stray capacitance.

3,590,480 METHOD OF MANUFACTURING A PULSE TRANSFORMER PACKAGE

Theodore H. Jr. Johnson, Poughkeepsie; Charles H. Locke, Wappingers Falls; Paul V. Robock, Hopewell Junction, and Raymond D. Sucklow, Wappingers Falls, all of, N.Y.

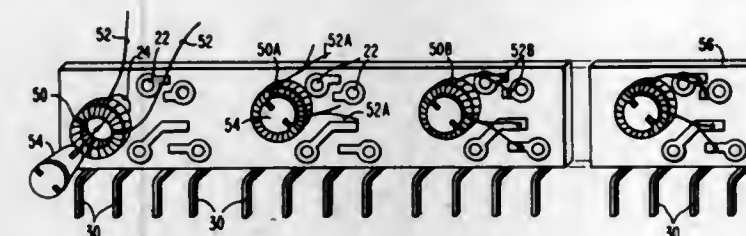
Filed Oct. 3, 1968, Ser. No. 764,810
Int. Cl. H01f 7/06

U.S. Cl. 29—605

11 Claims

A pulse transformer assembly including a wound core at-

tached to a printed circuit board. Contact leads are attached to movable cutters to facilitate cleaning. Pushbutton operated means slidably arranged within the head release and the



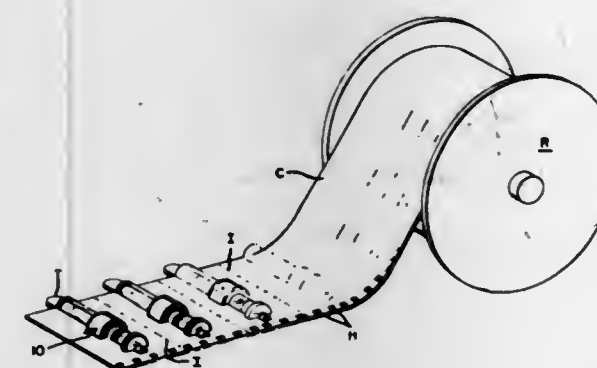
to the printed circuit and the entire assembly, except for the leads, is encapsulated.

3,590,481 METHOD AND MEANS FOR FACILITATING RAPID TERMINATION OF COAXIAL CONNECTORS

Paul John Felty, Hershey, Pa., and Herbert Rosengren, Woodcliff Lake, N.J., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of application Ser. No. 721,997, Apr., 1968. This application Jan. 17, 1969, Ser. No. 792,054
Int. Cl. H01b 13/00; H05k 3/00
U.S. Cl. 29—624

8 Claims



A method and means for facilitating rapid termination of coaxial connectors to coaxial cable is disclosed which features a thin, flexible carrier containing a series of coaxial connectors, each comprised of a number of distinct elements properly arranged on the carrier for insertion of coaxial cable therein. The carrier is comprised of plastic sheets formed to extend over the connectors in a manner to guide cable parts into the connector elements. The carrier has characteristics to permit reeling and is indented to facilitate removal of one or a number of connectors therefrom. The sheets may be sealed to protect each connector with each portion containing a set of connector elements including means facilitating removal of a portion of the sheets to permit insertion of a cable within the elements. The arrangement of elements on the carrier is made to facilitate terminating connector elements to cable parts without having to physically handle any of the elements of the connector.

3,590,482 COMB SUPPORT AND RELEASE MECHANISM FOR ELECTRIC DRY SHAVER

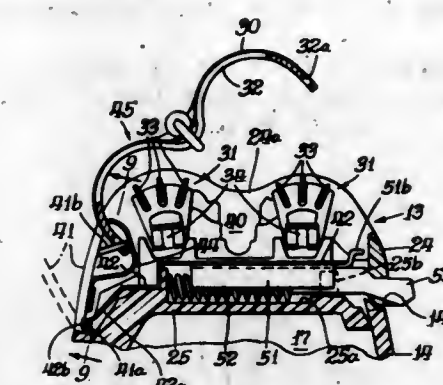
Francis L. Carr, Downers Grove, Ill., assignor to Sunbeam Corporation, Chicago, Ill.

Filed June 6, 1969, Ser. No. 831,129
Int. Cl. B26b 19/38

U.S. Cl. 30—34.1

5 Claims

A head for an electric dry shaver having a perforated comb which is pivotally supported so that it may be moved between an operative position in engagement with movable cutter means and an open position in which it is displaced from the



comb so that it is moved to the open position through the action of spring biasing means.

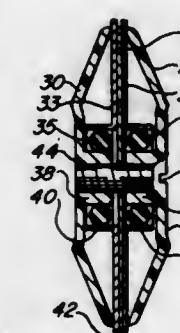
3,590,483 SHIELDED KNIFE

Harry Szczepanski, 755 Oakleigh, N.W., Grand Rapids, Mich.

Filed June 24, 1968, Ser. No. 739,435
Int. Cl. B26b 29/02

U.S. Cl. 30—151

2 Claims



A knife assembly having a blade disposed adjacent a shield and secured to a handle, with the shield being resiliently mounted with respect to the handle so that cutting pressure retracts the shield to expose the cutting edge of the blade.

3,590,484 COMBINATION REGISTERING AND COUNTING MECHANISM

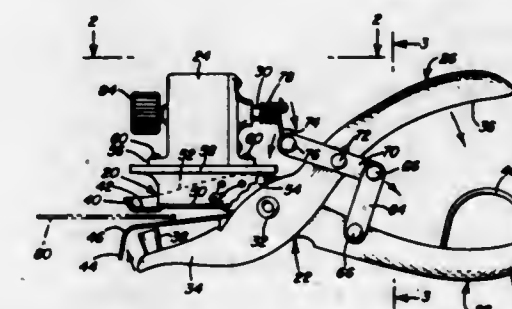
John Walsh, 4676 Thirty-Second, San Diego, Calif.

Filed Jan. 28, 1969, Ser. No. 794,491

Int. Cl. B26f 1/36

U.S. Cl. 30—363

4 Claims



A combination registering and counting mechanism which includes a register, such as a hand actuated punch. One of the elements of the register is movable relative to another element and one of the elements carries a counter connected with and advanced by the movement of the movable element.

3,590,485 DENTAL IMPLANT

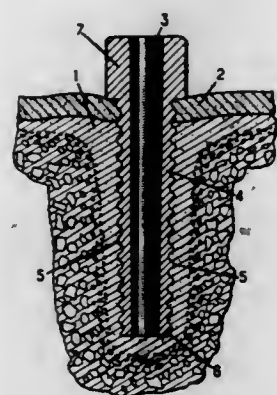
Raphael Chercheve, 5, avenue de l'Opera, Paris; Michel Chercheve, 5, avenue du General Delestraint, Paris, and Robert Bordon, 4, rue Foch, Pau Basses-Pyrenees, all of France

Filed Oct. 1, 1969, Ser. No. 862,809

Claims priority, application France, Oct. 3, 1968, 168,664
Int. Cl. A61c 13/00

U.S. Cl. 32-10

11 Claims



Dental implant comprising a central metallic rod encircled by a sleeve of solid animal tooth.

3,590,486 DENTAL PIN FOR TOOTH RESTORATION

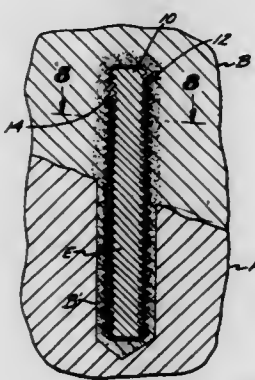
I. Edward Brenner, 800 W. Amerige, Fullerton, Calif., and Ernest A. Beck, 1826 Chateau Ave., Anaheim, Calif.

Filed July 7, 1969, Ser. No. 839,183

Int. Cl. A61c 9/00

U.S. Cl. 32-15

5 Claims



A serrated metal dental pin, the external surface of which is silver, with the lower portion thereof being adapted to be disposed in an opening of slightly larger transverse cross section formed in a broken tooth to be restored by amalgam. The amalgam is shaped to conform to the configuration of the broken-away portion of the tooth. That portion of the amalgam packed in the hole surrounding the lower portion of the pin positioned therein serves to anchor the pin to the tooth. The amalgam restoration is bonded to the pin mechanically for the amalgam engages the serrated outer surface of the pin, and it is bonded chemically as well, due to the fact that the amalgam combines with the silver of the pin.

3,590,487 DENTAL ARTICULATOR

Niles F. Guichet, 320 Olympia Place, Anaheim, Calif.

Continuation-in-part of application Ser. No. 670,138, Sept. 23, 1967, now abandoned. This application Sept. 23, 1968, Ser. No. 761,596

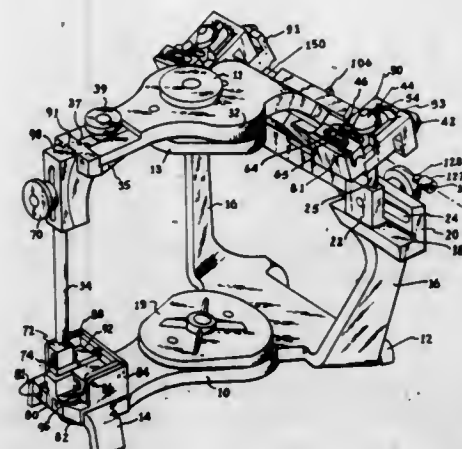
Int. Cl. A61c 11/00

U.S. Cl. 32-32

17 Claims

An arcon-type articulator is described with fossa guide means which permit lateral, vertical and posterior-anterior

translation of rotating condyles during lateral rotation of the members. The articulator has improved incisal table means with a permanent reference rest for the incisal pin and adjustable means to permit a limited degree of relative move-



ment of the anterior ends of the members without vertical separation.

3,590,488 APPARATUS FOR TRACING RANDOM GEOMETRICAL FIGURES

Miron Padowicz, Kohlfurter Str. 41-43, Berlin 36, Germany

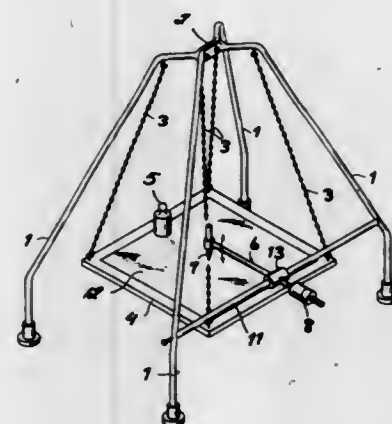
Filed Apr. 24, 1970, Ser. No. 31,676

Claims priority, application Germany, Dec. 24, 1969, G 69 50 517

Int. Cl. B43l 11/06, 9/20

U.S. Cl. 33-27 L

10 Claims



A flat support, suspended at three or more points from a frame so as to be freely swingable in two dimensions, carries a sheet on which a marker pen or other drawing tool bears under light pressure. When the support is set in eccentric motion with reference to the polygon of its suspension points, as by being laterally displaced along a line offset from the center of that polygon, it carries out a generally elliptical rotation about the suspension axis at a rate corresponding to its natural frequency and with a certain precession whereby a variety of convoluted figures can be drawn on the sheet by the stationary tool. The variety may be enhanced by eccentrically loading the support, or by placing the sheet on a motor-driven turntable mounted on the support.

3,590,489 ARCHERY BOW SIGHTING DEVICE

Charles A. Saunders, Box 102, Columbus, Nebr.

Filed Aug. 26, 1968, Ser. No. 755,257

Int. Cl. F41g 1/00; F41b 5/00

U.S. Cl. 33-46 A

5 Claims



A multiple bow sight, each sight being independently adjustable for both elevation and lateral deflection corrections, and improved nonmarring attachment band means and quick detach and reconnection means securing the sight to the archery bow.

3,590,490 FEELER GAGE HAVING PLASTIC FEELERS

James A. Coleman, 12209 Socka Ave., Cleveland, Ohio

Filed June 13, 1968, Ser. No. 736,746

Int. Cl. G01b 3/30, 3/32

U.S. Cl. 33-168

3 Claims



A feeler gage for ignition points, and the like, comprises a metal handle having at its end a spring clip for holding any one of an associate plurality of individual, tapered, highly-flexible gage feelers of plastic material.

3,590,491 GAUGE FOR MEASURING GEAR TOOTH TAPER

Russell W. Anthony, Harper Woods, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed Mar. 11, 1969, Ser. No. 806,058

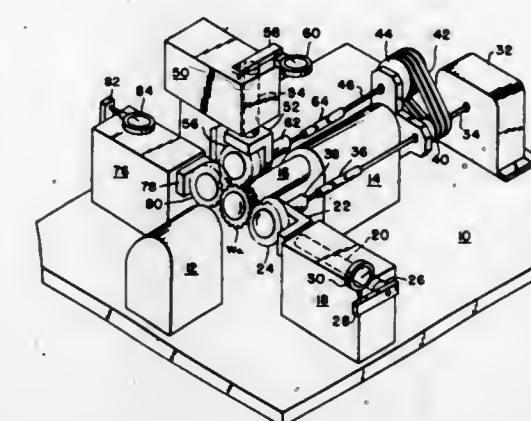
Int. Cl. G01b 5/24

U.S. Cl. 33-179.5

9 Claims

A gauge having master gears rotated in mesh with a work gear and in pressure contact respectively with opposite sides

of the teeth of the work gear as the result of differential drives for the master gears, the master gears being each mounted for swivel movement about an axis perpendicular to



and intersecting its own axis and the axis of the gear. Indicators are provided for measuring swivel movement of the master gears, thus measuring lead at opposite sides of the teeth or in effect, the tooth paper.

3,590,492 SCREW THREAD GAGE WITH SEGMENTAL AND ENVELOPE GAGING MEANS

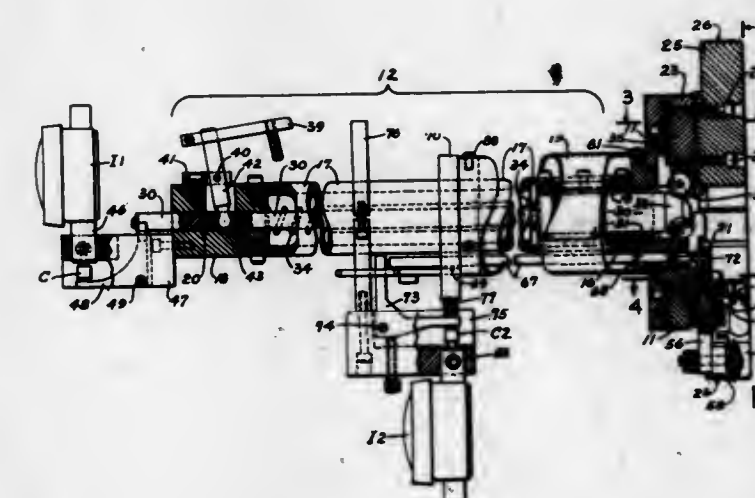
Lowell C. Johnson, West Granby, Conn., assignor to The Johnson Gage Company, Bloomfield, Conn.

Filed July 14, 1969, Ser. No. 841,406

Int. Cl. G01b 3/14

U.S. Cl. 33-199

10 Claims



The disclosure is directed to a screw thread gage having a plurality of segmental gaging means each with a gaging element having an arcuate gaging surface of substantial circumferential extent. The gaging means are radially expandable and contractable for engaging and gaging the test thread, as well as centering the gage frame at the axis of the screw thread. Between segmental gaging means there is an envelope gaging means which is radially expandable and contractable for contact with the test thread and the gaging position of which is shown by an indicator. The segmental gaging elements of the gage ride on any high points of the test thread and gives no indication as to the form of the circular envelope of the test thread. The envelope gaging means has a gaging element with a small circumferential contact with the test thread so that when the test thread or the gage is rotated one with respect to the other, the envelope gaging means will indicate any irregularities such as lobes in the test thread and the depth thereof.

3,590,493 APPARATUS FOR PRODUCING WEBS OF RECONSTITUTED TOBACCO

Heinz Gretz, Hamburg-Bergedorf, Germany, assignor to
Hauni-Werke Korber & G. Kg., Hamburg-Bergedorf, Ger-
many

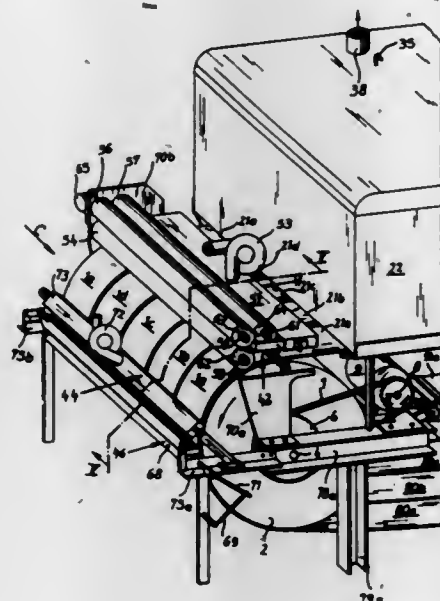
Filed Jan. 10, 1969, Ser. No. 790,227

Claims priority, application Germany, Jan. 18, 1968, P 16 57 228.4

Int. Cl. F26b 19/00

U.S. Cl. 34-60

23 Claims



Apparatus for the production of webs of reconstituted tobacco comprises a set of endless steel belts having immediately adjacent coplanar upper stretches which receive a mass of moist tobacco containing material forming thereon a layer which is thereupon transported through a drying zone to be converted into a web of reconstituted tobacco. The drying zone accommodates a single drying unit wherein chambers which discharge heated air alternate with chambers which collect moisture-laden air.

3,590,494 ROTARY DRUM DRIER

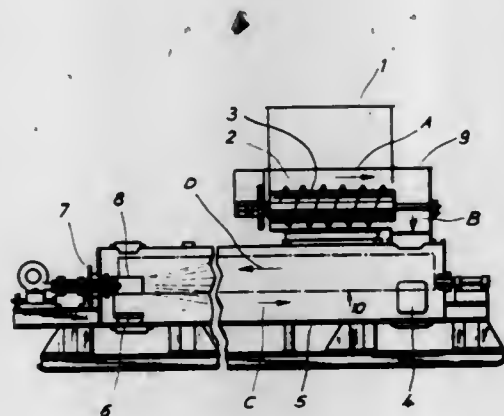
Josef Peter Ploum, Holzstraat 55, Kerkrade, Netherlands

Filed Feb. 27, 1969, Ser. No. 802,791

Claims priority, application Germany, Mar. 2, 1968, P 17 29 431.4

Int. Cl. F26b 11/06

U.S. Cl. 34-132



A rotary drum drier for mud, in which stripper knife means in the form of a plane rail-shaped member are detachably and adjustably mounted on a supporting member located approximately in the horizontal central plane of the drum and also comprises guiding ribs which are arranged independently of and below said stripper knife means.

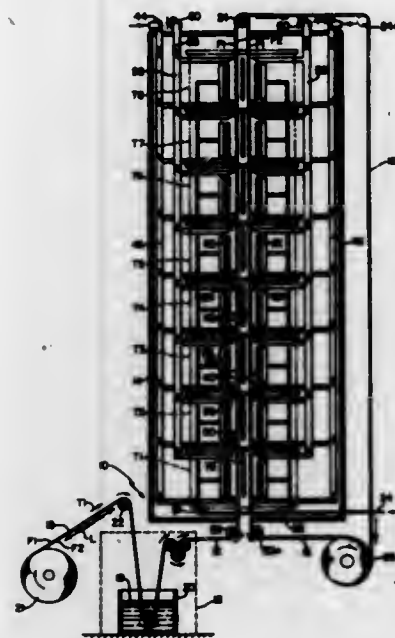
3,590,495 DRYER OR HEATER WITH SHIELDING MEANS

Davis Z. Tyson, Akron; Edward E. Hunter, Akron, Ohio, and
Willie Herman Best, Columbia, S.C., assignors to The
Goodyear Tire & Rubber Company, Akron, Ohio

Filed May 2, 1969, Ser. No. 821,413

Int. Cl. F26b 13/00

17 Claims



Apparatus for drying or heating a continuous length element, and more particularly a drying apparatus in a machine for impregnating such fiber with a liquid fiber-to-rubber adhesive coating in the manufacture of tires, belting and similar products, wherein the element is rapidly dried at a controlled temperature by flame generated infrared type heating means while (1) an adjustable shielding means controls heat flow from the heating means to the element, and/or (2) moving a gas stream rapidly over the surface of the element and shielding means to protect the heating means from the flowing gas stream against any adverse effect on the infrared radiation from the heating means and to remove heat products from the shielding means and element.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawings and the following detailed description.

3,590,496 INSERT FOR FREEZE-DRYING APPARATUS

Hanns Eilenberg, Rosrath, Germany, assignor to Leybold-Heraeus-Verwaltung G.m.b.H., Cologne-Bayental, Germany

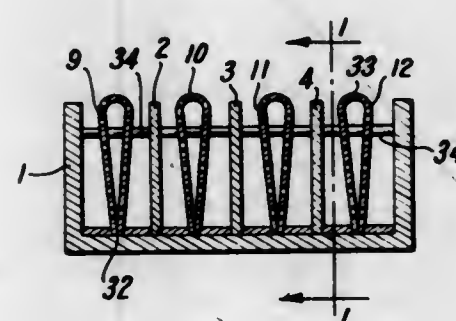
Filed Aug. 7, 1968, Ser. No. 750,872

Claims priority, application Germany, Aug. 23, 1967, L 57276

Int. Cl. F26b 25/10

U.S. Cl. 34-238

6 Claims



An insertable container for freeze-drying apparatus having a water-vapor-permeable channel member which forms a

venting channel with respect to the surface of the material being dried: The channel member is in the form of a partition which extends along a horizontal dimension of the container within the fill area thereof. By this arrangement, water vapor can be drawn off from the material being dried by way of the partition. Numerous specific forms of the partition are described as well as several arrangements of the partition with respect to the container itself.

frame depending on whether or not the properly related intelligence item is selected. If an incorrect information item is selected, the disc is not rotated and thus only operation of the proper lever for a given frame can cause rotation of the disc and advancement to the next frame. The intelligence in successive frames is related in progressive instructional order.

3,590,497 TEACHING AND EVALUATION MACHINE

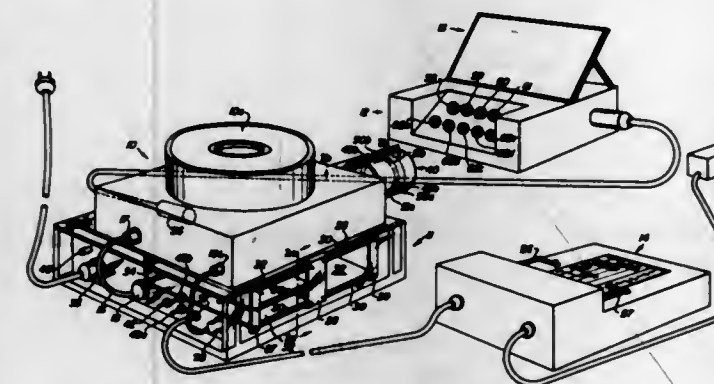
David A. Darby, 2218 Emerson Ave, Salt Lake City, Utah

Filed Apr. 1, 1969, Ser. No. 811,814

Int. Cl. G09b 7/06

U.S. Cl. 35-9

15 Claims U.S. Cl. 35-26



A teaching and evaluation machine, wherein a slide projector is used to present informative material and/or questions and multiple possible answers to the questions and to simultaneously provide signals indicative of the correct answer to a control circuit while regulating the time allowed for answer selections. The control circuit is also connected to a test panel, or selector, having an information change button and a number of possible multiple choice selection buttons corresponding to the possible answers, and to a continuous strip chart recorder wherein selection button choices are recorded in a pattern that also indicates a correct answer, on a time basis and in conjunction with a continuous physiological response measurement of the subject being tested and/or evaluated.

3,590,498 PROGRAMMED INSTRUCTION DEVICE

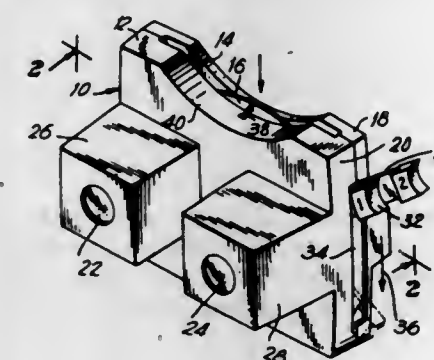
Sol Landzberg, 22-18 Clentonville St., Whitestone, N.Y.

Filed May 12, 1969, Ser. No. 823,717

Int. Cl. G09b 3/06

U.S. Cl. 35-9 R

5 Claims



As an illustrative form of a programmed instruction device there is disclosed a viewing device in which is rotated a disc having a circular array of frames in each of which there is intelligence such as a picture or question with which are associated two or more items of intelligence such as answers or identification only one of which is correct. Two or more operational levers are provided which are associated with the plurality of information items and only one of which is capable of rotating the aforesaid disc in association with each

3,590,499 DRAFTING INSTRUCTION APPARATUS

Richard A. Rinehals, Park St., Fort Crane, N.Y.

Continuation of application Ser. No. 667,249, Sept. 12, 1967.

This application May 8, 1969, Ser. No. 823,193

Int. Cl. G09b 11/00

5 Claims



Use in the teaching of mechanical drafting courses, of a coordinated set of blocks each having the same basic overall shape, but with successive blocks provided with successively increasing numbers of surfaces by provision of holes, chamfers and the like to the basic shape, with related surfaces on the various successive blocks having similar identifying indicia, but with the newly added surface on each succeeding block having the same selected identifying indicia.

3,590,500 FLOOR COVERING DISPLAY MAILER

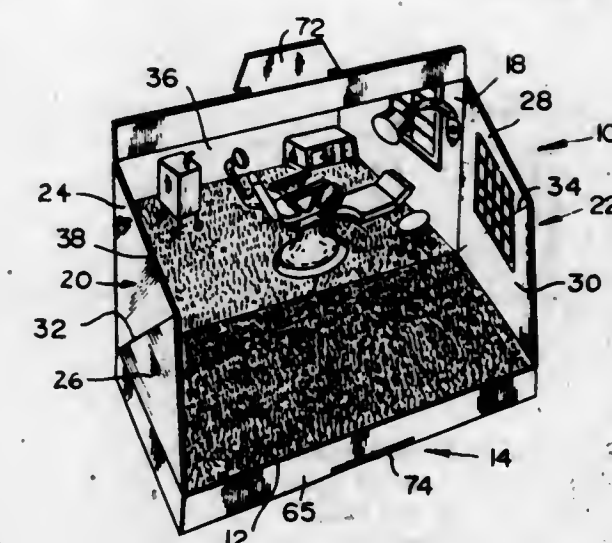
Jerrold A. Smith, c/o Arrow Art Finishers, 1201 Evergreen Avenue, Bronx, N.Y.

Filed Sept. 12, 1969, Ser. No. 857,523

Int. Cl. G09b 25/00

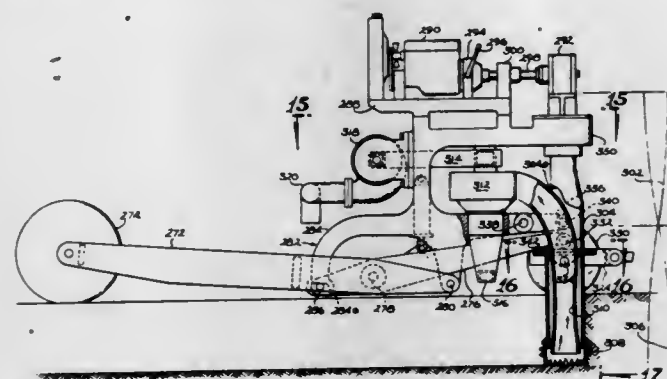
U.S. Cl. 35-49

12 Claims

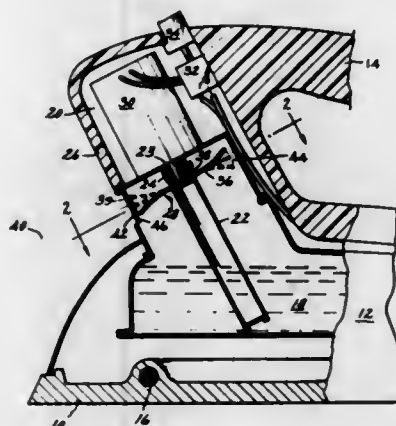


The present invention is constructed to include a cardboard tray in which a floor covering sample, e.g. a swatch snugly fits. A cardboard cover folds over the tray to cover it for mailing purposes. The sides of the cover are joined to the sides of the tray by gussets and the back of the cover is joined to the back of the tray by a fold line. A three-dimensional illusion is produced by providing a pictorial display on the inner surface of the cover, the display being erect behind the swatch when the cover is swung up. The display may be a photograph or other illustration of a room within which the floor is seemingly covered by the sample.

3,590,501
CONTINUOUS EXCAVATING AND CONVEYOR
MECHANISM EMPLOYING SONIC ENERGY
 Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif.
 Continuation of application Ser. No. 531,950, Mar. 4, 1966,
 now abandoned. This application June 5, 1969, Ser. No.
 831,278
 Int. Cl. E02f 3/88, 3/62; E2fc 37/20
 U.S. Cl. 37-1 8 Claims



slinger to spray water on the surface to be ironed. The water is directed to the slinger by an inclined hollow tube which

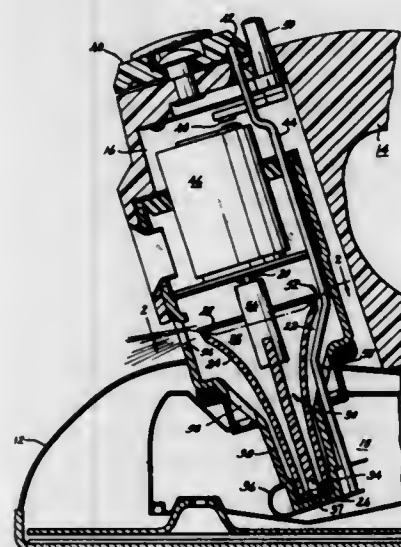


A combination excavator and conveyor which employs high-power sonic energy to loosen and fluidize the earthen material which is to be removed from the excavating area. Gyration or orbital-mass sonic oscillators impart resonant standing waves to the earth cutting portion of the excavator as well as to the conveyor which carries the excavated material to a discharge location. Self-propelled and towed versions are shown. Also illustrated is an integral excavating-conveying device in which the toothed end of a sonically excited conduit is used to "nibble" the earthen surface and thereafter fluidize and propel the loosened material through the sonically vibrated conduit to a discharge location.

dips into a water reservoir and rotates to lift water to the slinger.

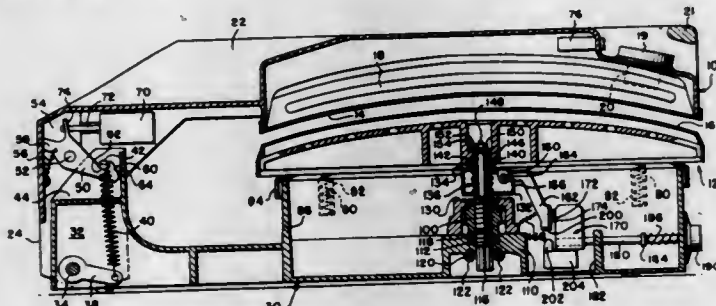
3,590,504
SPRAY IRON
 William E. Davidson, Ontario, Calif., assignor to General Electric Company
 Filed Dec. 8, 1969, Ser. No. 882,836
 Int. Cl. D06f 75/06 9 Claims

U.S. Cl. 38-77.1



3,590,502
IRONING APPARATUS
 Wolfgang Hentschel, Munich, and Hermann Stutzle, Gilling, both of, Germany, assignors to Dornier G.m.b.H., Friedrichshafen 1 Bodensee, Germany
 Filed May 2, 1969, Ser. No. 821,340
 Int. Cl. D06f 71/00, 71/28 5 Claims

U.S. Cl. 38-28



A head is pivotally interconnected with a buck and is normally biased into a raised open position. Locking means is provided for locking the head in a lowered ironing position. The buck has a substantially universal mounting, and drive means is provided for moving it toward and away from the head. A lost motion connection is provided between the drive means and buck and is interconnected with a control means for deactivating the drive means when a predetermined pressure is applied to the material being ironed independent of the thickness of such material.

The disclosure shows a spray iron that uses a disclike slinger to spray water on the surface to be ironed. The water is directed to the slinger by an inclined hollow tube which dips into a water reservoir and rotates to lift water to the slinger.

3,590,503
SPRAY IRON
 Alfred G. Swenson, 1304 N. Campus Ave., Ontario, Calif.
 Filed Dec. 8, 1969, Ser. No. 882,835
 Int. Cl. D06f 75/06 11 Claims

U.S. Cl. 38-77.1

The disclosure shows a spray iron that uses a disclike

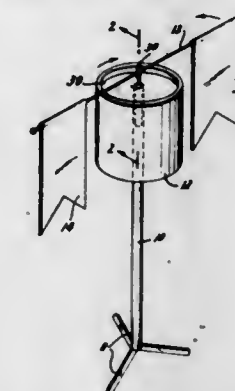
3,590,505
ROTATABLE DISPLAY DEVICE
 Robert Benchley, Jr., Noroton, Conn., assignor to Trans-World Display Corporation
 Filed July 23, 1969, Ser. No. 843,932
 Int. Cl. G09f 11/02 8 Claims

U.S. Cl. 40-33

A display device including a stationary bracket provided with one or more openings each loosely accommodating a spherical ball. Two rotatable plates, on opposite sides of the bracket, sandwich the balls between them. Each plate carries

a display member. A motor rotates one of the plates and its display member in one direction, and the balls transmit the

likewise silhouetted thereagainst in darkness when said light and battery assembly is actuated.



3,590,508
TRAVELING SIGN CONTROLLED BY LOGIC
CIRCUITRY AND PROVIDING A PLURALITY OF
DIGITAL DISPLAY EFFECTS
 Clifford M. Jones, Waynesboro, Va., and John D. Harnden, Jr., Schenectady, N.Y., assignors to General Electric Company
 Division of Ser. No. 449,177, Apr. 19, 1965, Pat. No. 3,432,846.
 Filed Nov. 22, 1968, Ser. No. 778,218
 Int. Cl. G09f 13/00 8 Claims

U.S. Cl. 40-132 D

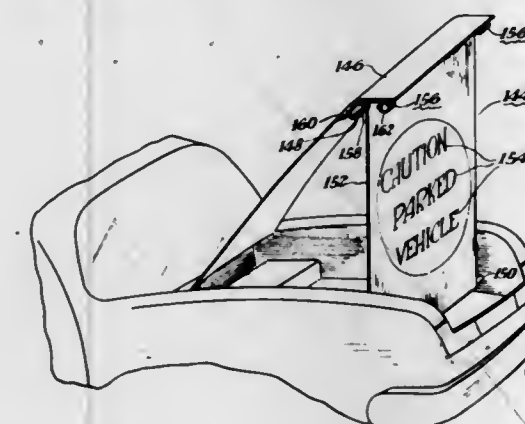
8 Claims

rotation to the other plate and display member, so that the latter rotate in the opposite direction.

3,590,506
EMERGENCY VEHICLE SIGNS
 Rudolph S. Jeski, 326 Meyran Ave., Pittsburgh, Pa.
 Filed Dec. 16, 1968, Ser. No. 784,076
 Int. Cl. G09f 7/00, 1/00 4 Claims

U.S. Cl. 40-129

4 Claims



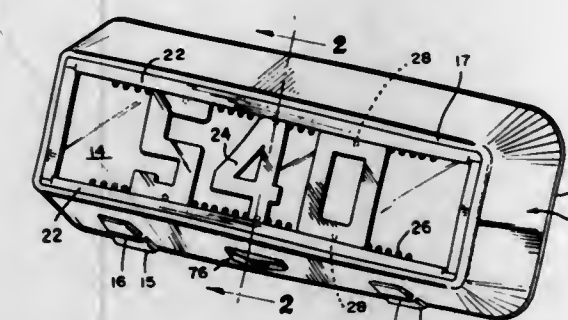
I disclose a sign structure comprising a plurality of foldable sign panels, hinge means joining said panels along junction means therebetween, leg means hingedly joined to the outer ones of said panels, stabilizing means mounted on said sign structure for stabilizing said panels in an operative unfolded mode, and restraining means coupled to said leg means for restraining said leg means to a predetermined extent of movement relative to said sign structure.

A cover member for separating the illumination effects of adjacent lamps on an electrical display sign containing lamps arranged in columns and rows also provides cooling of the lamps by natural convection. The cover member includes a front and back cover plate member provided with apertures for the lamps on the sign which protrude into the space between the cover plate members. Horizontally and vertically positioned intervening plate members, and tubes aligned with the lamps may be utilized for providing rigidity to the cover assembly and forming cooling channels for the lamps. An optical link system controls a second display sign remote from a first sign.

3,590,507
HOUSE MARKING DEVICE
 Winfred D. Wren, c/o Wren, Inc., 1024 S. Kealing Ave., Indianapolis, Ind.
 Filed Apr. 1, 1969, Ser. No. 812,139
 Int. Cl. G09f 13/06 4 Claims

U.S. Cl. 40-133 B

4 Claims

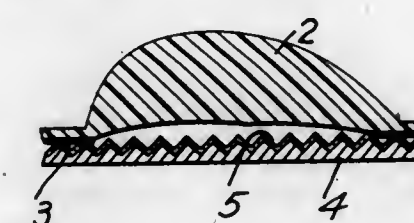


A house marking device which is provided with a baseplate having means for supporting a light and battery assembly thereon. A housing having a translucent faceplate is swingably connected to said baseplate and extends thereover. Opaque indicia are removably supported on said faceplate and are thus silhouetted thereagainst in daylight and are

3,590,509
LIGHT-REFLECTIVE DISPLAY DEVICE
 Minoru Fukumitsu, c/o James M. Morita, City Bank Bldg., Honolulu, Hawaii
 Filed July 25, 1969, Ser. No. 844,924
 Claims priority, application Japan, July 25, 1968, 43/63962
 Int. Cl. G09f 7/00 7 Claims

U.S. Cl. 40-136

7 Claims



Concave lens elements are formed in a sheet of plastic in the form of letters or the like and are filled in with transparent plastic. A backing of embossed and metallized plastic sheet is provided for light-reflecting purposes. An intermediate colored and transparent sheet can also be employed to color the reflected light.

3,590,510

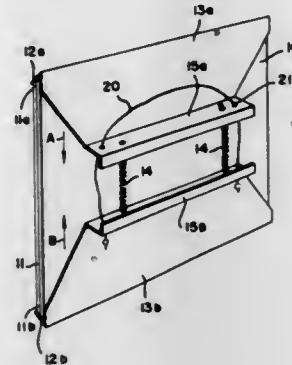
DISPLAY MOUNT FOR FLAT ARTICLES

Theodore Salz, 247 Parkview Ave, Bronxville, N.Y.

Filed Apr. 25, 1969, Ser. No. 819,235

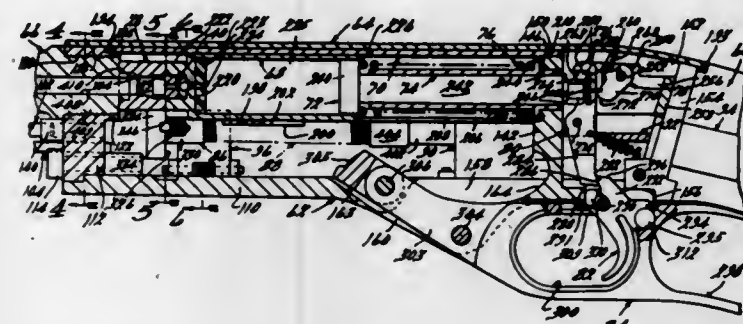
Int. Cl. G09f 1/12

U.S. Cl. 40-155



9 Claims

loading position. The loading port is blocked by an abutment surface on the ammunition-holding member until the loading



position is reached. The ammunition magazine is connected to the loading member by a flexible tube movable therewith.

3,590,513
FISH LURE

Robert N. Lund, 6006 Darramore Road, Birmingham, Mich.

Filed Sept. 21, 1968, Ser. No. 754,390

Int. Cl. A01k 85/00

U.S. Cl. 43-42.06

2 Claims

A mirror, picture or similar flat article of rectangular outline is positively gripped on at least one pair of opposite sides by two brackets with beveled flanges drawn toward each other by clamps and/or springs.

3,590,511

INDEXING MEANS FOR A FILING OR PLANNING SYSTEM

Egon Heimann, 5600 Falkenberg 61, Wuppertal-Elberfeld, Germany

Filed Oct. 6, 1969, Ser. No. 866,424

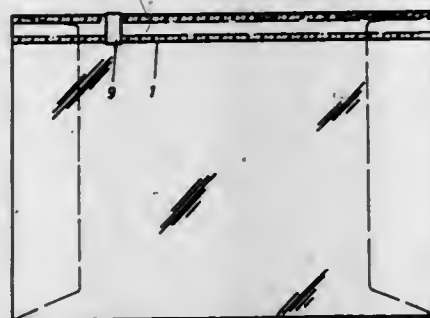
Claims priority, application Germany, Sept. 26, 1969, P 17

86 383.1

Int. Cl. B42f 21/00

U.S. Cl. 40-359

4 Claims



Indexing means with a self-sealing layer, for a filing or planning system which relates, in particular, to a graduated strip for attachment to filing folders, index cards, planning boards or the like and having tabs which are displaceable along the strip.

3,590,512

AIR-OPERATED PROJECTILE-FIRING APPARATUS

Ronald W. Joyce, Springdale; Eugene Billingslea, Rogers; Leopold C. Sage, Fayetteville, and Robert K. Marshall, Rogers, all of, Ark., assignors to Victor Comptometer Corporation, Chicago, Ill.

Division of Ser. No. 739,575, Mar. 29, 1968, which is a division of application Ser. No. 598,087, Nov. 30, 1966, now Patent No. 3,399,596. Filed Apr. 3, 1969, Ser. No. 815,256

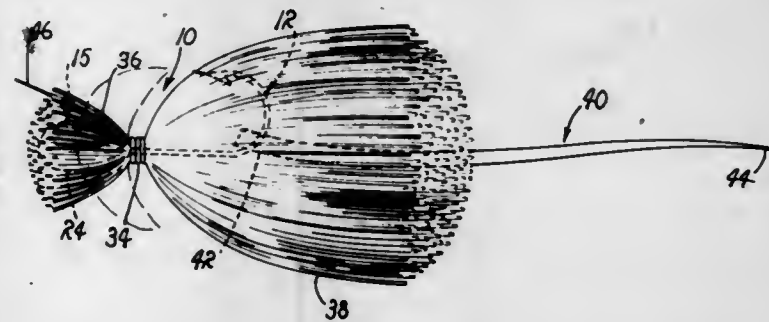
Int. Cl. F41c 13/00

U.S. Cl. 42-39.5

4 Claims

There is herein disclosed a firearm-ammunition-loading apparatus comprising a pivotally movable ammunition-holding member having an ammunition chamber alignable with a loading port in a pivotally movable loading member in a

This disclosure relates to a fishing lure and the method for making it. The fishing lure is made by molding a weighted head adjacent the eye end of a fishhook with the eye protruding from the head. A tie wire is also molded in the head and is utilized to wrap a sheet of shreadable rubber intermediate its ends about the shank of the hook adjacent the molded head. The rubber is then shredded at its ends to form a shredded hook skirt which covers and extends beyond the barb end of the hook and a neck skirt which projects outward from the point of wrap adjacent the molded head. A flexible tail may be added by impaling its lead end with the barb of the hook.



3,590,515

SHAMPOO DOLL

Ronald A. Clark, Rolling Hills Estates; Stephen Lewis, Pacific Palisades; John W. Ryan, Los Angeles; Wallace H. Shapiro, Torrance, and Larry D. Workman, Fountain Valley, all of, Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Oct. 16, 1969, Ser. No. 866,897

Int. Cl. A63h 33/28

U.S. Cl. 46-6



A doll whose arms move in a manner to simulate hair washing actions, while shampoo-like foam is produced in its hair, comprising a hollow doll body with a pair of upwardly extending arms, the body having elastic walls so that when a child repeatedly squeezes the sides of the body together, the arms move up and down. The head is hollow and has numerous threads that extend through hole therein to form hair. As the elastic body is squeezed, air is pumped through the thread-holding holes, and if a soap solution has been spread on the hair, the air flowing through the holes creates foam in the hair.

3,590,516

LEG ASSEMBLY FOR A FIGURE TOY

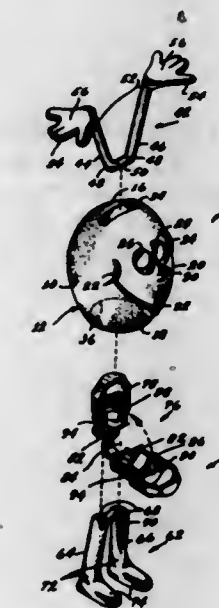
Ralph Dunn, Manhattan Beach, and Armando P. Villasana, Los Angeles, both of, Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Mar. 27, 1970, Ser. No. 23,149

Int. Cl. A63h 33/00

U.S. Cl. 46-22

7 Claims



engaged in the leg-receiving aperture of a figure toy having a pair of arms and hands extending generally vertically from the top of its head so that the figure toy may be inverted and stood on its hands.

3,590,517

MOTOR DRIVEN MODEL AIRPLANE

Ulrich Regehr, Laurensberg, and Roland Dietel, Aachen, both of, Germany, assignors to Simprop-Electronic, Harzewinkel, Germany

Filed Jan. 31, 1969, Ser. No. 795,442

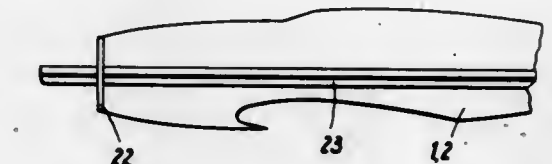
Claims priority, application Germany, Sept. 10, 1968, P 17

28 001.2

Int. Cl. A63h 27/00

U.S. Cl. 46-76

6 Claims



This disclosure relates to a motor-driven model airplane that can be put together from a few prefabricated individual parts and which has particular features for preventing damage to the vital parts thereof during impact. The fuselage, wings and tail unit of the plane are formed of plastic half shells which are lined with a foam plastic material. Impact loads applied to the vital parts of the plane as a result of crashes thereof are transmitted to the foam plastic material and evenly distributed therethrough thereby reducing the possibility of an impact failure at a particular point in the airplane.

3,590,518

FLYING SAUCER CRAFT

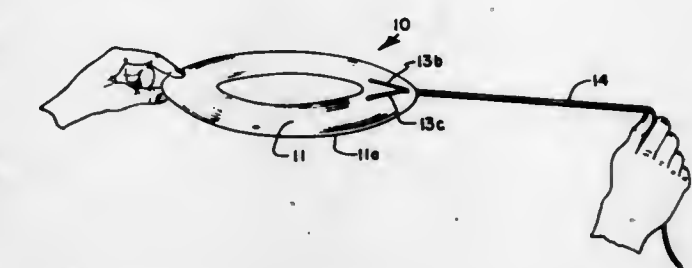
Ross W. LeBaron, Salt Lake City, Utah, assignor to Wham-O Mfg. Co., San Gabriel, Calif.

Filed Oct. 8, 1968, Ser. No. 765,823

Int. Cl. A63h 27/14

U.S. Cl. 46-81

9 Claims



A flying craft simulating a "flying saucer" and comprising an aerodynamically stable circular body made of lightweight flexible material, weighted to insure directional travel and provided with a hook to facilitate launching should this be desired.

3,590,519

BEADED CHAIN-DESCENDING TOY

Atheistan F. Spilhaus, Box 37, Gladwyne, Pa.

Filed Jan. 23, 1969, Ser. No. 813,783

Int. Cl. A63h 11/4

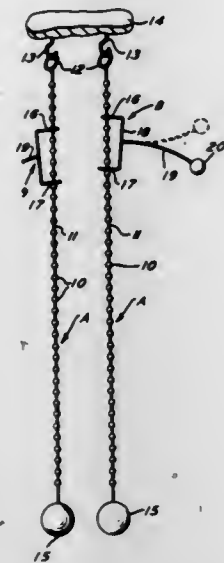
U.S. Cl. 46-132

9 Claims

This amusement device comprises a beaded chain string vertically under tension on which an action member is mounted for incremented descent thereupon. The action member comprises two loops fixedly and vertically displaced by a connector having a length such that when one loop surrounds a major diameter of one bead, the other loop is positioned between two other beads. The loops have internal

A pair of legs connected together by a bight portion received in a stirrup on a cylindrical member adapted to be

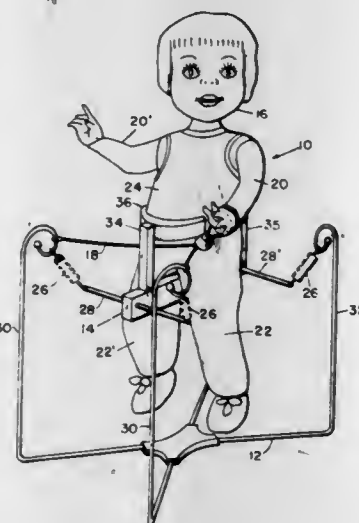
diameters larger than the beads. There is a mechanical oscillator coupled laterally to the connector which, when oscillating, rocks the loops alternately from one side to another thereby enabling incremental descent of the action member.



3,590,520
SELF-ACTUATED ROCKING AMUSEMENT DEVICE
Patrick M. Tomaro, Maplewood, N.J., assignor to Remco Industries, Inc., Harrison, N.J.
Filed Aug. 29, 1969, Ser. No. 854,045
Int. Cl. A63h 13/18

U.S. Cl. 46-147

10 Claims



A self-actuated rocking amusement device is described wherein a toy such as a rocking doll having automatically reciprocating limbs is positioned on a support such as a seat which is resiliently supported from a frame. A member of the toy such as a doll limb is connected by an easily attachable tether to the frame. Tether connected limb motions thus induce rocking motions of the doll toy with motions of the other doll limbs being effective to enhance rocking of the doll.

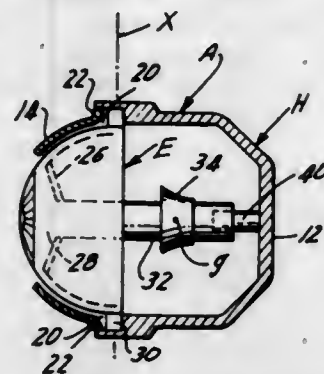
3,590,521
SIDE-TO-SIDE ROLLING DOLL EYE
Harvey W. Samo, Maplewood, N.J., assignor to Margon Corporation, Rahway, N.J.
Filed Mar. 18, 1969, Ser. No. 808,138
Int. Cl. A63h 3/40

U.S. Cl. 46-167

6 Claims

A side-to-side rolling doll eye assembly mounted in a housing for pivotal rolling movement therein about a vertical axis,

the eye member comprising a transparent doll eye component embodying a front lens part having a reflective iris portion and a transparent pupil portion. The pupil portion of



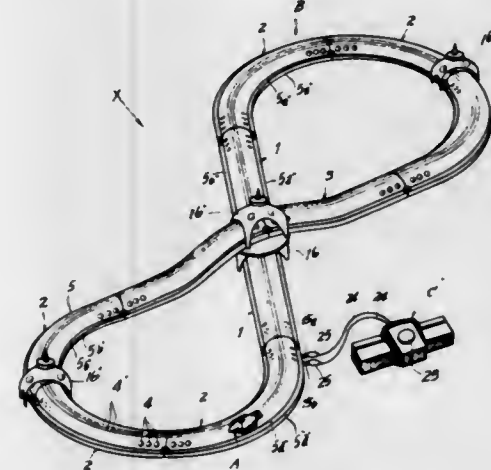
the eye is formed integrally with an inwardly extended stem and the weight for the eye member is provided by a weight element attached to and localized at the stem.

3,590,522
TOY TRACK SYSTEM
Nobuo Hamano, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan and Yonezawa Gangu Co., Ltd., Tokyo, Japan
Filed Dec. 17, 1968, Ser. No. 784,305

Claims priority, application Japan, May 10, 1968, May 13, 1968, Oct. 14, 1968, 43/38480; 43/39479; 43/74894
Int. Cl. A63h 33/26

U.S. Cl. 46-231

4 Claims

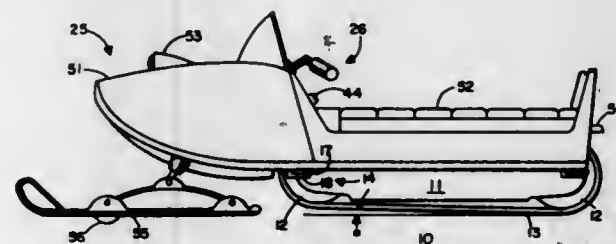


A toy track system in which an electric motor-driven toy vehicle runs on a pair of continuous conductive rails which are disposed inside a transparent tunnel-like cover or dome, said conductive rails being electrically connected to an electric control box which supplies power to said rails for driving the vehicle.

3,590,523
TOY VEHICLE WITH TRACK DRIVE MECHANISM HAVING AN INTERNAL POWER SOURCE
Mathias H. Riesgraf, 4945 Pennine Pass, Minneapolis, Minn.
Filed July 2, 1968, Ser. No. 742,043
Int. Cl. A63h 17/24

U.S. Cl. 46-243 M

17 Claims



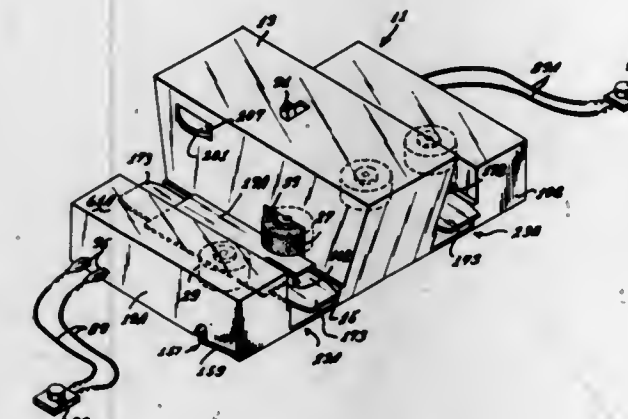
This application discloses a track drive mechanism which may be utilized for toys or the like. All of the necessary parts

of the mechanism are physically mounted inside of an endless track. The mechanism is detachably secured to any one of a wide variety of body designs to provide a high-velocity track driven device.

3,590,524
TOY VEHICLE ACCELERATOR
Janos Beny, Manhattan Beach, and Denis V. Bosley, Palos Verdes, both of, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Oct. 27, 1969, Ser. No. 869,655
Int. Cl. A63h 33/26

U.S. Cl. 46-243

12 Claims

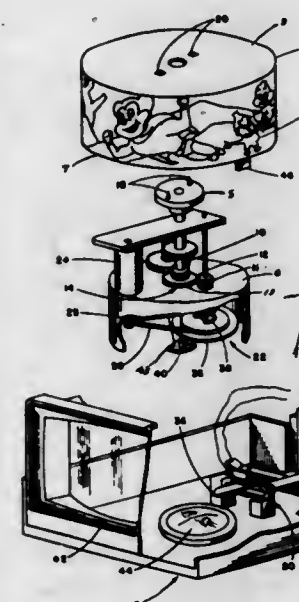


An accelerator for unpowered toy vehicles traveling along a roadway wherein a pair of oppositely turning motor-driven vehicle-engaging rollers are each rotatably mounted on pivoted levers, the levers being biased to swing toward each other and mounted opposite each other adjacent opposite sides of the roadway in order that the rollers temporarily but equally engage opposite sides of the vehicles and thereby stably accelerate the vehicles in a predetermined direction.

3,590,525
TOY MOVING-PICTURE AND AUDIO-SYNCHRONIZING MECHANISM
Patrick M. Tomaro, Maplewood, N.J., assignor to Remco Industries, Inc., Harrison, N.J.
Filed Feb. 19, 1969, Ser. No. 800,379
Int. Cl. A63h 33/26

U.S. Cl. 46-232

9 Claims



3,590,527
SHEET OF PLASTIC MATERIAL FOR PROTECTION OF VEGETATIVE PLANTS
Johannes P. Pijst, Hillegom, Netherlands, assignor to N. V. Hollandsche Draad-en Kabelfabriek, Amsterdam, Netherlands
Filed June 21, 1968, Ser. No. 738,845
Int. Cl. A01g 13/02

U.S. Cl. 47-9

4 Claims

A sheet of plastic material for protecting a vegetative plant, the material being air and water permeable and sensitive to light so as to be gradually disintegrated thereby.

3,590,528
DECOMPOSABLE POLYBUTENE-1 AGRICULTURAL MULCH FILM
Thomas H. Shepherd, Hopewell, N.J., assignor to Princeton Chemical Research Inc., Princeton, N.J.
Continuation-in-part of application Ser. No. 777,921, Nov. 21, 1968, now abandoned, which is a continuation of application Ser. No. 592,981, Nov. 9, 1966, now abandoned. This application Sept. 25, 1969, Ser. No. 861,155
Int. Cl. C08f 3/02, 45/58

U.S. Cl. 47-9

1 Claim

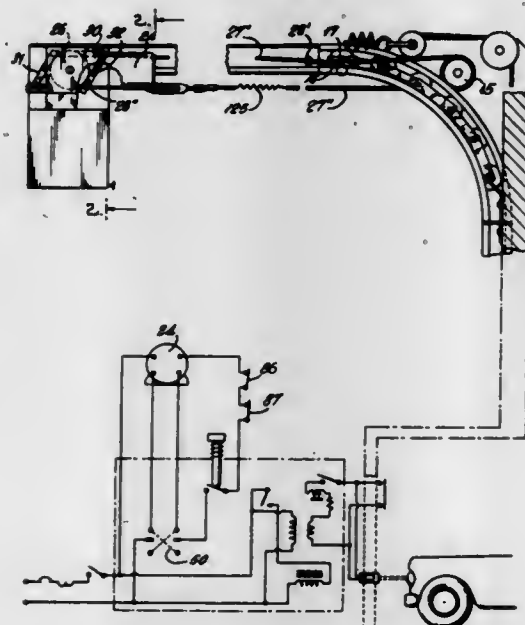
A storytelling toy is provided having a series of pictures on a drum that rotates. A record telling the story is synchronized

Polybutene-1 film for use as an agricultural mulch. This film degrades and substantially disintegrates of its own volition within a growing season.

3,590,529 GARAGE DOOR UP-RETURNER AND CIRCUIT BREAKER

Frederick A. Purdy, 870 United Nations Plaza, New York, N.Y.
Continuation-in-part of application Ser. No. 401,264, Oct. 2, 1964, now Patent No. 3,444,344. This application Mar. 18, 1969, Ser. No. 808,637
Int. Cl. E05f 15/20, 15/16
U.S. Cl. 49—28

13 Claims



An Up-Returner for an obstructed downwardly moving overhead garage door; a Circuit Breaker, two-directional.

I. At an operator for driving an overhead garage door open or closed; a door, moving downward toward closed position and encountering an obstruction, is automatically reversed in direction to fully reopen.

II. Integral with the parts of assembly I, is a circuit breaker to shut off an overtime-running motor by breaking the electric-supply circuit, whether motor's direction of rotation is clockwise or counterclockwise.

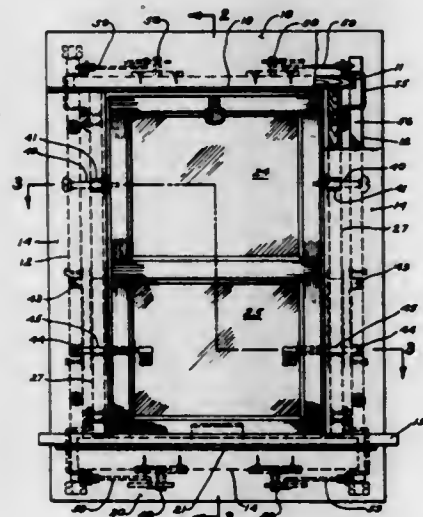
III. Improvements over prior designs.

3,590,530 TRANSVERSELY PIVOTED WINDOWS

John B. Duguay, 37 Garand St., Waterville, Mass.
Filed Jan. 9, 1969, Ser. No. 790,012
Int. Cl. E05d 15/22

U.S. Cl. 49—161

7 Claims



Windows are disclosed that are supported by transversely aligned pivots so that they may be turned to bring their outer faces into a position wherein they may be serviced from

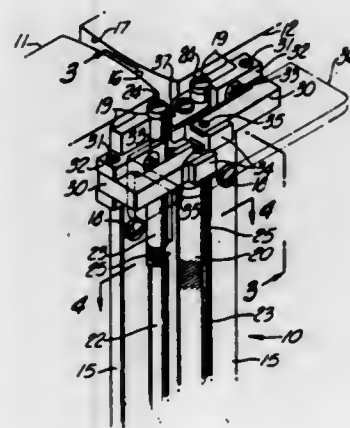
within the building with releasable means closing their sides against the weather and preventing the windows from being so turned.

3,590,531 ASTRAGAL

Garrett D. Childs, Fresno, Calif., assignor to Builders Brass Works Corporation, Los Angeles, Calif.
Filed May 7, 1969, Ser. No. 822,442
Int. Cl. E06b 7/16

U.S. Cl. 49—368

19 Claims

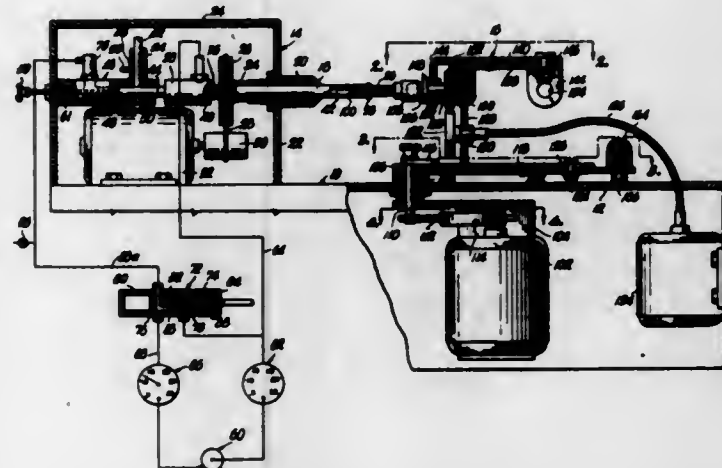


An astragal for covering the gap between the adjacent edges of a double door where a leaf member is pivotally mounted along that edge of each door and a cam pivots each leaf member from an open, protruding position to a mating position with the other leaf member in the final closing movement of the door and either door can be separately opened and closed.

3,590,532
LENS FINISHING AND MODIFYING MACHINE
Lawrence Littlefield, 1208 Stratford Road, Kansas City, Mo.
Filed Mar. 6, 1968, Ser. No. 711,048
Int. Cl. B24b 7/00, 9/00, 47/00

U.S. Cl. 51—55

13 Claims

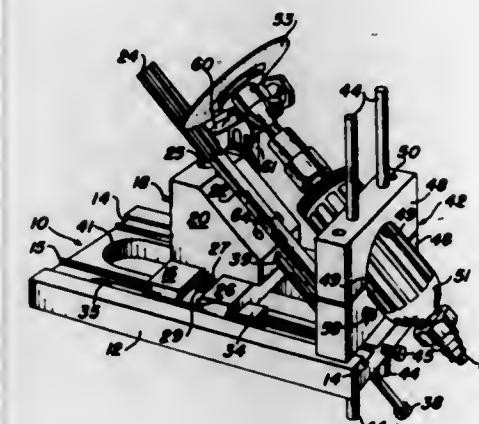


A machine for finishing lenses including a rotatable holder provided with controlled vacuum for holding and rotating the lens. An independently rotatable finishing tool is mounted for reciprocation along any of a number of arcuate paths of travel. The respective axes of rotation of the lens holder and the tool are selectively variable, and motor and cam means reciprocate the tool during various operations.

3,590,533
PORTABLE PRECISION TOOL SHARPENER
Frank R. Samson, 506 Arbor Drive, San Diego, Calif., and Paul H. Dominguez, 4516 Nido Lane, San Diego, Calif.
Filed July 28, 1969, Ser. No. 845,448
Int. Cl. B24b 7/00

U.S. Cl. 51—71

1 Claim

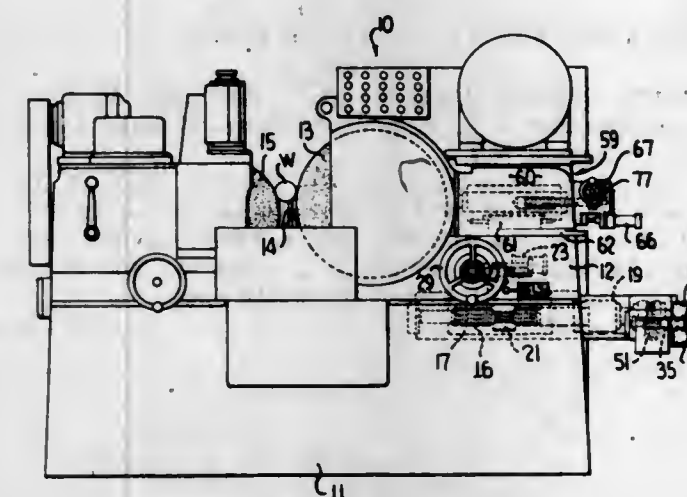


A portable tool sharpener mountable on a bench or the like and having an adjustable tool supporting carriage alignable with respect to a sharpening wheel to vary the degree and relief of the cutting edge of the tool to be sharpened.

3,590,534
WHEEL WEAR COMPENSATION
Glenn M. Snyder, Waynesboro, Pa., assignor to Litton Industries, Inc.
Filed Nov. 27, 1968, Ser. No. 779,424
Int. Cl. B24b 49/18

U.S. Cl. 51—165

6 Claims

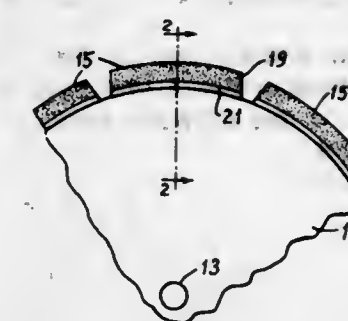


A single compensating feed increment device advances the wheel to compensate first for wear and then for truing. A counter is set for a predetermined number of wheel feed increments, some of which are used to compensate for wheel wear, others to compensate for dressing. During grinding, a post process gauge actuates the increment feed to advance the wheel support each time work size reaches a predetermined oversize amount short of the oversize limit. Each increment of advance is equal to the amount of oversize correction for which the gauge is set. Each such advance is counted by the counter. A truing operation is performed after a predetermined number of pieces has been ground. In response to the truing signal, the increment feed is actuated to advance the wheel support by the remaining increments of the predetermined number for which the counter was set. The truing tool advances a predetermined number of increments equal to the total increment advance of the wheel, and reduces wheel radius by the amount equal to the wheel advance by said remaining increments.

3,590,535
DIAMOND ABRASIVE SAW BLADE
Donald H. Benson, Spenceport, and Willard R. Pratt, Brighton, both of N.Y., assignors to Federal-Mogul Corporation, Southfield, Mich.
Filed Apr. 24, 1969, Ser. No. 818,949
Int. Cl. B24d 5/06

U.S. Cl. 51—206.4

11 Claims

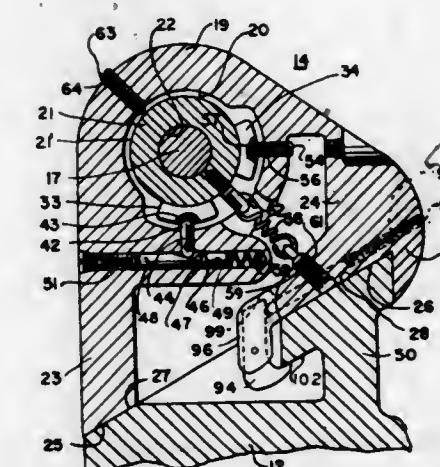


A diamond abrasive saw blade or cutoff disc in which diamond-impregnated segments are arranged at intervals on the circumference of a wrought metal core or drive disc. Each diamond-bearing segment is initially formed on a base or underlay of wrought metal such as steel, which can be accurately machined to fit accurately on the periphery of the drive disc. The close mating of the machined underlay with the machined periphery of the drive disc enables the underlay to be attached to the drive disc by electron beam welding, which produces such a narrow band of heat that it is not necessary to provide the drive disc with the conventional radial slots which have been required in the past when other types of welding had to be used. The radially outward face of the metal underlay may be notched or scalloped or otherwise nonconcentric with respect to the center of rotation of the drive disc, so that when part of the underlay wears away, the resulting exposed portion of the diamond-bearing segment will be nonconcentric to the axis of rotation and thus will tend to dissipate the swarf and minimize further wear on the region where the abrasive segment is joined to the drive disc.

3,590,536
FOOTSTOCK FOR A MACHINE TOOL
Robert C. Fisher, Milford, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
Filed Jan. 23, 1969, Ser. No. 793,396
Int. Cl. B24b 5/02; B23b 23/02

U.S. Cl. 51—236

9 Claims



A footstock for a machine tool having housing with a lengthwise opening therein. A spindle is mounted in said opening. First spindle-supporting means is mounted in the opening adjacent a center carrying end of the spindle and engaging the side of the spindle opposed to the load on the center. Second spindle-supporting means is mounted in the opening engaging the side of the spindle on which the center

is loaded. The spindle-supporting means are advanceable transversely of the axis of the spindle for aligning the spindle and center.

3,590,537

DISC-BRAKE CLEANING APPARATUS

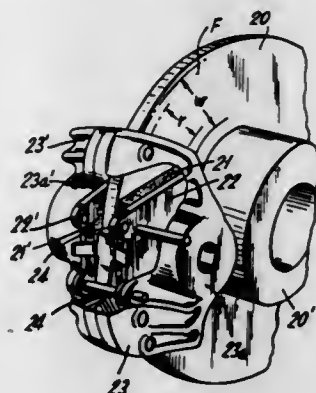
Erich Königstein Hennig, and Wolfgang Kammermayer, both of Frankfurt, Germany, assignors to Alfred Teves Maschinen- und Armaturenfabrik KG, Frankfurt am Main, Germany

Division of Ser. No. 634,353, Apr. 27, 1967, Pat. No. 3,521,411. This application Nov. 4, 1969, Ser. No. 873,945

Int. Cl. B24b 19/00

U.S. Cl. 51-241 S

8 Claims



Apparatus for cleaning the braking surface of a brake disc without dismantling the disc or completely dismantling the brake installation is disclosed. A pair of grinding chocks or pads having a grindstone plaque or layer mounted upon a backing plate via a layer of thermal insulation is substituted for the brakeshoes or is retained against the discs and pressed against the area to be cleaned while the disc is rotated via an auxiliary motor frictionally engaging the periphery of the disc or through the axle of the disc.

3,590,538

PLUG CONSTRUCTION FOR USE WITH ANCHOR INSERTS SET IN CONCRETE

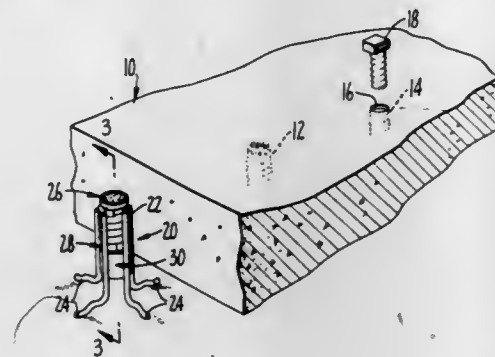
Jack A. Holt, San Bruno, Calif., assignor to Burke Concrete Accessories, Inc., Burlingame, Calif.

Filed May 19, 1969, Ser. No. 825,501

Int. Cl. E04c 5/12; E04g 21/12

U.S. Cl. 52-127

16 Claims



A pair of plugs designed for insertion into the opposite ends of a helical coil-type concrete anchor to prevent the intrusion of concrete into the anchor during pouring and provide for exposure of the anchor after the concrete has set. The plug for use in the end of the anchor to be exposed is of shell-like construction and carries an absorbent compressible material on its external end. The plug for use in the internal end of the anchor is made up of a body member threadably engageable in the anchor and a cuplike element designed to provide a void into which the body member may be displaced.

3,590,539

GLAZING CONSTRUCTION

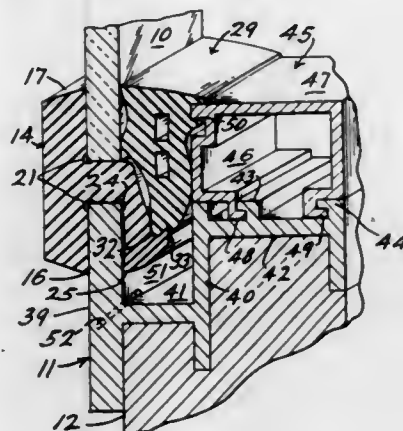
Howard R. Brown, Bowling Green, Ohio, and Michael C. Rizza, Walnut Creek, Calif., assignors to The D. S. Brown Company, North Baltimore, Ohio

Filed May 21, 1969, Ser. No. 826,526

Int. Cl. E04b 1/70; E04f 17/04

U.S. Cl. 52-303

2 Claims



A glazing construction for positioning and sealing, from inside the building, a window pane within a rigid frame. A resilient gasket has, in cross section, the shape of a lower case letter "h" including an outer strip, an intermediate web and a lower flange. The gasket is installed on a rigid frame larger than the glass pane so that the outer border defined by the outer strip is smaller than the glass pane, and the intermediate border defined by the intermediate web is slightly larger than the glass pane. The glass pane is installed from inside the building by movement normal to the plane of the window and directly into the intermediate border. A rigid sill member is then secured around the opening inside the building to provide a sill border smaller than the glass pane. Finally, a plurality of resilient wedge pieces are positioned between the sill border and glass pane to secure the glass pane in place.

3,590,540

PREFABRICATED LAMINATED INSULATED WALL PANELS

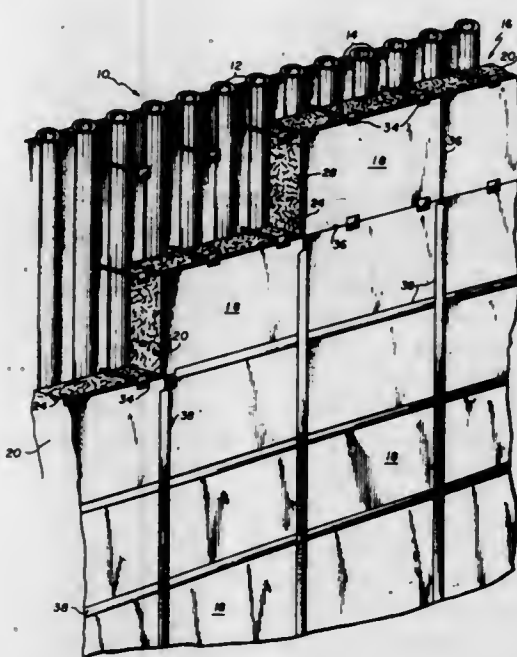
Richard C. Johnson, Dansville, N.Y., and John M. Connell, Mountain Lake, N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.

Continuation of application Ser. No. 716,126, Mar. 26, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 468,819, July 1, 1965, now Patent No. 3,375,628. This application Sept. 4, 1968, Ser. No. 757,301

Int. Cl. E04c 2/22; E04b 1/80

U.S. Cl. 52-309

10 Claims



Prefabricated insulated wall panels formed from overlying layers of heat resistant materials. The panels are capable of

being assembled in abutting relation on the outer surface of a metallic enclosure. The panels have an inner fibrous insulation layer of materials such as asbestos, glass fiber, mineral wool, aluminum silicate fibers or felt secured together with inorganic binders such as bentonite, portland cement or high temperature calcium aluminate cements or an organic binder such as phenolic or latex. The insulation layer has a compressive strength sufficient to afford a suitable working surface. A heat-resistant thermosetting layer formed from an organic adhesive with a base of neoprene, rubber, silicone, or resin adhesive is applied to the insulation layer and bonds a reinforced resin laminate layer formed from polyester, phenolic, or epoxy resin, with glass fiber or fibrous asbestos. The panel joints have bonding strips of several types and configurations securing the resin laminate layer.

fastened to the structures to be connected, each frame plate having a thickened marginal portion provided with an outwardly opening peripheral longitudinally extending recess, a longitudinal groove communicating with the recess, and spaced apart notches on the face of the marginal portion abutting the other frame plate; tongue strips formed to fit in the recesses of abutting frame plates and provided with tongues which enter the grooves of the frame plate, said strips having holes registering with the notches of a pair of abutting frame plates; and a fastener extending through registering notches in the frame plates and a hole in the tongue strip to connect the pair of frame plates together and thereby connect the structural members to which the frame plates are fastened. The same system can be achieved by providing tongues in the marginal portion of the frame plates, and grooves in the strips attaching the pair of frame plates.

3,590,541

SILL TRIM ASSEMBLY

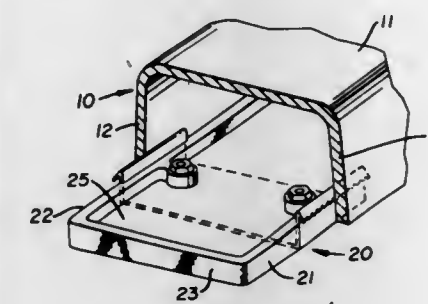
George Epstein, Akron, and Robert E. Mollman, Moreland Hills, both of Ohio, assignors to Alside, Inc., Akron, Ohio

Filed May 19, 1969, Ser. No. 825,721

Int. Cl. E04c 2/40; E04f 19/02

U.S. Cl. 52-311

6 Claims



A plastic trim assembly adapted to be placed on window sills, for example. The device is essentially of three-piece construction including a base which can be secured to the existing sill, clips which fit about the base and are secured thereto and have gripping means for engaging a cover or cap unit which is snapped into place thereon and has a decorative outer surface simulating stone, for example. Both the cover and the base have a series of spaced, transversely extending reinforcements enabling the assembly to be cut to size.

Clip assemblies of varying configuration enabling decorative and functional fixtures to be attached to the interlocking flanges of adjacent panel elements characterized by varying techniques for permitting the clip assemblies to press outwardly against the locking flanges thus securing the clip assemblies within the locking flanges while resisting any tendency to slide or otherwise become unfastened.

3,590,542

CONNECTION SYSTEM FOR CONCRETE AND STEEL STRUCTURES

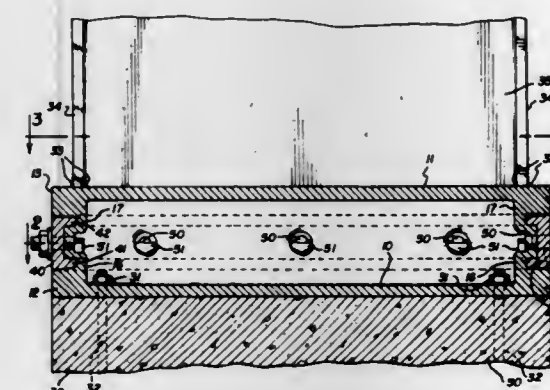
Harry M. Gallay, Orlando, Fla., assignor to Prestressed Concrete of Colorado, Inc., Denver, Colo.

Filed Jan. 21, 1970, Ser. No. 4,571

Int. Cl. E04b 1/41

U.S. Cl. 52-295

9 Claims



A connection system for concrete and steel structures comprising a pair of frame plates which face each other when

3,590,543

CLIP ASSEMBLIES FOR USE WITH CANOPIES AND WALL PANELING CONSTRUCTIONS

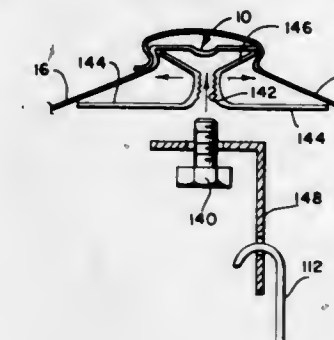
William C. Heirich, 2912 Wauhatch Drive, Muskogee, Okla.

Continuation-in-part of application Ser. No. 597,509, Nov. 29, 1966, now abandoned. This application Feb. 1, 1968, Ser. No. 702,240

Int. Cl. E04d 3/362

U.S. Cl. 52-478

8 Claims



3,590,544

SUPPORT STRUCTURE

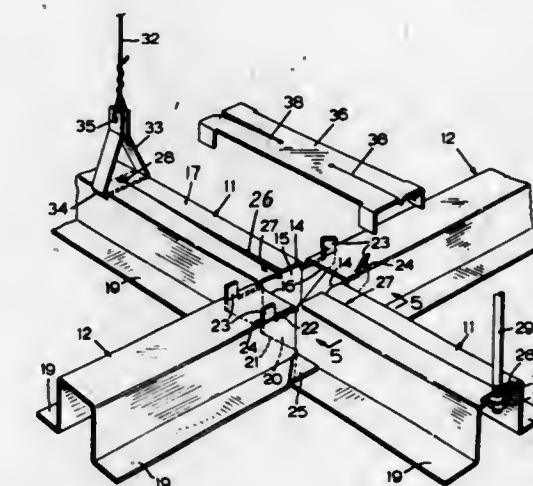
Charles G. Shepherd, Oakville, Ontario, Canada, assignor to Wilson Lighting Limited, Toronto, Ontario, Canada

Filed Nov. 6, 1969, Ser. No. 874,138

Int. Cl. E04b 1/68, 5/52

U.S. Cl. 52-573

12 Claims



A grid support structure comprising a pair of collinear first support beams of thermally expandable material, and a pair

of collinear second support beams of thermally expandable material which are perpendicular to the first support beams and the adjacent ends of which are secured to the adjacent ends of the first support beams. Longitudinal slits are formed in the first beams, each slit extending from the end of the appropriate beam to a position between the ends thereof with the portions of the beam bounding the slit disposed in different planes. Corresponding slits are formed in the second beams or, alternatively, outwardly directed lugs, by means of which the second beams are secured to the first beams are presented by each first beam and are secured to the second beams at positions spaced from the first beam. Longitudinal thermal expansion of the second beams causes the portions of each first beam bounding the slit therein to be urged into overlapping relationship, longitudinal thermal expansion of the first beams similarly causing the portions of each second beam bounding the slit therein to be urged into overlapping relationship, or causing the lugs to flex relative to the first and second beams, as the case may be.

3,590,545

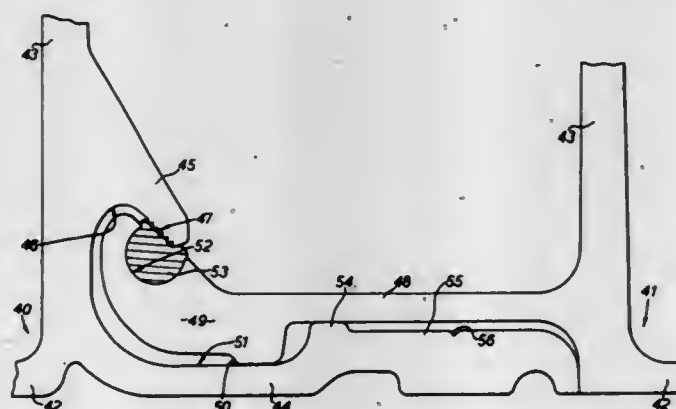
STRUCTURAL ASSEMBLIES

Cyril J. Webb, Birmingham, England, assignor to Alcoa of Great Britain Limited, Droitwich, England
Filed Oct. 24, 1968, Ser. No. 770,240
Claims priority, application Great Britain, Oct. 27, 1967, 49054/67

Int. Cl. E04c 1/30

U.S. Cl. 52-588

2 Claims



Metal floor assembly comprising at least two units interengaging along side edge portions which overlap and have between their overlapped portions a removable sealing strip.

3,590,546

SUSPENDED CEILING SUPPORT AND AIR DISTRIBUTION OUTLET ASSEMBLY

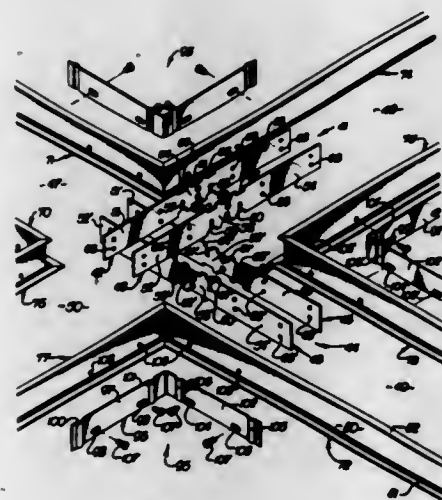
Robert R. Lambert, Glendora, Calif., assignor to Air Factors, Inc., Covina, Calif.

Filed Apr. 21, 1969, Ser. No. 817,954

Int. Cl. F04b 5/52; F24f 7/04, 13/08

U.S. Cl. 52-475

10 Claims



A suspended ceiling support assembly providing longitudinally extending air distribution outlets in a ceiling plane,

the outlets intersecting in either the midportion of the ceiling, the intersection of the ceiling with a wall, or the intersection of the ceiling with two intersecting walls, each of the outlets comprising inverted T-shaped longitudinally extending ceiling elements in spaced parallel relation each including provision for connection to hangers, the hangers comprising an arrangement or grid of spaced-apart members which may be interfitted in various combinations to provide a grid of cruciform, T, or right-angle shape and on which the inverted T-shaped ceiling elements are mounted providing various air distribution outlet intersection configurations each having an open center or intersection area.

3,590,547

CASINGS FOR JOISTS, COLUMNS AND OTHER STRUCTURAL MEMBERS

George Molyneux, and George Walter Molyneux, both of Eastbrook Road, Gloucester, England

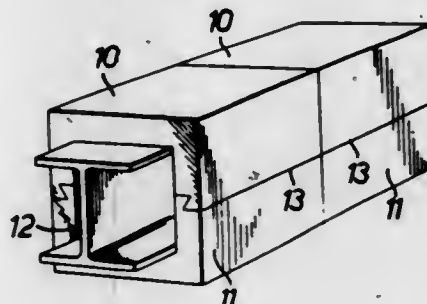
Filed Oct. 21, 1968, Ser. No. 769,234

Claims priority, application Great Britain, Oct. 25, 1967, Nov. 30, 1967, Feb. 9, 1968, 48433/67; 54439/67; 6468/68

Int. Cl. E04c 3/293, 3/34

U.S. Cl. 52-728

5 Claims



A fireproof casing for a steel joist with flanges including a number of precast concrete blocks formed with interengaging undercut surfaces to interlock around the joist and each block capable of being positioned transversely on the joist and of interlocking with the other blocks by longitudinal movement. The interlocking surfaces of the blocks are tapered to provide a wedging effect and in one embodiment the blocks are arranged to support further horizontal joists purely in compression against a flange of the main joist.

3,590,548

ENVELOPE OPENING MECHANISM

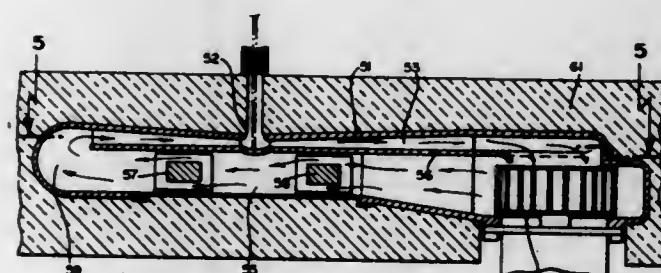
Edwin F. Pierce, Cherry Hill, N.J., and Robert J. Russell, Philadelphia, Pa., assignors to Kenco Corporation, Cherry Hill, N.J.

Filed Apr. 16, 1969, Ser. No. 817,619

Int. Cl. B26f 3/02; B65h 35/10

U.S. Cl. 53-3

6 Claims



Apparatus for opening envelopes by weakening three edges thereof by the passage of heated air or gas sequentially across each of the three edges to carbonize and weaken the edges. A parallelogram vacuum pickup is employed which operates in conjunction with a vacuum distribution valve for

controlling the pickup and delivery of the envelope. Opposed belts convey the envelope sequentially through three burner sections interposed between which are flipover mechanism which rotate the envelope 90° to present the next adjacent edge for carbonizing. At the end of the burner sections, a third flipover rotates the envelope into position in a flip-down mechanism which delivers the envelope to a differential roller with its unopened edge in a trailing position. A differential roller conveyor assembly is provided which includes a conveyor belt and a roller with a brake which is selectively actuated in response to the appearance of the envelope in the opening mechanism to exert a shearing force on the envelope and lay back an edge thereof exposing the contents.

means for forming a foil and paper pack and means for transferring the articles from the container into the pack and means for detecting the number and integrity of the articles prior to transfer.

3,590,551

AUTOMATIC APPARATUS FOR PACKING ARTICLES IN BOXES

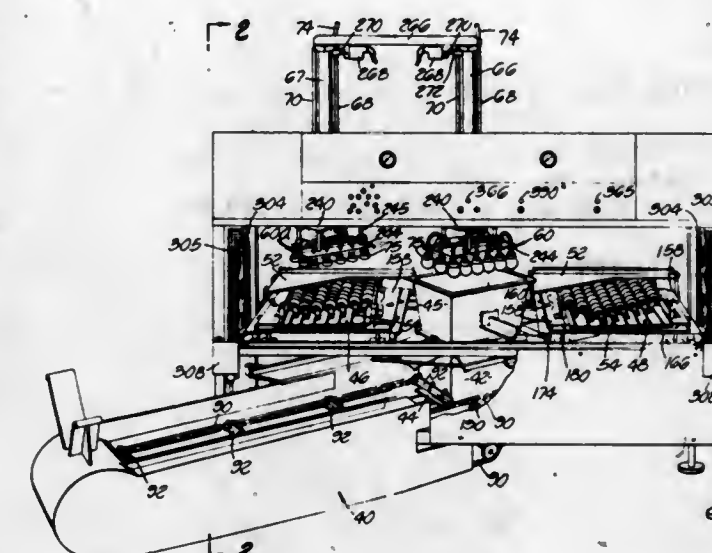
Fred W. Riddington, Ontario; Paul F. Paddock, Riverside, and Henry J. Lanfrankle, Glendale, all of, Calif., assignors to Sunkist Growers, Inc., Los Angeles, Calif.

Filed Mar. 27, 1969, Ser. No. 811,018

Int. Cl. B65b 57/06, 35/38

U.S. Cl. 53-60

36 Claims



A machine to pack oranges in boxes has a central packing station occupied by a box and two supply stations on opposite sides of the packing station where the fruit is arranged in staggered rows on channel assemblies that expand for gravitational supply movement of the fruit and contract to form patterns of fruit, the right channel assembly forming one particular pattern and the left channel assembly forming another particular pattern, the two patterns alternating in the layers in a box. A right pickup head and a left pickup head are mounted on an overhead carriage that shifts between a right position and a left position. At the right position the vacuum cups of the right head pick up a new layer from the right channel assembly and the vacuum cups of the left pickup head deposit a layer in the box. At the left position of the carriage the vacuum cups of the left head pickup a pattern at the left channel assembly and the vacuum cups of the right head deposit a layer of fruit in the box.

3,590,550

CIGARETTE PACKERS

Goffredo Gianese, Bologna, Italy, assignor to AMF Incorporated

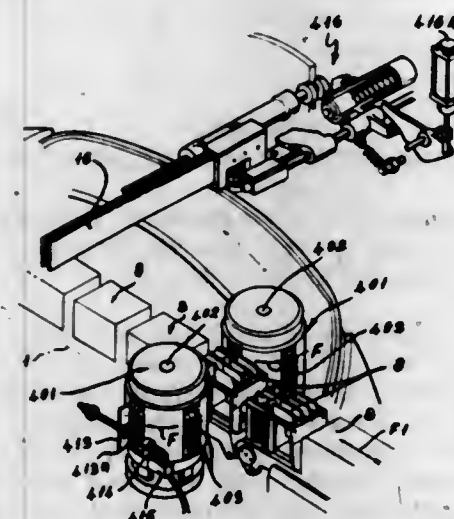
Filed May 27, 1969, Ser. No. 828,262

Claims priority, application Italy, June 8, 1968, June 11, 1968, June 11, 1968, 7092 A/68; 7097 A/68; 7098 A/68

Int. Cl. B65b 57/10

U.S. Cl. 53-54

7 Claims



A packing machine having means for successively filling a plurality of containers with rodlike articles and independent

3,590,552

AUTOMATIC PANEL WRAPPING MACHINE

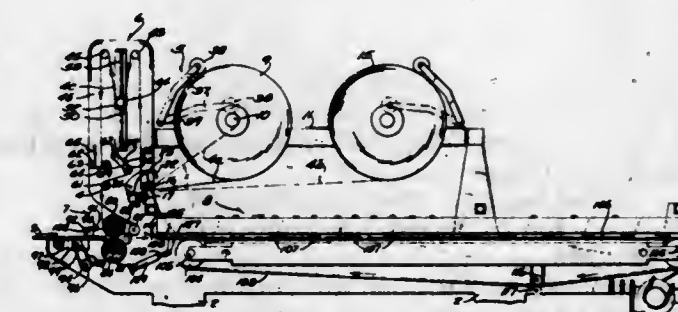
Carl R. Marschke, Phillips, Wis., assignor to Marquip Inc., Phillips, Wis.

Filed June 4, 1969, Ser. No. 830,466

Int. Cl. B65b 57/02, 11/12, 41/12

U.S. Cl. 53-66

15 Claims



A wrapping machine in which paper is fed from a paper roll and wrapped around a plurality of separate intermittently fed panel boards. Means responsive to the diameter of paper remaining on the paper roll applies a gradually decreasing drag force to prevent overrunning by the paper roll. Paper passes over a capstan roll which is driven in response to the

position of a vertically movable dancer roll which is cradled by and tensions the paper. The dancer roll position also engages and releases the braking device. An idler roll is provided with a downwardly inclined paper stop, the end of which is spring biased upwardly to confine paper against the idler roll and prevent backward sliding of paper when it is severed therebeneath. The paper passes through a shock-absorbing device and hence to a pair of nip rolls through which a narrower panel board having glue strips adjacent its lower edges is fed. The paper and board are then fed between lower driven belts and upper converging belts which pull the paper taut; and the paper is folded and tucked under the board edges for contact with the glue strips. Means responsive to passage of a board therethrough severs the paper between boards, and the paper end portion is pulled back through the nip.

3,590,553

REFILL BAG PACK INSERTING MECHANISM FOR AUTOMATIC BAGGERS

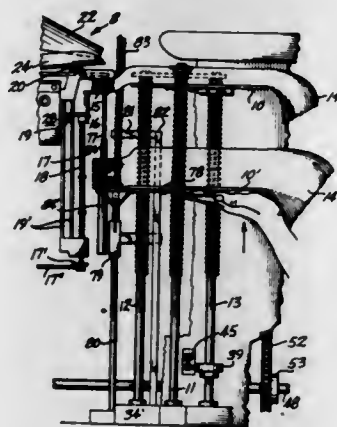
Alvin C. Formo, Seattle, Wash., assignor to Formost Packaging Machines, Inc., Seattle, Wash.

Filed Aug. 1, 1968, Ser. No. 749,382

Int. Cl. B65b 43/26

U.S. Cl. 53-189

13 Claims



A plate carrying a pack of bags adjacent to the loading station of an automatic bagger is engaged with and raised by rotation of upright screws as bags are used from the pack. A second plate underlying the first plate and also engaged with and raisable by the screws supports a refill bag pack closely underlying the first plate so that the first plate can be withdrawn enabling the first bag pack to be engaged and supported by the refill bag pack. Spindles extending through apertures in the upper bag pack maintain the bags in registry and transfer spindles enable apertures of a refill bag pack to be threaded on the same spindles as are engaged by the apertures of the upper bag pack. The screws are rotated intermittently to raise the bag packs by a cam-driven overrunning clutch.

3,590,554

CAPPING MACHINE

Paul H. Carter, Owings Mills, Md., assignor to Maryland Cup Corporation, Owings Mills, Md.

Filed Sept. 16, 1969, Ser. No. 858,273

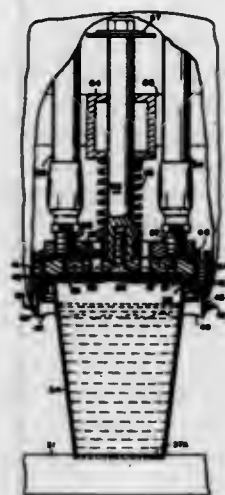
Int. Cl. B65b 7/28; B67b 3/04

U.S. Cl. 53-299

16 Claims

A capping machine for open top cups has an elevator for lifting a tray of the cups to be capped. A unit positioned above the elevator is subdivided into vertical pockets one for receiving each cup in the tray. The pockets are delineated by walls having knife edges at the bottom. Heating irons are disposed in the pockets for contacting a heat sealable sheet of material against the rims of the cups. Further upward movement of the tray causes a retraction of the heating irons and the sheet to contact the knife edges which separate it

into individual sections that are heat sealed to the cups respectively. This retraction also causes a wiper ring to fold



down the edges of the individual sections around the rims of the cups as a sanitary measure.

3,590,555

METHOD FOR REMOVAL OF HYDROGEN SULFIDE FROM HYDROCARBON CONTAINING GASES

Rudolf Wackernagel, Dortmund, Germany, assignor to Friedrich Uhde GmbH, Dortmund, Germany

Filed Dec. 2, 1968, Ser. No. 780,538

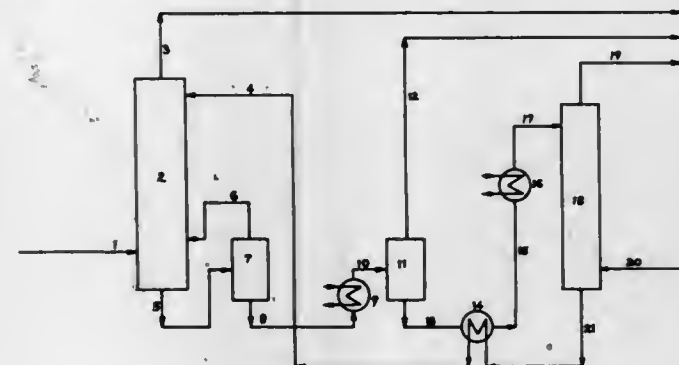
Claims priority, application Germany, Dec. 9, 1967,

P 16 69 337.1

Int. Cl. B01d 53/00

U.S. Cl. 55-51

4 Claims



A method for removal of hydrogen sulfide from hydrocarbon containing gases by means of pressure washing with subsequent regeneration of the charged washing means which consists of ester of phosphonic acid or the derivatives of this ester. The charged washing means is intermediately released from pressure and the intermediary expansion gas is conveyed back to the absorber after compression. The desorption heat expended in the regeneration is partially or entirely removed from the washing means and cooling thereof is utilized through a heat exchanger for cooling the fully regenerated washing means.

3,590,556

A MACHINE FOR PACKING OF CIGARETTES IN SOFT PACKETS

Heinz Focke, Siemensstrasse, Verden Aller, Germany

Filed Jan. 5, 1968, Ser. No. 696,017

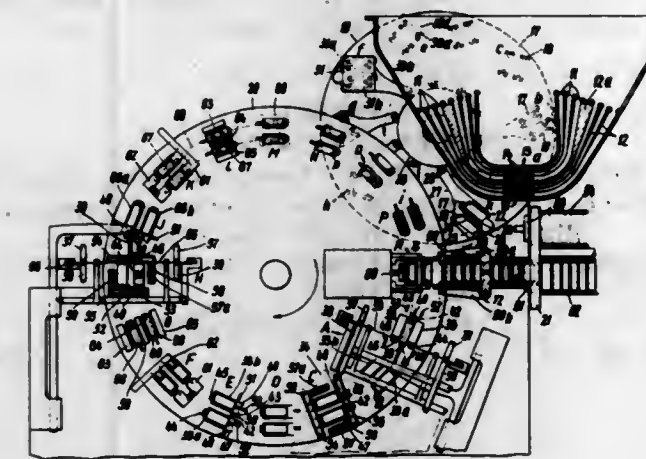
Int. Cl. B65b 57/00, 19/04

U.S. Cl. 53-53

20 Claims

A machine for packing of cigarettes in soft packets comprises a supply container for the cigarettes, means for feeding groups of cigarettes within the supply container, a first turntable being positioned adjacent the supply container, a first turntable being positioned adjacent the supply container and having stations thereon and a second turntable being positioned adjacent the first turntable and also having stations thereon. Several of the stations on the first turntable have means for the preparation of at least two blocks of cigarettes at an individual station. The second turntable cooperates with the first turntable to receive the two block

arrangements of cigarettes. Further several of the second chamber with the processed gas. These fines are instead turntable stations perform the operations of making, filling recirculated through the separation chamber for further



and closing two packet arrangements of the two block arrangements of cigarettes at an individual station.

3,590,557

APPARATUS FOR CLOSING PACKAGING CONTAINERS WITH ELASTICALLY DEFORMABLE WALLS

Adolf Vogel, Matstadt Wurth, Germany, assignor to Fr. Hesser Maschinenfabrik A. G., Stuttgart-Bad Cannstatt, Germany

Filed Mar. 4, 1969, Ser. No. 812,526

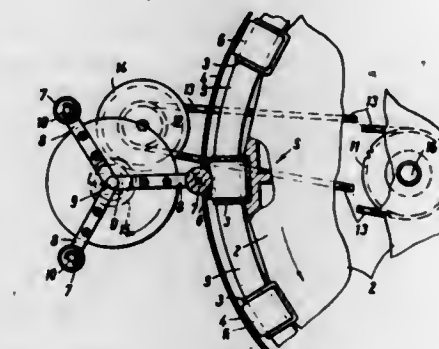
Claims priority, application Germany, Mar. 7, 1968,

P 16 11 862.0

Int. Cl. B65b 7/28

U.S. Cl. 53-329

4 Claims



Apparatus and method for automatically closing heat-sealable, liquid-filled, flexible-walled containers by means of a cover which is heat sealed to the container. Prior to sealing, container wall portions are depressed by push rolls to decrease the cubic volume of the container during the automatic heat-sealing step.

ERRATUM

For Class 55-51 see:
Patent No. 3,590,555

3,590,558

PARTICLE-FROM-FLUID SEPARATOR

John H. Fernandes, Windsor, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

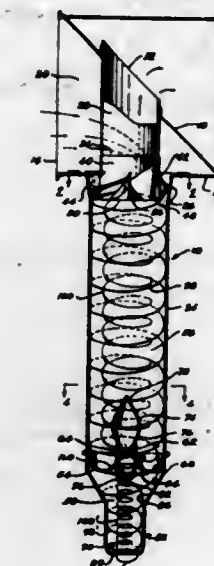
Continuation of application Ser. No. 514,582, Dec. 17, 1965, now abandoned. This application Nov. 15, 1968, Ser. No. 778,917

Int. Cl. B01d 45/12; B04c 5/06

U.S. Cl. 55-338

8 Claims

A cyclone separator having flow diverging apparatus adjacent the inlet end of the discharge tube for skimming off the outer layer of fluid flowing along the core vortex flow path and for diverting this fluid into the peripheral vortex flow path prior to its entrance into the discharge tube whereby the diverted fluid will be recirculated through the separator. By means of this diversion of fluid away from the discharge tube inlet, particulate fines contained in the core vortex flow path are prevented from exiting the separator



processing thereby to increase the particle separation efficiencies of the apparatus.

3,590,559

FUEL TANK INERTING SYSTEM

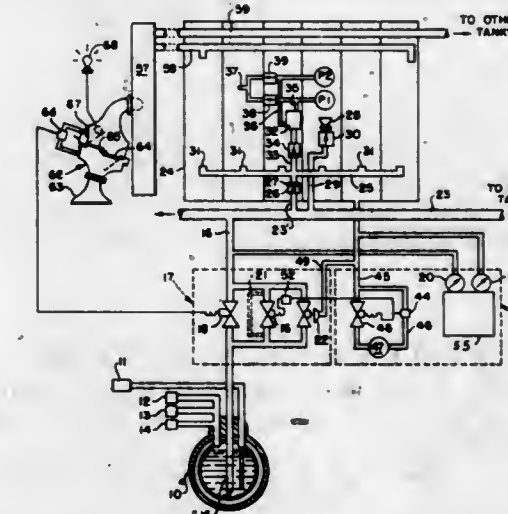
Kenneth R. Bragg, Redondo Beach, and Richard A. Nichols, Santa Monica, both of, Calif., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Mar. 6, 1968, Ser. No. 711,020

Int. Cl. B01d 19/00

U.S. Cl. 55-160

30 Claims



An inerting system to prevent fire and explosion within aircraft or other fuel tanks by maintaining in the ullage thereof an inert atmosphere and by removing oxygen from the fuel when pressure on the fuel decreases, as during the climb of aircraft, such removal of oxygen being accomplished by injecting a mixture of fuel and an inert gas into the fuel supply through submerged nozzles.

3,590,560

TUBULAR VORTEX AIR CLEANER

David B. Pall, 5 Hickory Hill, Roslyn Estates, and Robert I. Gross, 50 Sadde Lane, Roslyn Heights, both of, N.Y.

Continuation of application Ser. No. 682,847, Nov. 14, 1967, now abandoned, Continuation-in-part of application Ser. No. 646,903, June 19, 1967, now abandoned. This application

July 28, 1969, Ser. No. 849,571

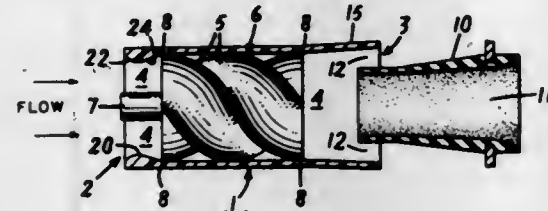
Int. Cl. B01d 45/12

U.S. Cl. 55-457

13 Claims

A tubular vortex air cleaner is provided by this invention.

The central passage of the air cleaner has a constriction adjacent the inlet and a convexly curved surface leading from the inlet to the constriction.



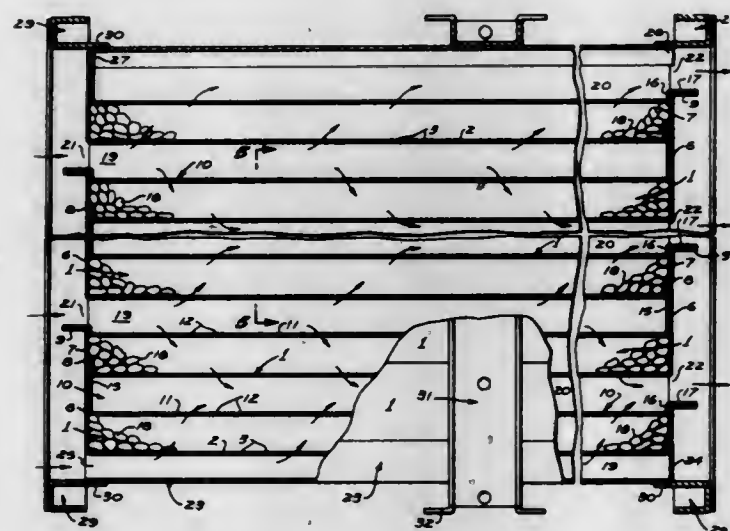
3,590,561 GAS FILTER

Robert I. Marble, Gardena, Calif., assignor to Farr Company, El Segundo, Calif.

Filed Oct. 28, 1968, Ser. No. 771,117
Int. Cl. B01d 29/08

U.S. Cl. 55-484

2 Claims



A gas filter formed of sets of similar sheet metal trays which, when stacked, form a plurality of inlet plenums having inlets at one side of the stack, an interposed set of outlet plenums having outlets at the opposite side of the stack, and sets of filter units between the inlet and outlet plenums.

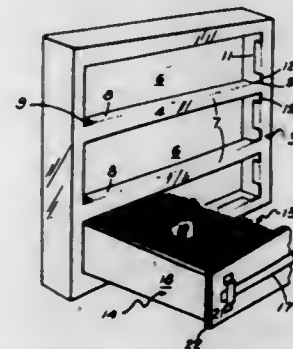
3,590,562

FILTER CELL AND MOUNTING FRAME ASSEMBLY
Thomas W. Byers, and Richard D. Rivers, both of Louisville, Ky., assignors to American Air Filter Company, Inc., Louisville, Ky.

Filed Feb. 6, 1969, Ser. No. 797,146
Int. Cl. B01d 25/22

U.S. Cl. 55-484

3 Claims



A filter cell and mounting frame assembly including a modular support frame having a plurality of flow-through side-by-side spaced passages separated by strip members, certain portions of which separator strip members are com-

paratively more flexible than other portions, the support frame passages receiving filter cells, the peripheral end walls of which cells engage with the separator strip members in fast sealed relation therewith, the strip members being sufficiently flexible to accommodate for possible distortions.

3,590,563 IMPLEMENT CARRIER

Franz Xaver Lenzner, Kleinkötz/Kreis Gansburg, Germany, assignor to Karl Mengele & Sohne, Gansburg, Germany

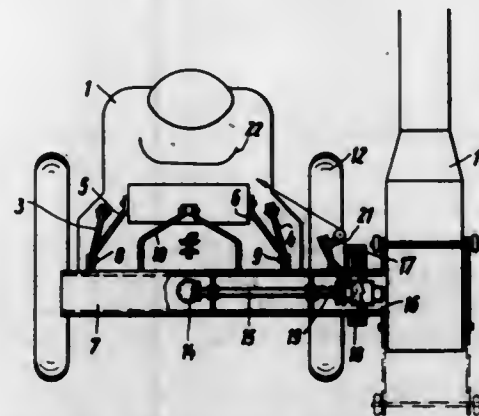
Filed Oct. 17, 1968, Ser. No. 768,441

Claims priority, application Germany, Oct. 18, 1967, P 15 82 358.2

Int. Cl. A01d 45/02

U.S. Cl. 56-11.7

3 Claims



An implement carrier includes a bracket member in a form of a tube which is adapted to be supported on a three point suspension to the rear of a tractor and to extend in a cantilever fashion to one side thereof so as to project outwardly from one of the wheels of the tractor. The tubular bracket member supports a transmission shaft which includes a bevel gear which is driven by a driving bevel gear from a rearwardly extending drive shaft of the tractor. The opposite end of the transmission shaft includes a claw coupling which may be engaged and disengaged with a counter coupling carried by an implement which is adapted to be towed by the tractor and driven thereby. The transmission shaft includes a coupling of a claw type which may be moved outwardly under the force of a biasing spring by a remote control mechanism to engage with the counter coupling of the implement.

3,590,564

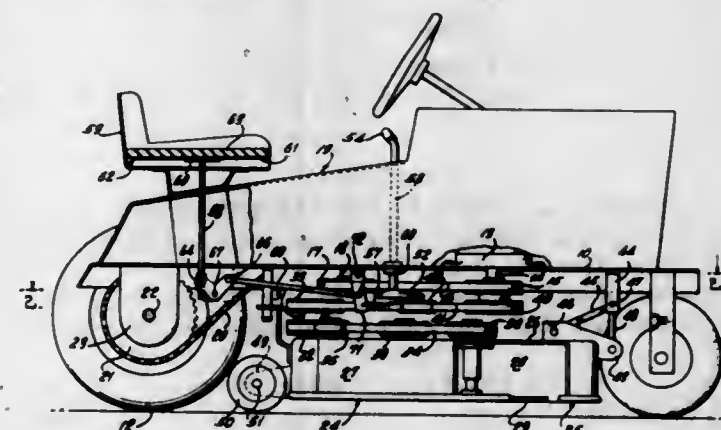
SAFETY DEVICE FOR MOWERS
Herbert B. Clifford, Michigan City, Ind., assignor to Poloron Products of Indiana, Inc., Michigan City, Ind.

Filed Dec. 4, 1968, Ser. No. 790,188

Int. Cl. A01d 35/26

U.S. Cl. 56-25.4 R

7 Claims



A safety device for mowers and particularly riding mowers which requires manual actuation of a mechanism to enable engagement of clutching means between the rotary cutting blades and the engine or other power source and wherein release of the manually operated means will automatically effect disengagement of the clutch.

3,590,565

FRUIT PICKING APPARATUS

Austin Iball, Portland House, Brunswick Road, and Charles Malcolm Iball, 2 Sealden Close, South Down Park, Mole Road, both of Buckley, Flintshire, Wales

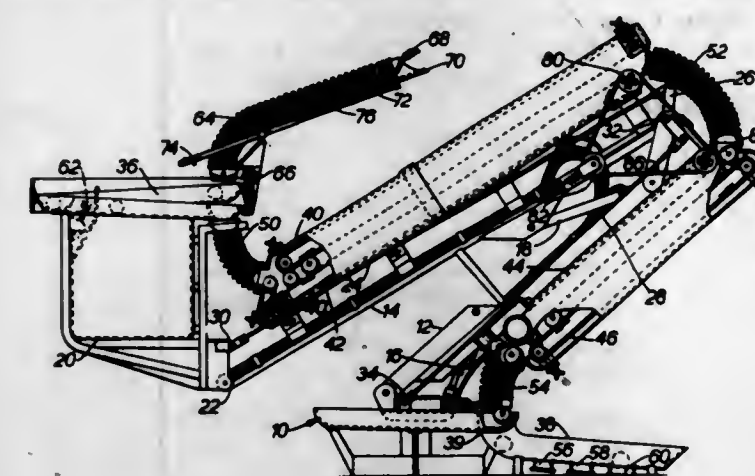
Filed May 23, 1969, Ser. No. 827,319

Claims priority, application Great Britain, May 23, 1968, 24,568/68

Int. Cl. A01g 19/04

U.S. Cl. 56-328

5 Claims



This invention provides apparatus for fruit picking in which a bucket for supporting a fruit picker is carried at the upper end of an extending arm or boom mounted on a base which may comprise or itself be mounted on a vehicle for driving or towing between rows of trees in an orchard. A conveyor is provided along the length of the extending arm for conveying picked fruit from the bucket to the base. Fruit sorting means is provided adjacent or in the base to which fruit is supplied from the lower end of the conveyor. Additionally, fruit picking apparatus is mounted at or adjacent the bucket for operation by the operator standing in the bucket to sever and collect fruit. Controls are mounted in the bucket to operate the raising and lowering mechanism for the arm and the controls may be duplicated for operation from the base or thereabouts.

3,590,566

BERRY HARVESTER

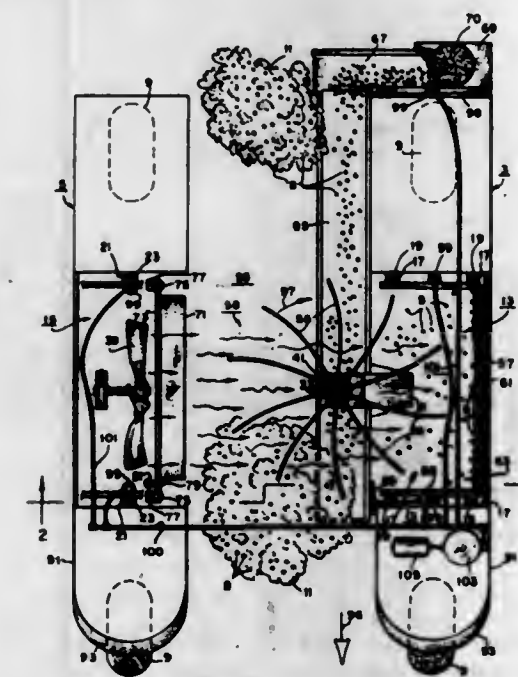
Ernest M. Cutts, Sr., and Ernest M. Cutts, Jr., both of R.D. #3, Vincetown, N.J.

Filed Nov. 24, 1969, Ser. No. 879,233

Int. Cl. A01g 19/00

U.S. Cl. 56-330

10 Claims



A machine for harvesting berries from bushes arranged in a row has a wheel supported frame structure with side portions spaced transversely of each other a distance sufficient to enable the side portions to straddle the row. One side por-

tion carries a bush engageable shaker assembly that includes rotatable and laterally oscillatable fingers for engaging successive bushes as the harvester moves along a row of bushes. Behind this assembly is a backboard from which an inclined chute leads down to a conveyor. The rotating and oscillating shaker assembly shakes berries loose from their branches. Opposite the shaker assembly on the second side portion is a blower which blows against the bushes and blows loosened berries over to the backboard from which they fall down onto the chute which then guides them to the conveyor that carries them toward a collecting station.

3,590,567

APPARATUS FOR CONTROLLING THE TENSION IN FLEXIBLE MATERIAL BEING HELICALLY WRAPPED ABOUT AN ELONGATED CORE

Zbigniew Bonikowski, London; Peter Harvey, London, and Bruce Henry Keen, Hounslow, all of, England, assignors to British Insulated Callender's Cables Limited, London, England

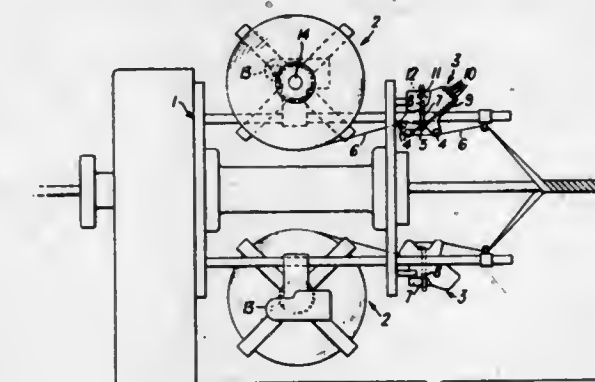
Filed Apr. 15, 1969, Ser. No. 816,275

Claims priority, application Great Britain, Apr. 16, 1969, 17823/68

Int. Cl. B65h 81/08

U.S. Cl. 57-3

9 Claims



The tension in elongated flexible material being drawn from a drum or over a capstan is controlled by an electromagnetically operated friction brake acting on the drum or capstan. The whole of the electrical power for operating the brake is obtained from a high-gain DC amplifier which has in its input circuit an impedance whose value is varied in accordance with the position of a sensing device which moves in accordance with changes in tension against a substantially constant biasing force. The system is stabilized to prevent hunting.

3,590,568

APPARATUS FOR APPLYING A PROCESSING SUBSTANCE TO A TRANSPORTED YARN

Josef Kubovy, Usti nad Orlici, Czechoslovakia, assignor to Vyzkumny Ustav Bavlnarsky, Usti nad Orlici, Czechoslovakia

Filed Nov. 17, 1969, Ser. No. 877,168

Claims priority, application Czechoslovakia, Nov. 15, 1968, PV-7775-68

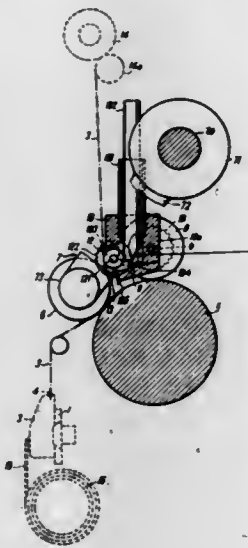
Int. Cl. D01h 1/12; B05c 1/06

U.S. Cl. 57-35

10 Claims

A processing substance is applied to a yarn withdrawn from a rotary suction spinning chamber in upright direction by a pair of transporting rollers. An upright tubular container for a stick of the substance is located adjacent the applicator roller, and is heated by a heater to melt so that the substance

flows onto the applicator roller. One of the transporting rollers, the applicator roller, and the container are mounted on



a movable support which can be raised to a servicing position.

3,590,569

TELESCOPING GUIDE ARRANGEMENT FOR INDIVIDUALLY LOWERING RING HOLDERS
Peter Martin Pfyffer, Winterthur, Switzerland, assignor to Rieter Machine Works, Ltd., Winterthur, Switzerland
Filed July 23, 1969, Ser. No. 851,133
Claims priority, application Switzerland, July 25, 1968, 11,378/68

Int. Cl. D01h 7/64

U.S. Cl. 57-137



Telescoping guide arrangement for individually lowering ring holders.

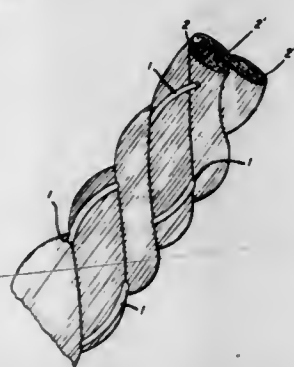
3,590,570
SEWING THREAD

Tomomi Okuhashi, Tokyo, and Kinichi Kumura, Amagasaki-shi, both of Japan, assignors to Teijin Limited, Osaka, Japan

Filed Jan. 2, 1969, Ser. No. 788,570
Claims priority, application Japan, Mar. 14, 1968, Mar. 14, 1968, June 18, 1968, 43/20417; 43/20418; 43/51397
Int. Cl. D02g 3/02, 3/04, 3/12

U.S. Cl. 57-140

3 Claims



A sewing thread which comprises an organic textile fiber and an electrically conductive filament, the amount of said

electrically conductive filament being sufficient to impart to said sewing thread an electrical resistance of less than about 2,000 megohms per centimeter, and said electrically conductive filament having the functional properties of textile fibers and comprising a substrate of chemical fiber and an electrically conductive coating thereon.

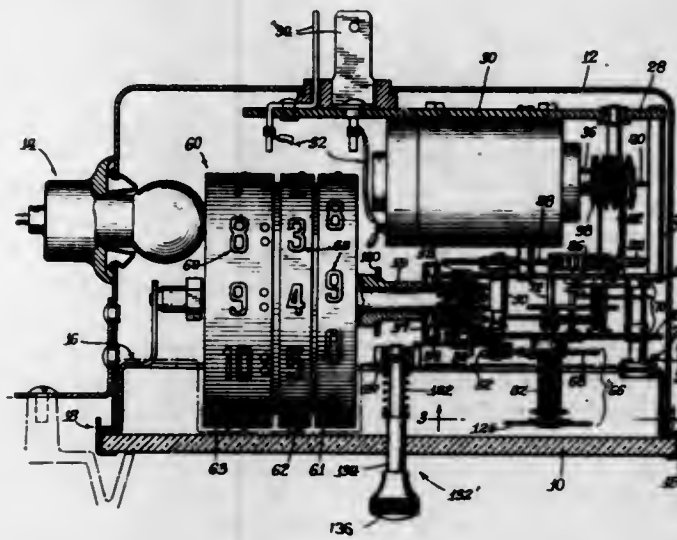
3,590,571

DIGITAL CLOCK SECONDS INDICATOR

Emil J. Niznik, Lake Geneva, Wis., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.
Filed Feb. 2, 1970, Ser. No. 7,470
Int. Cl. G04c 19/00

U.S. Cl. 58-23

6 Claims



A digital clock having a plurality of drums showing the hours and the minutes, a motor for driving the drums periodically in digital advancements, a coil spring acting as a power-transmitting means for periodically controlling the motor and thereby the movement of the drums, but constantly operating and in doing so moving a seconds indicator.

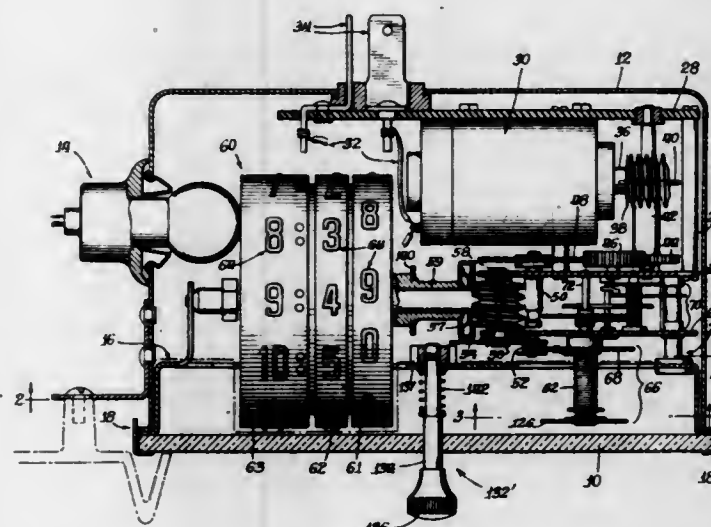
3,590,572

DIGITAL CLOCK

Emil J. Niznik, Lake Geneva, Wis., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.
Filed Feb. 2, 1970, Ser. No. 7,471
Int. Cl. G04c 3/00

U.S. Cl. 58-24

12 Claims



A digital clock having time-indicating drums, the drums remaining stationary between abrupt periodic advancements, the advancements being produced by an electric motor; it includes a coil spring energized by the motor and running constantly; it also includes a mechanical structural contact arrangement triggered by the constant movement of the spring and starting the motor for another cycle.

3,590,573

SYSTEM FOR SYNCHRONISING TIMING DEVICES

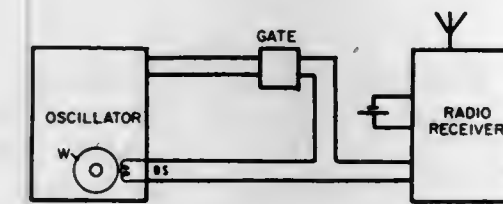
Jacques Dietsch, Paris, France, assignor to Societe Anonyme des Etablissements Leon Hatot, Paris, France
Filed Feb. 17, 1969, Ser. No. 799,648

Claims priority, application France, Feb. 19, 1968, 140350

Int. Cl. G04c 3/04

U.S. Cl. 58-24

15 Claims



Pulse signals from a radio receiver are applied to a synchronizing winding to synchronize the pendulum, balance wheel or other mechanical oscillator of a timing device, and a transistor-switching device controlled by a pickup operated by the said mechanical oscillator is electrically connected to prevent the energization of the synchronizing winding except when the mechanical oscillator is within a predetermined limited range of positions, so as to eliminate parasitic noise signals received during the remaining time.

3,590,574

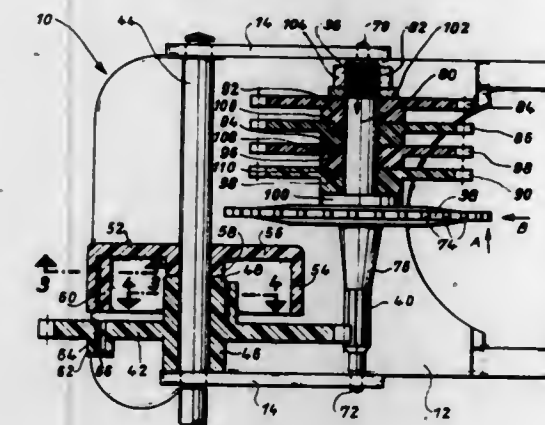
DRIVING DEVICE ON METRONOMES

Rudolf Wittner, Jahnstr. 6, Isny Allgau, Germany
Filed Oct. 7, 1969, Ser. No. 864,382

Claims priority, application Germany, Oct. 12, 1968, Nov. 23, 1968, G 68 01 998; P 18 10 596.9
Int. Cl. G04f 11/02; G04b 1/14, 1/18

U.S. Cl. 58-130

19 Claims



A metronome may have most of the elements of the driving means formed of integrally molded plastic parts, such as the balance wheel and shaft, and the bell wheels may have teeth which are reinforced by semicylindrical working faces and are provided with interlocking hubs.

3,590,575

OILLESS SHOCKPROOF BEARING FOR TIMEPIECES

James H. Eckenrode, Millersville, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Filed Feb. 6, 1970, Ser. No. 9,287

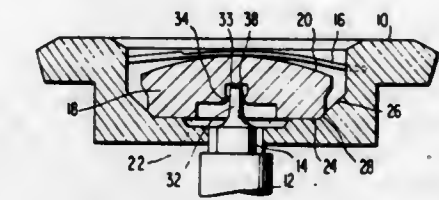
Int. Cl. G04b 13/02, 31/00

U.S. Cl. 58-140

8 Claims

The device of this invention is a molded bearing of self-lubricating material utilized in construction of a shockproof block for timepieces. The bearing in a preferred embodiment may be substituted for the conventional hole jewel, endstone, and setting in a shockproof balance block to form a durable oilless bearing for the balance staff. The bearing surrounds

the end of the balance staff and incorporates an internal rounded surface to provide a point contact side bearing and a flat internal surface adjacent the end of the staff to control



endshake between bearings. The upper external surface of the bearing is rounded and adapted to abut a conventional spring normally utilized to bias an endstone. A die utilized to fabricate the bearing is also described.

3,590,576

EXPANDING METAL BRACELET

Guy Jacques Rubinelli, Annecy, France, assignor to Fabrique Laminor, Annecy, Haute-Savoie, France

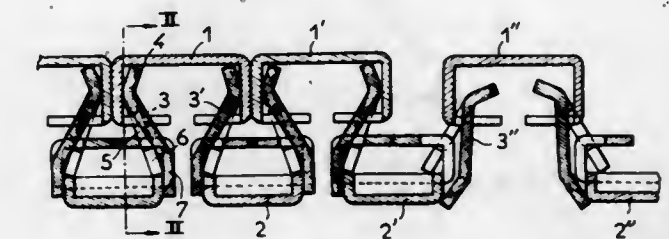
Filed Feb. 20, 1969, Ser. No. 801,040

Claims priority, application France, Feb. 29, 1968, 141829

Int. Cl. F16g 13/24

U.S. Cl. 59-79

3 Claims



An expandable metal metal bracelet having two staggered layers of links includes resilient connecting members, or bails, joining adjacent links each having two limbs which are inserted into a link and a protrusion locked into the body portion of a link, the protrusion and the two limbs lying normally in a common plane but being relatively angularly twisted out of alignment when the links are spread apart.

3,590,577

TRANSMISSION CREEP SPEED CONTROL VALVE

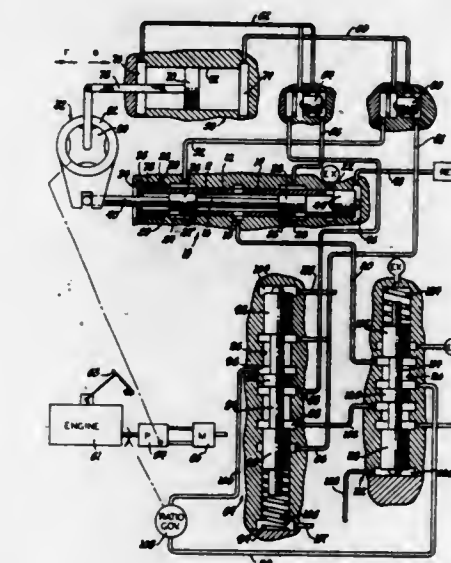
Robert C. Utter, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 10, 1969, Ser. No. 875,424

Int. Cl. F02b 41/00

U.S. Cl. 60-19

6 Claims



A hydraulic system for controlling the amount of creep in a hydrostatic or hydromechanical transmission including the

directional valve is herein described. The directional valve is mechanically connected to the servocontrol of the transmission pump such that in low, forward or reverse drive range, at zero throttle setting, a control signal is passed through the directional valve to the actuator of the servocontrol to cause the servo to adjust the pump displacement to a predetermined value, thus establishing a drive ratio in the transmission. When the throttle is depressed and the pump displacement is increased by the control signal, the porting of the directional valve progressively opens calibrated restrictions to limit the rate at which the actuator can return to the creep position when the throttle is returned to the zero or idle position.

3,590,578

AFTERBURNER APPARATUS FOR ENGINE EXHAUST GAS

Shizuo Yagi; Akira Ishizuya, and Junji Otani, all of Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

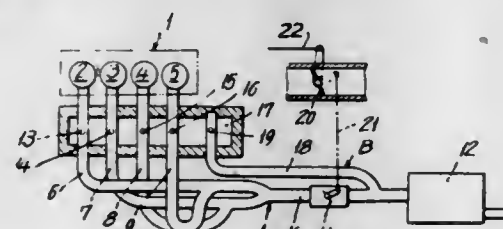
Filed Sept. 15, 1969, Ser. No. 857,661

Claims priority, application Japan, Sept. 14, 1968, Dec. 26, 1968, 43/66352; 43/949923

Int. Cl. F01n 3/10

U.S. Cl. 60-29

8 Claims



The exhaust pipes from the cylinders of an internal combustion engine lead to an afterburner chamber and thence to a muffler, and either a separate pipe or one of the exhaust pipes constitutes a bypass conduit leading from the afterburner chamber to the muffler. A control valve device regulates the flow through the exhaust pipes, with the exception of the bypass conduit, whereby the exhaust gases from the cylinders can flow directly therefrom to the muffler or can be diverted through the afterburner chamber and bypass conduit to the muffler. The valve device is closed when the engine is at low-power output and open when the engine is at high-power output.

3,590,579

EXHAUST GAS CLEANING DEVICE FOR INTERNAL COMBUSTION ENGINES

Satoru Takahashi, Hamamatsu-shi, Japan, assignor to Suzuki Jidosha Kogyo Kabushiki Kaisha, Kaminura, Hamanagun, Japan

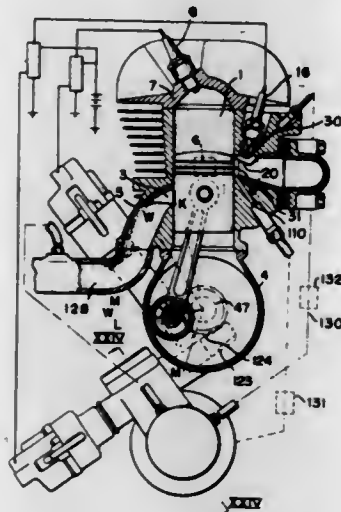
Filed June 12, 1968, Ser. No. 736,391

Claims priority, application Japan, June 26, 1967, Nov. 24, 1967, Dec. 15, 1967, Dec. 26, 1967, Dec. 29, 1967, 42-38,529; 42-98,365; 42-80,533; 42-83,850; 42-85,048

Int. Cl. F01n 3/00

U.S. Cl. 60-30

2 Claims



A spark plug is caused to spark at a point in the exhaust passageway immediately downstream from the exhaust port

of each cylinder of an engine immediately after full closure of the exhaust port during the compression stroke in order to cause combustion of some fuel-air gas unavoidably blown past the exhaust port into the exhaust passageway as charge-loss gas before full closure of the port. A small quantity of supplementary fuel-air gas can be supplied as pilot gas with or without supplemental air to the spark gap to facilitate and ensure positive ignition and combustion. Other refinements include a precombustion chamber around the spark gas and control devices for causing the pilot gas to be supplied only when this supply of pilot gas is advantageous.

3,590,580

HYDRAULIC POWER APPARATUS

Donald R. Vaughan, P.O. Box 1235, 731 Second St., and Carl J. Fakon, P.O. Box 1235, 418 Baylor Place, both of Woodland, Calif.

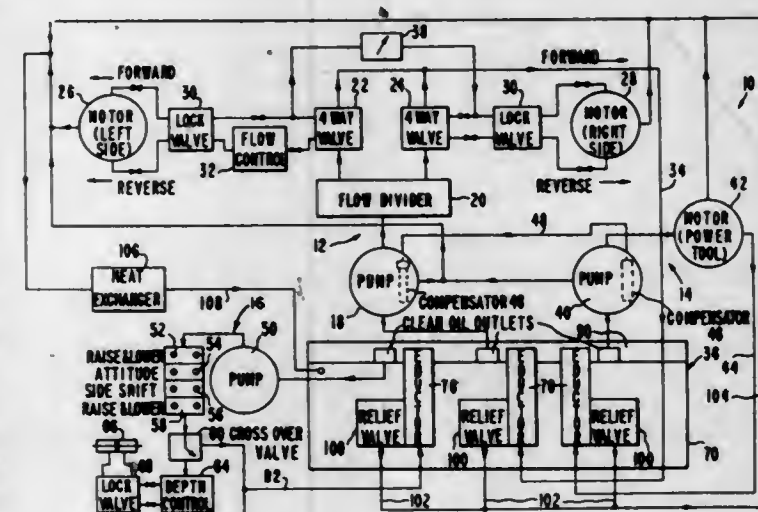
Division of Ser. No. 643,979, June 6, 1967, Pat. No. 3,507,125.

Filed Mar. 13, 1970, Ser. No. 24,403

Int. Cl. F15b 21/04

U.S. Cl. 60-52

7 Claims



Hydraulic apparatus to drive a number of fluid-actuated power components wherein a number of circuits, at least certain of which are provided with pumps of the variable flow type, are coupled to a common filter unit which not only filters the fluid flowing to the pump inlets but also assures that the pump inlet pressures will be at positive values to thereby prevent structural damage to the pumps, such as by cavitation, while at the same time, each pump is able to meet the fluid demands of its power component. A heat exchanger coupled to the circuits maintains the heat content of the fluid in the circuits within a safe temperature range. The apparatus is especially adapted for use with a vehicle having drive means, a power tool shiftably mounted on the vehicle, and power structure for shifting the power tool into any one of a number of operative positions.

3,590,581

DEVICE FOR CONTROLLING THE FEEDING OF HYDRAULIC POWER DEVICES

Vittorio Louis Achille Bianchi, 37 avenue Paul Doumer, Paris 16 (Seine), France

Filed Apr. 22, 1969, Ser. No. 818,230

Claims priority, application France, May 10, 1968, 151477

Int. Cl. F15b 7/00

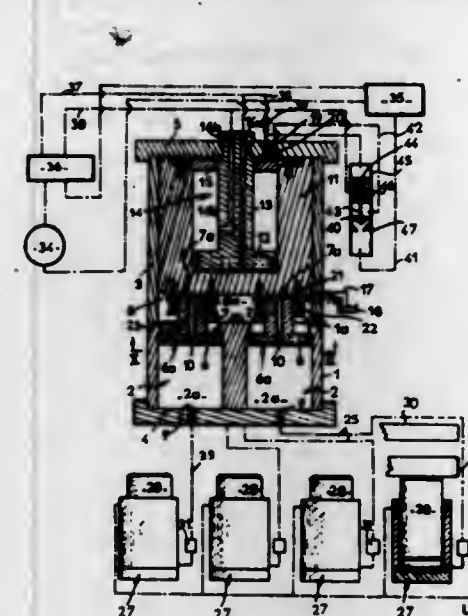
U.S. Cl. 60-54.5

7 Claims

Device for controlling the feeding of a plurality of hydraulic power devices comprising a plurality of cavities, each communicating, at one of its ends, with one of the said power devices and in each of which slides a piston for feeding one power device, the said feed pistons being connected to a common driving member which displaces the same simultaneously in translation in one direction and the other, so

that the said pistons discharge the hydraulic fluid from the cavities into the associated power devices and suck the said

radiation, said catalytic agent being used in a solid propellant



fluid from the power devices into the cavities according to their direction of displacement.

3,590,582

WORK CONTROL SYSTEM

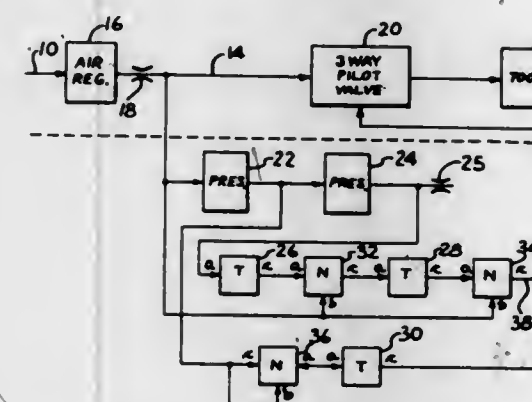
Dale F. German, and R. Stanford Short, both of Bryan, Ohio, assignors to The Aro Corporation, Bryan, Ohio

Filed Oct. 9, 1968, Ser. No. 766,202

Int. Cl. B23q 5/06; F15b 21/10

U.S. Cl. 60-57

20 Claims



A device for controlling work output of pneumatic tools such as a wrench. The device includes a pair of pressure sensing valves and a pair of pneumatic timing devices which operate to control a three-way air supply valve in the air line to the tool. After the sensing valves sense the proper pressure sequence in the air line indicating application of a load to the tool, the three-way valve remains open for a preselected increment of time controlled by the first timer. Thus, the tool is driven for this preselected increment of time. The three-way valve is then closed, and the second timer insures that the three-way valve remains closed and the tool remains without power for a second preselected increment of time. The device automatically resets so that the sequence of operation may be repeated.

3,590,583

ENHANCEMENT OF BURNING RATE PROCESS OF SOLID PROPELLANT COMPOSITIONS USING RADIATION

David C. Sayles, Huntsville, Ala., assignor to the United States of America as Represented by the Secretary of the Army.

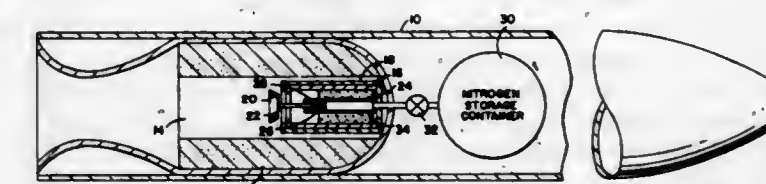
Filed July 20, 1967, Ser. No. 655,735

Int. Cl. C06d 5/06; F23r 1/18

U.S. Cl. 60-219

1 Claim

The irradiation and use of a catalytic agent which undergoes rapid and controlled decomposition after said ir-



composition, and said irradiation preferably taking place upon ignition of the solid propellant composition.

3,590,584

FLOATING OIL CONFINING APPARATUS

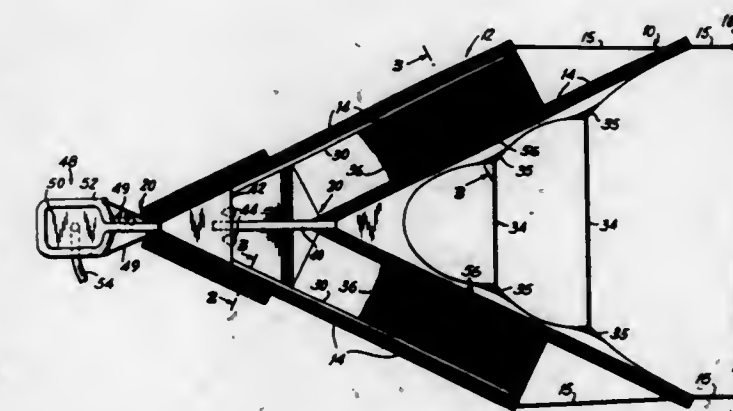
Hugh J. Fitzgerald, Austin, and Ernest H. Koepf, Dallas, both of, Tex., assignors to Ocean Pollution Control, Inc., Dallas, Tex.

Filed Dec. 5, 1969, Ser. No. 882,638

Int. Cl. B01d 21/02; E02b 15/04

U.S. Cl. 61-1

10 Claims



Apparatus for collecting oil from the surface of a body of water having two V-shaped assemblies of flexible inflated floats, one arranged 5 to 25 feet leewardly of the other on the same central axis, whereby the wind and current drive the oil into the open end of the assemblies and cause it to be funneled rearwardly to their apices. Each V-shaped assembly is provided with a depending skirt of impermeable sheet material, the lower edges of the skirts at either side of the inner assembly being interconnected by shock cords and the lower edges of the skirts on the outer assembly being connected to the inner assembly by netting.

3,590,585

COMPOSITE STRUCTURE

Jan G. De Winter, Enschede, Netherlands, assignor to Shell Oil Company, New York, N.Y.

Filed Apr. 22, 1969, Ser. No. 818,369

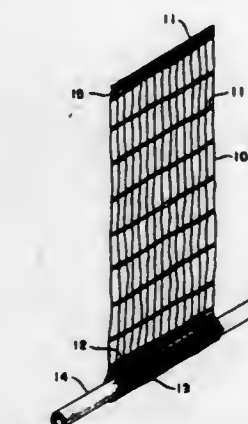
Claims priority, application Great Britain, Apr. 24, 1968,

Apr. 24, 1968, 19375/68; 19376/68

Int. Cl. E02b 3/04, 8/04; D02g 1/18

U.S. Cl. 61-3

7 Claims



An improved form of "artificial seaweed" for combating coastal erosion and the like comprises an anchored array of

seaweed elements which are buoyant, water-resistant filamentary strands, preferably of foamed, stretched polyolefin having an internal plexiform structure surrounded by a substantially closed, thin skin. The structure as manufactured has water-decomposable filaments, such as of polyvinyl alcohol, interwoven at spaced intervals with the water-resistant seaweed elements to provide a more easily handled and transportable composite article. In a preferred mode, the lower ends of the seaweed elements are interwoven with transverse, water-resistant filaments to provide a fabric, preferably in tubular form, which is readily attached to an anchoring element or converted into an anchoring element by being filled with cement or sand.

3,590,586

MINE ROOF SUPPORTS

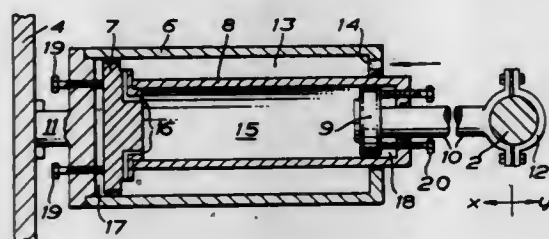
Walter Lubojatsky, and Bernhard Von Pels-Berensberg, both of Recklinghausen, Germany, assignors to Gullick Limited, Wigan, Lancashire, England
Filed Apr. 28, 1969, Ser. No. 819,782

Claims priority, application Luxembourg, Sept. 5, 1968, 56825

Int. Cl. E21d 15/44

U.S. Cl. 61-45 D

11 Claims



A mine roof support has a hydraulic leg-aligning device which on pressurization assumes an extension intermediate full and zero extension and which is positively connected so as to push and pull the leg as required. The device may be double-acting piston and cylinder with means for injecting pressure fluid to make up the quantity of fluid in each end of the cylinder to a respective predetermined amount. Alternatively the device may comprise a hydraulically extensible member and a hydraulically contractable member so that on pressurization the first fully extends and the second fully contracts. The two are connected in series mechanically.

3,590,587

FLOATING PLATFORM WITH HORIZONTALLY MOVABLE COLUMNS

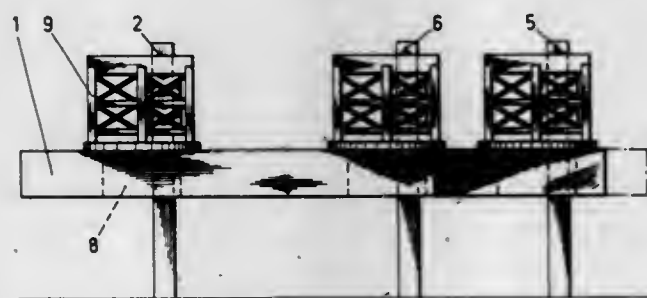
August Hendrik Maria Smulders, Wassenaar, Netherlands, assignor to N. V. Industriële Handelscombinatie, Rotterdam, Netherlands
Filed June 16, 1969, Ser. No. 833,499

Claims priority, application Netherlands, June 17, 1968, 68.08497

Int. Cl. E02b 17/00; E02f 9/04; B65b 21/50

U.S. Cl. 61-46.5

2 Claims



A floating platform comprises a pontoon and more than three vertical supporting columns which are individually vertically movable relative to the pontoon and are also individually horizontally movable relative to the pontoon so that the pontoon may be moved horizontally over small distances without the need for refloating it.

3,590,588 PROCESS AND APPARATUS FOR LAYING A HORIZONTAL SUBTERRANEAN FILM

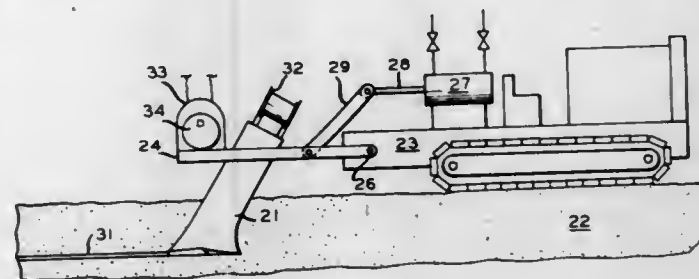
Homer L. Draper, and Duane W. Gagle, both of Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed July 1, 1968, Ser. No. 741,355

Int. Cl. E02f 5/02; E02b 11/02; A01g 13/02

U.S. Cl. 61-72.6

8 Claims



Strips of preformed film are laid underground after passage through a hollow plow. The strips are finally disposed with their major surfaces substantially horizontal, and preferably laid with their edges turned up to act as a trap for water sinking through the ground. The strips can be spaced apart, adjacent or overlapping, and are preferably made of plastic, but may be made of metal foil or of fabric coated previously or coated in place with asphalt. Apparatus to feed the film from a roll through the plow are disclosed, along with tractors to draw the plow, vibrators to vibrate the plow, hydraulic and other means to control the plow depth and position, and means to inject liquid, such as water, asphalt, fertilizer, nematocides or weed killers, on the film as it emerges from the plow.

3,590,589

APPARATUS FOR BURYING PIPELINES

August Hendrik Maria Smulders, Wassenaar, Netherlands, assignor to N. V. Industriële Handelscombinatie, Rotterdam, Netherlands

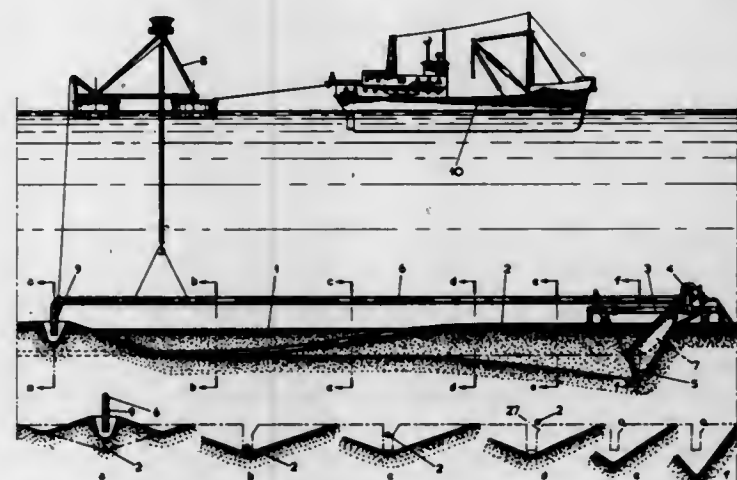
Filed June 16, 1969, Ser. No. 833,439

Claims priority, application Netherlands, June 17, 1968, 68.08498

Int. Cl. E02f 5/06, 5/12; F16l 1/00

U.S. Cl. 61-72.4

6 Claims



Apparatus for burying pipelines combines a suction dredge for sand with an endless digger for clay. When the digger is used, the sand dredge is somewhat raised to remove the clay and also an auxiliary suction dredge is used for cleaning the digger, as well as a device for bevelling the edge of the dug trench so that the pipeline will settle into it.

3,590,590

TUNNEL BUILDING

Petar Steva Vujasinovic, Albanska 13, Sarajevo, Uruguay
Continuation of application Ser. No. 692,597, Dec. 21, 1967, now abandoned. This application Mar. 3, 1969, Ser. No. 806,009

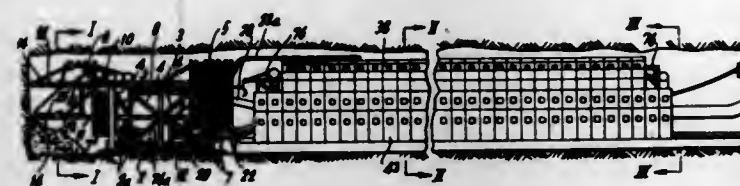
Int. Cl. E01g 5/08, 5/16

U.S. Cl. 61-84

11 Claims

A device for excavating a tunnel and lining it with concrete is formed of a scaffolding member located at the working

face and followed in series by a support structure and a concrete form assembly. The scaffolding member has collapsible working platforms which can be arranged vertically across its front end to provide protection during the blasting operation. The support structure includes means for convey-



ing excavated material to a plurality of temporary storage hoppers located within the form assembly and a conveying system for supplying concrete into the forms. Portions of the form panels can be extended laterally outwardly to assist in the removal of any temporary support required for the tunnel.

3,590,591

EXPANSION VALVE UNIT FOR A GAS CIGARETTE LIGHTER

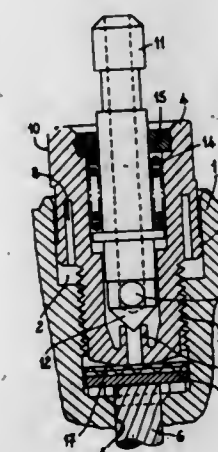
Jean Genoud, Saint-Cyr-Au-Mont d'OR, France, assignor to Etablissements Genoud & Cie., Venissieux, Rhone, France
Filed Feb. 18, 1970, Ser. No. 12,165

Claims priority, application France, Mar. 5, 1969, 6906005

Int. Cl. F17c 7/02

U.S. Cl. 62-50

9 Claims



An expansion valve unit of a gas cigarette lighter has a one-piece injection-moulded plastics housing including exteriorly a flexible annular lip bearing sealingly against a smooth annular wall of a hole in the main body of the lighter. The housing includes interiorly another annular lip forming a valve seat cooperating with a valve closure member of the unit. Also included in the housing exteriorly is an external screw thread cooperating with an internal screw thread of the hole, and radially outward projections enabling the unit to be rotated and thus displaced along the hole to regulate a throttle at the inner end of the unit to control the rate of fuel supply to the seat.

3,590,592

REFRIGERANT SYSTEM EXPANSION MEANS

Charles N. High, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed June 23, 1969, Ser. No. 835,474

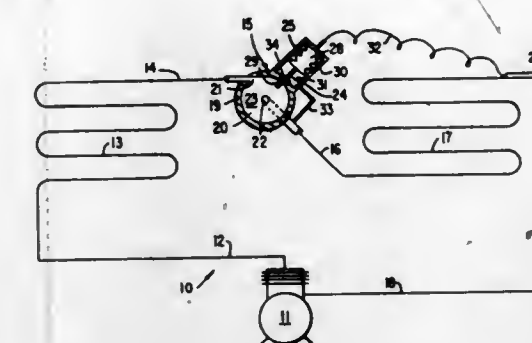
Int. Cl. F25b 41/04

U.S. Cl. 62-115

7 Claims

A refrigerant expansion or metering device employed in refrigeration systems including compression means, a first heat exchanger and a second heat exchanger, comprising a fluid regulator forming a vortex chamber, through which refrigerant is passed. Disposed within the vortex chamber is movable means operable to vary the path of flow and to vary

the rate of flow of refrigerant through the vortex chamber. Control means vary the position of the movable means in



response to changes in temperature in the refrigeration system.

3,590,593

STEAM LIMITING CONTROL FOR STARTUP OF AN ABSORPTION MACHINE

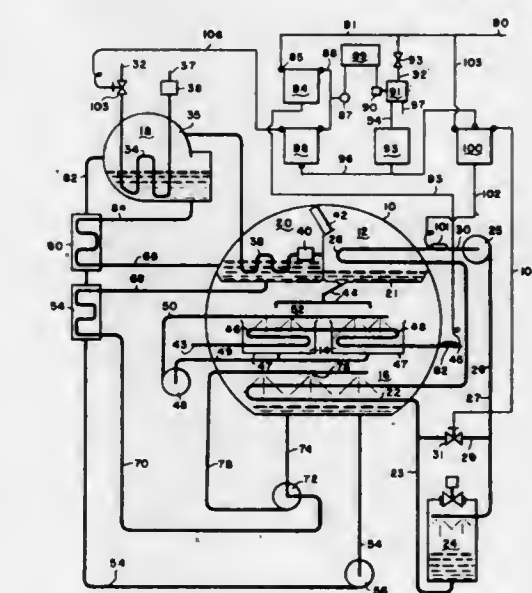
Robert G. Miner, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Dec. 20, 1968, Ser. No. 785,512

Int. Cl. F25b 15/00

U.S. Cl. 62-148

12 Claims



A novel control system for a two stage generator absorption refrigeration machine limits steam demand by the first stage generator when the absorption machine is started after a period of inactivity. The control system is equally applicable to other energy sources for the first stage generator.

3,590,594

SINGLE EVAPORATOR MULTIPLE TEMPERATURE REFRIGERATOR

Raymond Arend, Grand Haven, Mich., assignor to The Golconda Corporation, Chicago, Ill.

Filed May 13, 1969, Ser. No. 824,060

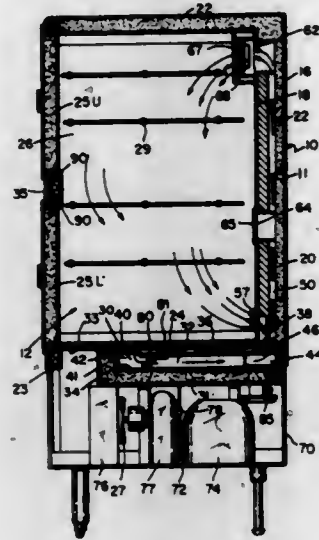
Int. Cl. F25d 17/04

U.S. Cl. 62-187

15 Claims

A one compartment refrigerator convertible by a removable insulated shelf into two chambers with a narrow cross-sectionally elongated open passageway past the shelf providing restricted airflow between the chambers whereby either chamber can be a freezing chamber while the other one can

be an above-freezing refrigerating chamber, in both of which there is rapid temperature pulldown and the different temperatures are maintained with a high degree of accuracy with minimum sweating and frosting in the chambers.



3,590,595

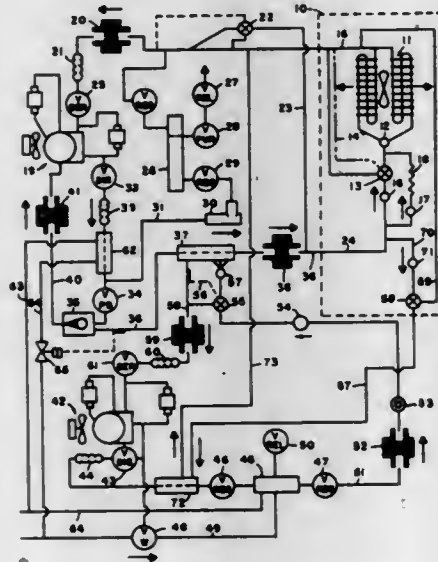
CASCADE REFRIGERATION SYSTEM WITH REFRIGERANT BYPASS

Mark W. Briggs, Holland, Mich., assignor to Thermotron Corporation, Holland, Mich.

Filed June 3, 1969, Ser. No. 830,027
Int. Cl. F25b 41/00

U.S. Cl. 62-197

3 Claims



A cascade refrigeration system for installation where the machinery of the system is remote from the cooled space, in which an insulated bypass conduit withdraws at least some of the refrigerant available at the cooled space under a low-load condition, and delivers this refrigerant to a condenser in one of the stages, thus maintaining the circulation of refrigerant.

3,590,596

SIDE-BY-SIDE REFRIGERATOR-FREEZER CONSTRUCTION

Roy V. Johnson, Galesburg, Ill., assignor to Admiral Corporation, Chicago, Ill.

Filed June 6, 1969, Ser. No. 831,024
Int. Cl. F25d 21/06

U.S. Cl. 62-275

7 Claims

A combination side-by-side refrigerator-freezer having a unitary freezer liner with a condensate trough integrally

disposal area. A radiant type defrost heater is situated below the evaporator and above the trough.

3,590,597

COOLING APPARATUS EMPLOYING THE JOULE-THOMSON EFFECT

David Neil Campbell, Redditch, England, assignor to The Hydraulic Engineering Company Limited, Redditch, England

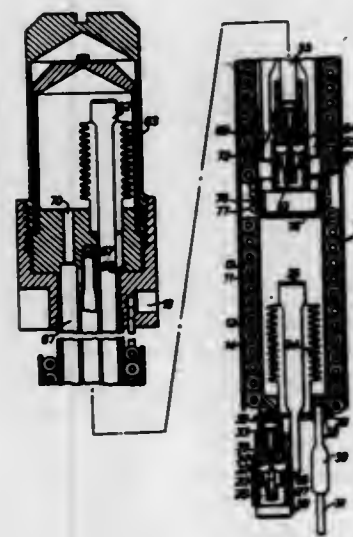
Filed Aug. 6, 1969, Ser. No. 847,917

Claims priority, application Great Britain, Aug. 6, 1968, 37477/68

Int. Cl. F25b 19/00

U.S. Cl. 62-514

6 Claims



The second stage in a miniature cryogenic two-stage cooler, working on the Joule-Thomson principle, is supplied with gaseous refrigerant which passes from a supply under pressure through one path of a tubular heat exchanger, to an expansion nozzle, after which the expanded gas returns through the other path of the heat exchanger to cool the incoming second stage gas. In the first stage, a precooled refrigerant in liquid form is supplied to a metering nozzle which, having no heat exchanger, is accommodated within the heat exchanger of the second stage, and this refrigerant evaporates to precool the second stage refrigerant. The nozzle of each stage is automatically controlled to vary the flow of refrigerant in accordance with the demand for cooling.

3,590,598

FINGER RING WITH PIVOTALLY MOUNTED SIZE-ADJUSTING MEMBER

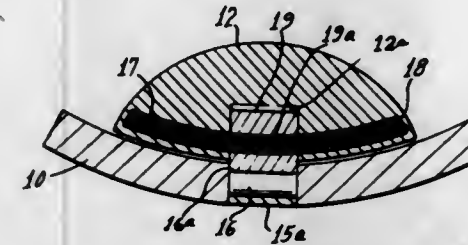
Frank Leone, 24 Rim Lane, Hicksville, N.Y.

Filed Aug. 30, 1968, Ser. No. 756,484

Int. Cl. A44c 9/02

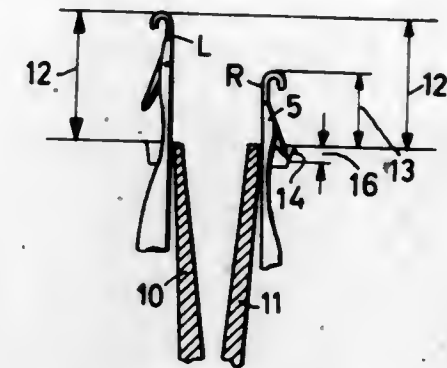
U.S. Cl. 63-15.6

5 Claims



A finger ring size adjuster which can be actuated to reduce the internal ring size after the ring is on the finger so that a maximum ring opening can be provided for placing the ring on the finger. A spring-biased detent holds the dimension-reducing element releasably in its full closed position and permits it to be swung under predetermined pressure to its full open position.

received in the grooves of the trick plate while the remainders of the latches project upward from the trick plate, the



other needle bar knitting in the usual manner, and the two layers being connected by needles of one bar knitting in the other row of needles.

3,590,599

CIRCULAR KNITTING MACHINE

Emilio Llovet Ricart, Mataro, Spain, assignor to Telares Circulares, S. A., Barcelona, Spain

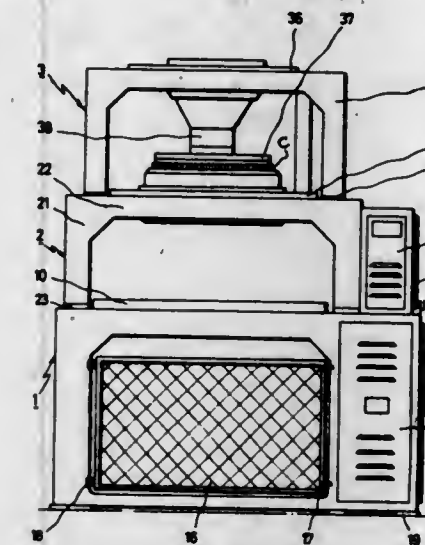
Filed Feb. 5, 1970, Ser. No. 8,879

Claims priority, application Spain, Feb. 6, 1969, 363,632

Int. Cl. D04b 9/06

U.S. Cl. 66-8

4 Claims



The component parts of the knitting machine are distributed among a plurality of stacked subframes, each subframe comprising a support platform with a large circular opening and legs extending downwardly from each corner of the platform. A support ring is mounted in the circular opening of each platform and successive platforms are reduced in size from the bottom to the top, whereby the machine frame presents a stepped arrangement, in which part of the space enclosed by the lower subframes is taken up by cabinets housing diverse control and ancillary means of the machine.

3,590,601 APPARATUS FOR FEEDING ELASTIC YARN TO A CIRCULAR KNITTING MACHINE

Akiji Sugimura, Osaka-shi, Japan, assignor to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka-shi, Japan

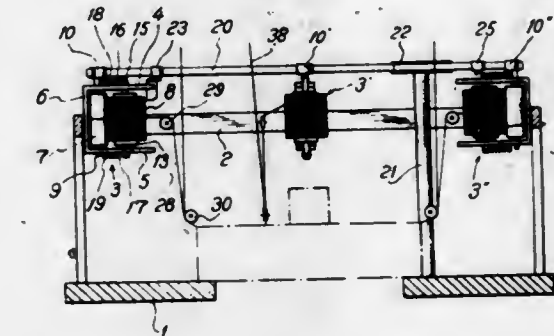
Filed June 25, 1968, Ser. No. 750,672

Claims priority, application Japan, June 27, 1967, Aug. 4, 1967, 42-54900; 42-49802

Int. Cl. D04b 15/50

U.S. Cl. 66-132

1 Claim



Apparatus for feeding elastic yarn to a circular knitting machine comprising a yarn-feeding unit mounted on a circular arm placed coaxially with the center line of the circular knitting machine, said feeding unit including of a yarn package and a roller contacting the package and being rotated by a circular belt through a driving pulley rotating in concert with the rotation of the circular knitting machine, to unwind the yarn package as it rotates in the same direction as the rotation of the roller.

3,590,602

STRAIGHT BAR KNITTING MACHINES

Raymond Blood, and Alan John Pearson, both of Loughborough, Leicestershire, England, assignors to Cotton William Limited

Filed Sept. 3, 1968, Ser. No. 756,833

Claims priority, application Great Britain, Sept. 5, 1967, 40530

Int. Cl. D04b 15/90

U.S. Cl. 66-149

8 Claims

3,590,600 METHOD OF KNITTING A DOUBLE FABRIC ON A WARP KNITTING MACHINE

Karl Kohl, Chlorodontstrasse 10, Obertshausen, Germany

Filed Mar. 24, 1969, Ser. No. 809,909

Claims priority, application Germany, Mar. 23, 1968, P 17 60 026.9

Int. Cl. D04b 23/02

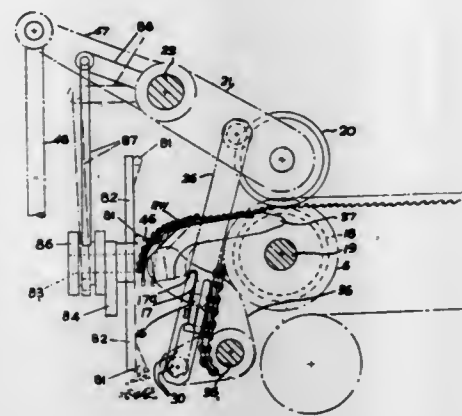
U.S. Cl. 66-87

5 Claims

A double fabric is knitted on a Raschel knitting machine having two needle beds and a needle bar motion which lifts one of the needle bars in alternating courses only high enough so that the free end of the open latches are still

A straight bar knitting machine has drawoff mechanism including endless chains having fabric- or welt-stick-engaging drawoff hooks for carrying a pressed-off fabric blank from the needles to normally open drawoff rollers and over an angular stripper plate, and wherein the stripper plate and the

fabric thereon are gripped by the drawoff rollers which are rotated to advance the gripper plate and the fabric for and short, light-colored fibers. Wale-to-wale differences in total numbers of pile fibers and in the relative proportions of



stripping the fabric or the welt stick clear of the drawoff hooks.

3,590,603

SHEER WARP KNIT GARMENT AND METHOD FOR MAKING SAME

George E. Jackson, Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.
Filed Feb. 10, 1969, Ser. No. 797,987
Int. Cl. D04b 9/02

U.S. Cl. 66-177

5 Claims



Continuous, back-to-back tubular undergarments, having sheer, lockstitched body portions and spaced, reinforced toe, heel, welt, or panty portions, are produced on a double-needle-bar Raschel knitting machine having at least 12 guide bars. The basic body knit is chainstitched wales of one strand, the wales being connected by zigzag stitches of another strand. The chainstitches are converted to a jersey 2-0, 2-4 stitch in the reinforced area so that no guide bar must move more than one needle space to form the garment.

3,590,604

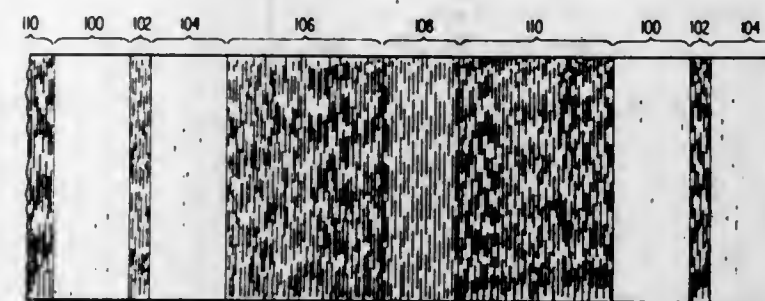
KNITTED PILE FABRIC

Abraham John Beucus, Delavan, Wis., and Patrick Joseph Forde, Kitchener, Ontario, Canada, assignors to The Bunker-Ramo Corporation, Oak Brook, Ill.
Division of Ser. No. 525,554, Feb. 7, 1966, Pat. No. 3,413,823.
Filed Aug. 30, 1968, Ser. No. 810,401
Int. Cl. D04b 9/14

U.S. Cl. 66-191

3 Claims

A circular knit, deep pile fabric simulating in appearance and texture a natural furpiece formed by seaming together animal pelts. The pile is made up of long, dark-colored fibers



LEGEND

RELATIVELY SHORT, RELATIVELY LIGHTWEIGHT FIBERS OF LIGHTER SHADE SUPPLIED BY THE SLIVERS 26.

RELATIVELY LONG, RELATIVELY HEAVY FIBERS OF DARKER SHADE SUPPLIED BY THE SLIVERS 28.

HIGH DENSITY BLEND OF SHORT AND LONG FIBERS.

two types of fibers provide color shading and texture effects simulating not only the pelts of animals but also the seaming characteristics associated with garments formed from pelts.

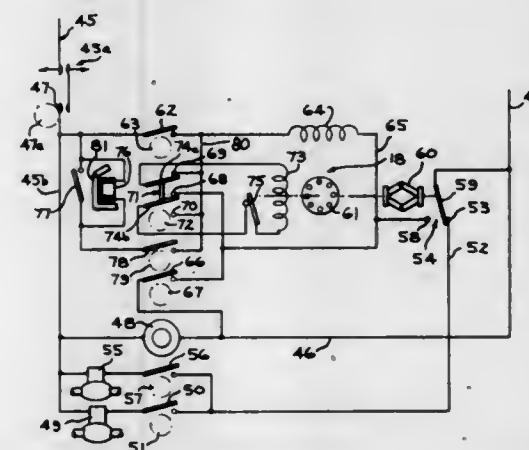
3,590,605

SIGNAL AND CONTROL FOR WASHING MACHINES

Frank Dean Low, La Grange Park, Ill., assignor to General Electric Company
Filed Feb. 27, 1968, Ser. No. 708,539
Int. Cl. D06f 39/14

U.S. Cl. 68-12

4 Claims



An alarm which sounds and causes the extraction operation to cease if the washing machine lid is open during centrifugal extraction. The alarm includes an operating coil connected in series with the drive motor during extraction operations and having sufficient resistance to prevent operation of the motor. A switch is connected in parallel with the coil and is responsive to the position of the washer lid, to be closed when the lid is closed and open when the lid is open. Thus the coil is energized to operate the alarm and prevent operation of the motor only when the lid is open during extraction.

3,590,606

WASHING MACHINE

Kojiro Takeyama, Amagasaki-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Aug. 19, 1968, Ser. No. 753,573
Claims priority, application Japan, Aug. 19, 1967, 42/72094
Int. Cl. D06f 39/08, 39/10

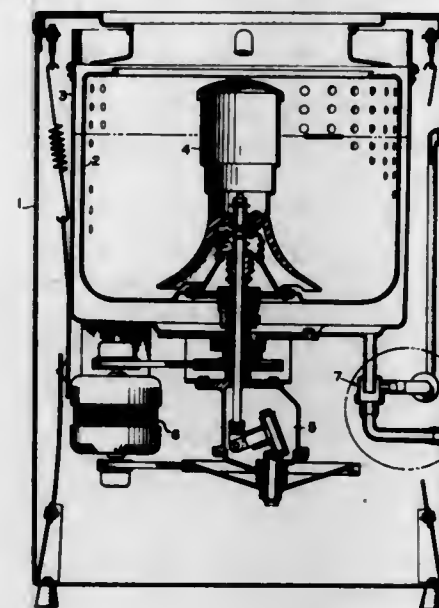
U.S. Cl. 68-208

1 Claim

A washing machine wherein a trap is provided in a drain

passage leading from the drain port of the washing tub to a drain pump to separate objectionable materials present in the

elongated, flexible cable with a fixed loop at one end and means for providing a flexible variable-sized, releasable binding at the other end.



washing water being drained therefrom, thereby to provide for smooth drainage of said washing water.

3,590,607

GUARDED LOCK ASSEMBLY

Commodore E. Beaver, 225 Linden, Council Bluffs, Iowa
Filed Nov. 29, 1968, Ser. No. 780,943
Int. Cl. E05b 67/38

U.S. Cl. 70-56

2 Claims



A guarded lock assembly comprising a swinging hasp, a staple extended through the hasp, a lock body, a locking bolt covering one end removably locked in said lock body, a locking bolt extending through the staple, a hollow guard attached to the other end of said locking bolt and protecting the locking both and staple.

3,590,608

LOCKING DEVICE

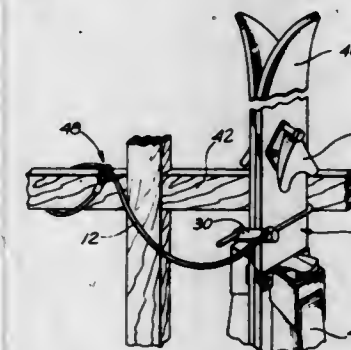
Charles C. Smyth, and Henry J. Smyth, 1515 E. Crest Drive, both of Altadena, Calif.

Filed June 9, 1969, Ser. No. 831,660

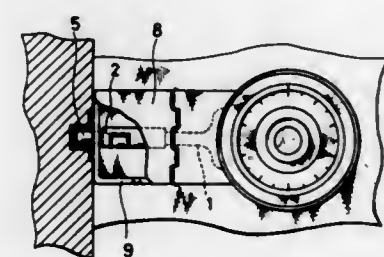
Int. Cl. E05b 73/00; A63c 11/00

U.S. Cl. 70-58

2 Claims



A locking device adapted to prevent the theft of an object by tethering the object to a fixture. The device comprises an



A lock with means for manually releasing its bolt from the interior of a safe vault which comprises a lock mechanism, a base bolt connected to and controlled by the lock mechanism, a hollow joining member provided with a guide recess and secured to the base bolt, a bolt extension with one end slidably supported in said hollow joining member, and the distal end engageable with a keeper, and a stemmed knob secured to the supported end of the bolt extension, said stemmed knob being slidable along the guide recess and being accessible for manual actuation.

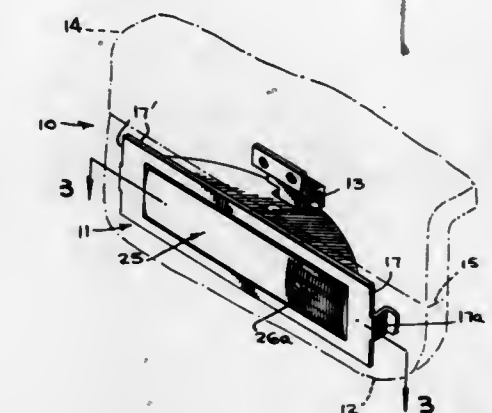
3,590,609

LATCH STRUCTURE

Wallace E. Atkinson, Petersburg, Va., assignor to Long Manufacturing Co., Inc., Petersburg, Va.
Filed Feb. 11, 1969, Ser. No. 798,325
Int. Cl. E05b 65/52; E05c 3/04, 3/14

U.S. Cl. 70-70

11 Claims



A latch including lock means for luggage cases and the like including a keeper to be mounted on an upper case section, and a latch unit to be mounted on the lower case section. The latch section includes a housing defining a concave well and a latch member supported therefrom for circumferential movement between latch and unlatching positions. The latch member is formed of sheet material, having a bolt plate and retaining plate secured to a channel-shaped member by inwardly bent end flanges and a U-shaped spring housed therein to be stressed when the keeper advances through either of two opposite sides of the channel-shaped member to eject the keeper upon unlatching thereof.

3,590,610

LOCK WITH MANUAL RELEASE FROM THE INTERIOR OF A SAFE VAULT

Shinji Hayakawa, No. 38, 4-Chome, Ichinoe, Edogawa-Ku, Tokyo, Japan

Filed May 16, 1969, Ser. No. 825,143

Int. Cl. E05b 63/00; E05c 15/02

U.S. Cl. 70-92

6 Claims

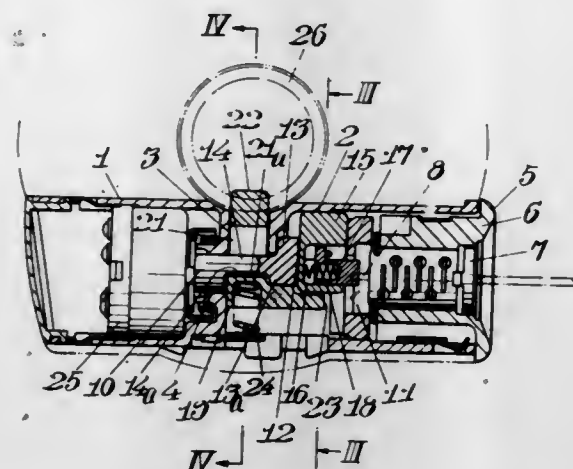
3,590,611 LOCKING DEVICE

Yoshikatu Nakashima, Nagoya-shi, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan

Filed Feb. 25, 1969, Ser. No. 801,944
Int. Cl. B60r 25/02

U.S. Cl. 70-186

1 Claim



A locking device of the cylinder type for a steering column in automobiles, in which a locking bolt does not protrude to a position where it engages the steering column even when a rotatable cylinder of the lock is turned to a locking position by a key. Even in the locking position the key inserted into the rotatable cylinder and protruded partly therefrom keeps its engagement with an engaging means mounted on a sliding member which in turn suppresses the movement of an extension integrally made with the locking bolt.

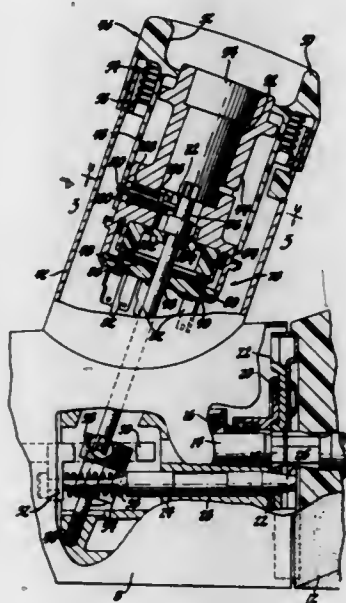
3,590,612 VEHICLE CONTROLS AND COINCIDENTAL LOCK THEREFOR

David H. Henning, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 25, 1969, Ser. No. 879,747
Int. Cl. B60r 25/02, 25/06; E05b 65/12

U.S. Cl. 70-239

4 Claims



A concentric transmission selector knob and ignition cylinder lock actuator structure is mounted upon the upper portion of the vehicle steering column mast jacket with the selector knob including rotary electrical switch structure thereon adapted for connection in circuit with a remote apparatus operative to select the various power transmission ranges upon rotation of the knob to its various positions. The rotatable cylinder lock actuator nested within the knob is connected with a rotary ignition switch and further connected by rack and sector drive means to a shiftable lock bolt

mounted on the mast jacket for movement between locked and unlocked positions relative to the vehicle steering shaft. A further lock bolt for the selector knob is cammed to a locking position by the actuator to prevent rotation of the knob from such a predetermined range position as "Park," the knob lock bolt being prevented such movement and the actuator, ignition switch and steering shaft lock bolt being prevented movement to locked position except upon selection of the knob to "Park."

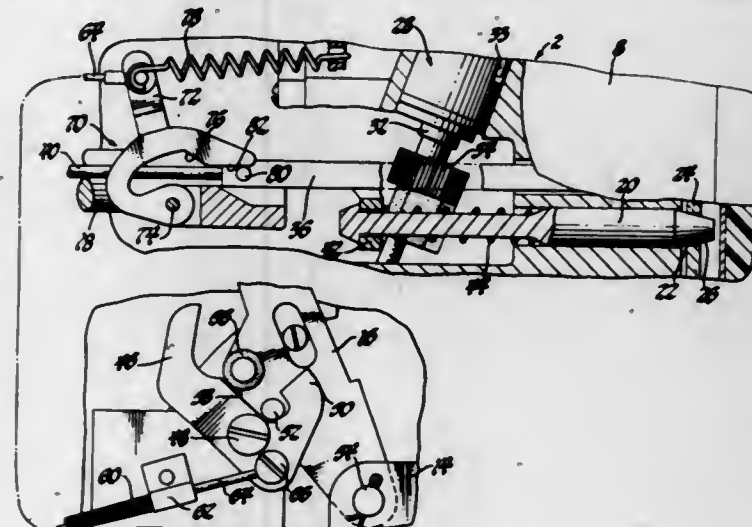
3,590,613 COINCIDENTAL VEHICLE STEERING COLUMN AND FLOOR SHIFT LOCK

Dan R. Kimberlin, Saginaw; Floyd A. Schluckebier, Frankenth; Henry N. Fjerstad, Jr., Saginaw, and Frederick C. Riffelmacher, Saginaw, all of, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 25, 1969, Ser. No. 879,866
Int. Cl. B60r 25/02, 25/06; E05b 65/12

U.S. Cl. 70-239

4 Claims



Coincidental locking apparatus for an automotive vehicle steering column and a floor mounted transmission gear shift selector includes a manually operable steering column lock device operative to prevent rotation of the vehicle steering shaft, a device within the floor shift operative to latch the selector member thereof in a predetermined condition of the transmission such as "Park," and a flexible cable interconnection between the two locking devices operative to prevent locking of the steering shaft until "Park" is selected in the floor shift and further operative to hold or lock said floor shift latched in such selected condition upon manual locking of the steering column lock device.

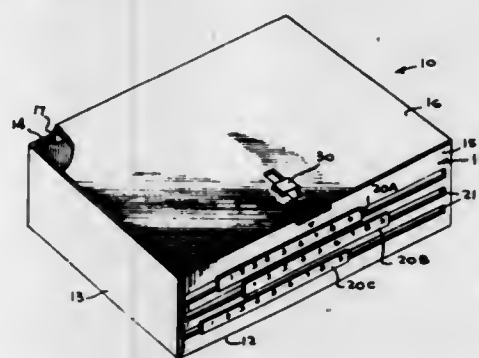
3,590,614 KEYLESS LOCK BOX

Norman T. Kunst, 24 Stonecrest Road, Ridgefield, Conn.

Filed Feb. 12, 1970, Ser. No. 10,716
Int. Cl. E05b 37/16, 65/52, 15/14

U.S. Cl. 70-298

10 Claims



A combination lock box having vertically spaced slideways in the front wall thereof slidably supporting three elongated slide members having a front face bearing numbers and a horizontal row of rearwardly extending breakable right angular tumbler elements integral with the body and aligned be-

hind the numbers, designed for the purchaser to break off one of the tumbler elements of each slide member aligned behind a chosen number of the combination. A latch member supported on the lid of the lock box has three vertically spaced keeper projections which coact with the tumbler elements to retain the lock box in locked condition except when the slides are positioned to dispose the combination numbers in selected vertical alignment.

3,590,615 ANTI-PICK LOCK

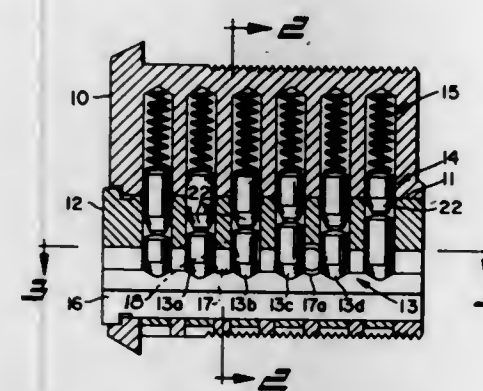
Jerald Schultz, Woodmere, N.Y., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Continuation-in-part of application Ser. No. 716,824, Mar. 28, 1968, now abandoned. This application Feb. 16, 1970, Ser. No. 11,427

Int. Cl. E05b 15/14, 27/06

U.S. Cl. 70-421

8 Claims



The key plug of a lock pin tumbler cylinder is equipped with one or more side pins, each of which is in cam relation to one or two tumblers so that the tumblers when moving by their spring pressure to a locking position will cause the side pins to project beyond a side of the key plug. Moreover, each side pin is in cam relation to the cylinder body so as to be pressed toward a tumbler when the key plug tends to rotate. The side pins do not contribute a part of the lock combination, but will move a limited amount only into a side bore in the cylinder whereby to dog the key plug against rotating movement. Picking torque that may be applied to the key plug then will be transferred through the side pins to the cylinder. Also, a tumbler or coacting side pin alternately will move into a portion of the keyway during an attempt to pick the tumblers.

3,590,616 MEANS FOR CONTROLLING THE MOVEMENTS OF A MANIPULATOR

Ludwig Schussler, Willich, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany

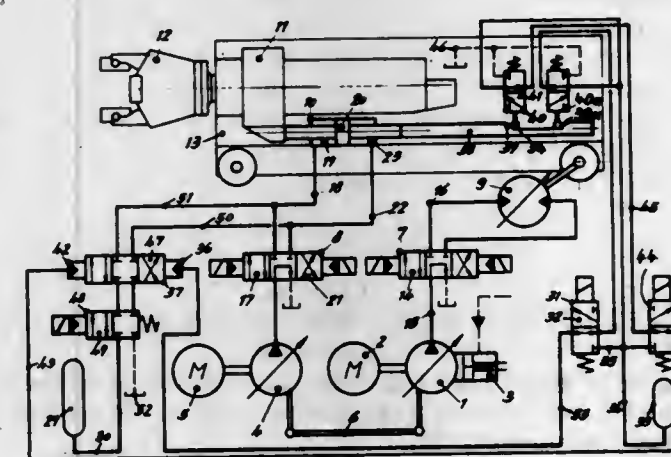
Filed Aug. 21, 1968, Ser. No. 754,281

Claims priority, application Germany, Aug. 25, 1967, Sch 41209

Int. Cl. B21d 37/08, 43/02

U.S. Cl. 72-21

5 Claims



Means for controlling the movements of a forging manipulator, comprising: a a tongs-holder or peel assembly and

tongs so mounted on a manipulator carriage as to be axially movable and rotatable thereon, a hydromotor for driving the carriage, a piston-and-cylinder unit for driving the tongs-holder and tongs relatively to the manipulator carriage, valves controlling the supply of pressure fluid to the hydromotor and to the piston-and-cylinder unit, so arranged that during the forging stage of the working cycle the tongs-holder and tongs are moved relatively to the manipulator carriage at the same speed as the manipulator carriage but in the opposite direction, whereas when the workpiece is free to move, the piston-and-cylinder unit is automatically connected with a source of fluid pressure at a higher pressure and is moved in the same direction as the manipulator carriage but at a higher speed.

3,590,617 PIPE BENDING TOOL WITH IMPROVED ANGULAR INDICATOR

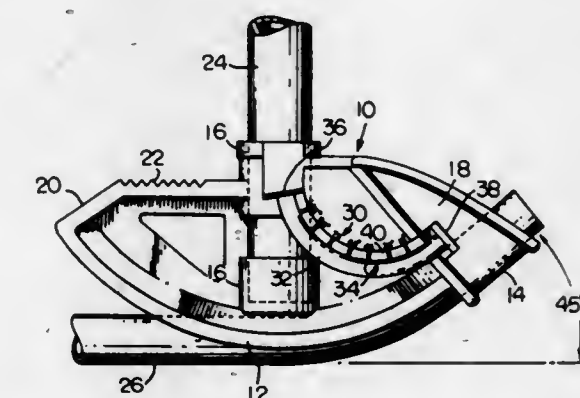
Ralph W. Mount, R.R. #1, Zellenople, Pa.

Filed May 13, 1968, Ser. No. 728,425

Int. Cl. B21c 51/00

U.S. Cl. 72-34

1 Claim



A pipe-bending tool is provided with an elongated, arcuate transparent tube and is provided with angular marks. A ball is positioned in the tube which is closed at its ends. As the tool is operated to bend a pipe, the position of the ball relative to the angular marks indicates the angle of the bend.

3,590,618 CROSS ROLL STRAIGHTENER MACHINE

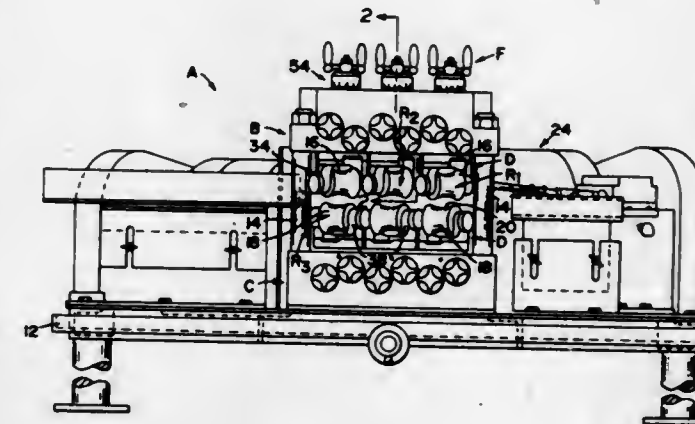
William Hyams, Bethel Park, Pa., assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Filed Jan. 28, 1969, Ser. No. 794,524

Int. Cl. B21b 19/02, 31/16

U.S. Cl. 72-99

10 Claims



A cross roll machine comprising a housing, upper and lower roll carrier means supported in said housing, upper and lower rolls supported by said roll carrier means, one of said roll carrier means and said housing defining vertically spaced-apart cooperating surfaces disposed so that a load tends to move said surfaces together, further including a plurality of dish springs between said surfaces, and means for preloading said dish springs to maintain a substantially con-

stant spacing between the surfaces under normal load conditions.

3,590,619

MANUFACTURE OF HERRINGBONE GEARS

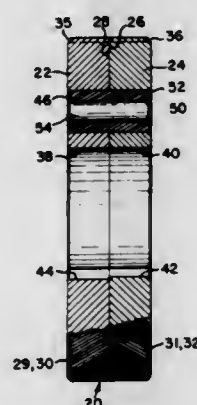
Walter Sheldon, and Gary Eigenbrode, both of Waynesboro, Pa., assignors to Landis Machine Company, Waynesboro, Pa.

Filed July 19, 1968, Ser. No. 746,025

Int. Cl. B21h 5/02

U.S. Cl. 72-102

2 Claims



Dies for roll forming herringbone gears from a unitary workpiece. The dies are of two part construction, each part having peripheral ridge and groove formations complementary to the teeth to be formed on the workpiece, the formations being of opposite hand and joining at the central plane of the die.

3,590,620

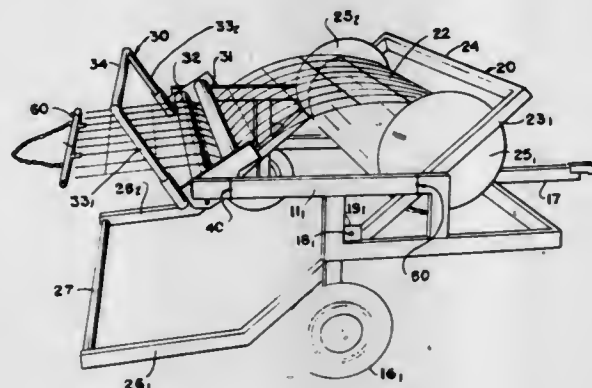
APPARATUS FOR STRAIGHTENING ROLLED WELDED WIRE FABRIC

John L. Lowery, 955 Magnolia Woods Ave., Baton Rouge, La. Filed Jan. 24, 1969, Ser. No. 793,868

Int. Cl. B21d 5/14

U.S. Cl. 72-166

9 Claims



An apparatus, or press, for removing the set from rolled welded wire fabric to permit laying the fabric as continuous flat unbroken strips. The apparatus includes a frame, or carriage, which supports a first yokelike assembly pivotally mounted on the frame for receiving, and preferably for lifting, a roll or welded wire fabric to an elevated position for unreeling. A second yokelike assembly, also pivotally mounted upon the frame, is provided with a pair of rolls through which the end of the wire fabric is passed. Sufficient stress or force is applied by the coupling action of the rolls to unset the distortion or set produced by the rolled condition of the welded wire fabric.

3,590,621
APPARATUS FOR REDUCING THE THICKNESS OF METAL

Karel Saxl, Sutton Coldfield, England, assignor to Imperial Metal Industries Kynoch Limited, Wilton, Birmingham, England

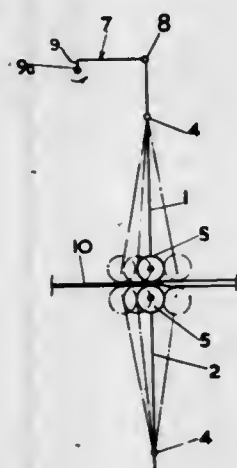
Filed Nov. 8, 1968, Ser. No. 774,416

Claims priority, application Great Britain, Nov. 9, 1967, 51/02/67

Int. Cl. B21b 21/00, 31/20

U.S. Cl. 72-189

13 Claims



Method and apparatus for reducing the thickness of metal in which a pair of freely rotatable work rolls disposed on opposite sides of the metal are oscillated in synchronism upon a pair of oscillatable arms to subject the metal to rolling action of the arms, and in which auxiliary load-applying means are included to influence the roll displacement force at particular positions of arm oscillation so as to urge the work rolls towards straight line parallel movement.

3,590,622

APPARATUS FOR MAKING TUBING

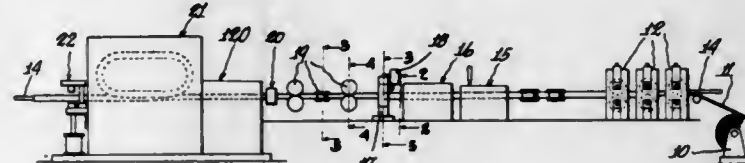
Frank E. Elge, Ludlow, and Thomas G. Wolfe, Kane, both of, Pa., assignors to Ernest N. Calhoun, Pittsburgh, Pa.

Filed Dec. 18, 1968, Ser. No. 784,754

Int. Cl. B21b 17/10

U.S. Cl. 72-209

5 Claims



A tube mill wherein skelp is formed to tube shape and welded along a longitudinal split. The tubing is cold-worked at several passes in a manner that the coarse grain structure at the weld area is refined without affecting the surfaces of reducing dies. Means are provided to effect reciprocation of the mandrel during cold-working operations. The invention comprises methods of forming and working tubing and includes the forming of a tube from skelp having thickened longitudinal portions and cold-working the welded area to refine the weld structure approximately to that of the remaining tube.

3,590,623

METHOD FOR REFORMING AND STRAIGHTENING MEMBERS

Wayne E. Hunnicutt, Big Bend, and Peter G. Rossbach, Waukesha, both of, Wis., assignors to Applied Power Industries, Inc., Milwaukee, Wis.

Filed July 15, 1968, Ser. No. 744,824

Int. Cl. B21d 11/02, 9/14

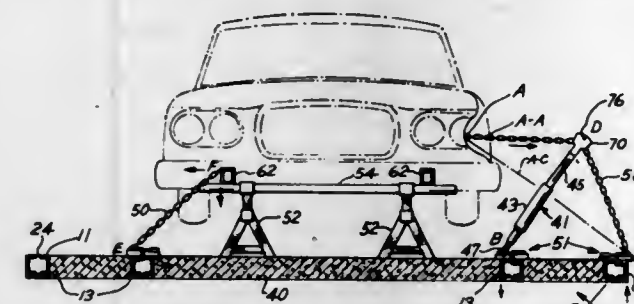
U.S. Cl. 72-302

18 Claims

A method and apparatus are disclosed for reforming and

straightening members such as bent or damaged bodies and frames of vehicles, and portions thereof, wherein a force ef-

the machine and a cooperating movable swaging die driven by a drive cam. The drive cam is operatively coupled with



fective from a platform surface is applied via force-transmitting means to straighten said bodies and frames.

3,590,624

BRAKE FOR PRESSFEEDER

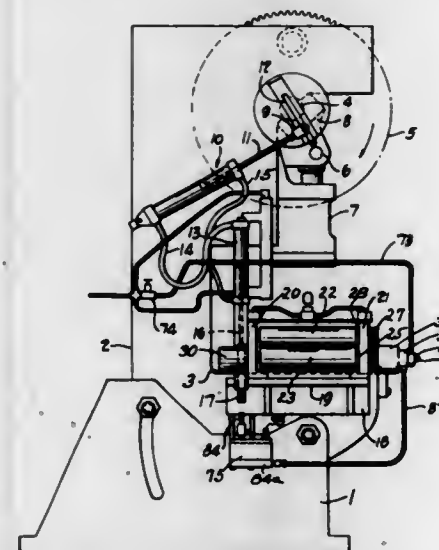
Oscar E. Pax, R.R. #5 Box 400-A, Celina, Ohio, and Francis J. Pax, 624 Plum Drive, Coldwater, Ohio

Filed Jan. 31, 1969, Ser. No. 795,482

Int. Cl. B21d 43/02; B65h 17/00

U.S. Cl. 72-419

5 Claims



There is disclosed herein brake instrumentalities and means for controlling the same which are associated with roll-feeding mechanism to regulate roll rotation of material fed therebetween, such mechanism being shown in this instance in association with a high-speed punch press, to which the strip material fed through the feeding mechanism is supplied for operation by the punch press, the precise positioning of the material being affected by the brake instrumentalities hereof which are adapted for incremental feeding of such material. The brake mechanism involves the provision of a compact housing in which are located a pressure plate, suitable friction plates, a brake disc which in turn is connected to at least one of the rolls through which the material is fed, all under the control of an hydraulic piston and cylinder arrangement which provides the power to actuate the brake mechanism under the control of certain hydraulic booster elements which are actuated in response to and in timed relation to motion of the crankshaft of the press by hydraulic means provided for such booster actuation and adjustable in accordance with the desired amount of rotation of the rolls to feed the said material to the aforementioned press.

3,590,625

SWAGING ATTACHMENT FOR FORMING MACHINES

Gordon Del Faro, Woodland Hills, and Leo C. Groves, Sunland, both of, Calif., assignors to R & R Four-Slide Corp., North Hollywood, Calif.

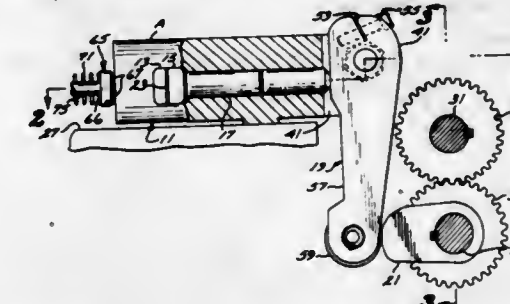
Filed Oct. 25, 1968, Ser. No. 770,636

Int. Cl. B21j 9/18

U.S. Cl. 72-452

10 Claims

A swaging attachment for use on an automatic forming machine and including a quiescent swaging die supported on



the forming machine to reciprocate said movable swaging die to swage a workpiece being fed into said machine.

3,590,626

SINUSOIDAL PRESSURE CALIBRATOR

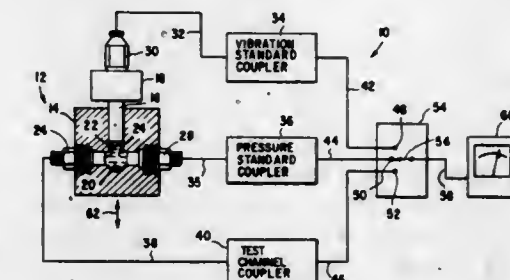
Hans W. Hugli, Williamsville, N.Y., assignor to Kistler Instrument Corporation, Clarence, N.Y.

Filed Mar. 4, 1970, Ser. No. #16,407

Int. Cl. G01n 27/00

U.S. Cl. 73-4

17 Claims



Disclosed is a dynamic pressure calibrator for calibrating particularly piezoelectric pressure transducers for relatively high and rapid sinusoidal pressure variations. The calibrator comprises a housing on which are mounted both a standard and a test transducer. A seismic mass of known weight within the housing is vibrated when the device is placed on a shaker table and acts through a piston and a hydraulic oil reservoir in the housing to simultaneously apply equal pressure forces to the transducers so their outputs can be compared. An accelerometer senses seismic mass acceleration and the transducers are preferably preloaded through the oil.

3,590,627

APPARATUS FOR DETECTING POUR POINT

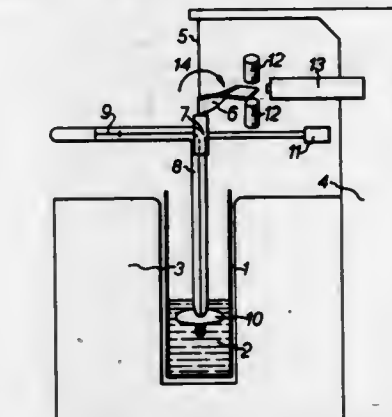
Kyle Campbell, Bright Walton, Newbury, England, assignor to Esso Research and Engineering Company

Continuation of application Ser. No. 566,679, July 20, 1966, now abandoned. This application Oct. 31, 1969, Ser. No. 871,791

Int. Cl. G01n 25/01

U.S. Cl. 73-17

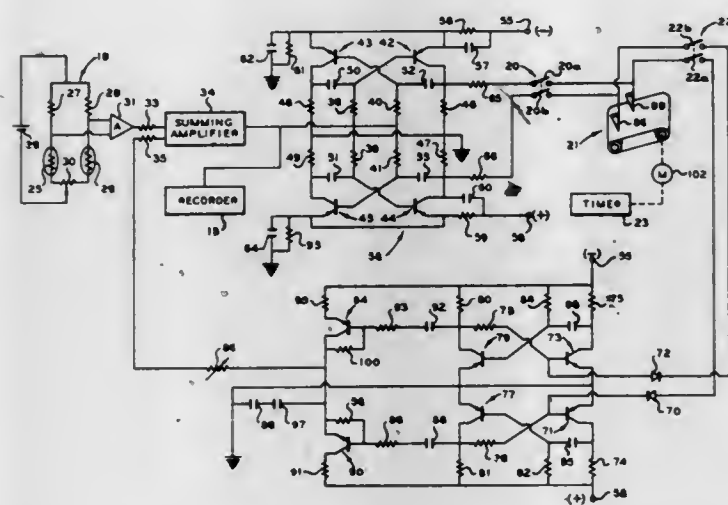
12 Claims



A member immersed in a fluid is suspended from a torsional element. Intermittent torsional pulses are applied to the member to displace the member relative to the fluid. The liquid is cooled and when the intermittent pulses are no longer effective to displace the member relative to the fluid the temperature is noted to indicate the pour point of the liquid.

3,590,628
BASELINE COMPENSATION FOR
CHROMATOGRAPHIC ANALYZER
 Harold W. Orr, Borger, Tex., assignor to Phillips Petroleum
 Company
 Filed Jan. 23, 1969, Ser. No. 793,420
 Int. Cl. G01n 31/08; G11b 5/00
 U.S. Cl. 73-23.1

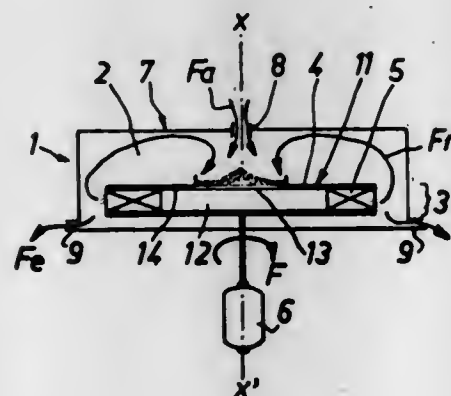
1 Claim



A procedure is disclosed for compensating a chromatographic analyzer for baseline drift and irregularities. The analyzer is first operated under normal operating conditions except that a sample is not introduced. The output signal of the detector is recorded. This recorded signal is subsequently subtracted from the output signal during an actual analysis so that baseline drift and irregularities are eliminated.

3,590,629
DEVICE FOR THE CONTINUOUS DETECTION OF DUST
IN THE ATMOSPHERE
 Paul Courbon, Verneuil-en-Halatte, France, assignor to Charbonnages De France, Paris, France
 Filed Apr. 6, 1970, Ser. No. #25,691
 Claims priority, application France, Apr. 4, 1969, 69/10,594
 Int. Cl. G01n 31/00
 U.S. Cl. 73-28

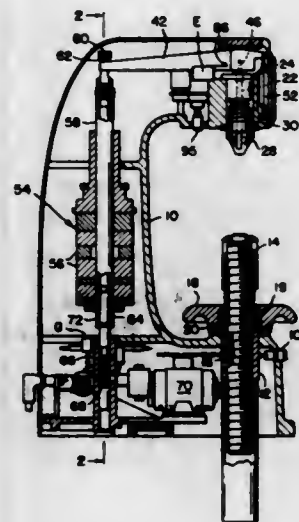
16 Claims



A thin filter element is mounted integrally with a centrifugal fanlike rotor so that when the rotor is rotated air will be drawn through the filter. This assembly is mounted within a fairly spacious enclosure with limited ingress and egress orifices so that air will tend to be recirculated within the enclosure. Solid particles in the air entering the enclosure will tend to be collected in a spot at the center of the filter element, the size of the spot being a measure of the amount of dust in the air.

3,590,630
HARDNESS TESTER
 AH A. A. Erickson, Nacka, Sweden, assignor to Aktiebolaget Svenska Precisioner, Nacka, Sweden
 Filed Aug. 6, 1968, Ser. No. 750,639
 Claims priority, application Sweden, Aug. 11, 1967, 11,395/1967
 Int. Cl. G01n 3/44
 U.S. Cl. 73-83

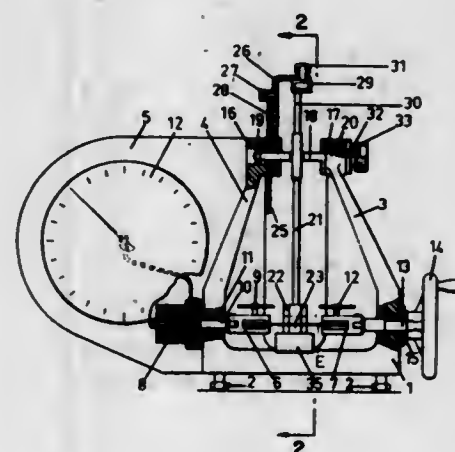
5 Claims



A test specimen support is adjustable vertically to urge a specimen against the lower end of a vertically movable spindle, the upper end of which engages a loading beam at a point that is offset from the horizontal axis of the beam. The heavier end of the beam rests on the upper end of the spindle to preload the specimen as the support rises, and the opposite end of the beam is attached to an indicator which zeros when the beam has pivoted upwardly far enough to complete the preloading. At this time a first signal is produced to indicate that the main load, which overlies the heavier end of the beam, may be released. If the support is elevated too far, so that the beam is pivoted into contact with the main load during preloading, a second signal occurs, and the main load is prevented from being released.

3,590,631
STRENGTH TESTING OF RIGID PLASTIC MATERIALS
 Andre Gonze, Koningsloo-Vilvorde, Belgium, assignor to Solvay & Cie, Brussels, Belgium
 Filed Mar. 25, 1969, Ser. No. 810,168
 Claims priority, application Belgium, Apr. 4, 1968, 56,716
 Int. Cl. G01n 3/08
 U.S. Cl. 73-95

5 Claims

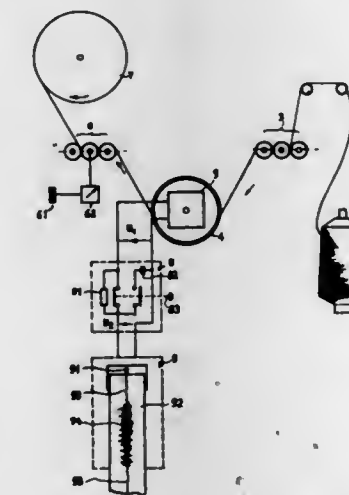


A method and apparatus for determining the brittleness of rigid plastic materials by subjecting samples of a material to be tested to a measured longitudinal tension and applying to the midpoint of the sample an impact of a type which produces a notch, the impact having a given energy content and a direction perpendicular to the direction of the applied

tension force. A measure of the brittleness of the material is obtained by determining the minimum tension force for which a given impact will rupture the sample.

3,590,632
PROCESS FOR MEASURING THE STRENGTH AND
ELONGATION OF A CONTINUOUSLY TRAVELLING
THREAD
 Walter Gegenschatz, Uster, Switzerland, assignor to Zellweger, Ltd., Uster, Switzerland
 Filed Nov. 13, 1968, Ser. No. 775,336
 Claims priority, application Switzerland, Nov. 23, 1967, 16,488
 Int. Cl. G01n 3/08
 U.S. Cl. 73-95.5

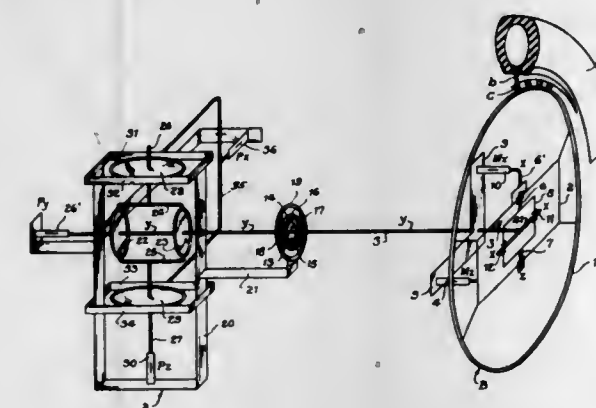
1 Claim



An electronic damping element is interposed between the force-measuring instrument and indicating instrument to produce a mean value from the signal emitted from the measuring instrument for recording as a smooth deviating line by the indicating instrument. The damping element can be switched on or off. The mean value can be preset by regulating the speed ratio between the roller assemblies.

3,590,633
STRESS MEASURING OF ROTATING BODIES
 Wolfgang Fuhrmann; Rudolf Nusslein, and Waldmar Seifert, all of Nurnberg, Germany, assignors to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Nurnberg, Germany
 Continuation of application Ser. No. 683,642, Nov. 16, 1967. This application Mar. 9, 1970, Ser. No. 17,020
 Int. Cl. G01m 17/02; G01l 5/16
 U.S. Cl. 73-146

3 Claims

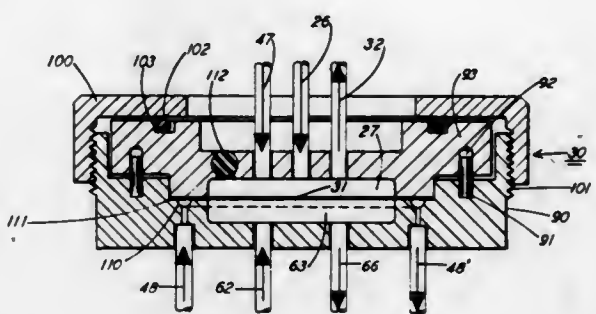


The tension and compression stresses and the flexural torque and maximum torque in a rotating body, such as a vehicle tire, are measured by dividing the tension and compression forces into the x-x, y-y and z-z axes and the moments into the Mx and Mz axes. Separate load cells are used to measure each force or moment, respectively.

888 O.G.—8

3,590,634
INSTRUMENT FOR DETERMINING PERMEATION
RATES THROUGH A MEMBRANE
 Raphael A. Pasternak, San Mateo, and Jan F. Schimscheimer, Cupertino, both of, Calif., assignors to Stanford Research Institute, Menlo Park, Calif.
 Filed May 5, 1969, Ser. No. 821,905
 Int. Cl. G01n 15/08
 U.S. Cl. 73-159

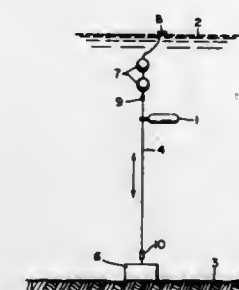
3 Claims



An instrument for determining permeation rates through a membrane having a permeation cell with upstream and downstream compartments arranged to hold a membrane therebetween, a line for continuously passing a gaseous permeant to the upstream cell compartment and from thence to the atmosphere, a line for passing a current of a carrier gas first to the downstream cell compartment and then to a permeant detector associated with a recorder, a bypass line for sending the carrier gas around the downstream compartment, as controlled by a valve in the line, and a heater for making controlled variations in the temperature of the permeation cell during the course of any given permeation rate test.

3,590,635
PYCNOCLINE FOLLOWER APPARATUS
 Walter O. Duling, Miami, Fla., assignor to the United States of America as Represented by the Secretary of the Navy.
 Filed May 1, 1970, Ser. No. 33,755
 Int. Cl. G01f 23/10
 U.S. Cl. 73-170 A

7 Claims



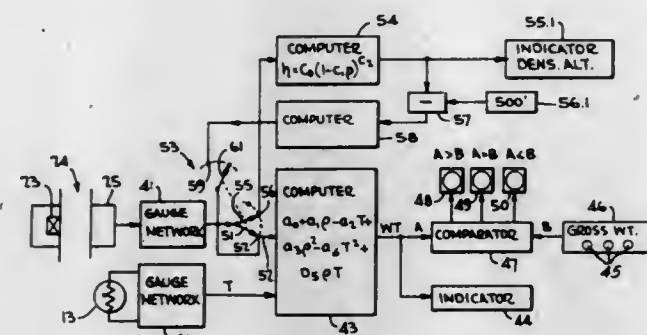
Observation and study of internal waves in the main pycnocline of an ocean area is achieved by providing a pycnocline follower capable of being prebalanced to a particular density within the range of a predetermined density gradient of the pycnocline. As internal wave conditions produce density variations the pycnocline follower moves up and down. A time-related pressure-recorder system carried by the follower provides data on the varying pressure which closely corresponds to the amplitude and period of the internal-wave-producing movement. The follower is mounted on a thin wire that is anchored, buoyed and tensioned sufficiently to maintain a vertical disposition in the presence of anticipated horizontal currents. A plurality of spherical buoyant members are removably mounted in a casing of the follower to permit weight changes necessary to prebalance the follower to a desired density. The recording system is carried by one of the buoyant members.

3,590,636
METHOD FOR DETERMINING AIRCRAFT LIFT CAPABILITY USING AIR DENSITY MEASUREMENT
 William C. Eddy, Jr., Columbus, Ohio, assignor to Industrial Nucleonics

Filed Oct. 25, 1968, Ser. No. 770,652
 Int. Cl. G01c 21/00

U.S. Cl. 73-178

39 Claims



A lift indicator for either fixed or rotary wing aircraft includes a nucleonic density gauge for deriving a density altitude indicating signal and means for deriving a temperature indicating signal. The signals are nonlinearly combined to derive the lift indication which can be correlated to the ability of a rotary wing aircraft to take off or land vertically or for a fixed wing aircraft to take off from a runway of known length. The density altitude indicating signal is combined with an indicated airspeed signal derived from a pitot tube to derive a true airspeed-indicating signal.

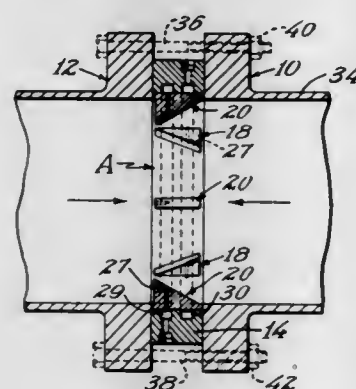
3,590,637
FLOW METER

William R. Brown, 2756 N. Lexington Parkway, Saint Paul, Minn.
 Continuation of application Ser. No. 630,855, Apr. 14, 1967, now abandoned. This application Dec. 17, 1969, Ser. No. 882,405

Int. Cl. G01p 5/16

U.S. Cl. 73-212

21 Claims



A ring-shaped differential-pressure-producing flow meter adapted to be inserted into a pipeline, the body portion having an internal diameter corresponding to that of the pipeline. One or more pressure-generating forms extend from the inner circumference of the body beyond the boundary layer of fluid flowing through the body. A piezometer tap is positioned in pressure-sensing relation to the pressure-generating forms.

3,590,638
THERMOELECTRIC PRESSURE SENSOR

Harry G. Anastasia, Hillsdale, N.J., assignor to The Bendix Corporation

Filed Oct. 22, 1969, Ser. No. 868,492

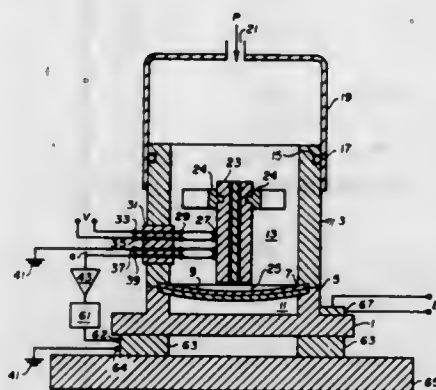
Int. Cl. G011 9/10

U.S. Cl. 73-398 R

14 Claims

A pressure sensor having a bimetallic diaphragm that is subjected to a pressure and adapted to flex from a reference

contour in response to a change in the pressure. A linear variable differential transformer positioned adjacent to the diaphragm provides a signal corresponding to the displacement of the diaphragm from the reference contour. A ther-



moelectric device is responsive to the transformer signal for varying the temperature of the diaphragm causing it to return to the reference contour. A temperature probe senses the diaphragm temperature and provides a signal corresponding to the sensed pressure.

3,590,639
PRESSURE INDICATING AND/OR REGULATING DEVICES

Yves Marie Ponsar, Villemonble, France, assignor to Degremont Societe Generale D'Epuraton Et D'Assainissement, Rueil Malmaison, France

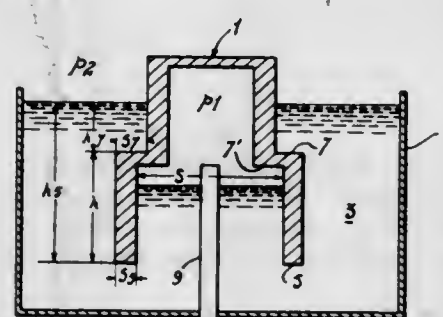
Filed Sept. 23, 1968, Ser. No. 761,621

Claims priority, application France, Sept. 27, 1967, 122400

Int. Cl. G011 7/72

U.S. Cl. 73-404

13 Claims



A pressure measuring and/or regulating device incorporating a movable solid body placed in a liquid-filled chamber. The body has a fluid-filled lower recess and has vertical surfaces directed upwards and/or downwards. One of these is a downwardly directed surface which is exposed to the fluid in the recess and another is an upwardly directed surface which is exposed to the liquid medium. The second surface is higher than the first and serves to correct for the Archimedean thrust applied to a third surface of this body which is directed downwardly, which is lower than the first and second surface, and which is exposed to the liquid.

3,590,640
HOLOGRAPHIC PRESSURE SENSOR

Ivan Cindrich, Southfield, Mich., assignor to Chain Lakes Research Corporation, Detroit, Mich.

Filed Apr. 24, 1969, Ser. No. 819,028

Int. Cl. G011 7/08

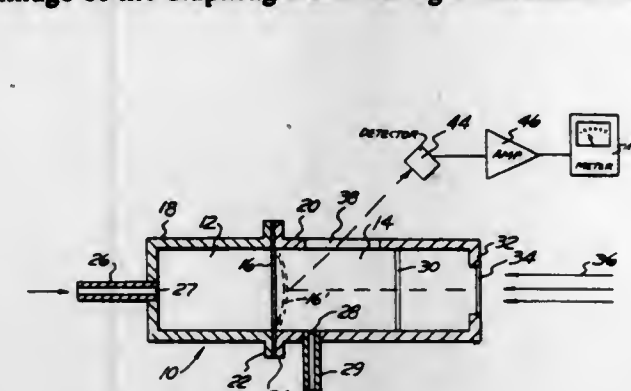
U.S. Cl. 73-406

10 Claims

A pressure sensor consisting essentially of a deformable diaphragm having a side subjected to the action of a fluid, liquid or gas, whose pressure is sought to be measured. The

other side of the diaphragm is illuminated by an image of the diaphragm at rest which is reconstructed from a hologram. The interference of the light from the reconstructed hologram image of the diaphragm and the light reflected from the

one of a series of sample containers. Each collected sample may be separately tested or a composite established with a



actual diaphragm creates interference fringes whose number and arrangement provide an indication of the pressure of the fluid. A detector, such as a photocell, is coupled to a meter for providing a visual quantitative information of the pressure of the fluid.

3,590,641
PRESSURE GAGE

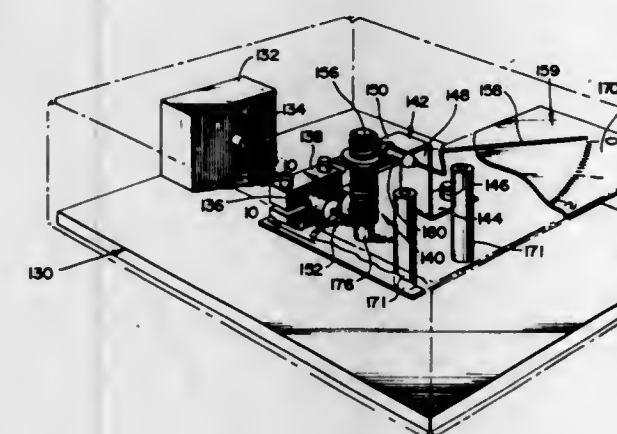
Gerard D. Eggleston, Danvers, Mass., assignor to Microdot Inc., Westwood, Mass.

Filed June 6, 1968, Ser. No. 735,128

Int. Cl. G011 7/04

U.S. Cl. 73-418

7 Claims



A direct reading pressure gage having a coupler chamber at one end and a Bourdon tube on the other connected by a capillary tube. The coupler chamber, capillary and Bourdon tubes are filled with a liquid having a total volume in the order of 0.004 cubic inch to minimize volumetric displacement.

3,590,642
AUTOMATIC SAMPLER FOR A FLOWING LIQUID AND TESTING METHOD

Kai Lennart Root, The Ledges, Hallowell, Maine

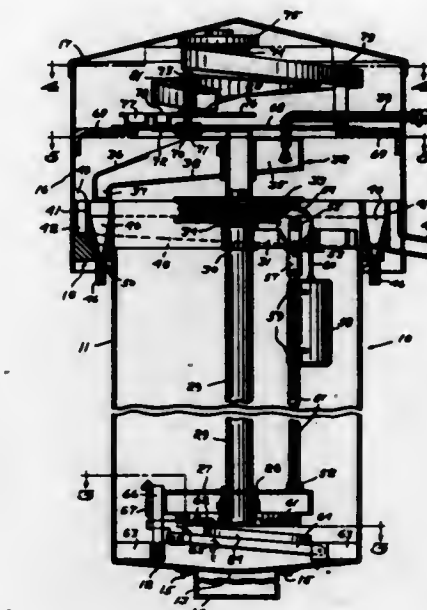
Filed Feb. 14, 1969, Ser. No. 799,326

Int. Cl. G01n 1/10

U.S. Cl. 73-424

14 Claims

A sampler is disclosed for automatically taking samples from a flow at approximately uniform intervals and of approximately equal volumes. The sampler has a rotatable distributor for delivering liquid from the flow successively into a series of outlets, each in communication with the appropriate



percentage from each sample that is proportional to the rate of flow that existed at the time that sample was taken.

3,590,643
FLUID VORTEX ANGULAR MOTION SENSOR

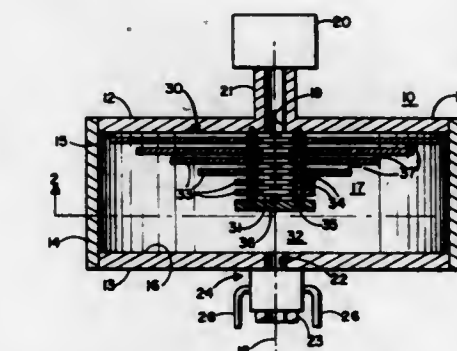
Walter M. Postings, Edina, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 14, 1969, Ser. No. 866,310

Int. Cl. G01p 3/26

U.S. Cl. 73-505

10 Claims



Fluid vortex apparatus including a vortex chamber, a characterized coupling element comprising a stack of spaced annular discs for introducing fluid into the vortex chamber, and a fluid outlet from the vortex chamber. The coupling element is characterized so that different portions of the fluid are introduced into the vortex chamber at different distances from the outlet, and are thus subject to different transfer characteristics in traversing the chamber. The annular discs in the coupling element are separated by predetermined small distances chosen to provide great viscous coupling between the discs and the fluid flowing therebetween. A sensor associated with the outlet passage produces a signal indicative of a summation of the modifications to rotational velocity of flow about the axis of the outlet, thereby resulting in a characterized response to input stimuli.

3,590,644
THREADED SPINDLE AND SLEEVE MEANS

Max Kuspert, Markt, 46 Waldershof, Germany

Filed May 16, 1969, Ser. No. 825,201

Claims priority, application Germany, May 21, 1968, P 17 50

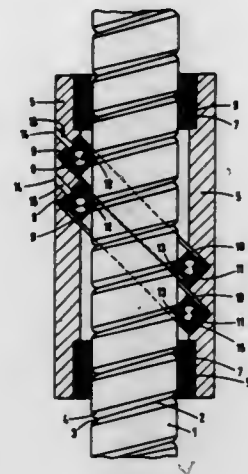
637.5
 Int. Cl. F16h 25/12

U.S. Cl. 74-57

10 Claims

There is disclosed a threaded spindle and sleeve means including an externally threaded spindle means, a sleeve means

surrounding the same and means for guiding the rotary and translatory movements of the spindle means relative to the sleeve means comprising at least one rolling contact bearing



unit including inner and outer races, disposed to lie in a plane oblique to the axis of the spindle with the outer race secured in the interior of the sleeve means and the inner race engaging the thread of the spindle.

3,590,645

BIDIRECTIONAL STEPPING MECHANISM

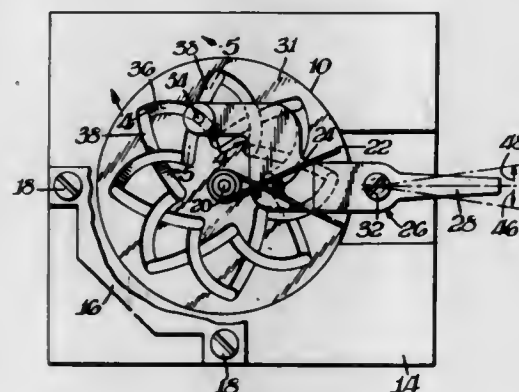
Salvatore J. Magri, Sunnyvale, and John E. Nidecker, Menlo Park, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 21, 1969, Ser. No. 826,609

Int. Cl. F16h 27/02

U.S. Cl. 74-88

10 Claims



A dislike camming wheel has a pattern of intersecting grooves cut in one face thereof. A lever-operated pin, biased to a center position within one of the grooves, is operated radially of the disc face in such a manner that when the pin is moved outwardly from the axis of rotation, the cam wheel is rotated in the opposite direction. The depth of tee grooves is varied such that a detent action is achieved to hold the cam wheel in a fixed position.

3,590,646

APPARATUS FOR EXTENDING THE LIFT ENGINES OF A VTOL AIRCRAFT

Fridolin Werner Bredt, Germering, Germany, assignor to Entwicklungsring Sud G.m.b.H., Munch, Germany

Filed Aug. 22, 1969, Ser. No. 852,338

Claims priority, application Germany, Sept. 13, 1968, P 17 81 235.0

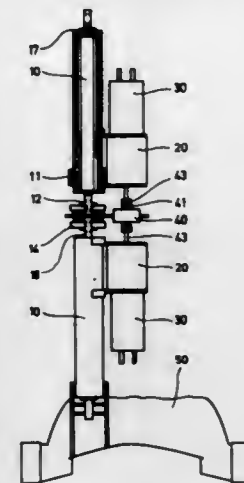
Int. Cl. F16h 3/70

U.S. Cl. 74-89.15

3 Claims

An apparatus for extending the lift engines of a VTOL aircraft from a stowed position within the fuselage to an extended operative position. Each of the engines are supported upon a jackscrew, serving to drive each of the jackscrews is a planetary drive which is actuated by a motor. Each of the planetary drives includes a shaft which is coupled to a univer-

sal joint. The universal joints are connected to a bearing. The adjacent ends of the jackscrews are rotatably pinned to levers



3,590,647

SNAP-ACTION SWITCH-OPERATING MECHANISM

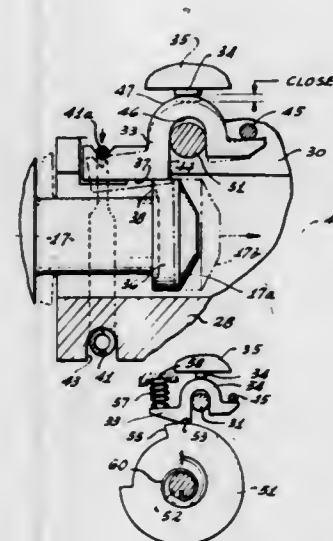
Carl Eugene Monnich, Granada Hills, Calif., assignor to Sterer Engineering and Manufacturing Company, Los Angeles, Calif.

Filed Dec. 18, 1968, Ser. No. 784,736

Int. Cl. F16h 21/44

U.S. Cl. 74-100

10 Claims



A switch-actuating mechanism is designed to give a snap action to either make or break an electrical circuit in a fast, positive manner. The switch is held firmly open or closed until the time of actuation is reached and is thus insulated from the adverse effects of shock and vibration. The operating mechanism is especially adapted to operate overcenter types of switches wherein the switch contacts are subject to chatter when near the center of shifting position.

3,590,648

REMOTE LIGHT-SWITCHING APPARATUS

De Witt Y. Gorman, P.O. Box 26323, Houston, Tex.

Filed Aug. 19, 1969, Ser. No. 851,305

Int. Cl. F16h 21/44

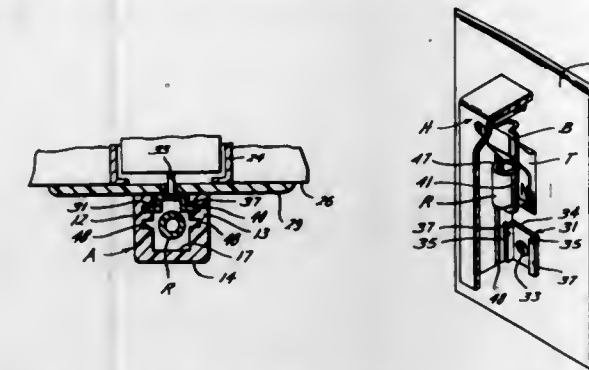
U.S. Cl. 74-103

2 Claims

An extension arm for remotely actuating a light switch wherein the upper end of the extension arm is operably con-

nected to the toggle arm of a light switch by means of a bail slidably mounted in a housing secured to the light switch

side to allow space for greater than normal sprocket tooth size relative to a given pitch length.



3,590,649

CONTINUOUSLY VARIABLE V-BELT DRIVE

Heinz Fischer, Obergogen, Switzerland, assignor to Meier & Co., Niedergogen (Canton of Soleure), Switzerland

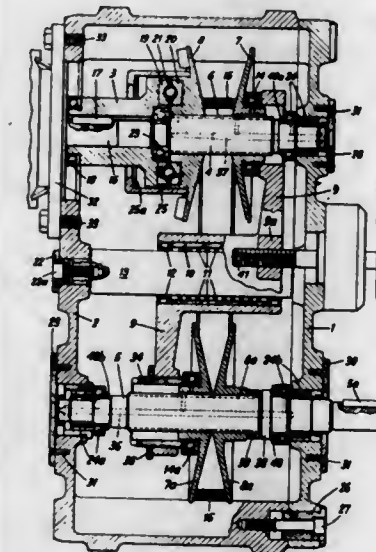
Filed June 11, 1969, Ser. No. 832,224

Claims priority, application Switzerland, June 18, 1968, 9010/68

Int. Cl. F16h 55/22

U.S. Cl. 74-230.17

3 Claims



The input side has two axially aligned shafts, one of which is the drive shaft and the other of which mounts two cone wheels forming a sheave for the V-belt. The drive shaft and one of the cone wheels each incorporate a cone race that with balls form a ball bearing which exerts a torque-dependent lateral pressure on the belt.

3,590,650

CUTTER CHAIN

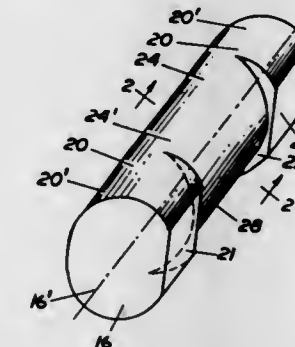
Lester G. Rollins, 650 Forest Lane, Franklin, Pa.

Filed Apr. 2, 1969, Ser. No. 812,759

Int. Cl. F16g 13/04

U.S. Cl. 74-254

9 Claims

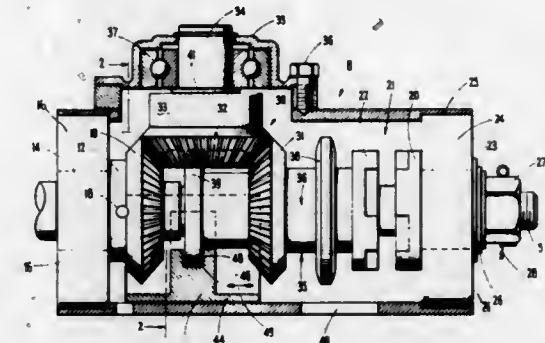


A cutter chain employing pintless having noncircular end portions providing nonrotative retention of the pintless in the cutter-carrying links and a central portion recessed along one

3,590,651
REVERSIBLE TRANSMISSION
Ulrik Vallieres, Quebec, Canada, assignor to St. Lawrence Manufacturing Company, Giffard, Quebec, Canada
Filed May 7, 1969, Ser. No. 822,508
Int. Cl. F16h 57/02

U.S. Cl. 74-404

10 Claims



A reversible transmission assembly for power transmission in which drive means and driven means are selectively interengaged by a gear train having three gears, with one operatively secured to the drive means, another to the driven means and the third selectively interengageable with either of the first two for turning the driven means in selected directions. The driven gear is mounted for axial movement away from the first gear means to a disengaging relation with the gear train. A clutch has one clutch half operatively secured to the second gear and the other clutch half operatively driven by the drive means with these two clutch halves adapted to interengage when the driven gear is disengaged from the gear train to drive the driven means in a direction opposite to that direction in which it's driven when the three gears are interengaged. A simple gear shifter is provided.

3,590,652

SLEEVE AND BUSHING STRUCTURE FOR A TORQUE ARM SPEED REDUCER

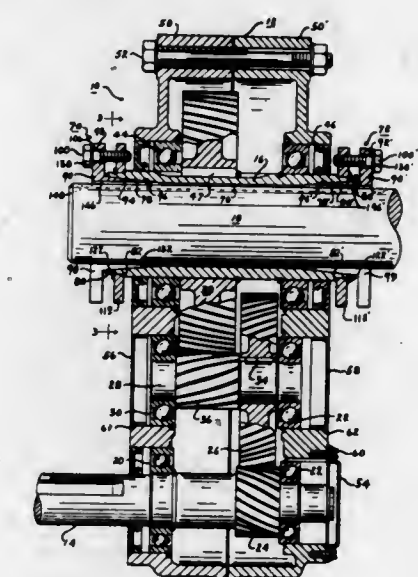
Robert E. Strang, R.R. 2, North Liberty, Ind.

Continuation-in-part of application Ser. No. 617,002, Jan. 27, 1967, now abandoned. This application Nov. 5, 1969, Ser. No. 874,357

Int. Cl. F16n 1/20

U.S. Cl. 74-421

8 Claims



The combination of a shaft-mounted speed reducer and a sleeve and bushing structure therefor, in which a sleeve having a bore therein is concentrically mounted on a shaft and secured thereto by split bushings at each end of the sleeve extending into the bore and urged into securing position by a

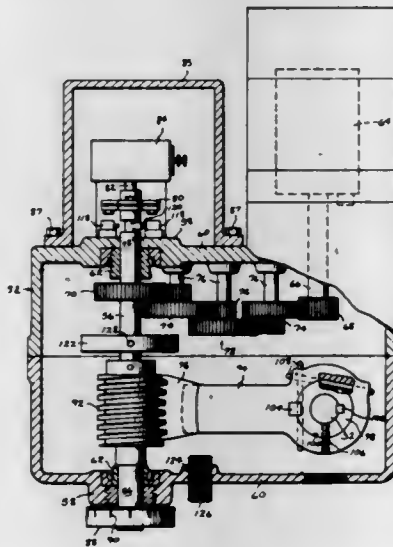
plurality of screws extending through the bushing into a collar on the sleeve at each end thereof. The collars are rotatable relative to each other and to the sleeve on which they are mounted.

3,590,653 MEANS FOR TRIMMING THE POSITION OF CONTROL ELEMENTS

Hubert Dreckmann, and Charles B. Wilson, both of Michigan City, Ind., assignors to The Hays Corporation, Michigan City, Ind.

Filed Jan. 2, 1970, Ser. No. 183
Int. Cl. F16h 1/16, 35/00; F02c 9/04
U.S. Cl. 74-425

12 Claims

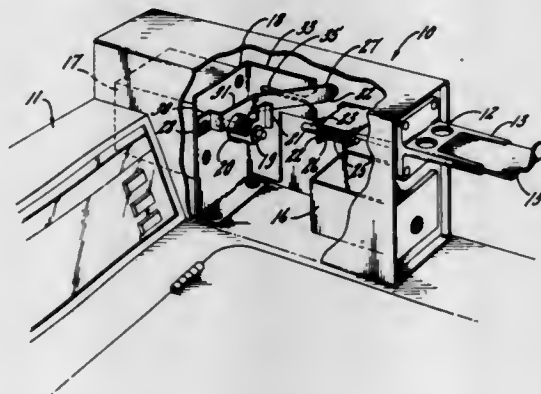


Means for trimming the position of a controlled element responsive to a power-actuated controller having a rotatable shaft for causing actuation of the controlled element. A housing member is journaled on the controller shaft and includes a part which is connected to the controlled element. The housing member has a shaft journaled thereto which is spaced from the controller shaft. Meshing gears interconnect the housing member shaft and the controller shaft. A power actuated unit is carried by the housing member and serves to rotate the housing member shaft. The degree of rotation of the housing member shaft is monitored by a signal device carried by the housing member.

3,590,654 DEVICE FOR PREVENTING DEFEAT OF SLIDE-OPERATED MECHANISMS

Donald N. Butte, Pacific Palisades, Calif., assignor to McGraw-Edison Company, Ripon, Wis.
Filed Jan. 21, 1970, Ser. No. 4,490
Int. Cl. G05g 1/07
U.S. Cl. 74-491

4 Claims



A retractable blocking member is provided to prevent defeat or improper operation of a slide-operated timing mechanism in a coin-operated machine. The blocking member is normally biased into blocking relationship with a timer control shaft which must be depressed to initiate an operating cycle of the mechanism, and an arm extends from

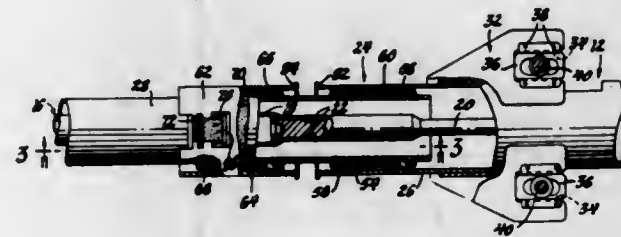
the blocking member toward the coin slide. Inward movement of the slide retracts the arm and blocking member from the blocking position, allowing the control shaft to be shifted axially inward to initiate a cycle function. When the timed cycle is completed, the control shaft returns to its original position and the biased blocking member again returns to its blocking position.

3,590,655 ENERGY-ABSORBING STEERING COLUMN

Robert C. Farrell, and John W. Skelley, both of Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 1, 1969, Ser. No. 881,190
Int. Cl. B62d 1/18
U.S. Cl. 74-492

9 Claims

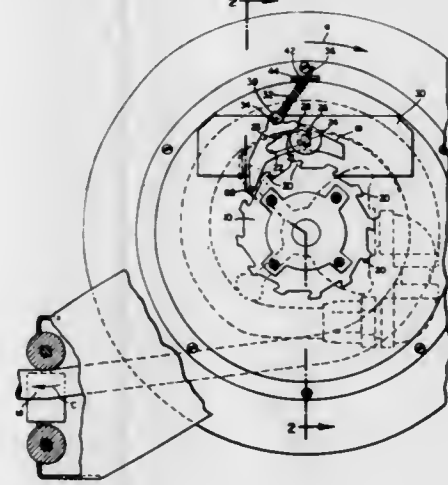


An automotive vehicle energy-absorbing steering column assembly includes an energy-absorbing support jacket comprised of upper and lower telescopic sections having interposed therebetween a ball-type energy-absorbing deformer structure providing a first level of energy absorption for an initial amount of forward displacement of the steering wheel whereafter the upper section abuts a third section telescopically mounted on the lower section with a further ball-type structure therebetween so that continued displacement of the steering wheel forwardly of the vehicle is met with a second higher level of energy absorption.

3,590,656 RATCHET DEVICE FOR HOSE REEL

Otis S. Lloyd, Jr., Lansdale, Pa., assignor to William M. Wilson's Sons, Inc., Lansdale, Pa.
Filed Dec. 24, 1969, Ser. No. 887,899
Int. Cl. G05g 5/12
U.S. Cl. 74-575

5 Claims

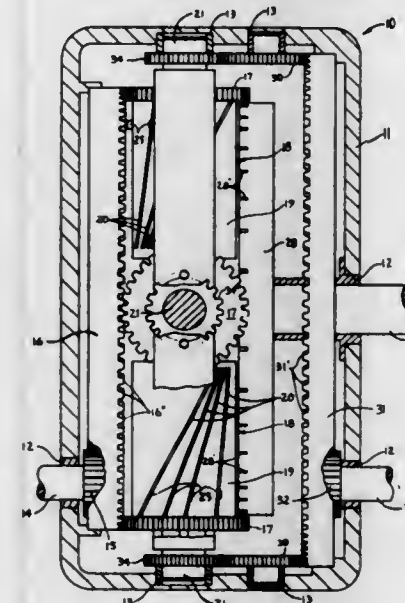


A hose reel of the type having an automatic rewinding motor and a ratchet and pawl stop mechanism is improved by a redesigned floating pawl and redesigned ratchet teeth. Both the pawl and the teeth are provided with cammed surfaces providing a means for positively actuating the pawl so that it does not hang up on deadcenter.

3,590,657 VARIABLE GEAR TRAIN RATIO

James C. Cochrane, Jr., Raleigh, N.C., assignor to Walter K. Gladden, Charlotte, N.C., a part interest
Filed May 23, 1969, Ser. No. 827,190
Int. Cl. F16h 33/00
U.S. Cl. 74-640

5 Claims U.S. Cl. 74-800

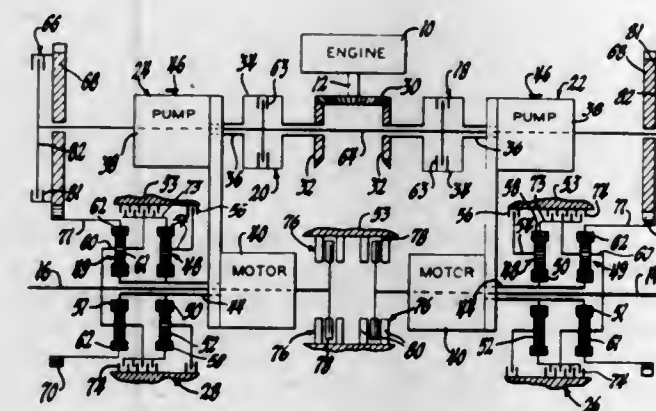


In abstract, a preferred embodiment of this invention is a gear train using a generally flat output gear having teeth radiating outwardly from its center area and radially disposed cylinders with longitudinally slidable teeth therein to engage the output gear to vary the output to input gear ratio.

3,590,658 POWER TRAIN

Robert M. Tuck, Indianapolis, Ind.
Continuation of application Ser. No. 502,863, Oct. 23, 1965, now abandoned. This application Sept. 28, 1967, Ser. No. 671,464
Int. Cl. F16h 47/04
U.S. Cl. 74-687

8 Claims

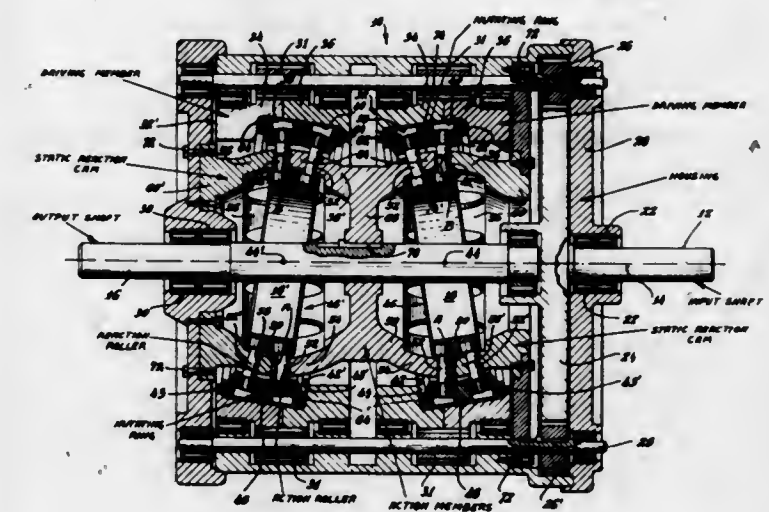


A power train having an infinitely variable ratio hydrostatic drive combined with planetary gearing to provide a full hydrostatic drive in a low-drive range and at least one hydromechanical drive in a higher drive range with synchronous drive-establishing device shifting between the drives. In the planetary gearing there is a pair of planetary gear sets having like gear members driven by the hydrostatic drive with the ring gear member of one gear set having selective mechanical input drive, for the high-drive range. An added hydromechanical drive is made available by selective mechanical input drive to the carrier of the other gear set. A dual output power train arrangement is provided by a forward and reverse input drive to two of the above described drive arrangements to provide separate power train outputs whereby there are provided the same drives in forward and reverse and, in addition, steering is available by establishing a speed differential between the two outputs.

3,590,659 NUTATING SPEED CHANGING MECHANICAL TRANSMISSION

Arthur M. Maroth, Wilton, Conn.
Filed Dec. 29, 1969, Ser. No. 888,756
Int. Cl. F16h 1/28
U.S. Cl. 74-800

19 Claims

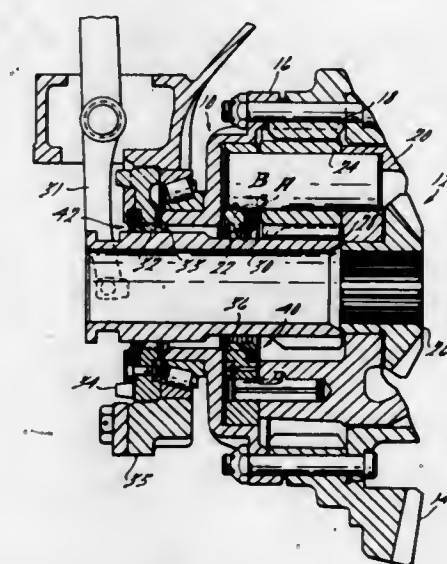


A speed changer apparatus wherein a nutating member having force transfer members in the form of roller elements nutatively contacts inclined surfaces on an action member coupled to an output shaft. The nutating member is prevented from rotation by stationary mounted inclined surfaces which are contacted by force transfer members. The nutating member is peripherally engaged by a rotating driving member coupled to a rotating input shaft. The driving member is provided with a surface shaped to impart nutative motion to the nutating member. Excellent axial balance is obtained by operating a pair of nutating sections with opposing axial motions with respect to each other.

3,590,660 SHIFT BLOCKER

Warren G. Bopp, Farmington, Mich., assignor to Eaton Yale & Towne, Cleveland, Ohio
Filed Aug. 18, 1969, Ser. No. 851,015
Int. Cl. F16d 23/06
U.S. Cl. 74-781 R

28 Claims



A transmission shift blocker for a coupling member adapted to connect a pair of power elements of the type having a pair of blocker elements which prevent shifting of the coupling member except when in a particular position relative each other; with this positioning determined by the difference in angular speed of the power elements to be connected and arranged to allow shifting at low relative angular speeds but not at higher relative angular speeds, featuring damping of the relative movement of the blocker elements in order to improve reliability and also having a camming action

between them to increase the damping force under dynamic conditions and to accurately control their response to the relative angular speeds of the connected power elements, so that the relative angular speeds at which the blocker becomes effective may be more precisely controlled.

3,590,661

DEVICE FOR DRIVING AND FOR THE ACCURATE AND STABLE POSITIONING OF ROTARY ELEMENT

Roger Marcel Chaveneaud, Rouqueler-Levallois Perret, France, assignor to Societe Lamy D'Etudes Et De Recherches "Soler", Courbevoie Hauts de Seine, France

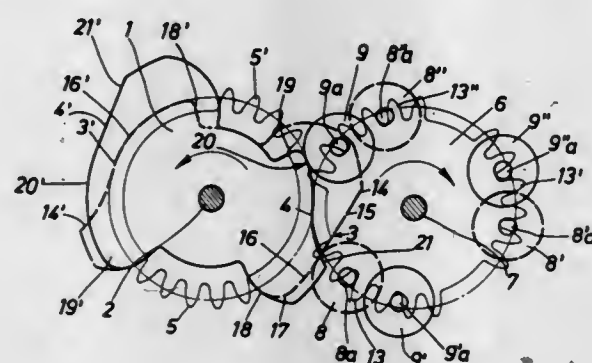
Filed Mar. 26, 1969, Ser. No. 810,607

Claims priority, application France, Apr. 2, 1968, 146,769

Int. Cl. B23q 17/18

U.S. Cl. 74—820

10 Claims



The device according to the present invention comprises means for driving and positioning a rotary element whereby the latter is driven by at least one driving element in accordance with a cyclic program which can be performed in one or more revolutions of the driving element or elements and/or of the driven element, the device being adapted to operate in both directions of rotation, the program being composed, in succession and in alternation, of a homokinetic drive and of a nonhomokinetic drive, and the rotation of the driven element, measured by the rotation of the driving element, being any predetermined function of the program.

3,590,662

FOUNTAIN ROLLER INDEXING DRIVE FOR PRINTING PRESS

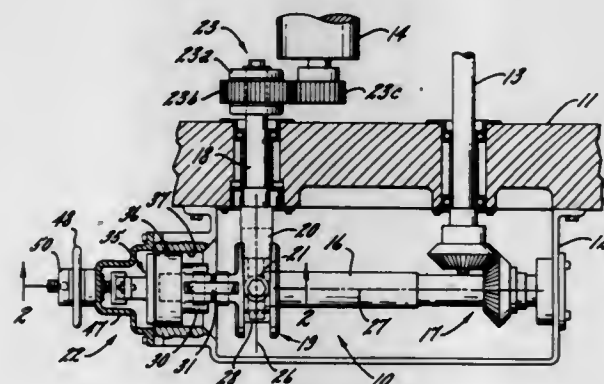
Leonard L. Tafel, La Grange, Ill., and Larry G. Taylor, Plano, Tex., assignors to Miehle-Goss-Dexter Incorporated, Chicago, Ill.

Filed June 9, 1969, Ser. No. 831,544

Int. Cl. F16h 35/08

U.S. Cl. 74—839

3 Claims



A printing press fountain roller drive, in which an annular member is radially inclinable upon a press-driven shaft, and is connected to a yoke and yoke shaft, for changing the press drive train motion to an oscillating motion of variable magnitude. A one-way drive is attached to the yoke shaft for changing the oscillatory yoke shaft motion to an intermittent indexing motion of variable magnitude in the fountain roller.

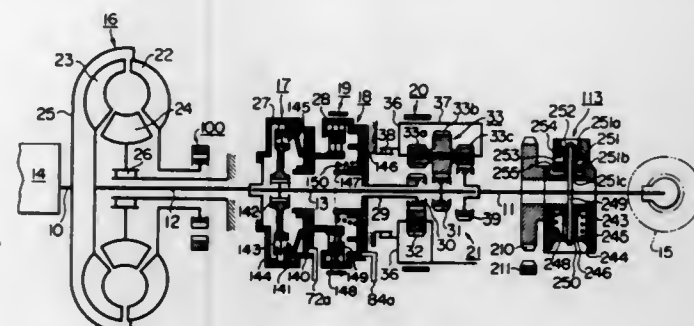
3,590,663
HYDRAULIC PRESSURE CONTROL MEANS FOR AUTOMATIC FLUID SPEED CHANGE MECHANISM
Hiroji Yamaguchi, Noboru Murakami, and Koichiro Hirozawa, all of Kariya-shi, Aichi-ken, Japan, assignors to Aisin Seiki Company Limited, Kariya-shi, Aichi-ken, Japan
Filed May 29, 1969, Ser. No. 828,895

Claims priority, application Japan, May 31, 1968, 43/37229

Int. Cl. B60k 21/10; F16h 5/42

U.S. Cl. 74—867

3 Claims



An automatic control means in an automotive automatic speed change mechanism wherein a governor valve is so designed and arranged to generate a hydraulic governor pressure in relation to the revolutions per unit time of the driven shaft of said mechanism and in reversed relation to the throttle valve pressure which is delivered thereto from a throttle control valve.

3,590,664

MEANS FOR MOUNTING A HAND SAW IN A RETOOTHING OR SHARPENING MACHINE

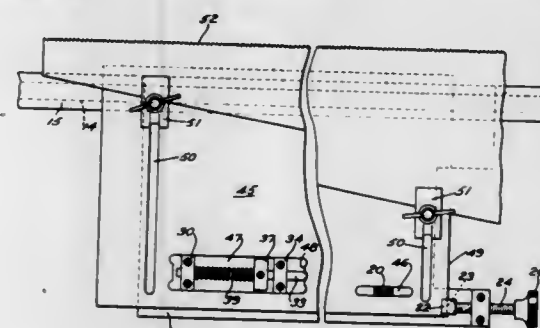
Sulo A. Aljala, Attleboro, Mass., assignor to Intricate Machine & Engineering Inc.

Filed Dec. 1, 1969, Ser. No. 881,010

Int. Cl. B23d 63/12

U.S. Cl. 76—43

4 Claims



The saw-feeding means in a retreating or sharpening machine is provided in two parts, one of which may be removed from the machine to have the saw clamped thereto. This removable part may then be assembled with the fixed part in the machine by a resilient clamping arrangement with an adjustment for positioning the saw as desired in the machine.

ERRATA

For Classes 77—69, 77—62 see:
Patent Nos. 3,591,306 and 3,591,307

3,590,665

AUTOMATIC PIN FORMING AND INSERTING MACHINE

Frank J. Wallace, Chicago, Ill., assignor to Adcraft Mfg. Co., Chicago, Ill.

Filed Dec. 18, 1968, Ser. No. 784,817

Int. Cl. A44b 1/06

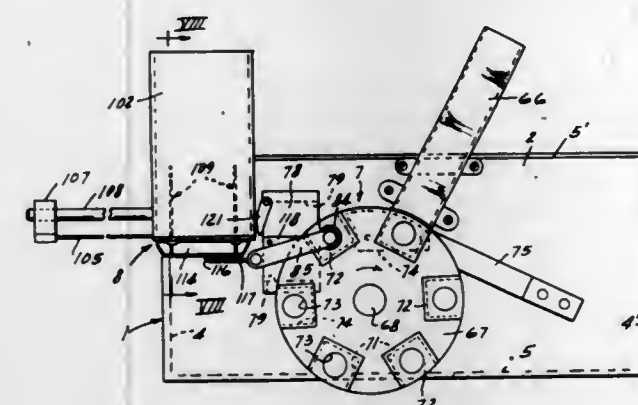
U.S. Cl. 79—1

13 Claims

A button and pin assembly machine for producing badges and the like comprising buttons having rearwardly extending

ribs adapted to receive and retain respective pin structures therein, in which the buttons are sequentially supplied to a pin-forming head and supported thereat with the button rim encircling the end of such head, straight pin blanks being sequentially supplied to said head, with a portion of a pin blank being inserted into the head and rotated thereby with

rigidly connected to at least one part of the carrier and the latter is subdivided into one middle main part and two outer cover plates on opposite sides of the middle main part and attached to it. A rotary body lies in central openings of the middle main part and the outer cover plates of the carrier. The carrier includes wedge-shaped recesses in the middle main part opposite the smoothed surface of the rotary body.



respect to a stationary abutment to curl an end of such blank sufficiently to enable its insertion in the rim of a button disposed thereat, said head having means for forming a bend in the portion of the pin blank inserted in such head to resiliently bias the pointed end of the pin blank toward the button.

3,590,666

DEVICE FOR STRIPPING COAXIAL CABLE

Adolf Langer, Munich, Germany, assignor to Pressluft-Stolzel OHG., Nurnberg, Germany

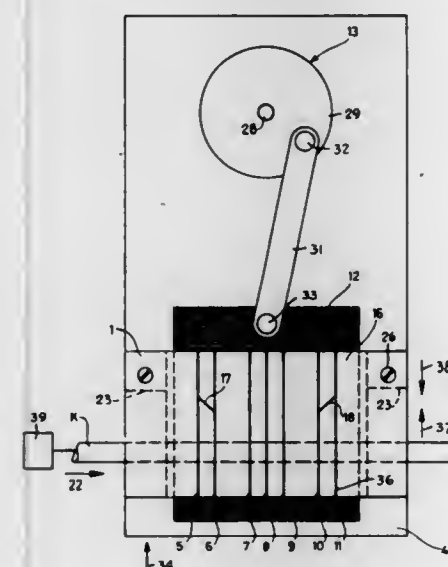
Filed June 10, 1969, Ser. No. 831,968

Claims priority, application Germany, June 14, 1968, P 17 65 588.8

Int. Cl. H02g 1/12

U.S. Cl. 81—9.51

7 Claims



An apparatus for stepwise stripping or barring a coaxial cable generally comprises a base member supporting a bladeholder, a series of parallel, spaced cutting blades depending from the bladeholder at varying distances corresponding to requisite depths for stepwise severing of the cable, and means cooperating with the bladeholder and including a reciprocally moved plate for rolling a coaxial cable along the blades.

3,590,667

UNIVERSAL RATCHET STEPLESS-ACTING WRENCH

Adolf O. Berglein, Lange Laube 19, 3000 Hannover, Munich, Germany

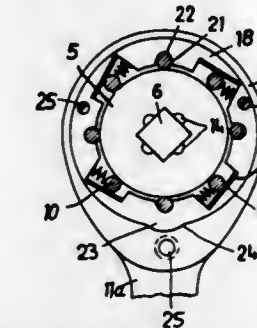
Filed Feb. 21, 1968, Ser. No. 707,120

Int. Cl. B25b 13/00

U.S. Cl. 81—59.1

2 Claims

An universal ratchet stepless-acting wrench comprises a flat carrier and a lever arm projecting from it. The arm is



There are outer straight abutment faces and locking and guiding rotary elements in the wedge-shaped recesses, while locking and guiding rotary elements in the wedge-shaped recesses are in freewheeling interengagement with the smoothed surface of the rotary body. Springs disposed in the wedge-shaped recesses are adapted to press the locking and guiding rotary elements into the narrowing portions of the wedge-shaped recesses.

3,590,668

RESILIENT-CLAMPING WRENCH WITH COMPRESSIBLE SLIT RING INSERTS

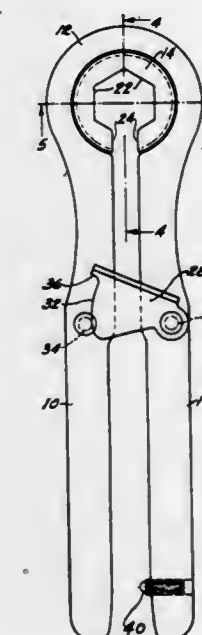
Ross Bristol, 1201 Ashford Drive, Bissell Hills, Mo.

Filed Dec. 6, 1968, Ser. No. 781,822

Int. Cl. B25b 13/52

U.S. Cl. 81—64

10 Claims



A closed end wrench comprising a resilient clamp of hair-pin form with a compressible, slit ring insert in the bight thereof, which slit ring has a circular periphery and a noncircular nut-engaging inner surface, in which torque is transmitted from the clamp to the insert by squeezing the legs of the clamp together and in which the maximum torque which can be transmitted is variably limited by adjustable stop means between the legs.

3,590,669

PLIERS WITH ADJUSTABLE TOGGLE LOCK

Vincent Marasco, 1364 N. Western Ave., Los Angeles, Calif. Continuation-in-part of application Ser. No. 530,315, Feb. 28, 1966, now abandoned. This application Jan. 30, 1968, Ser. No. 701,613

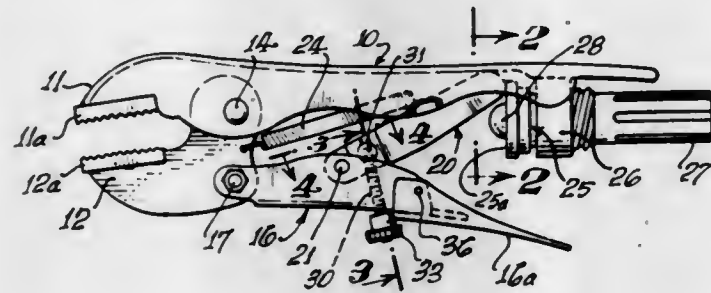
Int. Cl. B25b 7/12

U.S. Cl. 81—372

11 Claims

Pliers with a toggle-type grip lock have a large diameter adjusting screw with a high helix angle on the thread to ena-

ble the operator to make a quick, easy adjustment of the jaw spacing. The contact between the end of the screw and the toggle is eccentric on the screw in order to lock the adjust-



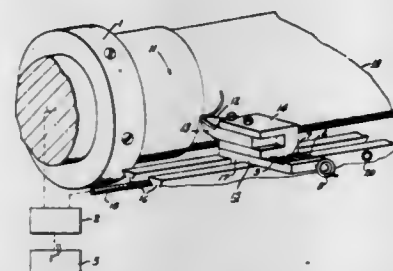
ment screw against "overhauling" or backing off. Adjustable means regulate movement of the toggle toward open position and thus the gripping pressure when the jaws are closed.

3,590,670 MACHINE TOOL CUTTING INDICATION AND CONTROL

Robert A. Thompson, Windham; Stephen E. Grabkowski, Schenectady, both of N.Y., and Raymond A. Mathieu, Burlington, Vt., assignors to General Electric Company
Filed Mar. 24, 1969, Ser. No. 809,900
Int. Cl. B23b 3/06

U.S. Cl. 82-1 R

2 Claims



A high pass filter of particular characteristics is provided in the signal path from a vibration transducer attached to a machine tool to an indicator which enables the indicator to reliably indicate when the machine tool is performing a cutting operation.

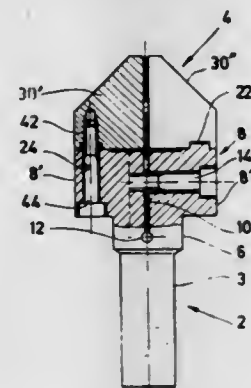
3,590,671 COUNTERBORE OR BURR REMOVAL TOOL

Marcel Wahl, Riedenhaldenstrasse 37, Zurich, Switzerland
Filed Aug. 5, 1969, Ser. No. 847,549
Claims priority, application Switzerland, Aug. 6, 1969, 11,756/68

U.S. Cl. 82-1:4

Int. Cl. B23b 51/10

6 Claims



A novel counterbore or burr removal tool is disclosed, the tool having a cylindrical head portion and an axially extending shaft connected thereto with at least two knife inserts detachably connected to the facing side of the head portion.

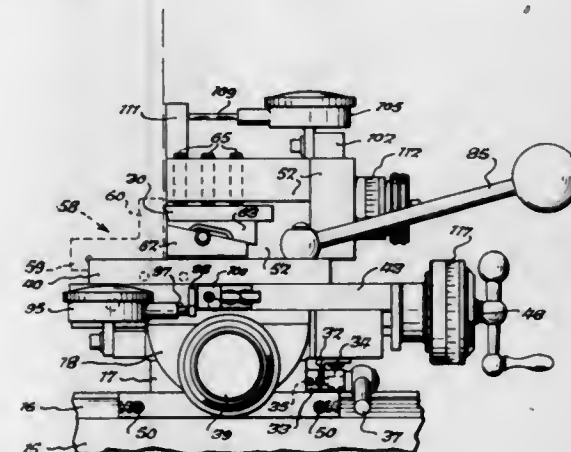
The head portion contains a diametrically extending slit which extends into the shaft portion. A screw penetrates the head portion and extends transversely to the axis of the tool for altering the clearance angle of the knives. The facing side of the head portion is provided with ring or annular guide grooves and ribs which engage corresponding ribs and grooves on each knife, the knives being firmly secured to the head portion by means of screws.

3,590,672 RADIUS-TURNING ATTACHMENT FOR LATHES

James Cordier, Erin, N.Y., assignor to Hardinge Brothers, Inc., Elmira, N.Y.
Filed Sept. 11, 1968, Ser. No. 759,065
Int. Cl. B23d 5/40

U.S. Cl. 82-12

7 Claims



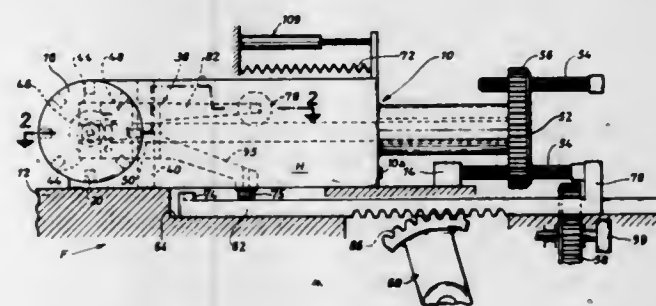
This disclosure is of an attachment for lathes by means of which highly accurate work can be done so that the attachment may be used, for example, by forming contact lenses and in which two slides are provided, a cross-slide for setting the cutting tool on the center of the lathe spindle, and another slide on which a swivel tool-carrying member, which arrangement allows the tool to be fed in without changing radius for which the tool-carrying member is set. This disclosure also provides readily adjustable means for setting the radius of the cut.

3,590,673 AUTOMATIC TURRET LATHE

Gerhard Foll, and Helmut Link, both of Esslingen (Neckar), Germany, assignors to Index-Werke K G., Hahn & Tessky, Esslingen, Neckar, Germany
Filed Aug. 25, 1969, Ser. No. 852,717
Claims priority, application Germany, Aug. 31, 1968, P 17 77 070.6

U.S. Cl. 82-21

28 Claims



An automatic turret lathe wherein the carriage is reciprocable from a retracted position to several forward positions and supports an indexible turret for a given number of tool holders. The carriage is reciprocated by a toothed rack which is movable between two end positions and transmits motion to the carriage during a portion of its forward movement by way of one of several adjustable threaded bolts which are indexible with reference to the carriage and one of which is in registry with a dead stop to arrest the the carriage

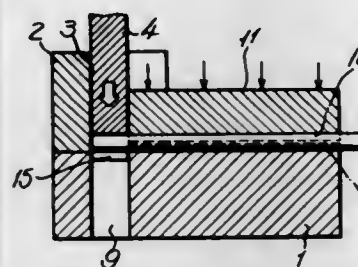
in that forward position which is best suited for treatment of a workpiece by the tool in the corresponding tool holder. The turret is indexible in response to indexing of a support for the bolts. A locking device which prevents indexing of the turret in each forward position of the carriage is disengaged by the rack while the latter moves relative to the carriage.

3,590,674 RESTRAINED SHEARING METHOD OF BAR MATERIAL

Teizo Maeda, 30-12, 2-Chome, Kobayashi, Bunkyo-ku, and Takeo Nakagawa, 21-44 5-Chome, Kami-Saginomiya, Nakano-ku, both of Tokyo, Japan
Filed Oct. 10, 1968, Ser. No. 766,524
Claims priority, application Japan, Oct. 12, 1967, 42/65174
Int. Cl. B23d 15/04

U.S. Cl. 83-14

1 Claim



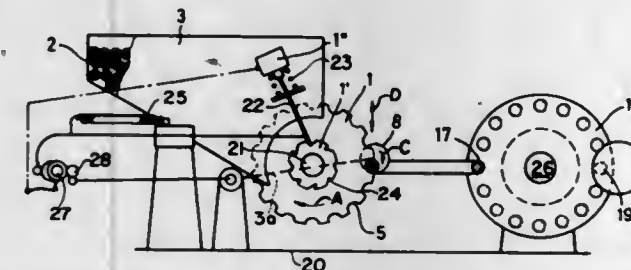
Method of shearing bar material workpiece by holding the bar workpiece at positions adjacent to the point of shearing so as to restrain axial movement while pressure shearing by vertical movement against the axis of the workpiece.

3,590,675 APPARATUS FOR AND METHOD OF MAKING FILTER RODS FOR FILTER TIP CIGARETTES

Otto Kappeler, Trossingen, and Siegfried Sudrow, Bunzswangen, both of Germany, assignors to Efka-Werke Fritz Klehn G.m.b.H., Trossingen, Germany
Filed Aug. 14, 1969, Ser. No. 850,072
Int. Cl. B26d 7/06

U.S. Cl. 83-98

6 Claims



Filter rods for filter tip cigarettes are cut from tows of cellulose acetate fibers. The tows are placed coaxially in front of a jet emitting continuously or intermittently a stream of compressed air which drives the tows successively against a detent. When the forward end of a tow abuts against the detent a movable circular knife is brought into position to sever a segment of the tow therefrom. The knife is mounted at a predetermined distance from the detent, so that the portions of the tow which are separated by the action of the knife are of uniform and precisely controlled length. Retraction of the knife following the cutting operation and lateral transport of the cut segments permits the uncut tow to advance by the force of the airstream until it rests at its forward end against the detent, whereby the operation is repeated.

3,590,676 GRIPPER SHEARS

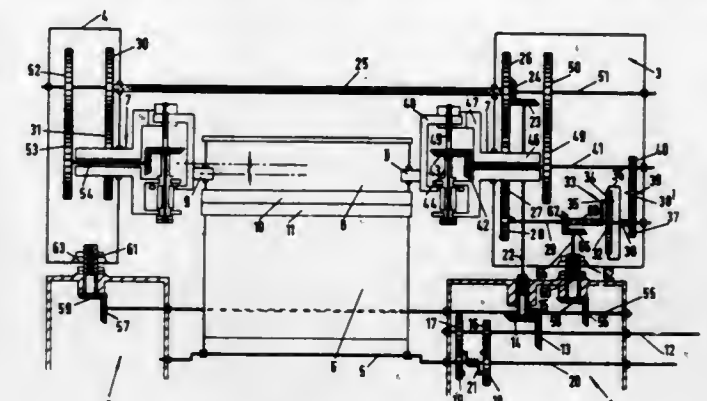
Manfred Fritz, Dusseldorf-Erkrath, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany
Filed Oct. 3, 1968, Ser. No. 764,759
Claims priority, application Germany, Oct. 6, 1967, P 16 27 288.1
Int. Cl. B23d 25/02

U.S. Cl. 83-311

10 Claims

In a flying shear for transversely cutting moving rolled stock, it is desirable to provide means for altering the length

of rolled stock which is to be cut. The flying shear has means for matching the tangential velocity of the knives to the velocity of the stock and has means for altering the interval between cuts of the knives. The flying shear includes a first knife carrier pivotably mounted on a rotatable drive crank, a second knife carrier pivotably mounted on the shear base,



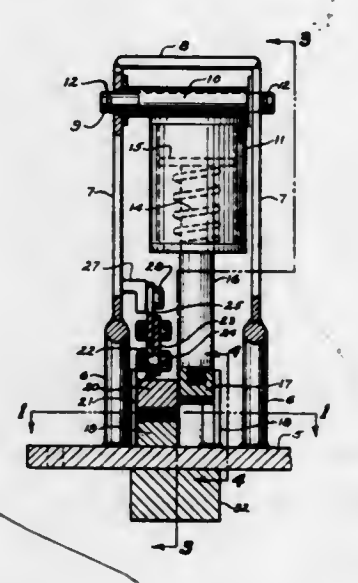
the knife carriers having arms which are pivotably connected, and means for adjusting the throw of the crank and compensating adjustment means for adjusting the distance between the axis of the crank and the stock to be cut, so that adjustment of the adjusting means and the drive speed of the crank with respect to the rate at which stock is supplied permits the length of stock cut to be adjusted.

3,590,677 BOLT CUTTERS

Maynard B. Smith, R.F.D. 2, Freeport, Maine
Filed May 1, 1969, Ser. No. 820,742
Int. Cl. B26d 7/02

U.S. Cl. 83-454

7 Claims



Cutters for externally threaded members are disclosed that have a clamp for holding the threaded member with a part that is fixed and a part that is movable. A power operated shear element and the fixed part of the clamp have coacting shear edges and the clamp is also operable as a die for reforming thread formations damaged during shearing.

3,590,678 EXTRUSION APPARATUS WITH A CUTTING MECHANISM HAVING MEANS TO STOP THE CUTTER AT A PREDETERMINED POSITION

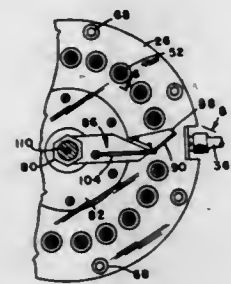
Mark Hasten, and Floyd Lobash, both of Minneapolis, Minn., assignors to General Mills, Inc.
Division of Ser. No. 596,846, Nov. 25, 1966, Pat. No. 3,464,086.
This application July 31, 1969, Ser. No. 868,257
Int. Cl. B26d 5/00

U.S. Cl. 83-593

1 Claim

An apparatus for slicing ropes of extruded material into predetermined lengths as the ropes are forced through extru-

sion orifices in an extrusion apparatus. A motor and clutch drums being raised in pitch when pressurized. Also means for independently adjusting the pitch to which each drum may be raised.



rotatable cam, and a cam sensing device are provided for stopping the slicing apparatus at a predetermined location, so that none of the orifices are blocked by the slicing apparatus.

3,590,679

XYLOPHONE-TYPE TOY

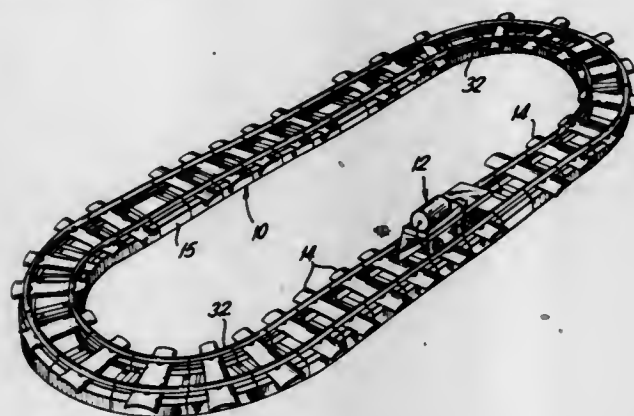
Joseph Law, Kowloon, Hong Kong, assignor to Cragstan Industries, Inc., New York, N.Y.

Filed Jan. 10, 1966, Ser. No. 519,721

Int. Cl. G10f 1/08

U.S. Cl. 84-102

5 Claims



A musical toy railroad comprising a track composed of sound emitting bodies, toy vehicle moving along said track and striking said sound emitting bodies during movement along said track so as to play a tune.

3,590,680

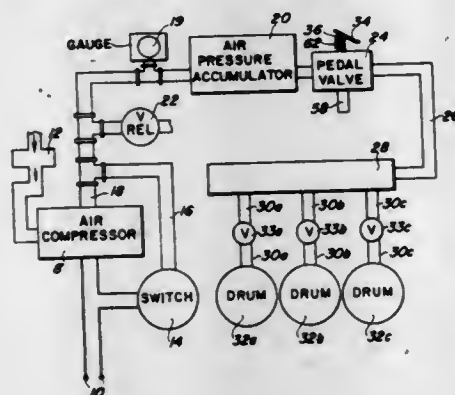
APPARATUS FOR CHANGING THE PITCH OF DRUMS
Scott Carnes, East Aurora, and Richard J. Gall, Albany, both of, N.Y., assignors to Pneumatic Drum System, Inc., Oneonta, N.Y.

Filed Feb. 27, 1970, Ser. No. 14,967

Int. Cl. G10d 13/02

U.S. Cl. 84-411

8 Claims

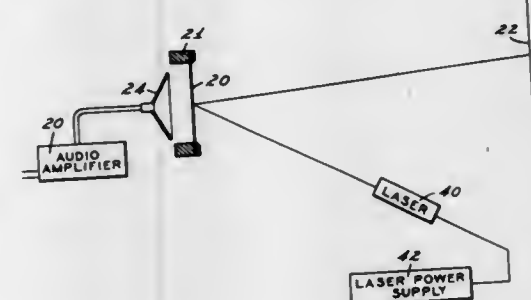


An apparatus for changing the pitch of drums, comprising a source of compressed gas, a container for holding said compressed gas at a constant pressure and valve means for selectively conducting said pressurized gas into drums, and selectively releasing pressurized gas from said drums, the

3,590,681
APPARATUS FOR PRODUCING A VISUAL DISPLAY
Lloyd G. Cross, Ann Arbor, Mich., assignor to Sonovision, Inc., Ann Arbor, Mich.
Filed Nov. 27, 1968, Ser. No. 779,510
Int. Cl. A63j 17/00

U.S. Cl. 84-464

4 Claims



A device for producing a visual display which is influenced by sound waves including a reflective diaphragm subject to vibration by reason of a sound signal from a source such as music and also subject to a light source reflected from the diaphragm to an appropriate screen wherein the light source which may include a laser light is influenced by the vibrations of the diaphragm to create distinctive patterns on the screen responsive to tones and combinations of tones, it being the purpose to produce a light pattern wherein the dominant spatial frequencies correspond to the dominant sound frequencies as distinguished from color and intensity.

3,590,682

ALBADA VIEWFINDER INCLUDING PRISMATIC REFLECTING MEANS DEFINING AN IMAGE

Carl Ort, Stuttgart-Bad Cannstatt; Kurt Deininger, Stuttgart-Sillenbach, and Alfred Kilgus, Stuttgart-Wangen, all of, Germany, assignors to Eastman Kodak Company, Rochester, N.Y.

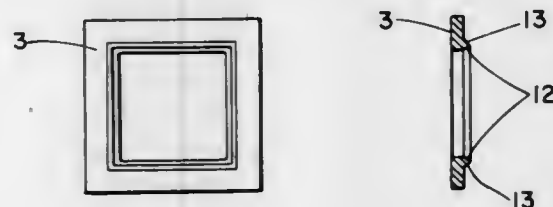
Filed June 21, 1967, Ser. No. 647,712

Claims priority, application Germany, July 20, 1966, K59825

Int. Cl. G03b 13/04

U.S. Cl. 88-1.5 R

1 Claim



A brilliant reflective reticle frame for limiting the viewing filed in an Albada viewfinder is disclosed, which is defined by a highly reflective surface of a plastic support member.

3,590,683

EYE LEVEL AND BREAST LEVEL VIEWING SELECTION FINDER SYSTEM FOR SINGLE LENS REFLEX CAMERA

Kenji Hiruma, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed May 26, 1969, Ser. No. 827,577

Claims priority, application Japan, May 30, 1968, 36951/43

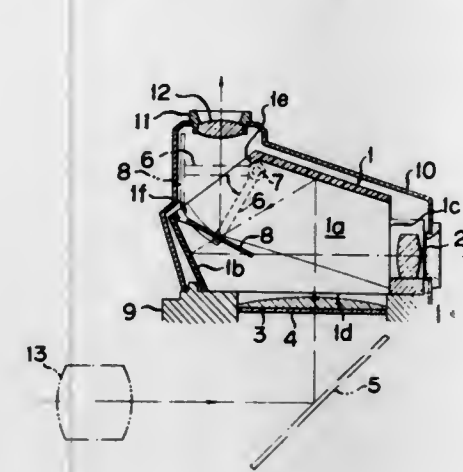
Int. Cl. G03b 13/00

U.S. Cl. 88-1.5

3 Claims

A finder system for single-lens reflex camera which can be arbitrarily switched from an eye-level to a breast-level or vice versa by extending a plane reflecting mirror into or retracting

from the optical path in a pentaroom-type reflecting mirror of a finder optical system. Since the pentaroom-type reflecting mirror is used, said plane mirror for optical path changeover device has connections on its ends so that multiple units may be towed as a train for disposing in protective array. In a



may be freely moved within the reflecting mirror. The finder of the present invention is more simple in construction and more compact in size as compared with a finder system incorporating a pentaroom-type prism.

3,590,684

AMMUNITION SUPPLY MEANS

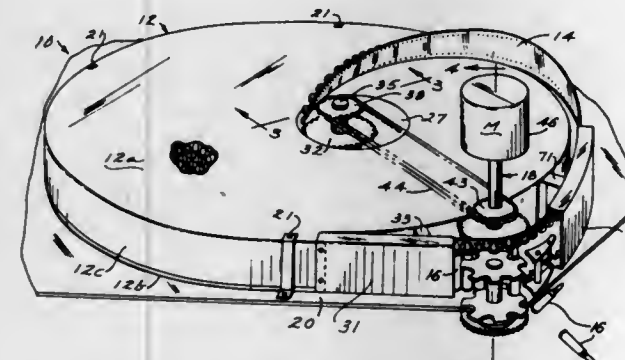
Kenneth J. Gilbert, Florissant, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Apr. 18, 1969, Ser. No. 817,305

Int. Cl. F41d 9/02

U.S. Cl. 89-34

15 Claims



An ammunition storage and feeding mechanism having a flexible endless metal conveyor belt spiralled into concentric turns about a common axis and disposed within an ammunition box, the inner belt turn being connected to the outer belt turn. The belt having abutments spaced in the lengthwise direction thereof to receive ammunition rounds having their lengthwise axes parallel to the common axis of the belt turns, the belt transferring the rounds to a rapid fire gun feeding mechanism located adjacent the radially outer layer of the belt. The belt is driven by a pair of sprockets respectively driving the inner and outer belt layers at the same speed with the outer empty belt layer portions becoming the radially inner belt layer portions as the belt is driven.

3,590,685

MOBILE REVETMENT

Frank B. Lane, Dayton, Ohio, assignor to United Aircraft Products, Inc., Dayton, Ohio

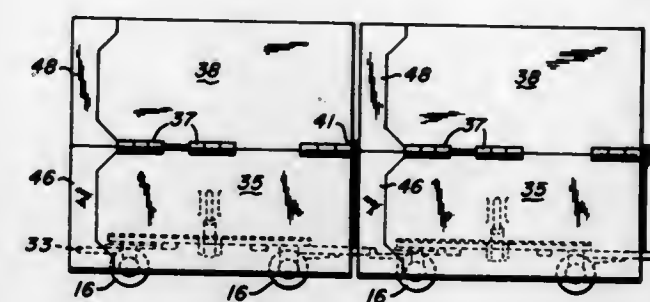
Filed Feb. 19, 1969, Ser. No. 800,564

Int. Cl. F41h 5/14

U.S. Cl. 89-36 G

10 Claims

A mobile revetment of vehicular form. Armor plate is normally stored in a stowed, retracted position on a low slung wheeled frame. Self-contained power means deploys the armor and controls its return to retracted position. The



stowed condition units may be stacked one upon another for ease of transportation.

3,590,686

VALVE ASSEMBLIES FOR SEQUENTIALLY ACTUATING FLUID-OPERATED PARTS

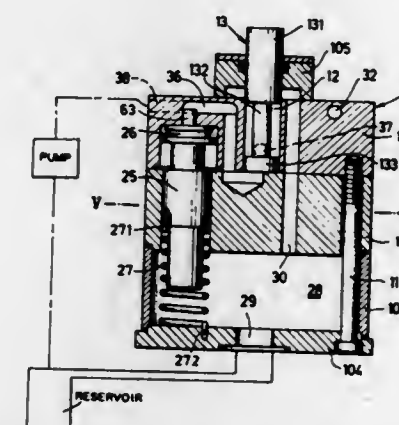
Rudolf Bock, 7031 Holzgerlingen, Wuertemberg, Germany
Filed May 23, 1969, Ser. No. 827,210

Claims priority, application Germany, May 25, 1968, P 17 50 695.5

Int. Cl. F15b 21/00; F01b 21/00

U.S. Cl. 91-36

11 Claims



Valve assemblies for sequentially actuating parts which are operated by pressure fluid. The assembly includes a housing which accommodates a plurality of control valves for movement, the several control valves being operatively connected with the several fluid-operated parts for actuating the latter. Each control valve is guided by the housing for movement between a first and a second position and is urged by a spring to the first position. Moreover, each control valve has a differential piston portion which responds to the pressure of the fluid for opposing the spring to displace each control valve from its first to its second position. The housing has a common supply of pressure fluid for all of the control valves and a common low pressure return for all of the fluid-operated devices. The assembly operates to connect the pressure fluid sequentially to the several fluid-operated parts while maintaining those of the latter devices which are not connected with pressure fluid with the common return. Each of the movable control valves moves with a sudden, impact-type of movement from its first to its second position and in both positions influences not only the particular fluid-operated part with which it is connected but also the fluid-operated part connected to the next-following control valve.

3,590,687

SERVOSYSTEM

Alvin L. DuBrown, Corona Del Mar, Calif., assignor to Cadillac Gage Company, Detroit, Mich.

Filed Mar. 28, 1968, Ser. No. 716,900

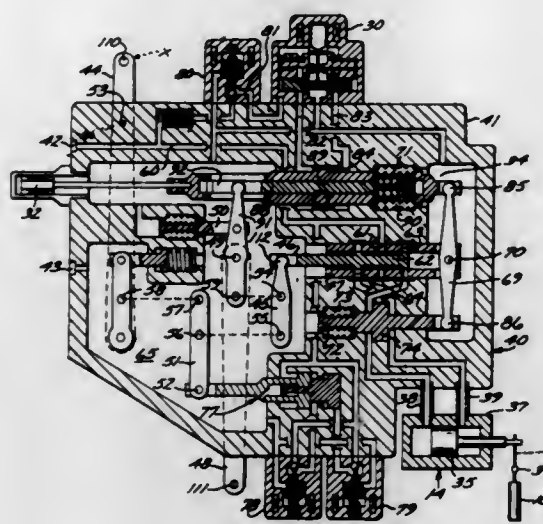
Int. Cl. F15b 9/10, 13/16

U.S. Cl. 91-367

5 Claims

The specification describes a servosystem which, in the specific form selected for illustration, comprises a hydraulic

servo for position control of the aileron, spoiler, elevator, rudder or other aircraft control surface. The servo includes a minor feedback loop in which the gain of the primary loop is



altered inversely to the force opposing change in spoiler or elevator position. The specification also describes a novel and advantageously employed mechanical adder and gain changing mechanism.

3,590,688

INTEGRATED FLOW DIVIDER CIRCUIT

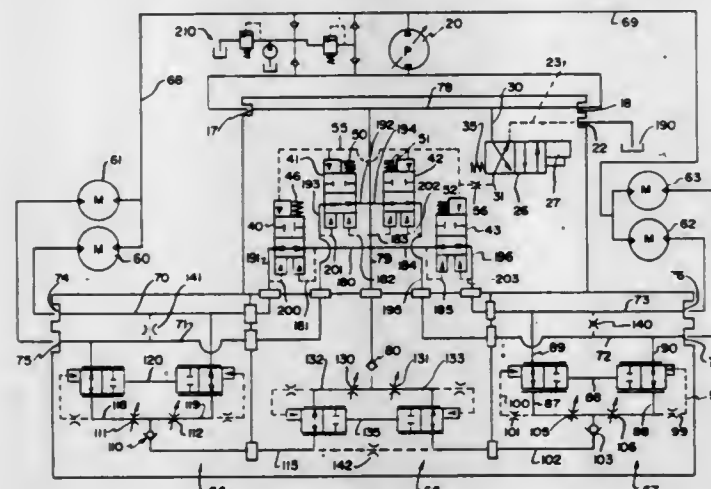
Edward O. Brannon, Racine, Wis., assignor to Rex Chainbelt Inc.

Filed July 15, 1969, Ser. No. 841,924

Int. Cl. F15b 11/16, 13/06

U.S. Cl. 91-412

14 Claims



A flow divider circuit assembly for controlling the supply of fluid to a plurality of motors which drive wheels or the like and wherein the difference in load on the motors is detected and the rates of fluid flow to the motors are suitably varied to maintain uniform rates of rotation of the motors and with provision for independent operation of the motors and wheels associated therewith for turning of a vehicle and in reverse rotation of the motor and wheels, with the flow dividers having spool-type valve members and with variable orifices in circuit with the flow divider valves to minimize changes in pressure differential in response to changes in flow.

3,590,689

VEHICLE CENTRAL HYDRAULIC SYSTEM

Lee M. Brewer, Saginaw, and William R. Frel, Frankenmuth, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 26, 1969, Ser. No. 880,318

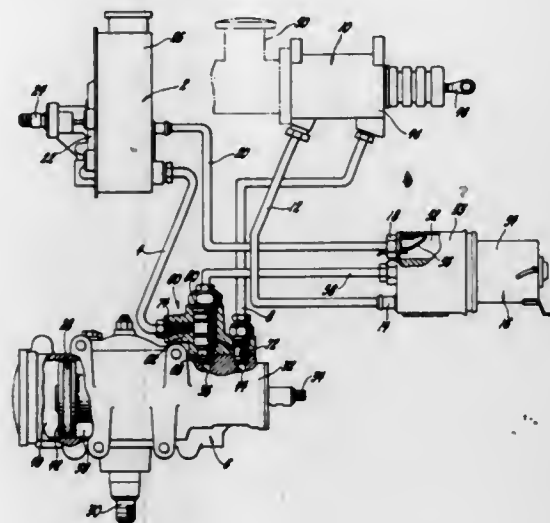
Int. Cl. F15b 13/09

U.S. Cl. 91-412

6 Claims

A central hydraulic system combining the hydraulic power steering gear and a hydraulic power brake booster for opera-

tion by a common source of pressurized fluid is arranged to have a primary pump supply the inlet of an open center power steering control valve and have the inlet of the power brake booster open center valve draw from the outlet of the steering gear. In the event the steering gear is caused to engage the chassis limit stops and its control valve held fully actuated so that a condition of substantially reduced flow circu-



lation is established therethrough, a low flow bypass valve delivers incoming pressure fluid from the pump directly to the power brake booster. A secondary electric motor-driven pump is arranged in the system to operate in the event of failure of the primary pump and directly supplies the power steering gear inlet with the low flow bypass valve again being subject to low flow conditions in the latter to directly supply the power brake booster.

3,590,690

DOUBLE SLIDE-VALVE TYPE SERVOCONTROL

Jacques Maurice Andre Dalbera, Colomiers, France, assignor to Sud-Aviation Societe Nationale de Constructions Aeronautiques, Paris, France

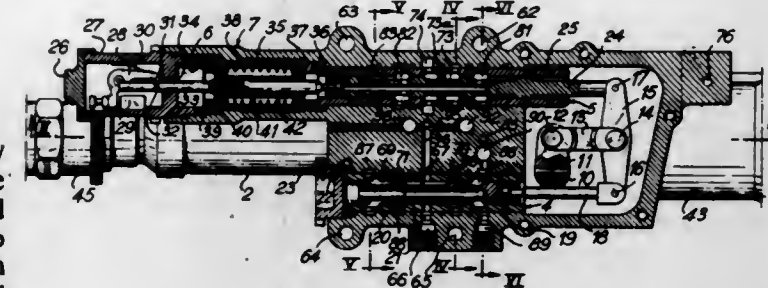
Filed June 10, 1969, Ser. No. 831,971

Claims priority, application France, June 11, 1968, 154504

Int. Cl. F15b 13/04; B64c 13/40

U.S. Cl. 91-444

5 Claims



The invention relates to a servocontrol comprising two slide-valves connected in series hydraulically and in parallel mechanically by being coupled to a differential control element.

3,590,691

LOCKING CLIP FOR HAND PUMPS

Wallace F. Magers, Leawood, Kans., assignor to Cook Chemical Company, Kansas City, Mo.

Filed June 26, 1969, Ser. No. 836,710

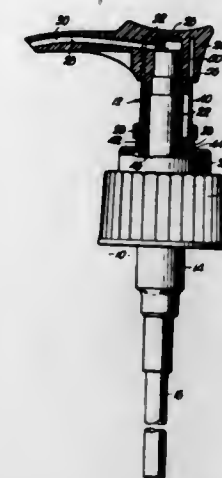
Int. Cl. F15b 15/26; B65d 83/06

U.S. Cl. 92-23

8 Claims

A tubular lock, surrounding the reciprocable plunger of a hand pump, between the liquid discharge head and the plunger guiding collar, holds the plunger extended until

rotated to a position where a slot in the lock clears a rib in the head, whereupon a portion of the lock becomes housed



within a cavity in the head during normal pumping operations.

3,590,692

SILVER HALIDE DEVELOPING AGENTS AND PHOTOGRAPHIC PROCESS

Stanley M. Bloom, Waban, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed July 1, 1968, Ser. No. 741,293

Int. Cl. G03c 5/24; 5/54

U.S. Cl. 92-26

8 Claims

Photographic process and product employing silver halide developing agents of quaternary ammonium compounds of the formula:

DEV-LINK-QUAT

wherein DEV is a dihydroxyaryl silver halide developing radical or a dialkoxyaryl or dialkoxymethoxyaryl precursor thereof; LINK is a hydrocarbon radical of at least 2 and preferably 3 carbon atoms or a hydrocarbon radical preceded by and/or interrupted by individual atoms of oxygen or sulfur with the proviso that an interrupting atom of oxygen or sulfur cannot be closer than two carbon atoms away in the chain from the positively charged nitrogen atom of the quaternary ammonium radical QUAT bonded to LINK through the pentavalent nitrogen atom. The preferred mode of preparation of these compounds is by the alkylation of an amine. These compounds are especially useful in photography as silver halide developing agents.

3,590,693

BRAKE CHAMBER DEVICE FOR AIRBRAKE INSTALLATIONS

Istvan Rasko, Budapest, Hungary, assignor to Jarmufeljesztési Intezet, Budapest, Hungary

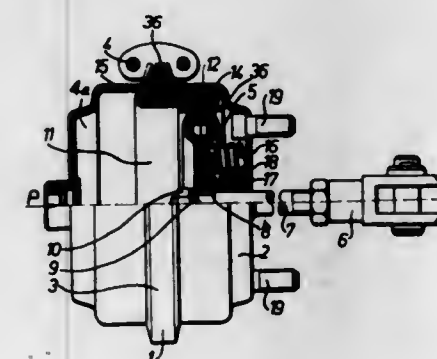
Filed July 7, 1969, Ser. No. 839,578

Claims priority, application Hungary, July 17, 1968, JA-541

Int. Cl. F01b 19/00; F16j 3/00

U.S. Cl. 92-64

6 Claims



A brake chamber device for airbrake installations, the device having a housing which contains a thrust plate to

which is secured a brake actuating rod means and a rolling sealing diaphragm between the thrust plate and the housing which is substantially rigid in the axial direction by means of a solid body being enclosed in the diaphragm, the sealing diaphragm being sealingly attached to both the thrust plate and the housing by means of retaining flanges so that the thrust plate is radially supported.

3,590,694

PRESSURE DEVICE HAVING LAYERED CONSTRUCTION AND PIVOTING SEAL WITH OPERATOR

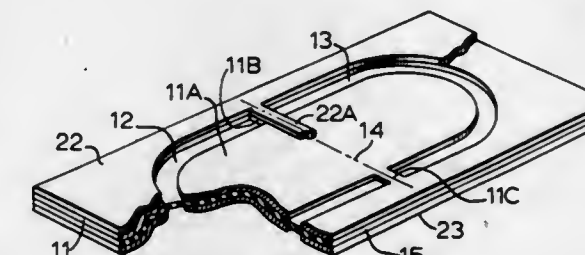
Robert C. Prescott, and Hoel L. Bowditch, both of Foxboro, Mass., assignors to The Foxboro Company, Foxboro, Mass.

Filed Nov. 1, 1968, Ser. No. 772,787

Int. Cl. F16j 3/00

U.S. Cl. 92-100

31 Claims



In a multilayer sandwiched-type of construction, an operator activated by at least one pressure chamber is brought through a sealing configuration which also provides for pivoting of the operator; the operator itself is formed from a layer of the sandwiched construction and the sealing at the operator pivot is formed from sealing layers of the sandwiched construction; the operator layer may be backed by a resilient sheet layer for sealing the pressure chamber actuating the operator; this construction may be readily adapted to a plurality of pressure chambers employed in conjunction with motion-sensing devices, or alternatively weight and springs, to perform the functions of alarms, relays, repeaters, amplifiers, and a variety of other pneumatic devices.

3,590,695

SHEET PERFORATING AND JOINING SYSTEM

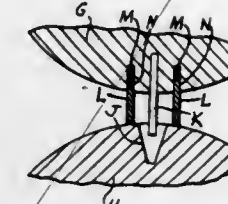
George Gerard, Point Pleasant, N.J., assignor to Jiffy Manufacturing Co., Hillside, N.J.

Filed Apr. 4, 1968, Ser. No. 718,776

Int. Cl. B31f 1/00; B31b 1/14; B26f 1/20

U.S. Cl. 93-1.1

5 Claims



The disclosure relates to perforating and uniting sheets of materials together and particularly paper sheets so that a substantially firm junction is achieved.

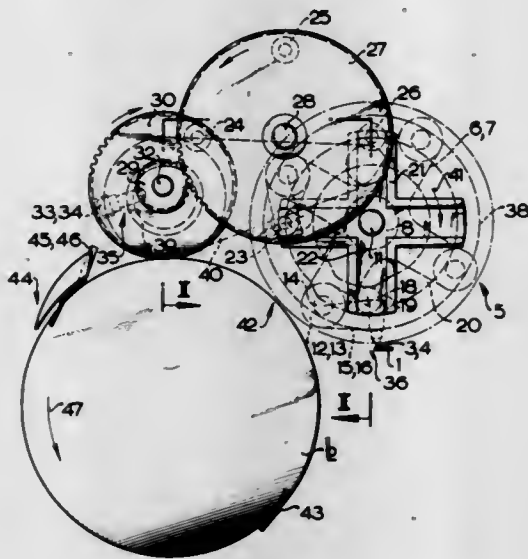
This is done by forcing into the material while it is being held in position an interrupted sawtooth or serrated arrangement which will result in a junction between the fibrous structure of the various superimposed layers.

This is done by passing several layers of the paper material between rollers, one of the rollers having an interrupted perforating member extending longitudinally across the roller but transversely of the direction of movement of the laminations. The perforator is provided on each side with spring

pressed holder members and the meeting roller has a recess extending transversely of the moving laminations but longitudinally of the roller to receive the perforating interrupted sawtooth arrangement.

3,590,696
MACHINE FOR MAKING CARRYING BAGS HAVING U-SHAPED CARRYING HANDLES
 Herbert Kurt Reissner, and Friedhelm Brinkmeier, both of Ladbergen, Germany, assignors to Windmoller & Holscher, Lengerich, Germany
 Filed Apr. 1, 1969, Ser. No. 812,227
 Claims priority, application Germany, May 27, 1968, P 17 61 492.5
 Int. Cl. B31b 1/86, 1/14, 1/62
 U.S. Cl. 93-8

5 Claims



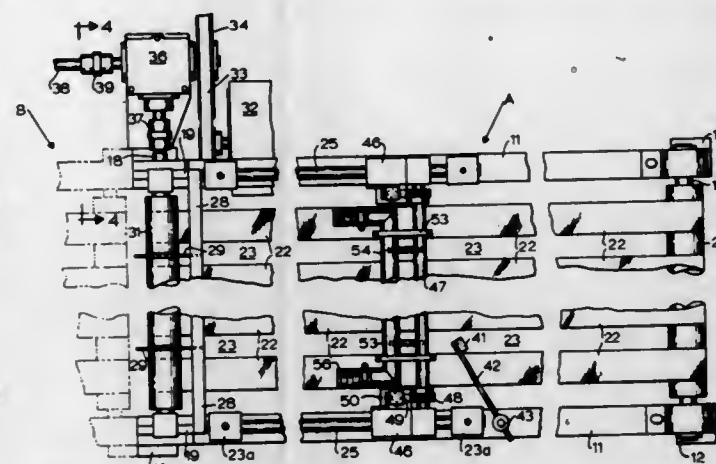
The machine serves to make carrying bags consisting of paper or plastics material and having carrying handles, which are formed by strips folded into U-shape and adhered to the sidewalls of the bags. Each of the continuously rotating working cylinders used to fold and adhere the carrying handles is preceded by a strip transfer device for transferring the handle blanks which have been supplied in a direction which is parallel to axis of the working cylinder. The strip transfer devices each comprise a rotary transfer tool having a plurality of strip-receiving stations, which have a regular angular spacing. The tool is arranged to be driven by drive means comprising a Maltese cross movement having slots equal in number to the strip-receiving stations and comprising a cam carrying a striker pin for each slot. The striker pins have a regular angular spacing. The Maltese cross movement is driven at such a speed that the maximum velocity of the transfer tool corresponds to the maximum velocity of the working cylinder.

3,590,697
MACHINE FOR FOLDING PLASTIC BAGS
 Helmut T. Schaffron, Davis, Calif., assignor to Herman C. Weist, Louisville, Ky.
 Filed Sept. 18, 1969, Ser. No. 859,090
 Int. Cl. B31b 1/00

10 Claims

Plastic bags are folded one or more times longitudinally and then transversely preparatory to packaging. Each bag moves longitudinally on spaced belts and the leading edge is lifted above the belts by suction devices which move from an initial position below the belts to an elevated position. Continued movement causes the bag to be folded in half and the fold is squeezed between rollers, pulling the bag out of the grip of the suction devices and creasing the bag at the fold. The operation may be repeated. Each longitudinally folded bag is fed out onto a table having a transverse gap at its

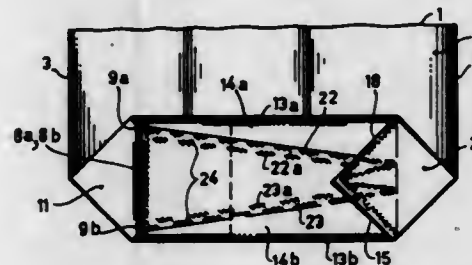
center. Suction devices move up into the gap, engage the bag and pull it down, causing it to be transversely folded as it is



pulled through the gap, then deposited on belts below the table and discharged.

3,590,698
METHOD FOR MANUFACTURING A PLASTIC BLOCK BAG
 Jan Roelof Jochem Hendrik DeVries, Hardenberg, Netherlands, assignor to Industriële Onderneming Wavin N. V., Zwolle, Netherlands
 Filed Oct. 7, 1969, Ser. No. 866,427
 Claims priority, application Netherlands, Oct. 10, 1968, Apr. 2, 1969, 6,814,532; 6,905,187
 Int. Cl. B31b 49/04
 U.S. Cl. 93-35 R

10 Claims



A bag of thermoplastics material is manufactured from a tubular foil by making one or two incisions from one end of the tubular foil having from the incision end edges partially aslant with respect to the longitudinal edges of the tubular foil.

After unfolding the parts forming the bottom, the bottom flaps are inwards folded about a cross folding line situated between the folding line and the line extending perpendicularly to the longitudinal edges of the tubular foil. The foils are sealed together by applying heat to both sides of the stack of foils to be connected.

If the seals are discontinuous a layer impermeable for solid substances and letting a gas through is provided. From the part forming the valve flap a V formed part may be removed. In order to improve the closure the part forming the valve flap may be subjected to stretching and/or provided with superficial incision resulting into a better flexibility of the treated part.

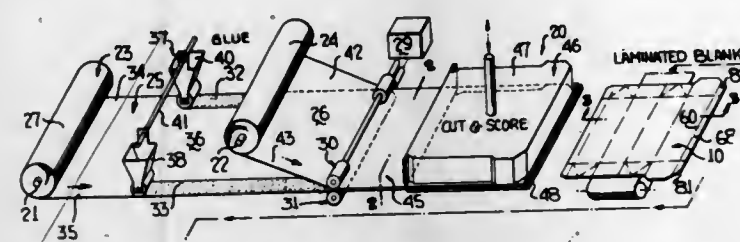
3,590,699
METHOD AND APPARATUS FOR PRODUCING FACSIMILE HAND-WRAPPED CARTONS
 Francis H. Foley, Jr., Old Bridge, N.J., and Vincent A. Adams, Pearl River, N.Y., assignors to Continental Can Company, Inc., New York, N.Y.
 Division of Ser. No. 624,031, Mar. 17, 1967, Pat. No. 3,499,598.
 Filed June 7, 1968, Ser. No. 735,229
 Int. Cl. B31b 17/00

U.S. Cl. 93-36.6

10 Claims

A method of producing hand-wrapped appearing cartons by feeding a pair of webs along a path in a predetermined

direction, securing only longitudinal edge portions of the webs to each other, forming the webs in blanks, feeding the

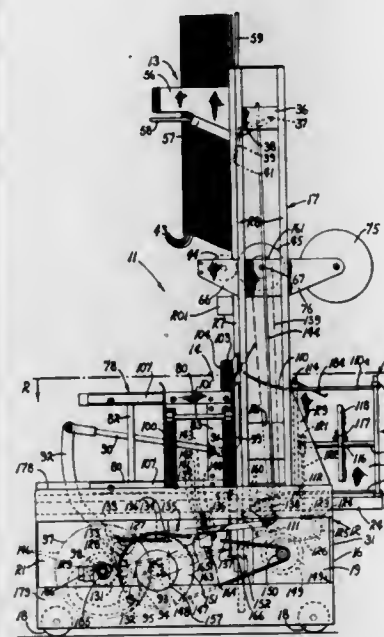


blanks with one of the secured edge portions leading, and folding the blanks to bring the secured edge portions into adhesive contact.

3,590,700
METHOD AND MACHINE FOR FORMING CONTAINERS
 Gerald C. Paxton, Sanger, and Allen D. Paxton, Fresno, both of, Calif., assignors to General Nailing Machine Corporation
 Filed Sept. 5, 1968, Ser. No. 757,581
 Int. Cl. B31b 17/00

U.S. Cl. 93-55

23 Claims



A method and machine for forming a container from a pair of preformed end panels and a preformed body mat of generally planar form having a central bottom panel and side panels joined thereto with scored fold lines, the mat panels having flanges at the ends thereof. The method and operation of the machine sequentially involve feeding a vertically disposed body mat downwardly and simultaneously applying glue to the end flanges, feeding a spaced pair of vertically disposed end panels into engagement with the bottom panel of the mat, inwardly of the end flanges thereof, moving the mat substantially horizontally, partially folding the bottom panel end flanges toward the end panels, folding the mat side panels into engagement with the end panels, partially folding the side panel end flanges toward the end panels, and completing the folding of the several end flanges into engagement with the respective end panels for adhesively joining the end flanges to the end panels.

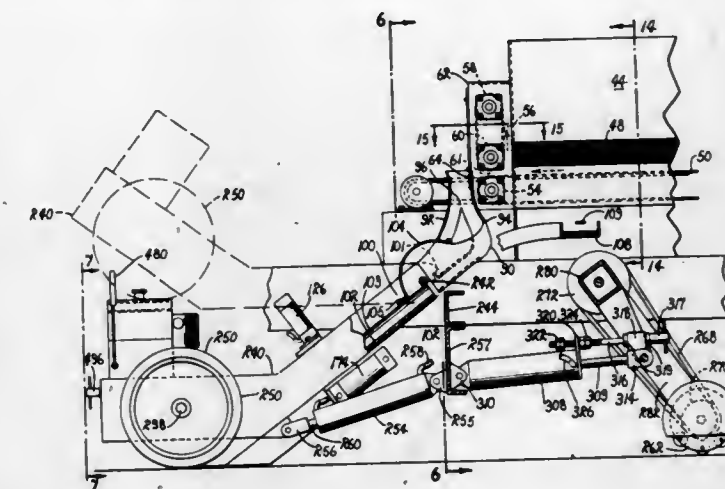
3,590,701
AUTOMATED LANE-DIVIDER BUTTON APPLYING MACHINE
 Terry K. Ten Broeck, 33449 Road 168, Visalia, Calif.
 Filed Jan. 5, 1970, Ser. No. 739
 Int. Cl. E01c 23/16

U.S. Cl. 94-39

38 Claims

An automated lane-divider button applying machine particularly suited for use in applying lane-divider buttons,

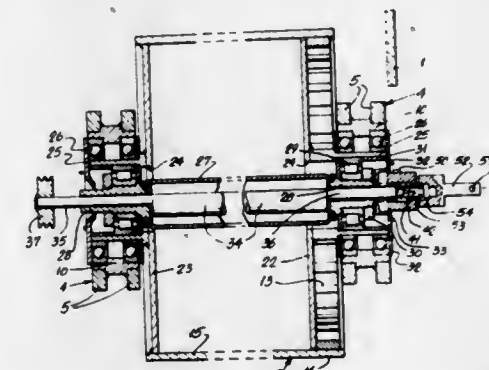
frequently called "Bott's Dots," at selected intervals along lane-divider lines of surfaced highways, characterized by a self-propelled, steerable vehicle having mounted therein for automated operation a mechanism including a surfacing brush, adhesive mixer and applicator and a button ejector



and applicator interrelated for automated and sequential operation for applying reoccurring series or spaced "strings" of lane-divider buttons along highway lane-divider lines in a predetermined sequence and at predetermined spaced intervals.

3,590,702
VIBRATORY ROLLER
 Peppino Sechi, 5669 Upper Lachine Road, Montreal, Quebec, Canada
 Filed Apr. 23, 1969, Ser. No. 818,688
 Int. Cl. E01c 19/28
 U.S. Cl. 94-50

5 Claims



A vibratory roller machine in which the means for imparting vibrations to the roller body consist of two mutually angularly adjustable rotary eccentric masses, so as to vary the resultant eccentricity of the two masses, and of means to rotate the two masses as a unit, whereby amplitude of vibration can be varied for the same vibration frequency, thereby obtaining improved and faster compaction of asphalt, gravel and the like.

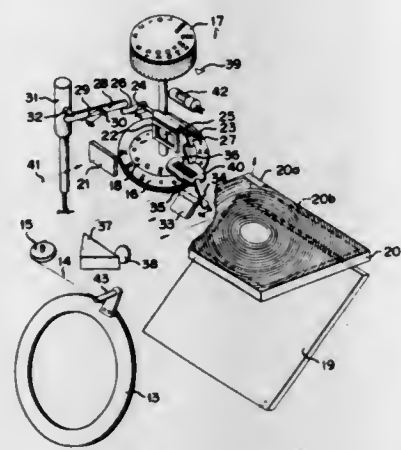
3,590,703
SET VALUE INDICATING APPARATUS FOR SINGLE LENS REFLEX CAMERA
 Shigeo Ono, Yokohama-shi, Japan, assignor to Nippon Kogaku K.K., Toyko, Japan
 Filed Apr. 19, 1968, Ser. No. 722,799
 Claims priority, application Japan, Apr. 24, 1967, 42/25,809
 Int. Cl. G03b 17/24

U.S. Cl. 95-1.1

5 Claims

A view finder for a single lens reflex camera is provided in which the exposure data such as shutter speed, lens aperture, distance and the like may be observed; provisions being made to record the data on the photograph. An aperture or window is provided in the camera body for illuminating the data dials. Two pivotable mirrors, a prism and a lens are pro-

vided to project an image of the dial data on the border portion of the focusing plate. Both pivotable mirrors are coupled to the shutter release button, the first mirror blocking the in-



coming light as an exposure is made, the second mirror tilting slightly at the same time. A lamp synchronized with the shutter release button flashing to provide the required light for recording data on the film by the tilted second mirror.

3,590,704

METHOD FOR MEASURING A POSITION OF A SHIP AT SEA

Hidetomo Endo, 13-11, Minami-Oi-machi 6 chome, Shinagawa-ku, Tokyo, Japan

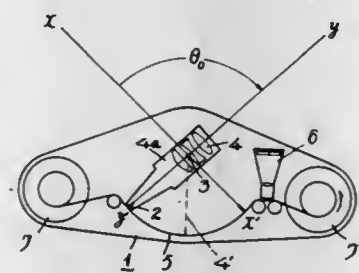
Filed June 19, 1968, Ser. No. 741,153

Claims priority, application Japan, June 20, 1967, Sept. 6, 1967, 42/39,016; 42/56,759

Int. Cl. G01c 3/00

U.S. Cl. 95-1

1 Claim



A method for measuring a position of a ship at sea by taking picture of observed markings with a wide angle camera provided with a pivoting lens mounted in a bodytube formed with a slit at its forward end and pivoted at the center of the lens and angularly analyzing images of the observed markings formed on the exposed film, so that the position at which the exposure is made and/or the positions at which the observed markings are located can be quickly and accurately calculated and measured.

3,590,705

PHOTOGRAPHIC-TYPE COMPOSING APPARATUS

Louis M. Moyroud, 202 Grove Way, Delray Beach, Fla.

Filed Dec. 13, 1967, Ser. No. 690,720

Claims priority, application Great Britain, June 10, 1966, 25997/66

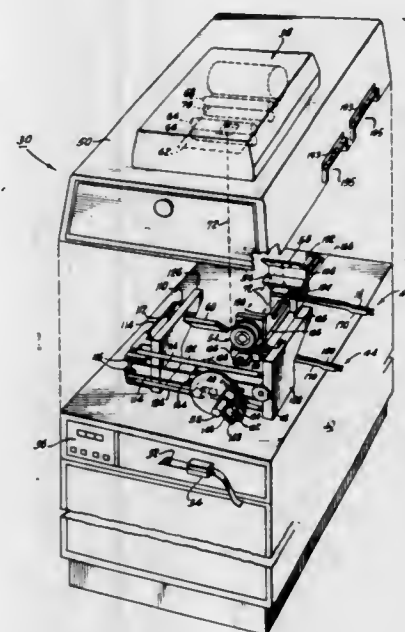
Int. Cl. B41b 17/10

U.S. Cl. 95-4.5

26 Claims

Photographic-type composing apparatus in which transparent characters are carried on a continuously revolving disc. A shutter and a flashlamp are mounted translate with the disc. As each selected character moves past a projection window in the shutter, it is illuminated with a short, intense flash of light from the flashlamp. The character image is projected through an optical system onto photographic film. After the projection of each character, the disc, the shutter and the flashlamp are moved as a unit in a direction parallel to the line of characters being composed by a distance equal

to the relative width of the character next to be projected. During this movement, the optical system and the film remain stationary. The point size of images on the film is



changed simply by adjusting the magnification of the optical system; the character spacing will remain correct without changing the amount of movement of the disc.

3,590,706

ADAPTER FOR IGNITING PERCUSSION-IGNITABLE FLASHLAMP UNITS

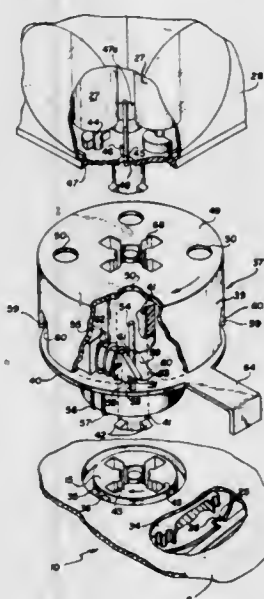
Marcus J. Millet, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 12, 1968, Ser. No. 783,227

Int. Cl. G03b 9/70

U.S. Cl. 95-11.5

22 Claims



An adapter is provided to enable use of percussion-ignitable flashlamp units with photographic apparatus designed for use with electrically ignitable flashlamp units. A camming member movable in response to rotation of a flash cube socket on the photographic apparatus cocks a spring loaded actuating member and a solenoid controls movement of the actuating member to fire a received percussive lamp.

3,590,707 SELF-ERECTING COMPRESSIVE MEMBERS IN A CAMERA

David S. Merz, Belmont, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

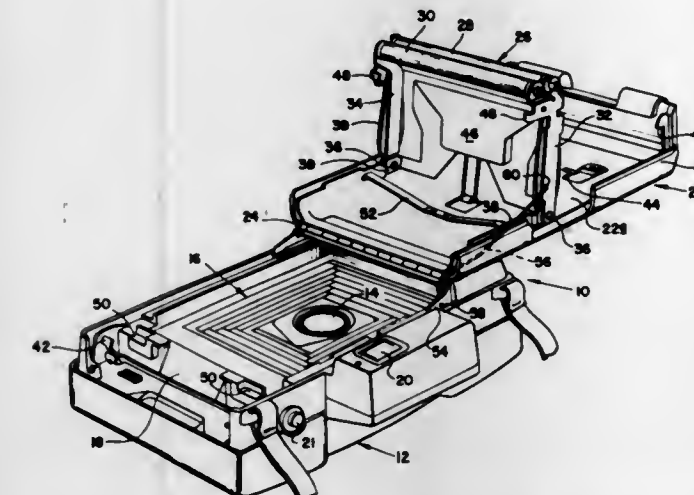
Continuation of application Ser. No. 754,217, Aug. 21, 1968.

This application Feb. 24, 1970, Ser. No. 14,740

Int. Cl. G03b 17/50

U.S. Cl. 95-13

18 Claims



Apparatus automatically elevating and making accessible the normally shielded compressive members of a self-developing camera. The compressive members are carried by supporting arms having pivotal connection with the inner portion of the cover. Upon opening the cover, the compressive members are raised for the purpose of routine inspection and remedying any operational defect.

3,590,708

PHOTOGRAPHIC PROCESSING APPARATUS

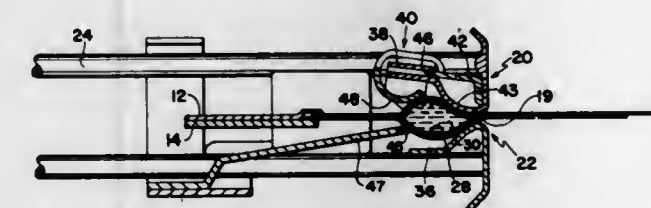
Patrick L. Finelli, Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 17, 1968, Ser. No. 730,000

Int. Cl. G03b 17/50

U.S. Cl. 95-13

11 Claims



A photographic apparatus for spreading a processing fluid in a layer between two sheets of material including a pair of spreader members defining a pressure generating gap through which the sheet materials are movable. A plastic member is mounted on one of the spreader members and adapted to exert a resilient force against one such sheet of material in advance of the gap to present a weir to the flow of the processing fluid between the sheets in the direction away from the gap.

3,590,709

MULTIPHOTOGRAPHING DEVICE

Nobunao Mikami, Kawasaki-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Sept. 5, 1968, Ser. No. 757,592

Claims priority, application Japan, Sept. 11, 1967, 58221/67

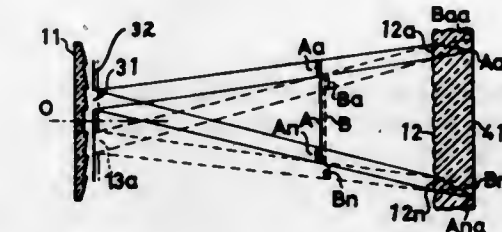
Int. Cl. G03b 35/08

U.S. Cl. 95-18

7 Claims

A first lens forms an image of an object at its object plane by focusing light through an aperture in a movable shield adjacent the first lens. The image is used as an object by a

second lens which is comprised of an array of microlenses. The second lens focuses portions of the image upon a sensitive material at a plurality of sites which vary depending upon the placement of the aperture, which is movable



between a plurality of nonoverlapping positions. The first lens is comprised of a plurality of lenses arrayed in a grid or lattice pattern and positioned with the centers of curvature of their light-transmitting surfaces on a common optical axis.

3,590,710

AUTOMATIC FILM ADVANCING MECHANISM

Naoyuki Uno, Ooi-Machi, and Tetsuo Sasaki, Fukuoka-Machi, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

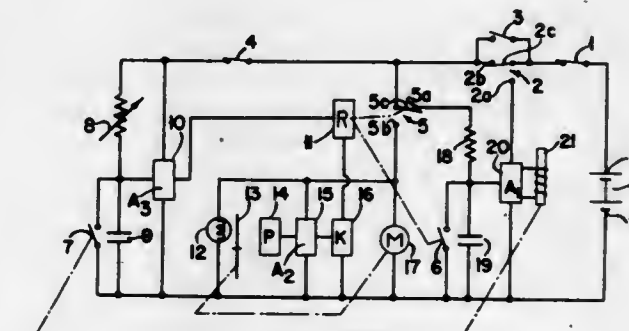
Filed Apr. 10, 1968, Ser. No. 720,192

Claims priority, application Japan, Apr. 27, 1967, 42/27125

Int. Cl. G03b 1/12, 9/64

U.S. Cl. 95-31 E

16 Claims



A film advancing mechanism includes a drive motor which is connected to a battery through a normally open switch actuated by a reed switch which is energized an adjustable interval following the camera shutter closing by means of an adjustable RC time delay network. The solenoid is maintained energized only by an AC current produced by the rotating motor. An RC delay network and amplifier responsive to the deenergization of the motor prevents the release of the shutter an interval following the motor deenergization to permit the relaxing of the advanced film frame.

3,590,711

FILM ADVANCEMENT CONTROL APPARATUS FOR CAMERAS

Vincenzo Milanese, and Angelo Bianchi, both of Ceva Cuneo, Italy, assignors to Ferrania S.p.A. Corso Matteotti, Milan, Italy

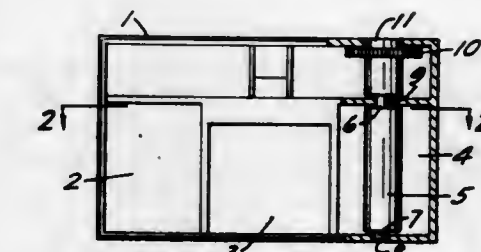
Filed June 7, 1968, Ser. No. 735,314

Claims priority, application Italy, June 10, 1967, 37,398

Int. Cl. G03b 1/62, 1/66

U.S. Cl. 95-31

6 Claims



An apparatus for controlling film advancement in inexpensive cameras is shown which comprises a takeup roll which

cooperates with an exposure count scale to indicate the number of frames which have been advanced through the camera, and a film-metering device having a spiral track with detent seats therein and means for registering with the detent seats to interrupt travel of film through the camera at one-frame intervals.

3,590,712

MULTIPHOTOGRAPHIC DEVICE

Hisanori Ataka, Kawasaki-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

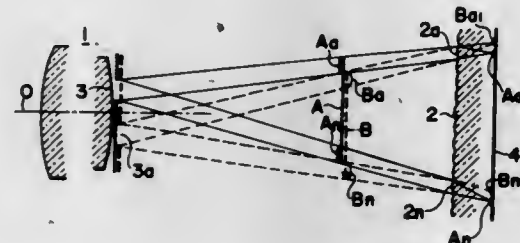
Filed Sept. 19, 1968, Ser. No. 760,756

Claims priority, application Japan, Sept. 29, 1967, 42/62807

Int. Cl. G03b 19/00

U.S. Cl. 95-36

5 Claims



A multiphotographic device comprising a first objective lens, a second lens comprised of a microlens group and an aperture disposed within, forwardly or backwardly of said first lens; said aperture being adapted to be formed by the intersection of two elongated slots at right angles with respect to each other, said elongated slot being provided in each of a pair of movable plates which are movable in the directions at right angle with respect to each other, alternatively said aperture being selected by said two elongated slots.

3,590,713

ADJUSTABLE SEATING FOR OPTICAL COMPONENTS

Lothar Kirstein, Bad Kreuznach, and Gerd Kurz, Biebelshelm, both of, Germany, assignors to Jos. Schneider & Co., Bad Kreuznach, Germany

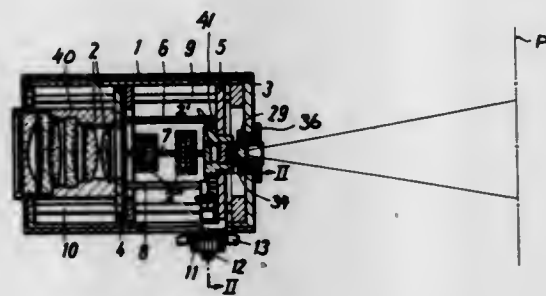
Filed May 5, 1969, Ser. No. 821,706

Claims priority, application Germany, May 4, 1968, P 12 85 287.8

Int. Cl. G03b 3/00

U.S. Cl. 95-45

10 Claims



An optical objective in a camera, whose back-focal length is subject to change by the addition of supplemental lenses, is provided with a support that is axially displaceable along guide rails and, with the aid of a first knob, can be arrested in several axial positions for coarse adjustment. A second knob, controlling a leadscrew or a nut therefor, serves to carry out fine adjustment of the support position for accurate focusing. A third knob immobilizes the objective support in its selected position of fine adjustment. The three knobs, or at least two of them, are mounted on a common axis transverse to the guide rails.

3,590,714
PHOTOGRAPHIC APPARATUS WITH TWO-WAY OBJECTIVE

Artur Schops, Munich, Germany, assignor to Steinhell-Lear Slegler AG, Munich, Germany

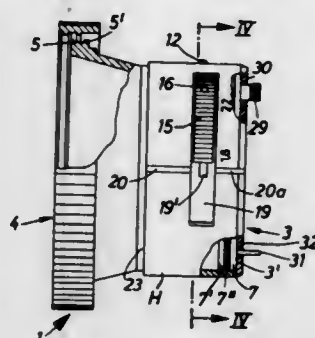
Filed Sept. 24, 1969, Ser. No. 860,682

Claims priority, application Germany, Sept. 28, 1968, G 67 53 832.3

Int. Cl. G03b 3/00

U.S. Cl. 95-44

10 Claims



An invertible objective can be connected to a ring-shaped holder on the body of a camera in two positions in one of which the holder conceals a manually operable selector for the aperture size. The diaphragm in the objective is closed in automatic response to attachment of the objective in the one position and the diaphragm is then coupled to the automatic exposure control in the camera body. When the objective is attached in the other position, the selector is accessible so that the desired aperture size can be set by hand.

3,590,715
ADAPTER AND OBJECTIVE FOR USE IN PHOTOGRAPHIC APPARATUS

Artur Schops, Munich, Germany, assignor to Steinhell-Lear Slegler AG, Munich, Germany

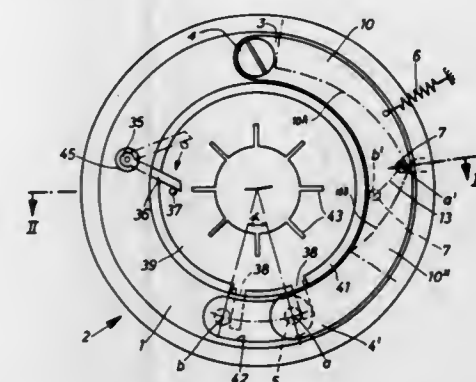
Filed Sept. 29, 1969, Ser. No. 861,828

Claims priority, application Germany, Sept. 28, 1968, P 17 97 448.0

Int. Cl. G03b 3/00

U.S. Cl. 95-44 R

13 Claims



An objective wherein the diaphragm can be preset by a lever mounted on its barrel and can be cocked by a diaphragm cocking device in a camera with an exposure control. The objective can be coupled to several types of cameras by means of adapters provided with at least one cam serving to transmit motion to the lever in such a way that the lever moves in a single direction irrespective of the direction of movement of the cam. The cam can be moved by a manually-operated ring which is turnable on the adapter with reference to a fixed diaphragm scale. The cam compensates for eventual differences between such angular movements of the ring which are needed to move the ring between successive positions indicating different f/stops and corresponding angular movements of the lever in order to change the aperture size by full f/stops. According to the particular type of the camera and its exposure control, the ring is turnable in clockwise or in counterclockwise. A pin or the like on the ring is in engagement with the exposure control.

3,590,716

SHUTTER CONTROL ARRANGEMENT

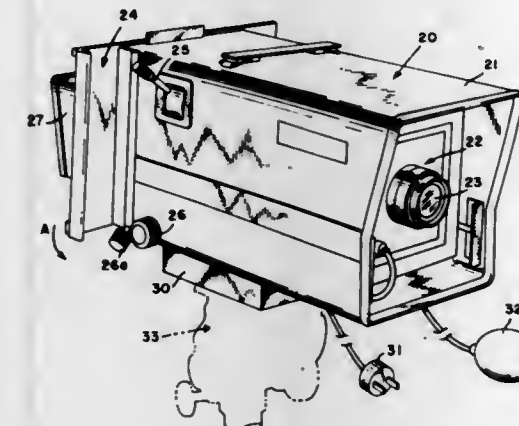
James S. Beattie, 2810 Lansdowne Road, Victoria, British Columbia, Canada

Filed June 10, 1968, Ser. No. 735,597

Int. Cl. G03b 9/00

U.S. Cl. 95-53

6 Claims



An electrically controlled arrangement for a camera to position the shutter of the camera, wherein a switching device of an electrical control circuit is responsive to the positioning of a ground glass plate and film carrying structure, which are insertable in the rear portion of the camera, and wherein the structure activates the switching device to energize or deenergize a solenoid linked to the shutter for opening and closing the shutter in a predetermined sequence dependent upon the position of the switch activating structure.

3,590,717

DIAPHRAGM-PRESELECTOR MECHANISM FOR CAMERAS WITH DETACHABLE OBJECTIVES

Karl-Heinz Raab, Bad Kreuznach, Germany, assignor to Jos. Schneider & Co. Optische Werke Kreuznach, Bad Kreuznach Rhld, Germany

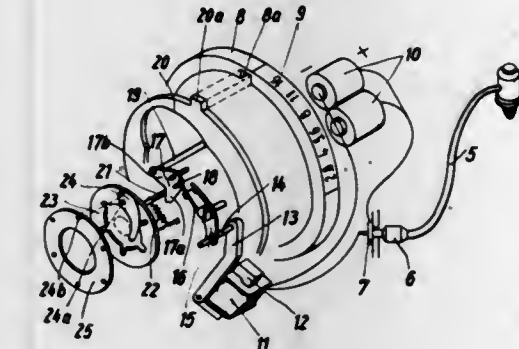
Filed Nov. 21, 1968, Ser. No. 777,706

Claims priority, application Germany, Nov. 29, 1967, P 15 97 419.3

Int. Cl. G03b 9/07

U.S. Cl. 95-64

5 Claims



A diaphragm-control member on a detachable camera objective is actuated by the closure of a switch upon depression of a shutter-trip button on the camera, this switch energizing an electromagnet on the objective which moves the control member—specifically a bellcrank lever—into contact with an adjustable abutment to establish a preselected diaphragm aperture.

3,590,718

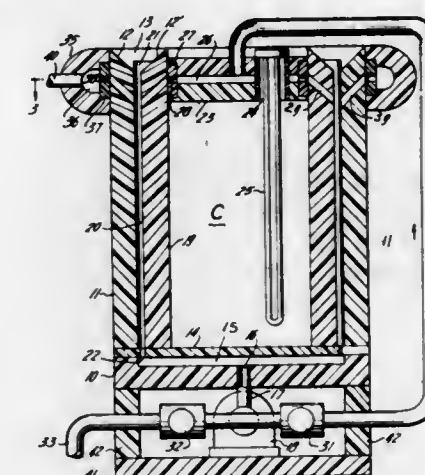
PHOTOGRAPHIC FILM AND PAPER PROCESSING APPARATUS

Samuel Needleman, 177 Louis St., Maywood, N.J.

Continuation-in-part of application Ser. No. 751,861, Aug. 12, 1968. This application Jan. 29, 1970, Ser. No. 6,713

U.S. Cl. 95-89

5 Claims



An apparatus for processing photographic sheet material is described. The apparatus comprises an upright vessel of cylindrical configuration having concentric walls which define a narrow chamber adapted to be filled with processing solution in which the material may be inserted. Radially extending channels are distributed in a circular pattern below the solution level, terminating in a nozzle for directing an impacting stream of the processing solution in the chamber against the emulsion side of the material, resulting in a laminar flow.

3,590,719

POLYGONAL TILE, SUSPENDED CEILING INTEGRATED ACOUSTIPLAQUE AIR DIFFUSER ASSEMBLY

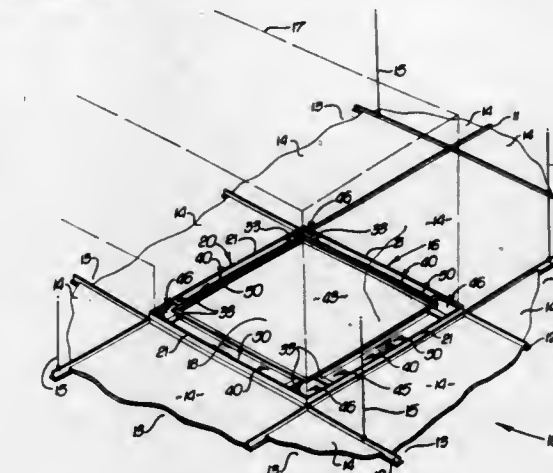
Robert R. Lambert, Glendora, Calif., assignor to Air Factors, Inc., Covina, Calif.

Filed Sept. 26, 1969, Ser. No. 861,296

Int. Cl. F24f 7/00

U.S. Cl. 98-40 D

12 Claims



A polygonal tile suspended ceiling integrated acoustiplate air diffuser assembly for use with an air plenum chamber having an air outlet mounted thereon and for use with a suspended ceiling with a plurality of tile receiving square openings formed by the lower flanges of main inverted T-bar support members and intersecting cross-inverted T-bar support members, includes a square enclosing outer frame for insertion into one of the square ceiling openings; a smaller square enclosing inner frame with a square-shaped central opening; spacers for mounting the inner member within the outer frame in spaced relationship;

a plaque of ceiling tile inserted into the central opening to block the passage of air from the air outlet thereover through the central opening; corner plates inserted between the inner and outer frame at the corners thereof to block the passage of air from the air outlet through the corner spaces; and nested channels inserted into peripheral passages between the inner and outer frames forming restricted passage for selectively controlling the air passing therethrough from the air outlet, with the air flowing therethrough being deflected by the lower flanges of the inverted T-bar members to flow along the ceiling throughout a room in a direction away from the sides of the square openings in the ceiling.

3,590,720

TURBINE VENTILATOR ASSEMBLY

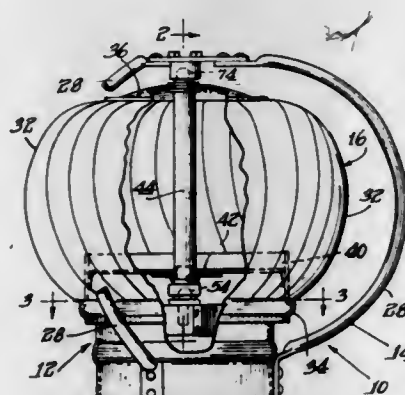
Burton L. Siegal, Skokie, Ill., assignor to Leslie Welding Co. Inc., Franklin Park, Ill.

Filed May 7, 1969, Ser. No. 822,528

Int. Cl. F24f 7/02

U.S. Cl. 98-75

8 Claims



A turbine ventilator of the type designed to be affixed to ventilator or exhaust stacks. Said ventilator comprises a turbine head, and support means mounting said head for relative movement relative thereto. The journaling of said turbine head to the support means is provided by upper and lower bearing arrangements. At least one said bearing arrangement comprises an elastomeric seat member having a socket formed therein, a ceramiclike spherical bearing element positioned in said socket to provide a convex bearing surface, and a cooperating bearing element having a spherical recess which receives said ceramiclike bearing element and provides a corresponding concave bearing surface, said cooperating bearing element being constructed of a low friction plasticlike resinous material. In addition, the radius of curvature of each said bearing surface may be formed such that point contact results, with said point of contact orbiting during operation of the ventilator to provide a cleaning action for the bearing surfaces.

3,590,721

INJECTION-TYPE PICKLING APPARATUS FOR HAMS, BACON AND THE LIKE

Louis Adolph Hoffmann, Gerasdorferstrasse 131, Wien XXI, Austria

Filed Aug. 12, 1969, Ser. No. 849,468

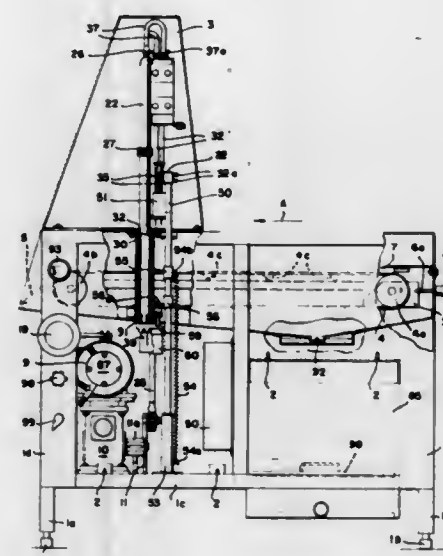
Int. Cl. A23b 1/16

U.S. Cl. 99-256

14 Claims

A pickling apparatus has a transport mechanism for moving an article of food along a horizontal path. Arranged above this path is an array of needles which are displaceable into and out of penetrating engagement with the article while being connected to a source of pickling liquid under pressure. A holding element is coupled to these needles to be displaceable into and out of abutment with the article to hold it down and to enable withdrawal of the needles. A common drive mechanism is provided for jointly displacing the needles and the holding element while enabling displacement of

the needle carrier downwardly relative to the retaining element. A valve mounted on the needle carrier is actuatable to



feed liquid from the source to the needles only when the retaining element is immobilized and relative displacement of needles and retaining element occurs.

3,590,722

FLAVOR INJECTOR DEVICE

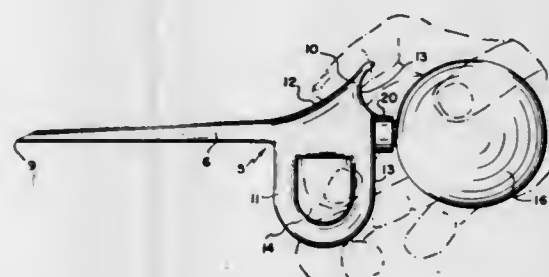
Samuel Leprone, 1737 Robinhood Lane, Clearwater, Fla.

Filed June 9, 1969, Ser. No. 831,290

Int. Cl. A23b 1/16

U.S. Cl. 99-257

1 Claim



A hollow tapered needle is adapted to pierce a body of food and inject flavoring material thereinto as the needle is withdrawn, a deformable bulb on the stock to the needle contains a liquid flavoring material which is forced through the needle as the bulb is squeezed by the palm of a person's hand, gripping abutments projecting from opposite sides of the stock.

3,590,723

COFFEE MAKER

Sophocles J. Dokos, Oak Park; Joseph L. Viece, LaGrange, and Moises B. Lorenzana, Glen Ellyn, all of, Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed Aug. 14, 1968, Ser. No. 752,684

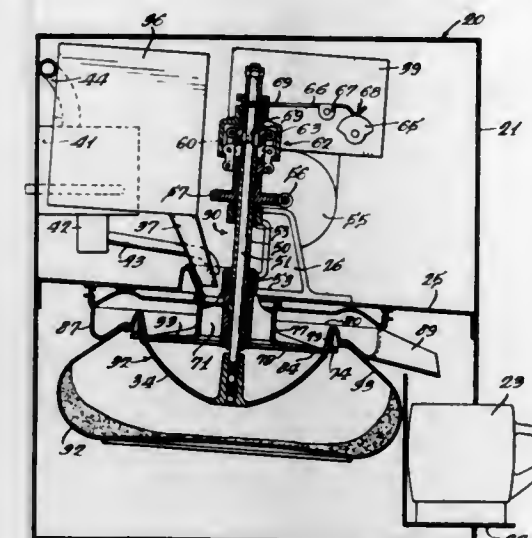
Int. Cl. A47j 31/00

U.S. Cl. 99-289

1 Claim

A coffee maker having a brewing chamber with an upper and lower portion and including means for feeding a charge of heated water and coffee grounds therein plus means for

rotating the chamber until nearly all of the coffee liquid is removed therefrom. After the coffee liquid is forced from the



chamber, the upper and lower portions thereof separate to discharge relatively dry leached coffee grounds.

3,590,724

HOT DRINK MACHINE

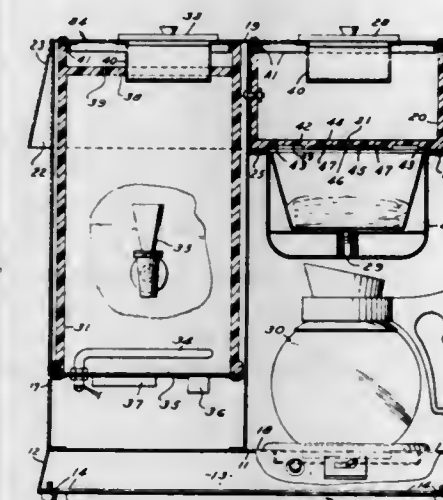
Walter R. Lorang, 23309 West Maple Road, Walled Lake, Mich.

Filed Mar. 16, 1970, Ser. No. 19,921

Int. Cl. A47j 31/10

U.S. Cl. 99-290

10 Claims

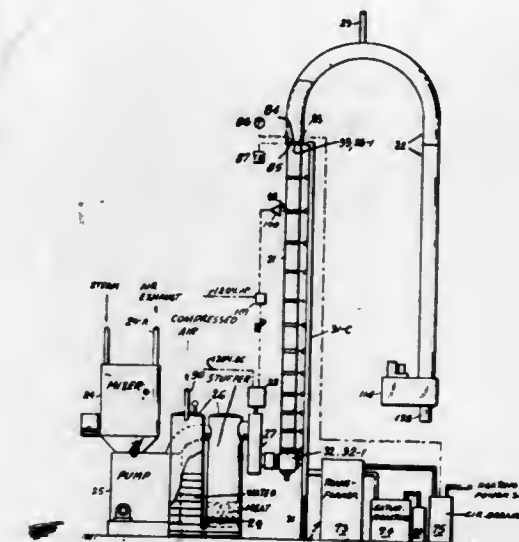


A hot drink machine having a cabinet comprising a truncated pyramidal base housing having a column on one end of the base housing, and a truncated pyramidal cap on the column; the portion of the base housing not occupied by the column constituting a platform; a coffee drip pot on said column over the platform; said cap covering the drip pot and covering about 25 percent of the column; the cabinet presenting an optically foreshortening aspect due to the conformation of the base platform and the cap and the partial coverage of the column by the cap; a hot water reservoir tank in the column primarily heated by a heavy duty immersion heater and having auxiliary light duty standby heater and a thermostat controlling the immersion heater on the outside of a metal bottom wall in the tank; a capillary action water dispersal plate and chamber on the drip pot and a brew can below the drip pot; a user filling the tank through an opening in the cabinet top; a faucet on the tank for drawing hot water; a user filling the drip pot through an opening in the cabinet above the drip pot; and condenser flanges and cup provided over the tank and drip pot to reduce vapor to liquid to prevent dripping outside the cabinet by returning the liquid to the tank or drip pot.

3,590,725
CONTINUOUS ELECTRIC ROASTING OF ELONGATED MEAT STRANDS AND OTHER FOOD STRANDS AND FOOD ROASTING SYSTEMS THEREFOR
Roman Bilynsky, 522 East 5th St., New York, N.Y.
Filed July 17, 1968, Ser. No. 745,525
Int. Cl. A47j 27/00

U.S. Cl. 99-334

8 Claims



A method for the continuous electric roasting of an elongated meat strand in a uniform manner which includes an oven system having means for passing electric current axially and partly transversely through successive sections of the meat strand while it is being advanced. The continuous meat strand may typically have a diameter in excess of 3 inches.

3,590,726

COOKING-GRILL CONSTRUCTION (SKEWER ARRANGEMENT)

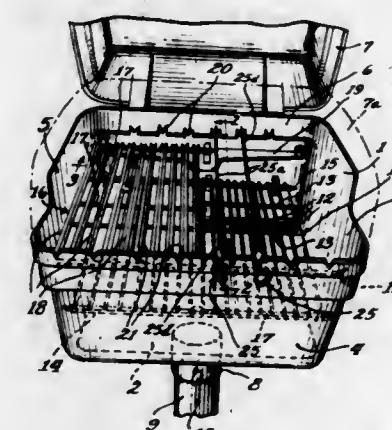
James T. Warner, Richardson, Tex., assignor to Interlake Steel Corporation, Chicago, Ill.

Filed Mar. 6, 1969, Ser. No. 804,855

Int. Cl. A47j 37/04

U.S. Cl. 99-339

1 Claim



A cooking grill of the outdoor type for use with solid or gaseous fuel having improved skewer and skewer means. The supports for the skewers are an integral part of the grill receptacle. The skewers are provided with collar means for preventing accidental displacement of the skewers when they are positioned in their supports.

3,590,727

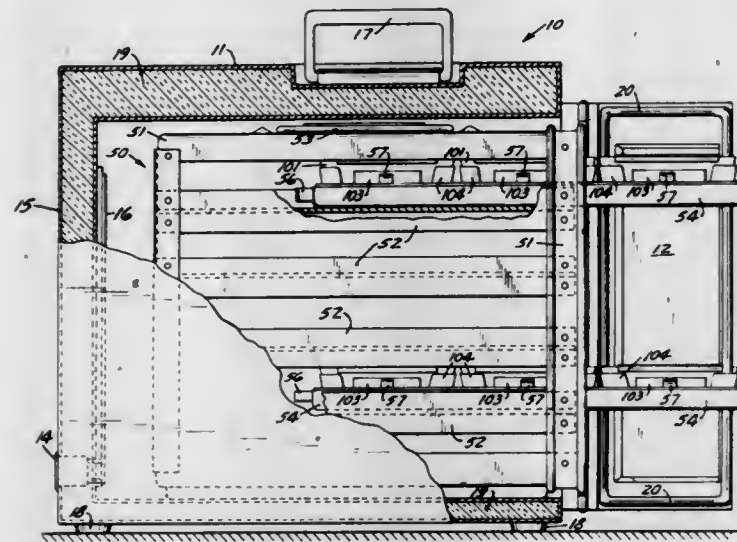
RECONSTITUTED FOOD DEVICE AND SYSTEM
Thomas S. Shevlin, Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed June 20, 1968, Ser. No. 738,431
Int. Cl. A23i 3/00

U.S. Cl. 99-359

2 Claims

A device and system especially useful for reconstituting foods from a frozen state to an edible state in a period of

about 15 minutes is disclosed. The system incorporates a unitized food preparation device comprising an outer thermally insulated shell provided with electrical connection means, an array of shelves having electrical connecting means for mating engagement with the electrical connection means of the shell and with the electrical connecting means



of a plurality of individual meal-sized serving casseroles provided with integral, i.e., sandwiched, embedded or bonded, resistance heating elements. In utilizing the device, meal-sized portions of food are packed in each casserole, in which the food is then precooked and/or frozen for storage and distribution. In the reconstitution process, the food is heated or cooked by the integral heating elements of the individual casseroles.

3,590,728

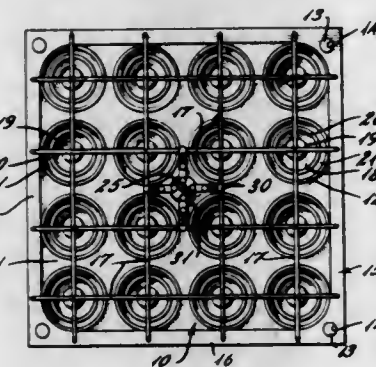
CONE PAN OR MOLD

Mary E. Stanley, P.O. Box 175, Rockingham, N.C.
Filed May 28, 1969, Ser. No. 828,548

Int. Cl. A47J 43/18

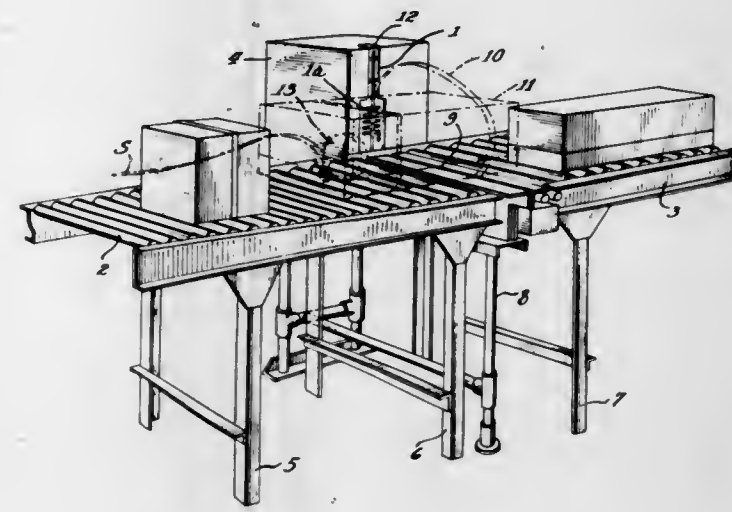
U.S. Cl. 99-439

4 Claims



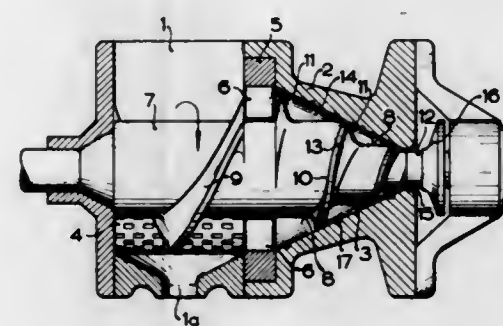
A pan or mold for use in the production of baked cones capable of being used for holding other foods such as ground meat or the like and which pan or mold includes complementary conical mold members with receiving and received aligning portions with the spaces between the larger ends of the cones open to allow substantially unobstructed spaces between the larger extremities for the maximum expansion of the dough and the provision of irregular upper end walls on the cone.

3,590,729
STRAP FEED DEVICE
Robert F. Plattner, Chicago Heights, Ill., assignor to Interlake Steel Corporation, Chicago, Ill.
Filed Dec. 11, 1969, Ser. No. 884,216
Int. Cl. B65b 13/22
U.S. Cl. 100-32
7 Claims



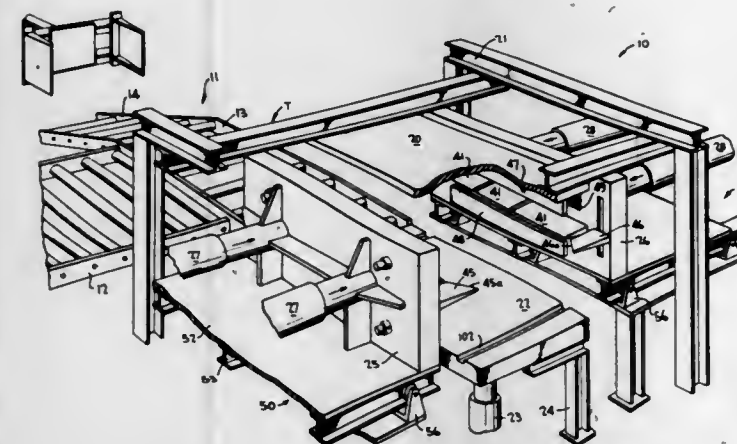
A strap tensioning means in a strapping machine employing a rotary feed wheel and an idler wheel between which strap is fed. The periphery of one of the wheels is covered with a resilient high friction surface for minimizing strap slippage and the two wheels are geared together to eliminate relative rotation of one wheel to the other.

3,590,730
SCREW PRESS FOR PRESSING LIQUID OUT OF FIBROUS OR WOODLIKE MATERIAL
Kurt Heinrich, Wevelinghoven, Germany, assignor to Maschinenfabrik Buckau R. Wolf A.G., Grevenbroich, Germany
Filed Apr. 2, 1968, Ser. No. 745,055
Claims priority, application Germany, Apr. 3, 1967; M73-449
Int. Cl. B30b 9/12
U.S. Cl. 100-117
13 Claims



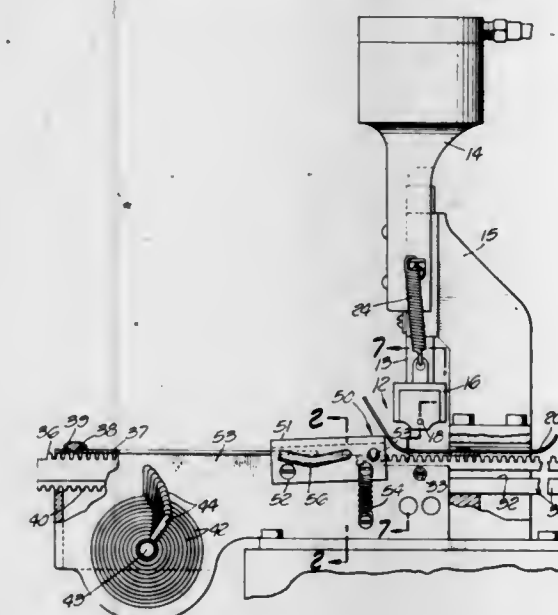
A tapering screw press for pressing liquid out of fibrous or woodlike material, such as particulated sugarcane and the like, in which the material is subjected between a frustoconical surface of the press housing and a frustoconical worm screw of the press to rapidly increasing pressure as the material is forced from the large to the small diameter end of the screw, while the pressed out liquid flows in reverse direction, and in which the screw and the inner frustoconical surface are constructed to substantially prevent rotation of the material with the screw.

3,590,731
COTTON BALE HANDLING AND COMPRESSING SYSTEM
Henry L. Nichols, P.O. Box 667, Little Rock, Ark.
Filed June 3, 1968, Ser. No. 734,057
Int. Cl. B30b 15/30
U.S. Cl. 100-215
5 Claims



A system is provided for automatically handling and compressing bales in which an extensible clamp is operative to transfer the bale into and out of the compressor through a single end thereof; the bale being removed from the transfer station by additional movement of the clamp away from the compressor. Blade members are provided on the side platens of the compressor to tuck the holding bands into the interior as slack is formed during the compressing operation. Additional blade segments are utilized to tuck the wrapper at the ends of the bale; both the blade members and segments being mounted for movement to accommodate for the reduction in girth in the bale as it is compressed. Spring-biased stripper plates for the blade members and segments are provided on the side platens, which plates also serve to stabilize the bale during the compressing operation. Special stabilized carriage mounting for the side platens and fluid circuitry for automatically sequencing the entire bale handling and compressing operation are provided.

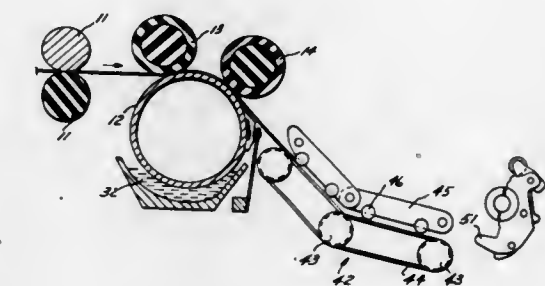
3,590,732
WORK-SUPPORTING MEANS AND TYPE-BAR-SETTING MECHANISM IN HOT-STAMPING MACHINES
Lewis A. Kingsley, c/o Kingsley Machine Company, 850 Cohuenga Blvd., Hollywood, Calif.
Filed July 18, 1968, Ser. No. 745,731
Int. Cl. B44b 5/00; B41f 1/02
U.S. Cl. 101-21
8 Claims



A type-setting mechanism for a hot-stamping machine or the like in which the type is permanently formed on elongated bars which are moved to locate the desired symbols into the printing position. Each elongated bar contains each symbol to be used and sufficient bars are provided to permit the printing of a word or words having the desired number of characters. Each of the bars is additionally provided with another complete set of symbols which are used to indicate the symbol located in the printing position.

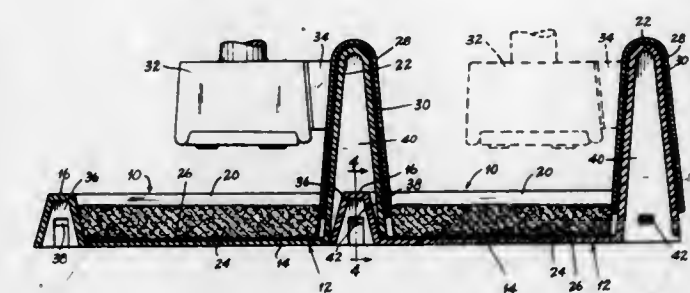
gated bars which are moved to locate the desired symbols into the printing position. Each elongated bar contains each symbol to be used and sufficient bars are provided to permit the printing of a word or words having the desired number of characters. Each of the bars is additionally provided with another complete set of symbols which are used to indicate the symbol located in the printing position.

3,590,733
DEVICE FOR APPLYING WETTING SOLUTION TO A LITHOGRAPHIC MASTER SHEET
Harry F. Gammeter, Cleveland Heights, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio
Division of Ser. No. 568,837, Feb. 29, 1966, Pat. No. 3,420,169.
Filed Sept. 10, 1968, Ser. No. 758,921
1968, Ser. No. 758,921
Int. Cl. B41f 7/24
U.S. Cl. 101-148
2 Claims



A rotating cylinder with a surface that clings tenaciously to wet duplicating masters. A supply of master wetting fluid is supplied to the cylinder surface. Rubber rollers in contact run at a greater speed to rub as the master is conveyed. A self-honing stripper causes the wet master to separate from the cylinder.

3,590,734
MULTIPLE UNIT STAMP PAD AND SUPPORT
David A. Carter, 1526 Eastham Avenue, St. Louis, Mo.
Filed July 17, 1968, Ser. No. 745,582
Int. Cl. A47k 13/00; B41k 1/58
U.S. Cl. 101-333
4 Claims



A stamp holder and pad increment for magnetically supporting office stamps, and the like, in position for immediate use adapted for employment as a single unit or in multiples, comprising an elongated pan-shaped base in which is disposed an inking pad, the base including a front wall of inverted V cross section having end wall portions in each of which is an aperture, a rear wall of inverted V cross section of substantially greater height than the front wall having end wall portions each of which includes an interiorly directed boss adapted to be removably engaged in the apertures of the front wall portions, a stamp support of inverted V cross section secured on the rear wall which is of magnetic material adapted to receive a magnetic strip secured to the side of a stamp for support of the latter in selected position above the inking pad in position for pushing downwardly into engagement therewith on selection for use, the bosses being readily snapped into engagement with and freed from the apertures, thereby enabling quick addition or removal of a stamp pad increment.

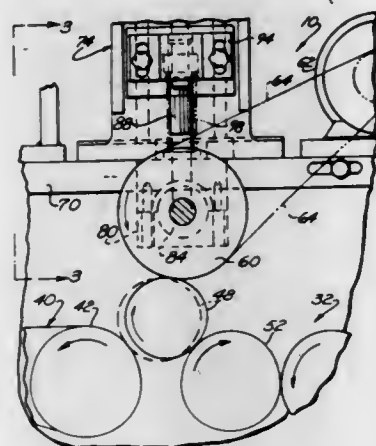
3,590,735

DUCTOR ROLL ACCELERATING MECHANISM

Ernest H. Treff, Groton, Conn., assignor to Harris Intertype Corporation, Cleveland, Ohio
Filed Aug. 26, 1969, Ser. No. 853,139
Int. Cl. B41f 31/10

U.S. Cl. 101—350

11 Claims



An improved printing press includes an ink fountain or supply roll which is driven at a relatively low peripheral speed and an ink train or receiving roll which is driven at a relatively high peripheral speed by the printing press drive. Ink is transferred between these two rolls by a ductor roll. To tend to minimize rotational shock loading on the printing press drive, the ductor roll is accelerated to the peripheral speed of the ink train roll under the influence of a motor which is independent of the printing press drive before the ductor roll engages the ink train roll.

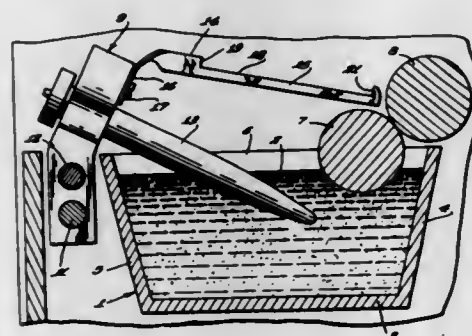
3,590,736

INK SCRAPER MEMBER MOUNTED ON INK AGITATOR CARRIAGE

Theodore C. Malek, 390 Wego Court, Deerfield, Ill.
Filed Jan. 10, 1969, Ser. No. 790,218
Int. Cl. B41f 31/06

U.S. Cl. 101—363

2 Claims



An ink scraper structure on a printing press for facilitating removal of printing ink from flat-bladed tools used therewith, the scraper member being rigidly secured to a carriage movable along an ink receiving receptacle in which is disposed at least one of a plurality of cooperable rollers, the carriage being movable along the upper edge of the receptacle and having an agitator member extending into ink contained therein with the scraper member being mounted on the agitator carriage and disposed above the agitator carried thereby, the opposite end of the scraper being disposed adjacent to and protected by the inking rollers.

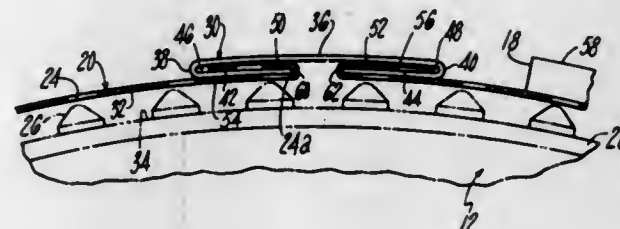
3,590,737

PRINTING MACHINE BELT ASSEMBLY

Edward A. Stroud, Wharton, N.J., assignor to Cameron Machine Company, Dover, N.J.
Filed July 23, 1968, Ser. No. 746,948
Int. Cl. B41f 27/06

U.S. Cl. 101—415.1

5 Claims



A printing machine belt assembly including a unitary clip having hooks integrally joined to an elongated backplate and coextensive therewith to form a pair of locking channels opening toward one another for receiving free ends of a printing belt. The belt is conveniently spliced by inserting preformed end folds of the printing belt in the channels and then sliding the clip across the width of the printing belt to join its free ends.

3,590,738

METHOD OF SHOT-HOLE LOADING

Johnston E. Holzman, La Jolla, Calif., assignor to Shell Oil Company, New York, N.Y.

Filed Dec. 7, 1967, Ser. No. 688,919

Int. Cl. F42c 3/06

U.S. Cl. 102—21

5 Claims



The lower end of a pipe is fitted with a removable cover and driven to the desired depth in an earth formation; an explosive charge having a detonation wire attached thereto is lowered to the bottom of the hole and the detonation wire is then attached at a point just above the top of the pipe to support means that is just large enough to pass through the pipe with just enough frictional engagement to retain the end of the wire above the surface of the ground as the pipe is pulled up over the wire and its support means.

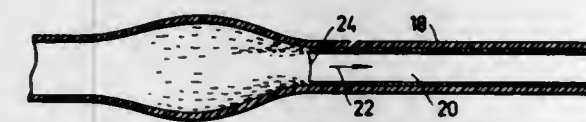
3,590,739

FUSE

Per-Anders Persson, Sodertalje, Sweden, assignor to Nitro-Nobel AB, Gyttopp, Sweden
Filed July 16, 1968, Ser. No. 745,276
Claims priority, application Sweden, July 20, 1967, 10726
Int. Cl. C06c 5/04

U.S. Cl. 102—27

10 Claims



A fuse apparatus including an elongated hollow tube with a reactive substance coating the inner periphery and adapted to support a gaseous percussion wave throughout the length of the tube.

3,590,740

PLASTIC SHOT SHELL AND BASE WAD

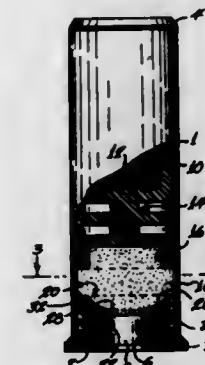
George L. Herter, Waseca, Minn., assignor to Herter's, Inc., Waseca, Minn.

Filed Nov. 12, 1968, Ser. No. 774,972

Int. Cl. F42b 7/08, 9/30

U.S. Cl. 102—44

2 Claims



A shot shell having a tubular casing made of hard polycarbonate plastic and terminating at its lower end at an integral base wall formed to provide an inwardly and axially projecting primer pocket is provided with a soft, yieldable polyethylene base wad having an axially extending central passage within which said primer pocket is received. The concave top surface of the base wad has a central aperture of smaller diameter than said axially extending passage, thereby defining an annular shoulder which abuts against the top of said primer pocket in sealing contact therewith. The aforesaid central aperture in the top of the base wad has a diameter at least equal to that of the inside of the primer pocket to thereby provide an unrestricted flash passage above a primer cap inserted into the primer pocket. An annular clearance space between the axial passage in the base wad and the tubular primer pocket in combination with a plurality of longitudinally spaced peripheral teeth on the base wad provide expansion room into which the resilient base wad may be compressed downwardly to provide a cushioning

and shock absorbing effect that protects the lower end and base wall of the hard plastic casing from the pressures generated by the exploding propellant charge within the casing.

ERRATUM

For Class 103—001 see:
Patent No. 3,591,312

3,590,741

CONVEYORS

Paul Zuppiger, c/o Fort Dunlop Erdinton, Birmingham, 24, England

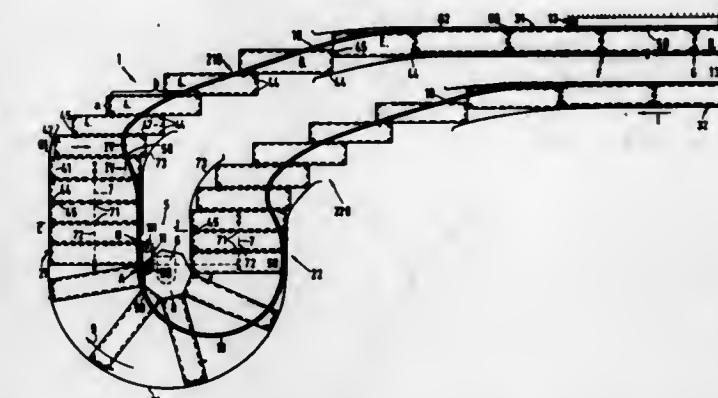
Filed Feb. 3, 1969, Ser. No. 796,103

Claims priority, application Switzerland, Feb. 2, 1968, 1630/68

Int. Cl. A65g 1/00

U.S. Cl. 104—25

7 Claims



Conveyor having low-speed and high-speed zones, and a connection zone there between, comprising a series of load-carrying platforms slidable one against the next to effect acceleration in the connection zone, wherein each platform is provided with connectors for linking it to the two adjoining platforms in the connection zone, a drive mechanism for the connectors being provided to effect movement thereof relative to their respective platforms, whereby progressive sliding movement of each platform relative to the adjoining platforms in the connection zone is effected, of which the following is a specification.

3,590,742

MECHANICAL TOW TRUCK SWITCHING APPARATUS

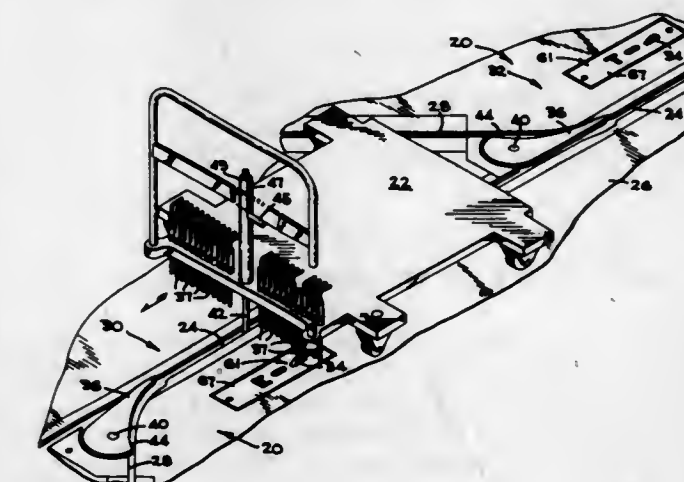
Horace M. Swartz, Doylestown, Pa., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 7, 1969, Ser. No. 797,485

Int. Cl. B61j 3/04; E01b 7/04; B65g 17/42

U.S. Cl. 104—88

16 Claims



A mechanical switching apparatus for use in an automated tow truck system has a switchplate for diverting coded trucks from a main slot in a reference surface to a shunt slot intersecting the main slot. A coded reader head, located upstream

from the switchplate, actuates a cable, operatively connected to the switchplate, to move the switchplate from a closed to an open position. A cam surface on the switch plate closes the switch when the cam surface is contacted by the truck which has been diverted into the shunt slot. Means are provided to prevent an inadvertent triggering of the reader head and other means are provided to prevent an inadvertent opening of the switchplate without a triggering of the reader head. A full spur device prevents the switchplate from diverting more than a predetermined number of trucks into the shunt slot.

In an alternative double reader head arrangement, simultaneous triggering of two coded reader heads is necessary to open the switchplate. The double reader head apparatus is similar to the single reader head apparatus except that it contains a translator assembly intermediate the reader heads and the switchplate for translating reader head triggering into a switchplate opening only when both of the proper reader heads have been tripped simultaneously.

3,590,743

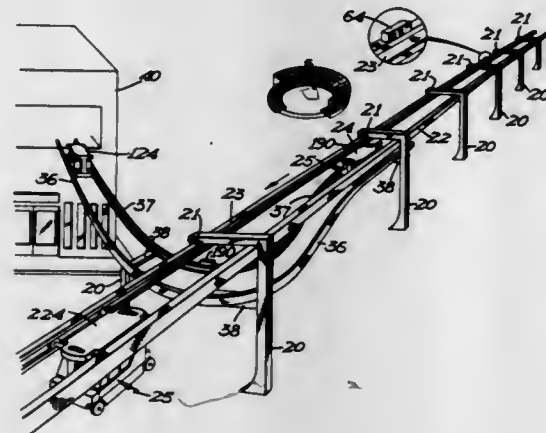
MASS TRANSIT SYSTEM

Roy J. Larson, 909 Pembina St., Detroit Lakes, Minn.
Filed Mar. 26, 1969, Ser. No. 810,533

Int. Cl. B61b 15/00

U.S. Cl. 104-130

15 Claims



A transportation system is disclosed having a plurality of support columns spatially disposed from each other and anchored to a supporting medium with a plurality of first transverse members, each of which is secured to one of a plurality of support columns and with a plurality of second transverse members secured to certain of the support columns adjacent each other defining a smooth vertical curve varying from the first transverse members and further including a first and second pair of rails adapted to support a load-bearing vehicle secured to the first and second transverse members respectively, and wherein the load-bearing vehicle has an upper and lower set of retractable wheels adapted to cooperatively engage the first and second pair of rails in operable relationship without switching any of the rails to facilitate changing the path of movement of the vehicle.

3,590,744

LOW PROFILE CHAIN FOR FLOOR CONVEYOR SYSTEMS

Roderick S. Galloway, Chalfont; Horace M. Swartz, Doylestown, and Joseph H. Walsh, Doylestown, all of, Pa., assignors to FMC Corporation, San Jose, Calif.
Filed Oct. 10, 1968, Ser. No. 766,425

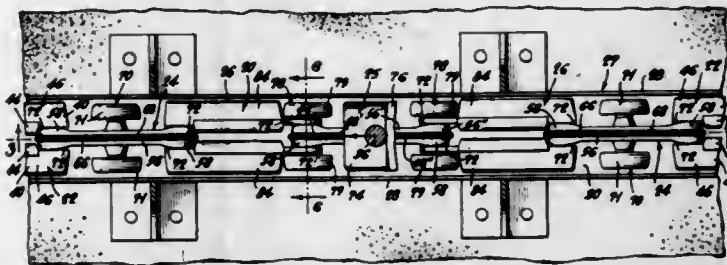
Int. Cl. B65g 17/38

U.S. Cl. 104-172

13 Claims

A conveyor chain adapted for use in a floor-mounted chain guide to engage the tow pin of a truck and move the latter. The chain includes a plurality of links and at least one pusher member, the links and the member being interconnected for relative angular and longitudinal movement. Structure is pro-

vided on the links presenting a substantially longitudinally continuous pin-supporting surface on the chain to prevent



driving engagement between the tow pin and the chain except at the pusher member.

3,590,745

CAR-TYPE CONVEYOR CHAIN

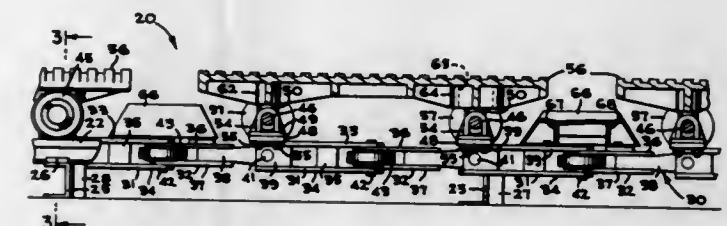
Ralph C. Ouska, Hinsdale, and Frederick L. Smith, Maywood, both of, Ill., assignors to FMC Corporation, San Jose, Calif.

Filed Apr. 2, 1969, Ser. No. 813,813

Int. Cl. B61b 3/00

U.S. Cl. 104-172

12 Claims



A series of roller-supported cars are propelled by a conveyor chain along a track that follows horizontal and vertical curves. The track includes a pair of vertical support rails and a pair of horizontal guides. Each link of the conveyor chain is joined at one end to an adjacent link for pivotal movement in a vertical plane and joined at the other end to an opposite adjacent link for pivotal movement in a horizontal plane. Each joint that pivots in a horizontal plane is supported by a roller traveling between the pair of horizontal guides, while each joint that pivots in a vertical plane is supported by a pair of rollers traveling on the pair of vertical support rails. A top plate is supported by each two pair of rollers on the vertical support rails forming cars for carrying loads and the manner of support does not impart bending stress to the links of the conveyor chain.

3,590,746

SIDEFILLER ASSEMBLY EMBODYING IMPROVED LATCHING MECHANISM

Ben S. Gibson, Comstock Park, Mich., assignor to Evans Products Company

Filed Aug. 11, 1969, Ser. No. 848,843

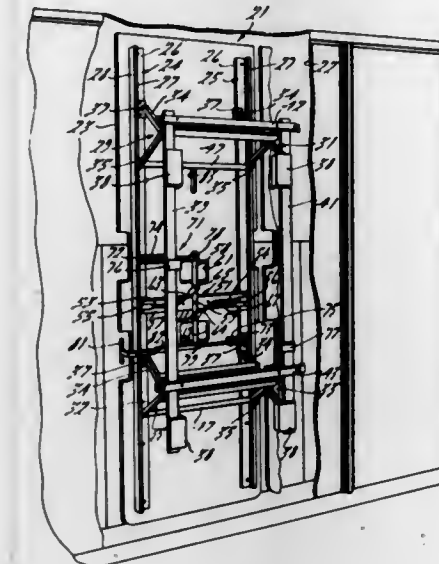
Int. Cl. B61d 45/00; B60p 7/14

U.S. Cl. 105-369 D

9 Claims

A freight bracing sidefiller assembly adapted to engage and brace freight at spaced distances from a cargo area sidewall. The sidefiller assembly is comprised of a bracing panel that is supported by pairs of scissors type linkage assemblies for movement between a storage position adjacent the sidewall and a plurality of bracing positions spaced from the sidewall. A position locking mechanism is incorporated for locking the

panel in selected ones of the bracing positions and a latching mechanism is provided for assisting in the holding of the



panel in its storage position. Both the position locking and the storage latching mechanisms are operated by a single operating handle.

3,590,747

BULKHEAD ASSEMBLY FOR GONDOLA CARS

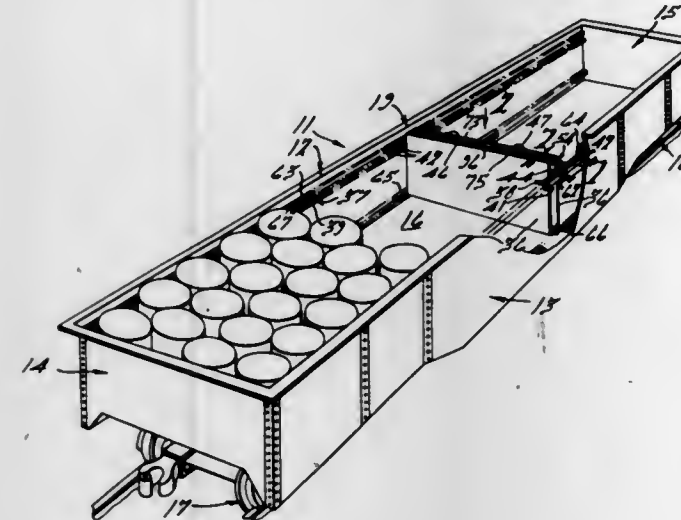
Gerald L. Solomonson, Detroit, and Douglas W. Day, Livonia, both of, Mich., assignors to Evans Products Company

Filed Mar. 11, 1968, Ser. No. 711,991

Int. Cl. B60p 7/14

U.S. Cl. 105-376

20 Claims



A gondola-type railway car and associated bulkhead assembly for bracing freight within the gondola car. The bulkhead assembly is supported for longitudinal movement along the car and carries a locking mechanism for locking the bulkhead assembly in preselected bracing positions longitudinally of the car. The locking mechanism includes an operating handle that is connected to lock pins through an overcenter linkage arrangement so that the lock pins will not become disengaged even if they are subjected to a load in the direction of their released movement. The bulkhead also includes a sprocket wheel and timing shaft arrangement for assisting in its movable support with the locking structure carried by the car assisting with a track structure for precluding accidental disengagement of the sprocket wheels from the track.

3,590,748

MOULDING APPARATUS

Austin Richard Palmer, Longthorpe, England, assignor to Baker Perkins Incorporated, Saginaw, Mich.

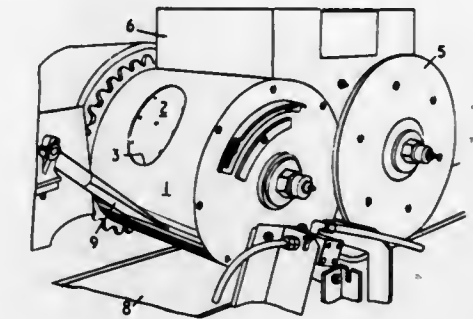
Filed Apr. 15, 1968, Ser. No. 721,394

Claims priority, application Great Britain, Apr. 18, 1967, 17796/67

Int. Cl. A21c 11/00

U.S. Cl. 107-15

5 Claims



Apparatus for moulding pie lids and bases comprises a rotary moulding drum with external moulding cavities from which moulded dough pieces are ejected by the application of compressed air internally of the drum, the ejection being assisted by a jet of compressed air directed along the surface of the drum by a fishtail nozzle, and a control system for synchronizing movements of receiving containers with movements of the drum to provide accurate dough depositing.

3,590,749

PRESS TOY

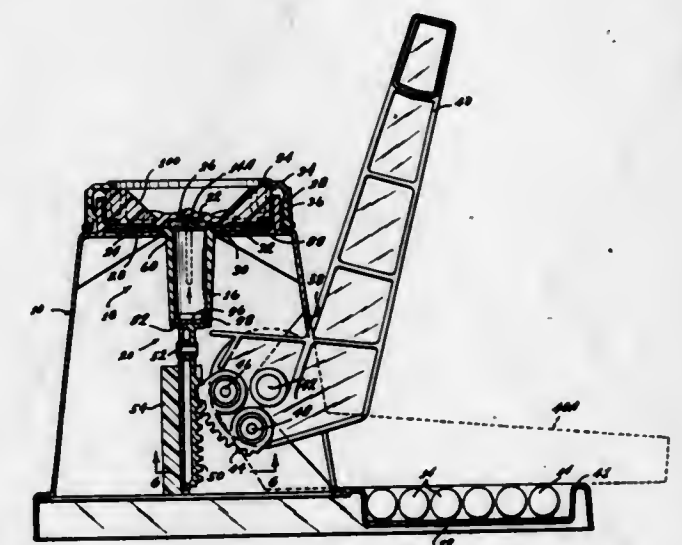
Edgar Burns, Los Angeles; Edwin Otto Stastny, Santa Ana, and Homer S. Davis, Los Angeles, all of, Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Jan. 16, 1969, Ser. No. 791,568

Int. Cl. A47j 43/20

U.S. Cl. 107-15 R

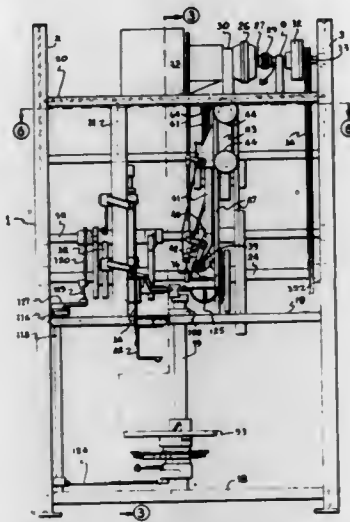
6 Claims



A toy press for molding material such as caramel candy into a predetermined shape comprising a flat plate with an aperture, a cylinder connected to the aperture, and a piston for forcing molding material from the cylinder through the aperture. An interchangeable die which is pressed against the flat plate defines a mold cavity with an outline larger than the aperture in the plate, to permit one-piece dies to be used. The die is transparent or translucent to enable observation of mold filling.

3,590,750
MACHINE FOR MAKING CONSISTENT ICE CREAM CONES
 Pierre Lamy, 4000 Gaboury St., Chomedey, Laval, Quebec, Canada
 Filed Mar. 24, 1969, Ser. No. 809,734
 Int. Cl. A47j 43/28
 U.S. Cl. 107—48 R

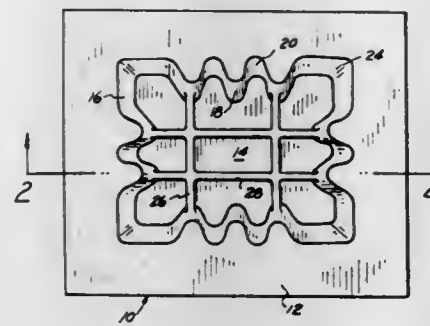
11 Claims



A machine for making consistent ice cream cones wherein a scoop mechanism which is solely vertically movable is adapted to take ice cream from a bulk ice cream supply disposed on a turntable a mechanism being adapted to sequentially rotate and radially shift the turntable and a scooped ice cream transport mechanism being provided to transport the scooped ice cream from the scoop mechanism to a cone support where the scooped ice cream is deposited in an empty cone placed on the cone support.

3,590,751
STRUCTURE
 Jacob Freid, Detroit, and Charles Stanley Porter, Pontiac, both of, Mich., assignors to Atlas Pallet Corp., Pontiac, Mich.
 Filed Dec. 15, 1967, Ser. No. 690,894
 Int. Cl. B65d 19/18
 U.S. Cl. 108—51

9 Claims

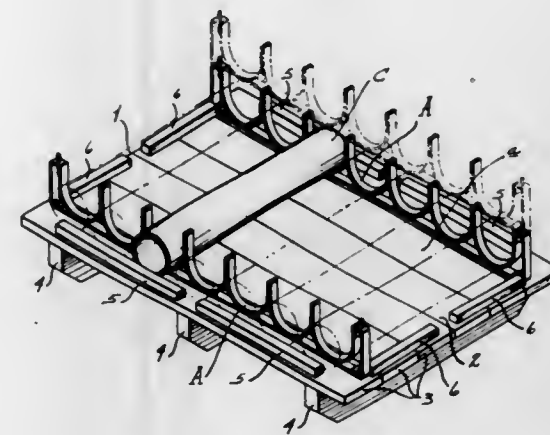


This invention relates generally to cardboard structures, and particularly those for use in industrial pallets. The cardboard structure comprises layers of corrugated cardboard with corrugations running in different directions. This allows the resultant structure to take significant amount of stress in different directions.

A pallet structure utilizing this cardboard also has feet formed from a single sheet of thin plastic material. It is free from sharp corners and stress risers and has ribs and ridges and valleys giving added strength to the resultant structure. A pallet having such feet has stringers made of a sandwich construction of corrugated cardboard covered by layers of corrugated cardboard having corrugations running in a direction perpendicular to the corrugations in the sandwich stringers.

3,590,752
LOADING RACK
 Thomas N. De Pew, 10 Sunningdale Drive, St. Louis, Mo.
 Filed Feb. 19, 1969, Ser. No. 800,503
 Int. Cl. B65d 19/18
 U.S. Cl. 108—53

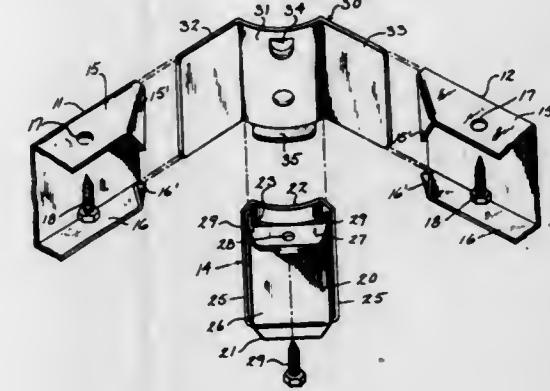
7 Claims



A rack for the shipping and storing of cylindrical objects with their major axes parallel to the support surface comprising an elongated base, a plurality of upwardly opening U-shaped sections presented vertically upon said base and being of a depth greater than the diameter of the object; there being handle-forming portions at each end of the rack for facilitating handling thereof in loaded or unloaded state; and interconnecting, cooperative means provided on said racks for effecting securement between a lower rack and a rack superimposed thereon.

3,590,753
TABLE CORNER ASSEMBLIES
 Robert O. Blink, Greenfield; William C. Lutzke, Milwaukee; Frederick C. Holtz, Milwaukee, all of, Wis., and Robert W. Schler, Cook County, Ill., assignors to Mitchell Manufacturing Co., Milwaukee, Wis.
 Filed Dec. 17, 1969, Ser. No. 885,682
 Int. Cl. A47b 7/02
 U.S. Cl. 108—91

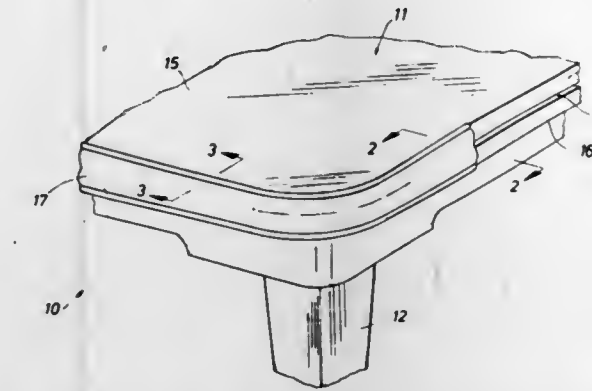
10 Claims



In a table having foldable legs there is provided an apron corner assembly including a resilient molded plastic element fitted over a metal supporting bracket, said bracket having projecting wings retained within the channel-shaped apron members and said plastic corner element being screwed to the underside of the table top to eliminate the need for welding and thereby increasing the variety of apron materials that can be utilized, said resilient corner element including an integral bottom pad which eliminates relative movement or marring of the table surfaces when said tables are folded and stacked or rested against each other.

3,590,754
EDGE BANDINGS FOR ARTICLES OF FURNITURE
 Robert E. Kjer Jakobsen, Compton, Calif., assignor to Daystrom Virtue, Inc., Houston, Tex.
 Filed July 11, 1969, Ser. No. 840,946
 Int. Cl. A47b 13/00
 U.S. Cl. 108—161

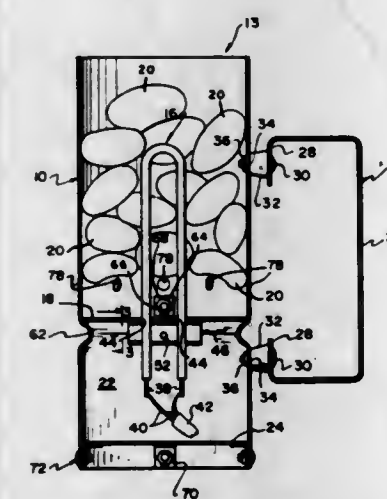
6 Claims



As a preferred embodiment of the invention disclosed herein, a pair of outstanding longitudinal projections or parallel flanges are arranged along the concave rearward face of an elongated banding strip of a deformable material, with one of these flanges being centrally located in relation to the width of the strip and the other of these flanges being located parallel and adjacent to one edge thereof. An article of furniture, such as a chair or table, having a horizontal planar member with an exposed upright edge is prepared for mounting of this elongated strip by cutting an elongated groove along the exposed edge that is parallel to the upper and lower surfaces of the member and sized for receiving the central flange of the banding strip. The elongated strip is then flattened along the exposed grooved edge with its central flange being pressed into the groove and its marginal flange overlapping the underside of the planar member. Once the banding strip is in position, fasteners are driven upwardly at spaced intervals through the marginal flange of the strip into the lower portion of the furniture member and to a depth sufficient to fully penetrate the centrally located flange in the groove and enter the upper portion of the furniture member.

3,590,755
CHARCOAL BRIQUETTE IGNITER
 Michael H. Niemann, 920 Chestnut St., Wisconsin Rapids, Wis.
 Filed Aug. 22, 1969, Ser. No. 852,311
 Int. Cl. F23b 3/00
 U.S. Cl. 110—1 F

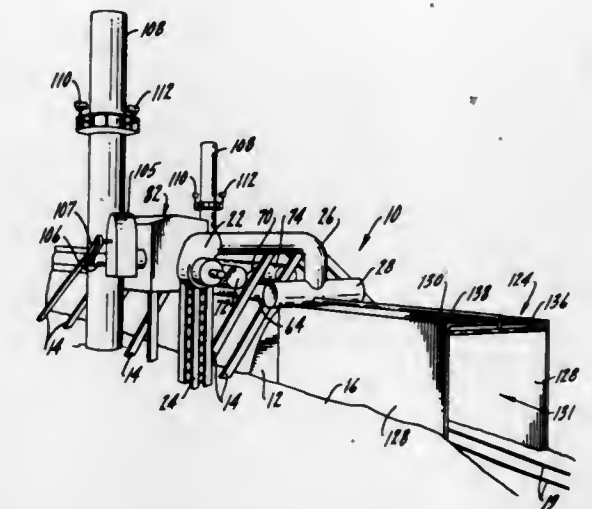
8 Claims



A containerized charcoal briquette igniter including a cylindrical housing for receiving charcoal having an inner bottom, a main bottom, handle and a vertically projecting, electric heating element clamped to the inner bottom and extending along the cylindrical axis of the housing.

3,590,756
INCINERATING METHOD AND APPARATUS
 Walter Erman, Chicago, Ill., assignor to Erman, Incorporated, Chicago, Ill.
 Continuation-in-part of application Ser. No. 695,488, Jan. 3, 1968. This application Apr. 27, 1970, Ser. No. 32,222
 Int. Cl. F23g 7/00
 U.S. Cl. 110—18 C

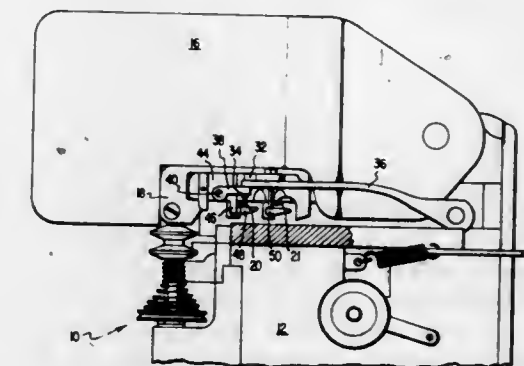
37 Claims



The invention relates to a method and apparatus for incinerating a railroad car in an incineration housing wherein the railroad car is ignited and a stream of air is delivered along the underside of the car while it is being burned. For railroad cars of the type having a center door opening, and as an alternative to, or in addition to, the stream of air on the underside of the car, air is blown into the interior of the car through the door opening during burning. The products of combustion produced during the burning are treated.

3,590,757
CHAINING MECHANISM FOR OVEREDGE SEWING MACHINE
 George B. Armstead, Jr., 89 Harvest Lane, Glastonbury, Conn.
 Continuation-in-part of application Ser. No. 792,654, Jan. 21, 1969, now abandoned. This application May 8, 1970, Ser. No. 35,649
 Int. Cl. D05b 1/20
 U.S. Cl. 112—162

16 Claims



An improved chaining mechanism for an overedge sewing machine having a pair of needles supported in alignment in the direction of feed of work material through the machine for simultaneously penetrating the workpiece at spaced points along the length of a seam formed by the machine. A pair of chaining fingers are provided in alignment in the direction of feed through the machine, and in laterally spaced relation to the needles so that independent stitches formed with respective threads carried by each of the needles may be formed around a separate chaining finger.

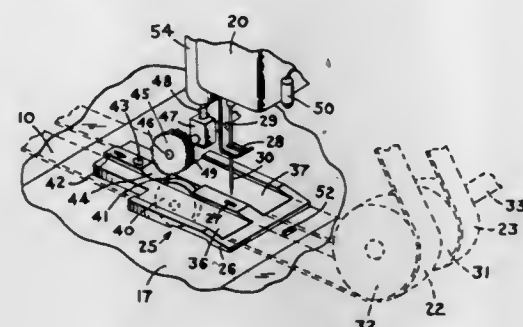
3,590,758

CHAINING AND TRIMMING DEVICE

Francis H. Hughes, and Douglas J. Crawford, both of Troy, N.Y., assignors to Cluett, Peabody & Co., Inc., Troy, N.Y.
Filed Feb. 18, 1970, Ser. No. 12,410
Int. Cl. D05b 65/04

U.S. Cl. 112-252

12 Claims



Apparatus for trimming and chaining threads during the chain stitching of articles. The apparatus includes a feed wheel which interacts with a hard surface to trim the chain thread and with a second wheel to provide chaining. Pneumatic means position the feed wheel for trimming and chaining operations.

3,590,759

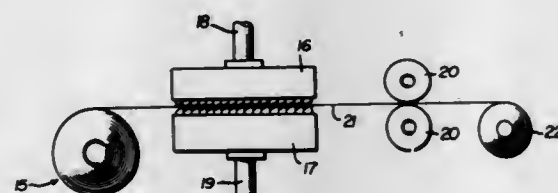
REINFORCING STRIP FOR PLASTIC ARTICLES AND METHOD AND APPARATUS FOR MAKING SAME

George S. Hendrie, Jr., 330 Merriweather Drive, Grosse Pointe Farms, and Louis Truco, 19646 Old Homestead, Harper Woods, both of Mich.

Continuation of application Ser. No. 746,444, July, 1968, now abandoned. This application Nov. 19, 1969, Ser. No. 871,674
Int. Cl. B21d 28/00

U.S. Cl. 113-116

2 Claims



The present disclosure relates to a method of and apparatus for making a reinforcing strip for plastic articles and to such a strip. The strip comprises a series of individual slats projecting to either side of a medial joining portion securing the slats together in accurately spaced relationship, the medial portion being of reduced thickness and being previously stretched to provide a frangible connection. The strip is manufactured by slitting the strip from opposite edges toward the medial portion to form the slats, deflecting the slats to lie parallel with one another and at an angle to the plane of the initial strip while stretching and coining the medial joining portion. The angularly deflected slats are then reformed to a single plane, so the slats are spaced apart throughout the distance to which the medial joining portions have been stretched. The apparatus is primarily a pair of cooperable dies having cooperative slitting edges and deflecting surfaces for deflecting the slit slats and medial stretching and coining portions at which the medial portion of the strip is formed, together with a final straightening device for deflecting the slats back to their planar alignment.

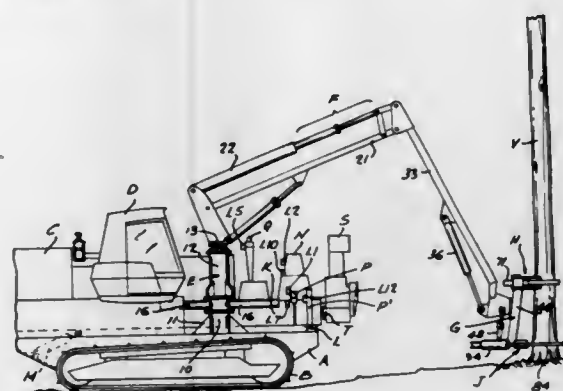
3,590,760

TIMBER-HARVESTING MACHINE AND METHOD

John H. Boyd, Woodstock, Ontario, and James K. Robinson, Dryden, Ontario, both of Canada, assignors to Timberjack Machines Limited, Woodstock, Ontario, Canada
Filed July 22, 1968, Ser. No. 746,416
Int. Cl. A01g 23/02

U.S. Cl. 144-3 D

7 Claims



A self-propelled vehicle carries an extensible boom on the end of which there is mounted an assembly for grasping and felling a tree. The boom retracts to convey the felled tree to a processing platform on the vehicle. While the tree is being processed (delimbed and bucked into bolts) the boom returns to fell a second tree thus avoiding idle time. Delimbing is carried out by a delimbing head that slides out along the felled tree while it lies horizontally with one end clamped on the platform. The delimbing head then retracts to propel the tree back onto the platform where the delimbed portion is cut off to form a bolt, this process being repeated.

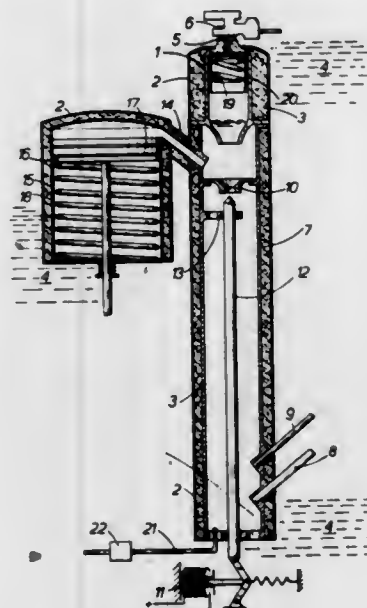
3,590,761

UNDERWATER GENERATION OF GAS

Grevis Hardie Parkes, 5 Stanhope Lodge, Queens Road, West Cowes, Isle of Wight, England
Filed Nov. 21, 1968, Ser. No. 777,769
Int. Cl. B63g 8/00

U.S. Cl. 114-16

26 Claims



A submersible system for converting liquid monofuel into gas comprises a fuel storage tank, a combustion chamber for the fuel, a variable-delivery fuel pump operable to deliver a quantity of fuel to the combustion chamber and means for distributing gas generated by decomposition of the fuel, the combustion space within the combustion chamber being subjected to the local ambient hydrostatic pressure of the water in which the system is submerged.

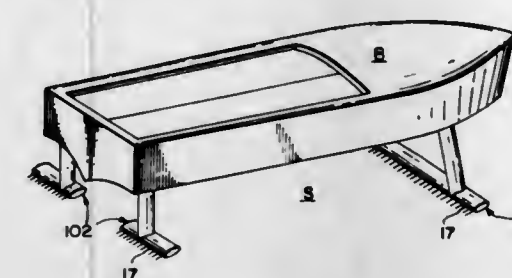
3,590,762

JET CIRCULATION CONTROL VEHICLE

Shao Wen Yuan, 3536 Hamlet Place, Chevy Chase, Md.
Continuation-in-part of application Ser. No. 669,080, Sept. 20, 1967, now Patent No. 3,472,192. This application Oct. 13, 1969, Ser. No. 865,936
Int. Cl. B63b 1/24

U.S. Cl. 114-66.5 H

24 Claims



This invention is for vehicles of practically all types, including land- and water-based vehicles, equipped with hydro/air foil generally of the oval shape with slotted trailing edge for jet flow therefrom and circulation control of the flow around the foil to impart very high lift to the foil for controlling the vehicle without the necessity of changing the angle of attack of the foil.

3,590,763

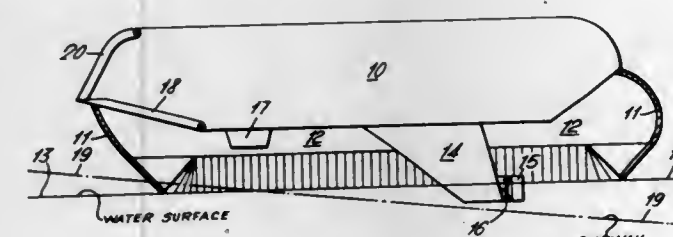
GAS-CUSHION VEHICLES

Rowland Delville Hunt, Portsmouth, England, assignor to Vosper Limited
Filed Oct. 21, 1968, Ser. No. 769,075

Claims priority, application Great Britain, Nov. 8, 1967, 67/50840
Int. Cl. B63b 1/34

U.S. Cl. 114-67

5 Claims



A gas-cushion vehicle having a hull provided with supports adjacent the bow and skegs adjacent the stern upon which the vehicle can rest stably on a solid surface when the supply of gas to the cushion space is cutoff.

3,590,764

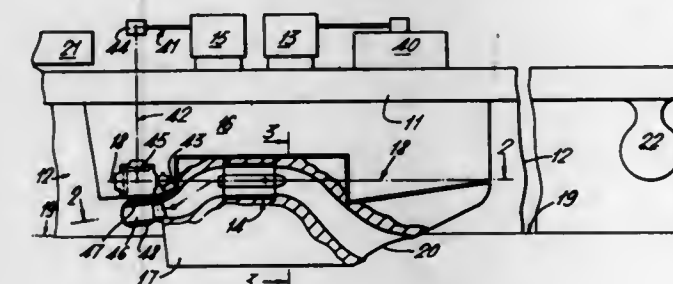
GAS-CUSHION VEHICLES

Rowland D. Hunt, Fareham, England, assignor to Vosper Limited
Filed Dec. 31, 1968, Ser. No. 788,232

Claims priority, application Great Britain, Jan. 11, 1968, 1624/68
Int. Cl. B63b 1/38

U.S. Cl. 114-67

10 Claims



A water reaction propulsion mechanism for the vehicle is housed within a skeg or keel-like member located within the

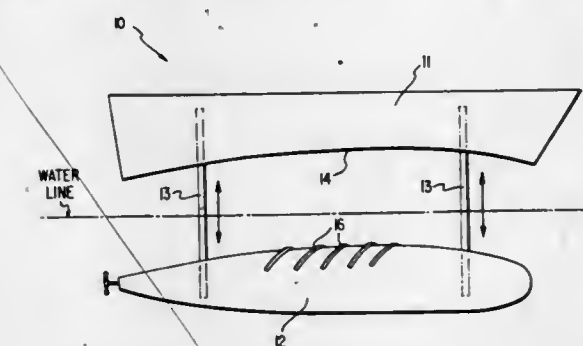
3,590,765

MODULAR HULL VESSEL AND METHOD OF OPERATION

Gabriel V. De Lizasoain, Rockville, Md., assignor to Tecnico, Inc., Washington, D.C.
Filed Mar. 13, 1968, Ser. No. 712,846
Int. Cl. B63b 3/02, 1/18

U.S. Cl. 114-77

5 Claims



A waterborne vessel having a personnel and/or cargo carrier surface hull module, which normally seats on the surface of the water when at rest, is connected by depending struts to a submerged displacement hull module which contains the vessel engines, and its propulsion and steering means, and which provides a substantial portion of the buoyancy for the entire vessel. The struts are designed for extension and retraction so that the displacement hull module may be raised or lowered. The displacement hull module is constituted as a hydrodynamic lift body which, when in lowered position while the vessel is underway, lifts and maintains the entire personnel hull module out of the water to a height at which its bottom is out of contact with the surface of the water and above the crests of any waves thereon. When the vessel is docked or operating in shoal water the displacement hull module is positioned in substantial mating engagement with the bottom of the personnel hull module.

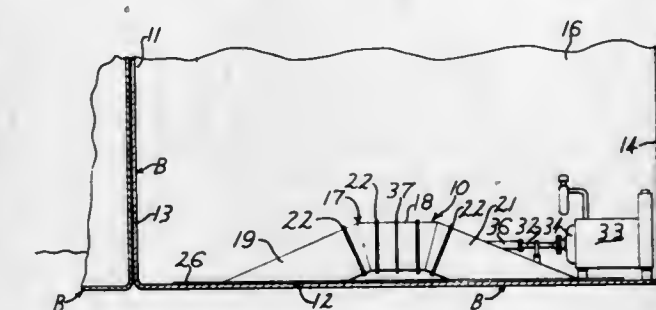
3,590,766

STEERING UNIT FOR BARGES AND THE LIKE

William M. Jackson, Greenville, Ala., assignor to Hydro-Vac, Inc.
Filed Feb. 25, 1969, Ser. No. 802,187
Int. Cl. B63h 25/46

U.S. Cl. 114-151

1 Claim

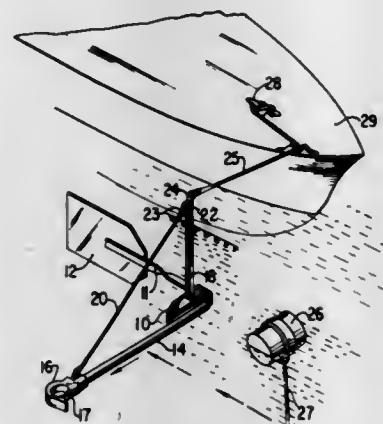


Steering unit for barges and the like having bottom and up-standing sides. Tube carried by barge extends transversely thereof with intermediate portion of tube communicating with downwardly and outwardly extending end portions terminating adjacent elevation of barge bottom. Propeller unit within tube moves water selectively in opposite directions to move adjacent portion of barge in opposite directions. Baffles adjacent side of propeller direct water toward the leading faces or propeller as water flows in direction to position baffle on suction side of propeller.

3,590,767 MOORING CABLE PICKUP DEVICE

Charles C. Dunbar, 62 Bowdoin St., Portland, Maine
Filed June 13, 1969, Ser. No. 833,083
Int. Cl. B63b 21/00
U.S. Cl. 114-230

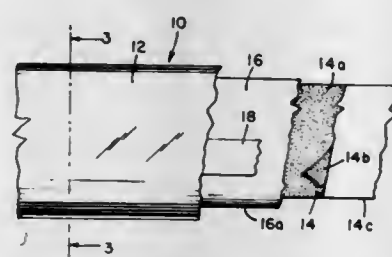
9 Claims



A device is provided whereby a mooring cable may be picked up from a boat approaching a mooring. The device comprises a hook-presenting horizontally disposed hook arm; a horizontally disposed vane-carrying arm having a vertical vane secured to the remote end thereof, each arm being secured to a body member; and said device also comprises a vertically disposed suspending arm to the lower end of which the body member is attached and to the upper end of which a tie member is attached that extends to adjacent the extremity of the hook arm. Means is provided for attaching a towline to the upper end of the suspending arm.

3,590,768
COMBINATION DECORATIVE AND REFLECTIVE STRIP
Victor Shanok, and Jesse P. Shanok, both of Brooklyn, N.Y.,
assignors to Glass Laboratories Company
Filed Jan. 2, 1969, Ser. No. 788,578
Int. Cl. B32b 15/08; B60g 1/26; E04f 19/02
U.S. Cl. 116-28

6 Claims



A combination decorative and reflective strip intended for use as border trim for an automobile rear window or at some other such advantageous location wherein said strip, which includes an encapsulated aluminum foil, during daylight simulates the appearance of chromium trim and at night has an encapsulated strip of reflective tape which reflects light impinging thereon to thereby provide a significant safety function.

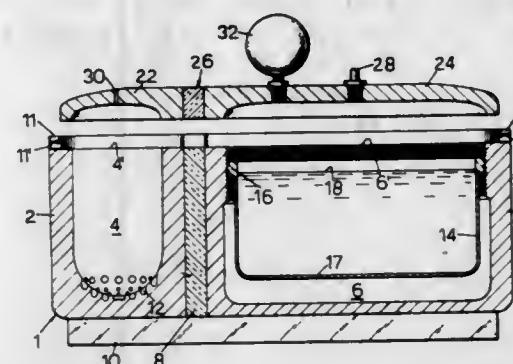
3,590,769
COOKING VESSEL WITH ELAPSED TIME INDICATOR
Shaul Ladany, 71 Reehov Aluf David, Ramat Gan, Israel
Filed May 15, 1970, Ser. No. 37,699
Int. Cl. G08b 17/04

U.S. Cl. 116-103

6 Claims

A cooking vessel for cooking an article, particularly an egg, and for providing a signal when a predetermined time of cooking has elapsed, comprises a container having a cooking

compartment to contain the egg and water, and a signalling compartment to contain a larger quantity of water which is

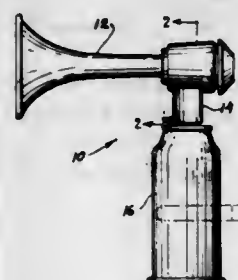


brought to a boiling point when a predetermined time has elapsed after the water in the cooking compartment begins to boil.

3,590,770
FIRE ALARM
William Wagner, c/o Watsco Inc. 1800 West Fourth Ave., Hialeah, Fla.
Filed Oct. 29, 1969, Ser. No. 872,193
Int. Cl. G08b 21/00

U.S. Cl. 116-112

2 Claims

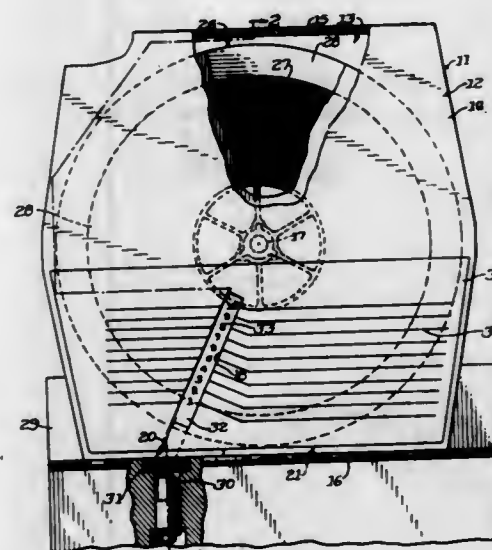


A self-contained fire alarm including a horn, a container for a pressurized propellant to sound the horn and self-operating valve means connecting between the horn and the container. The valve means consists of a guided spring-urged valve acting against propellant pressure.

3,590,771
SCENE FINDER FOR PROJECTOR CARTRIDGE
James J. Lutsch, Glenview, Ill., assignor to Bell & Howell Company, Chicago, Ill.
Filed June 26, 1970, Ser. No. 50,269
Int. Cl. G01b 21/00

U.S. Cl. 116-114 J

5 Claims



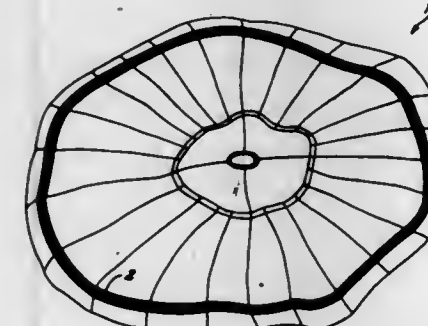
A cartridge adapted for mounting on a projector encloses a rotatably mounted reel on which film is wound. A light

source, which is preferably mounted in the projector frame, registers with an opening in one edge of the cartridge to light the space within the cartridge between the peripheral surface of a portion of the film wound on the reel and the adjacent walls of the cartridge. One face of the cartridge is provided with a radially disposed slot having its outer end adjacent the light source. A transparent or translucent indicator scale is mounted on one face of the cartridge in position to cover the slot so that the portion of the indicator scale extending radially beyond the outer perimeter of the film wound on the reel is illuminated by the light within the cartridge. An index covering part of the one face of the cartridge, but having an opening through which the indicator scale is exposed comprises parallel lines intersecting various indicia on said scale, whereby scene sequences identified by short descriptions entered on said lines are keyed directly to specific indicia on the scale.

3,590,772
PARACHUTE APPARATUS AND NONDESTRUCTIVE
METHOD OF TESTING SAME
Jay D. Boone, Seeley, Calif.
Filed Apr. 4, 1968, Ser. No. 718,762
Int. Cl. G01d 21/00

U.S. Cl. 116-114

11 Claims

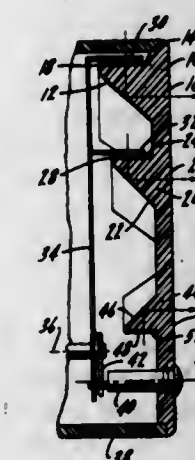


The breaking strength of parachute materials degrades when the materials are exposed to sunlight. Certain dyestuffs also are sensitive to sunlight and exhibit color variations upon exposure. By selecting the proper dyestuff with regard to the minimum acceptable degradation of breaking strength, the degree of degradation can be ascertained nondestructively by detecting color variations in the dyestuff. Various techniques can be employed to permit reliable detection.

3,590,773
ARCuate PRISM DISPLAY
Albert L. Ruppert, Middleton, Wis., assignor to Oak Electro-Netics Corporation, Crystal Lake, Ill.
Continuation-in-part of application Ser. No. 747,717, July 25, 1968. This application May 19, 1969, Ser. No. 825,499
Int. Cl. G09f 9/00

U.S. Cl. 116-129

15 Claims



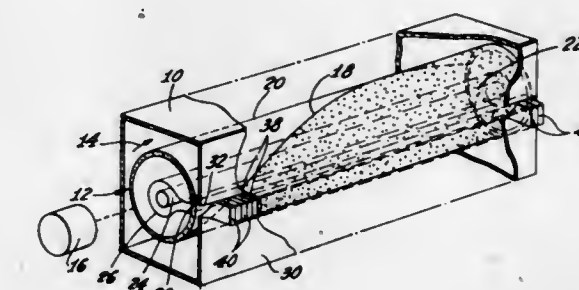
A display device using an arcuate-shaped prism having an object surface, an arcuate-reflecting surface and an image

surface. There is fixed indicia positioned adjacent the object surface and movable indicator members arranged to move in a path adjacent the object surface such that the display at the image surface will provide useful information in the form of the relationship between the fixed indicia and movable indicator members.

3,590,774
LINEAR METER
Samuel Solow, 5451 Eau Claire Drive, Rollings Hills, Calif.
Filed May 29, 1968, Ser. No. 733,079
Int. Cl. G09f 9/00

U.S. Cl. 116-129

3 Claims



The present invention is directed to a linear meter for producing a linear indication from a rotatable movement and specifically to the type of linear meter including a cylindrical member. The cylindrical member is rotated about a central axis and progressive portions of a helical line on the surface of the cylindrical member present a linear display along a display line which is parallel to the axis of rotation of the cylindrical member. A plurality of individual light transmission means is positioned adjacent to the display line for transmitting the linear display to produce a crisp and clear output indication. Specifically, the individual light transmission means may include vertical light-conducting members separated by baffles and having twisted inner ends so that the inner ends are aligned with the slanted helical line on the cylindrical member. Also, the plurality of individual light transmission means may be small light pipes for transmitting the light energy to produce the output indication. The walls of the inner ends of both types of the light transmission means may include surfaces which absorb light energy so that only light substantially parallel to the light-absorbing surfaces would be passed through the light transmission means. Other aspects of the invention include the use of direct or reflected light to produce the output indication from the helical line on the cylindrical member. Also, the output indication from the linear meter of the present invention may consist of an increasingly larger light or dark area or may consist of a moving dot or line. The invention also includes the use of a photosensitive material located on one surface of the individual light transmission means so that an output signal, in accordance with the output indication, may be produced. Further, the invention includes the use of electroluminescent material electrically controlled by the activation of the photosensitive so as to produce a remote display or a larger display than could be achieved with the light transmission means alone. A further aspect of the invention includes a compact structure wherein means for driving the cylindrical member are located within the cylindrical member and include a d'Arsonval meter drive.

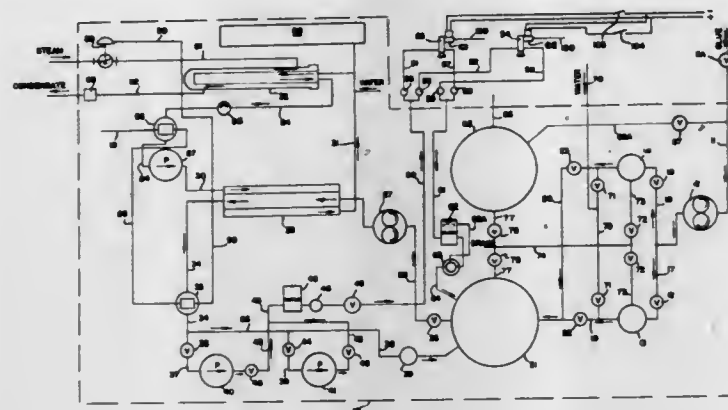
3,590,775
GLUE SPRAY SYSTEM
Stuart W. Barr, 2940 19th St. West, Eugene, Oreg.
Filed Feb. 26, 1968, Ser. No. 708,092
Int. Cl. B05c 11/10

U.S. Cl. 118-5

3 Claims

A glue spray system is disclosed providing for the filtering, heating and pressurizing of viscous glue material preparatory

to discharge thereof onto a surface. The glue is pressurized to the extent that a shaped discharge flow from a spray nozzle deposited on an article. By utilizing constant electron beam



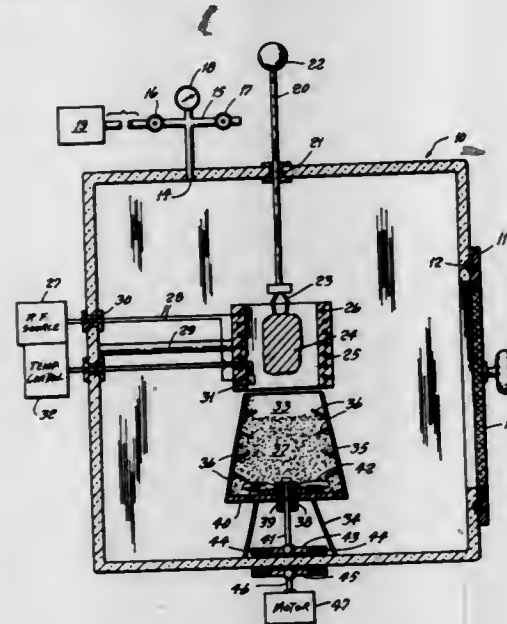
may cover a width of several feet such as, for example, the width or length of a veneer sheet in a plywood layup operation.

3,590,776

VACUUM FLUIDIZED-BED COATING APPARATUS
Sidney Tudor, Williston Park, and Jack Mironov, Mount Vernon, both of, N.Y.

Filed Mar. 24, 1969, Ser. No. 809,559
Int. Cl. B05c 11/12

U.S. Cl. 118-5



A sealed chamber having means for evacuating the same and including means for suspending therein a workpiece to be coated and providing for the heating of said workpiece. A lower portion of said chamber contains the material for coating in fluidizable powder form. The coating powder is agitated and thereby fluidized the workpiece lowered and brought into direct contact with the fluidized bed while it is heated and the chamber is under vacuum. The workpiece is then raised and reheated to cure the powder adhering thereto. Additionally a partial vacuum is maintained by admitting a gas into the chamber while it is being evacuated at a greater rate.

3,590,777

INGOT FEED DRIVE

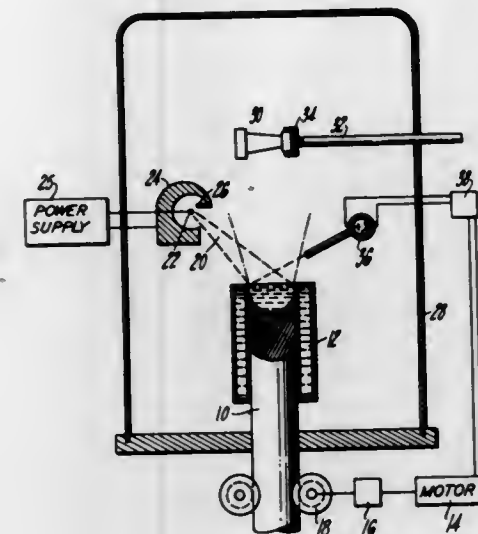
Richard C. Elam, Rockville, and Frank P. Talboom, Jr., Glastonbury, both of, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Mar. 13, 1969, Ser. No. 806,957
Int. Cl. B05c 11/10

U.S. Cl. 118-7

Apparatus for controlling the feed rate of a bar of coating alloy into the crucible from which the alloy is vaporized to be

power and maintaining constant pool height a constant evaporation rate and constant vapor chemistry is achieved.



3,590,778

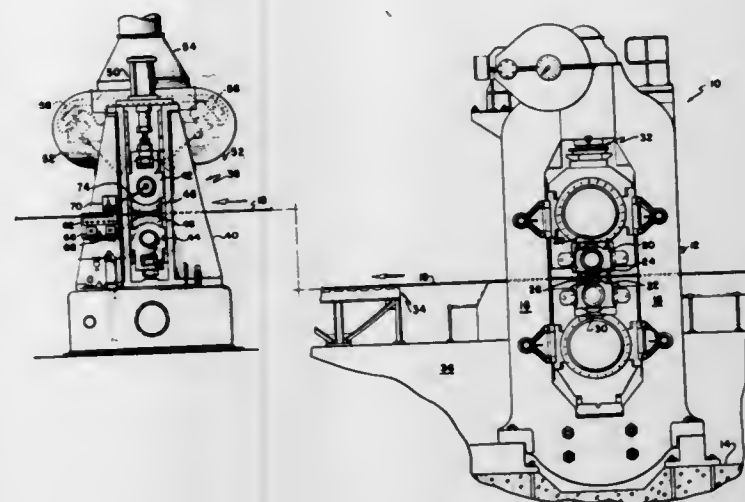
WEB COATING CONTROL

Henry J. Mozzi, Jr., Chicago, Ill., assignor to Stewart-Warner Corporation, Chicago, Ill.

Filed July 10, 1968, Ser. No. 743,728
Int. Cl. B05c 11/02

U.S. Cl. 118-8

4 Claims



The following specification describes an arrangement for applying a uniform oil coating of selected thickness to a steel web moving at variable speed past an absorbent roll which coats the web with oil. The roll travels the same distance as the web and drives a counter for counting a predetermined number of web lengths irrespective of web speed. A selected quantity of oil is sprayed on the roll under control of a timer after a predetermined number of web lengths are counted to ensure that the quantity of oil sprayed corresponds to a predetermined web length for providing a uniform oil coat of selected thickness irrespective of web speed.

3,590,779

PAINT SPRAY MASKING APPARATUS

Edward L. Rich, 3980 Peppermill Lane, Bay City, Mich.

Filed Mar. 13, 1969, Ser. No. 807,776
Int. Cl. B05c 5/00

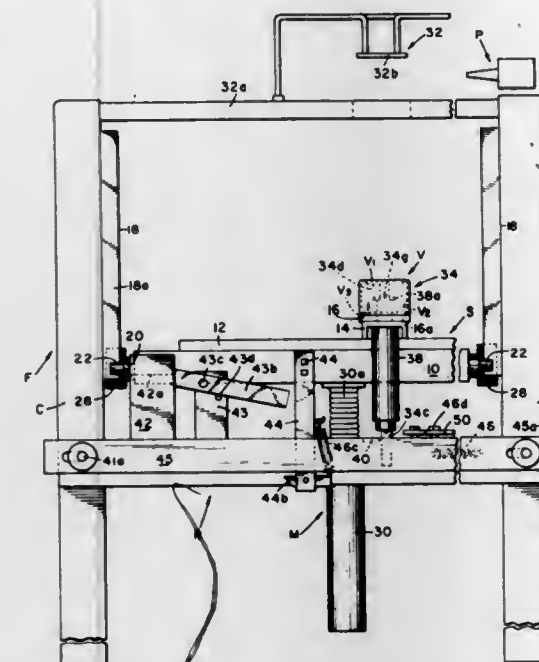
U.S. Cl. 118-301

12 Claims

Paint spray masking mechanism useful in the spraying of parts which must be partially masked prior to spraying. After

the vessel is sprayed and removed from the mask, a stripper mechanism engages the inner surface of the part and raises it

the guard in vertical alignment therewith. And means is provided for preventing the passage of a squirrel through the interior of the guard and for suspending the guard from a support.



from its support so that the part can be removed without disturbing the wet spray.

3,590,780

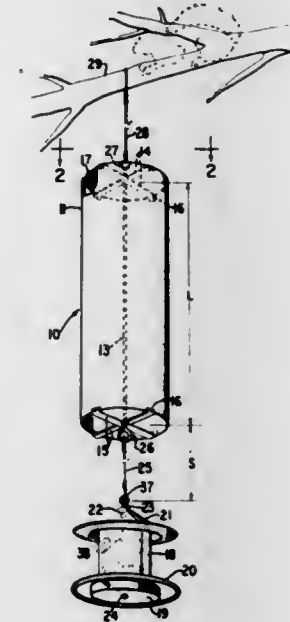
BIRD FEEDER

Charles C. Dunbar, 62 Bowdoin St., Portland, Maine

Filed Dec. 16, 1969, Ser. No. 885,468
Int. Cl. A01k 05/00

U.S. Cl. 119-51

5 Claims



A bird feeder providing protection against theft of bird feed by squirrels is disclosed which comprises in combination a feeding device having a feeding zone accessible to birds and a drum-shaped guard presenting an at least approximately cylindrical vertical surface at least approximately 6 inches in diameter and at least approximately 18 inches in length. Means is provided which suspends the feeding device below the guard with the center of the feeding device substantially in alignment with the projected axis of the guard and with the uppermost portion of the feeding device spaced from the lowermost portion of the guard by a distance not greater than about the diameter of the guard, the spacing of the outermost extremity of the feeding device radially from the projected axis of the guard being not more than approximately 1 inch greater than that of the portion of the peripheral surface of

3,590,781

NIPPLE VALVES

Thomas H. N. Spencer, Ramley House, Pennington, Lymington, England

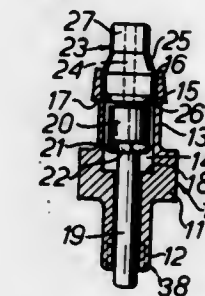
Filed Apr. 18, 1969, Ser. No. 817,323

Claims priority, application Great Britain, Apr. 25, 1968, 68/19,561

Int. Cl. A01k 07/00

U.S. Cl. 119-72.5

8 Claims



In a nipple valve for use in drinking water supply systems for birds and of the type operated by a pin which projects out of an outlet of the valve and has a valve head which normally cooperates with a seating in a valve chamber in the valve body to close off the outlet and prevent passage of water out of the valve, the provision of an inlet port at the body by way of which water enters into the chamber and with which the valvehead cooperates when the pin is operated so as to prevent water entering into the chamber while the outlet is open.

3,590,782

RESTRICTED OSCILLATING TYPE SUSPENDED POULTRY DRINKING FOUNTAIN

Itzhak Kantor, Doar Na Menashe, Hof Hacarmel, Israel, assignor to Plasson Maagan Michael Industrial Ltd., Doar Na Menashe, Hof Hacarmel, Israel

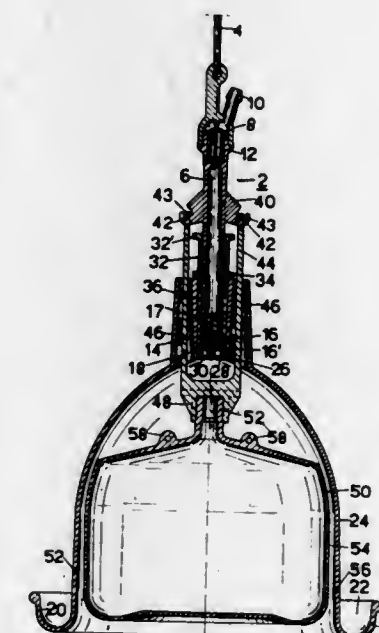
Filed May 8, 1969, Ser. No. 823,061

Claims priority, application Great Britain, May 15, 1968, 23004/68

Int. Cl. A01k 07/00

U.S. Cl. 119-81

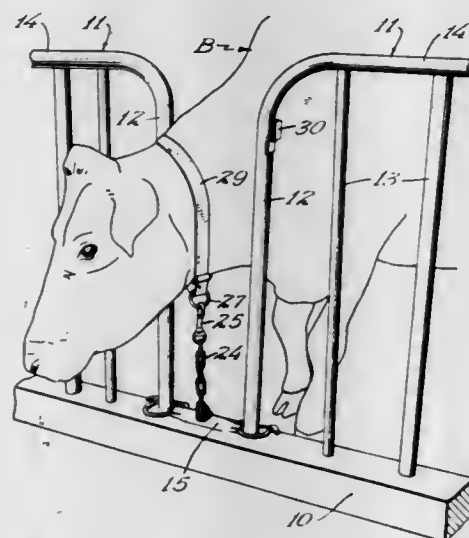
4 Claims



A suspension-type poultry drinking fountain comprises a water trough, a valve, a freely swinging hanger supporting the trough in freely swinging suspension, a resilient mounting

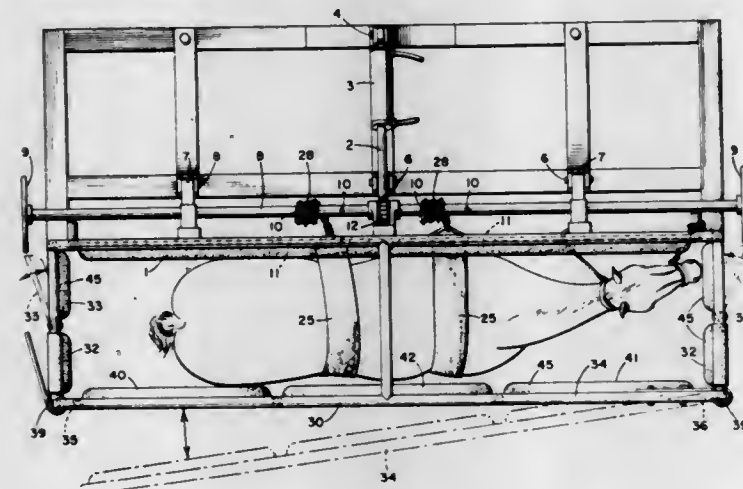
suspending a trough from the hanger such that when the water in the trough drops below a predetermined quantity the trough rises and opens the valve to permit more water to flow to the trough, and a mounting for supporting a weight, the weight mounting being attached directly to the hanger independently of the resilient mounting, whereby the weight minimizes swinging of the hanger and trough but does not affect the sensitivity of the resilient mounting of the trough for operating the valve.

3,590,783
SAFETY COW TIE
Ray E. Purgett, Route 2, Owen, Wis.
Filed June 11, 1969, Ser. No. 832,064
Int. Cl. A01k 01/06
U.S. Cl. 119-119 4 Claims



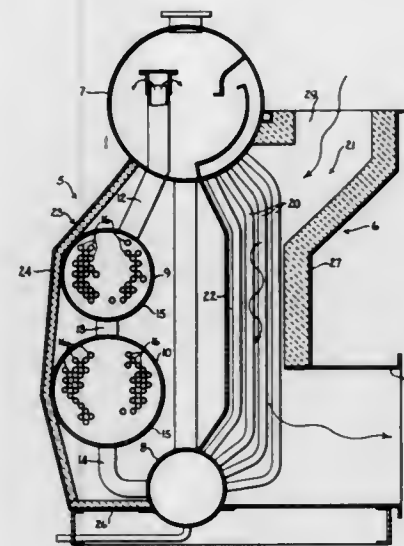
A cow-tie is provided including a tie bar having parallel U-shaped members at its ends which are detachably mounted on spaced stanchion bars of a stall. A flexible chain connects a center portion of the tie bar to a member encircling the neck of the cow. Movements of the head of the cow may slide the ends of the tie bar vertically along the stanchion bar.

3,590,784
LIVESTOCK TIPPING TABLE AND STALL
Howard Gene Fly, Box 33, Ovando, Mont.
Filed Apr. 25, 1969, Ser. No. 819,389
Int. Cl. A61d 03/00
U.S. Cl. 119-103 16 Claims



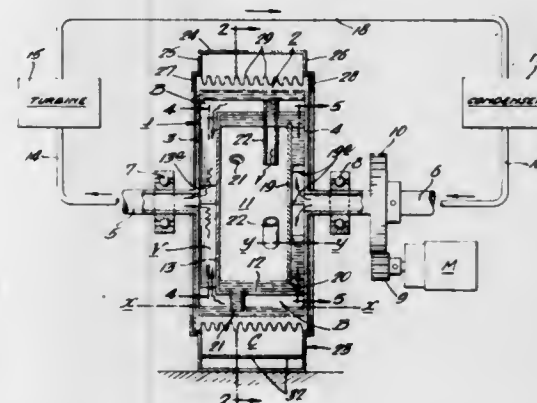
An improved livestock-tipping table and a stall associated therewith.

3,590,785
COMBINATION FIRE TUBE AND WATER TUBE BOILER
Denis G. Csathy, Minneapolis, Minn., assignor to Ray Go, Inc., Minneapolis, Minn.
Filed Feb. 26, 1970, Ser. No. 14,432
Int. Cl. F22b 1/18
U.S. Cl. 122-7 13 Claims



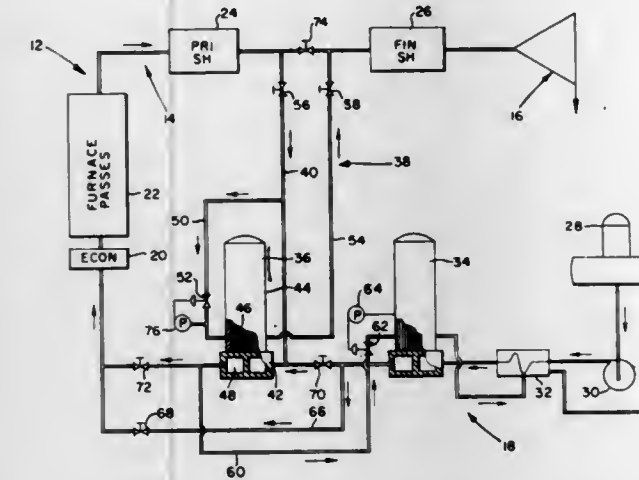
Fire tube and water tube boilers are mounted on opposite sides of one upright wall of a casing and connected to common mud and steam drums. The drums are communicated by downcomers which, together with fire tube boilers, are confined in a dead air space within the casing. The water tube boiler is mounted in an upright position in a gas pass on the exterior of the casing at one side thereof.

3,590,786
ROTARY BOILER
William A. Doerner, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 18, 1970, Ser. No. 12,296
Int. Cl. F22b 5/00
U.S. Cl. 122-11 17 Claims



A rotary boiler comprising an outer annular boiler chamber and an inner cylindrical liquid supply chamber coaxially arranged to rotate together about a common axis. The boiler is rotated at a predetermined speed to maintain an annular body of liquid of uniform radial depth circumferentially about the inner peripheral surface of the boiler chamber and a similar annular body of liquid in the supply chamber. Radially extending feed conduits are provided to supply liquid from the inner chamber to the boiler chamber. Liquid flow through the feed conduits from the supply chamber to the boiler chamber is controlled by radially extending sensor conduits that interconnect said chambers and function in cooperation with the feed conduits automatically to maintain the radial depth of the annular body of liquid in the boiler chamber at the desired predetermined level during operation of the boiler.

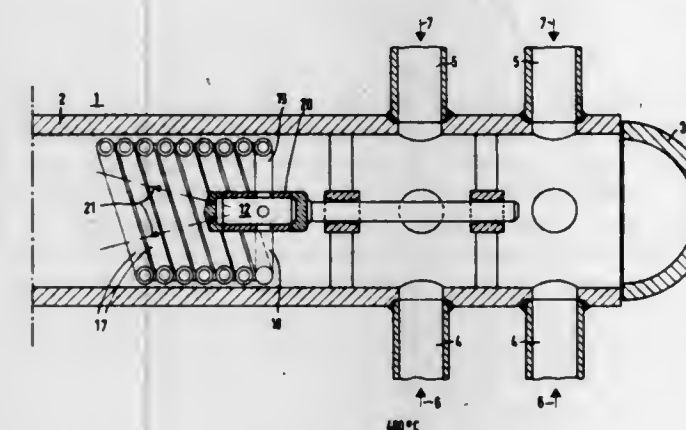
3,590,787
STARTUP SYSTEM
William D. Stevens, North Caldwell, N.J., assignor to Foster Wheeler Corporation, Livingston, N.J.
Filed July 16, 1969, Ser. No. 842,283
Int. Cl. F22b 35/14
U.S. Cl. 122-406 5 Claims



An improved startup system for a vapor generator of the once-through type. The system includes a startup bypass line which leads directly to the tube side of a shell and tube feedwater heater for the generator feedwater circuit, from certain heating passes of the generator main flow circuit; a branch line which leads from the bypass line to the shell side of the heater; and a return line which returns the flow from the heater shell side back to the generator main flow circuit downstream of the bypass line. A pressure reducing valve in the branch line reduces the pressure of the fluid flowing therein lowering its temperature for heat exchange with fluid on the tube side of the heater.

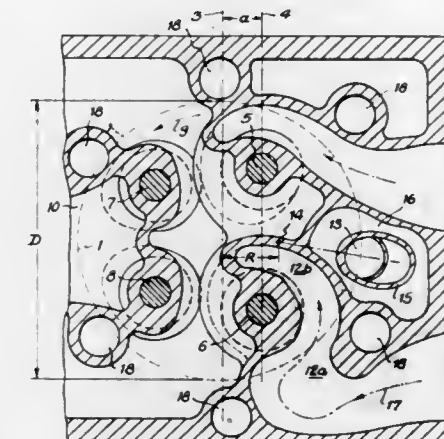
The feedwater circuit of the generator includes a bypass around the heater, the generator further having shutoff valves in both the startup system and feedwater circuit for isolating the heater from one or the other of the main flow or feedwater circuits depending upon use of the heater.

3,590,788
INJECTION COOLER FOR STEAM POWER PLANT
Rupprecht Michel, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed May 14, 1969, Ser. No. 824,561
Claims priority, application Austria, May 16, 1968, A 4730/68
Int. Cl. F22g 5/12
U.S. Cl. 122-487 10 Claims



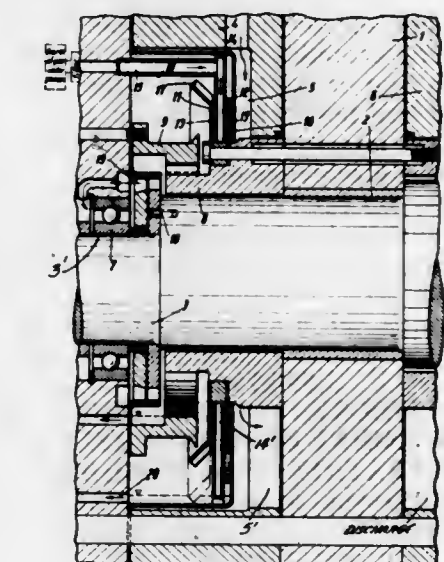
Injection cooler for steam power plants includes a substantially hollow tubular member having a steam inlet and traversable by cooling steam supplied thereto through the steam inlet, at least one nozzle located in the tubular member in the vicinity of the steam inlet, and passage means disposed along the inner surface of the tubular member for supplying injection water to the nozzle.

3,590,789
CYLINDER HEAD FOR A FUEL INJECTION INTERNAL COMBUSTION ENGINE
Klaus Wiebicke, and Georg Jaekel, both of Nurnberg, Germany, assignors to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Nurnberg, Germany
Filed Feb. 6, 1970, Ser. No. 9,164
Claims priority, application Germany, Feb. 8, 1969, P 19 06 443.8
Int. Cl. F02b 3/00, 23/00
U.S. Cl. 123-30 1 Claim



Two intake air valves are used to produce a unidirectional air swirl in the cylinder of a fuel injection internal combustion engine. The air swirl velocity profile lies between $v = \text{constant}$ and $v/r = \text{constant}$ wherein v is the air swirl velocity and r is the cylinder radius.

3,590,790
CONTACT-FREE OIL SEAL FOR ROTARY PISTON INTERNAL COMBUSTION ENGINES
Hans Keywert, and Hubert Abermeth, both of Cologne, Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne-Deutz, Germany
Filed Aug. 19, 1969, Ser. No. 851,200
Claims priority, application Germany, Sept. 7, 1968, P 17 76 037.1
Int. Cl. F02b 53/00; F16c 33/74
U.S. Cl. 123-8.01 6 Claims



A contact-free oil seal for rotary piston internal combustion engines in which between the piston and the transmission there are provided feeding and discharge conduit means for the gas change, or in other words, procedure that fresh air respectively fuel-air mixture is supplied into the combustion chamber and the exhaust gases pushed out. These conduit means are separated from the transmission chamber by an oil seal having at least two axially spaced discs connected to the piston and with narrow axial play

slidingly engaging the outer wall of an annular blocking chamber connected to the housing and adapted to be placed into communication with a source of fluid pressure.

3,590,791

INTERNAL COMBUSTION ENGINE AND FUEL INJECTION SYSTEM THEREFOR

Vernon D. Roosa, Hartford Machine Screw Company P.O. Box 1440, West Hartford, Conn.

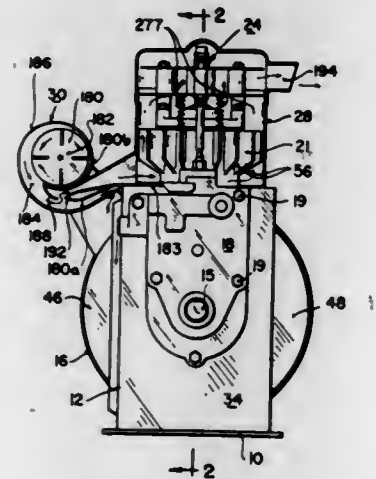
Division of Ser. No. 615,782, Feb. 13, 1967, Pat. No. 3,450,121. This application June 2, 1969, Ser. No. 850,276

1969, Ser. No. 850,276

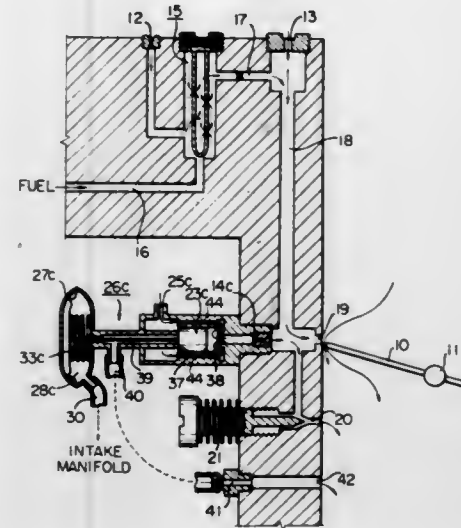
Int. Cl. F02d 1/00

U.S. Cl. 123-79

13 Claims



vacuum and means for introducing atmospheric air into the intake manifold concurrently with the reduction in the pro-



portion of air in the air-fuel mixture thereby to reduce the intake manifold vacuum.

3,590,793

APPARATUS FOR REDUCING HYDROCARBON CONTENT OF ENGINE EXHAUST GASES DURING DECELERATION OF AUTOMOBILE

Kenji Masaki, Tokyo, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

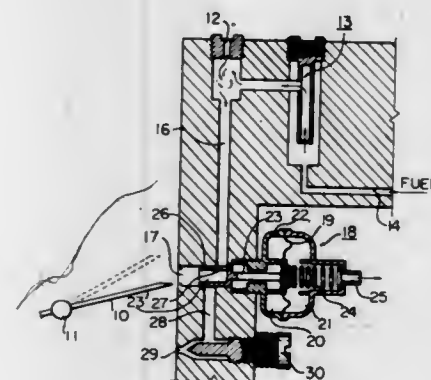
Filed Dec. 5, 1968, Ser. No. 781,532

Claims priority, application Japan, Mar. 30, 1968, 43 20785

Int. Cl. F02m 3/02

U.S. Cl. 123-97 B

4 Claims



A new monovalve internal combustion engine of a design specially adapted for screw machine manufacture and including a valve support requiring no lubrication, a combination pull rod and fuel conduit secured to a reciprocating member of a two stage injection pump with the pull rod and both pumps operated by a single compound cam arrangement, a fuel injection nozzle concentric with the valve and with the combustion chamber and having no flexible connections, a fabricated piston rod assembly wherein the crankshaft bearing of the piston rod is greater than the throw of the crankshaft, a fluid seal between the piston and the cylinder against compression losses, a compression chamber which ensures an increasing turbulence of the charge in the cylinder with a maximum at top dead center, and a novel air blower and cleaner system including an arrangement for increasing the volumetric efficiency of the engine and the efficient purging of exhaust gases.

3,590,792

APPARATUS FOR REDUCING HYDROCARBON CONTENT OF ENGINE EXHAUST GASES DURING DECELERATION OF AUTOMOBILE

Kenji Masaki, and Hiroyuki Maruoka, both of Tokyo, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Dec. 5, 1968, Ser. No. 781,530

Claims priority, application Japan, Mar. 30, 1968, Mar. 30, 1968, Mar. 30, 1968, 43/20781; 43/20782; 43/20783

Int. Cl. F02d 9/00; F02m 23/04

U.S. Cl. 123-97

6 Claims

System for reducing the engine exhaust gas hydrocarbon content during deceleration of an automobile comprising means which is adapted to reduce the proportion of air in the air-fuel mixture to be drawn to the intake manifold of the engine when the carburetor butterfly valve is substantially fully closed with the resultant increase in the intake manifold

A system for reducing the hydrocarbon content of engine exhaust gases emitted during deceleration of an automobile by controlling both the air-fuel ratio of the engine fuel mixture and the intake manifold vacuum which increases rapidly as soon as the automobile starts to slow down, said air-fuel ratio and intake manifold vacuum being controlled by supplying air to the intake manifold of the engine by way of the step mixture supply flow path of the secondary side of a carburetor of compound-type, which path is kept substantially inoperative during the deceleration of the automobile.

3,590,794

FUEL INJECTION AND TRANSFER PUMP

Roger O. Durham, 3958 Marathan St., Los Angeles, Calif.

Filed Dec. 16, 1968, Ser. No. 783,984

Int. Cl. F02m 51/02

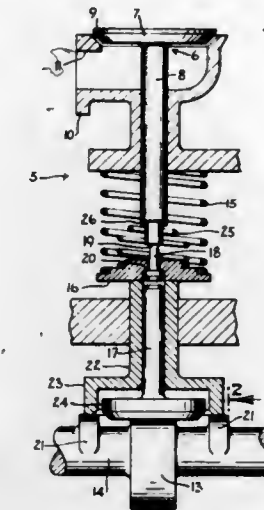
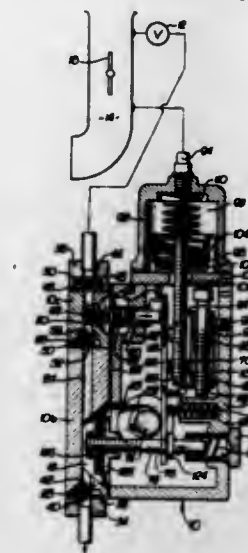
U.S. Cl. 123-140 MP

26 Claims

A fuel injection pump operates on the fuel density principle. A pump element 54 (FIGS. 1 and 2) is reciprocated in order to deliver a controlled volume of fluid each cycle to

the intake manifold 14. A lever 56 operates the pump element 54 and is reciprocated about a fulcrum 70. An eccen-

engine cycle when the valve is within a small distance from its seat by means of an auxiliary cam and an auxiliary tappet.



tric 72 synchronized with the engine shaft operates the lever 56.

Otherwise, the retainer transmits spring force to the valve so that the valve is positively controlled by its spring and cam actuating mechanism.

3,590,795

COMPRESSION RELEASE DEVICE, ESPECIALLY FOR INTERNAL COMBUSTION ENGINES

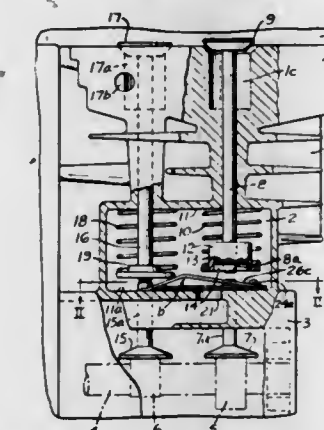
Albert A. Weglage, and David E. Weglage, both of Dayton, Ohio, assignors to Walter Becker, Dayton, Ohio, a part interest

Filed July 7, 1969, Ser. No. 839,357

Int. Cl. F01I 13/08

U.S. Cl. 123-182

15 Claims



3,590,797

COMPRESSION-IGNITION INTERNAL COMBUSTION ENGINES

Hans Jurgen Blank, Mannheim, Germany, assignor to Motoren-Werke Mannheim A.G., Mannheim, Germany

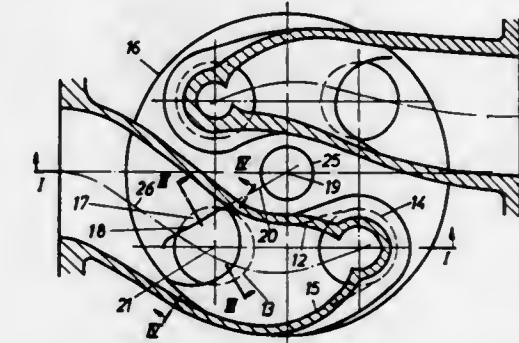
Filed July 2, 1969, Ser. No. 838,492

Claims priority, application Germany, July 6, 1968, P 17 51 664.2

Int. Cl. F01I 1/04, 3/00; F02b 3/00

U.S. Cl. 123-193 H

2 Claims



A compression release unit which is purely mechanically operated and comprises a plate insertable into a spring chamber of an internal combustion engine, and in which a wire with a crank and a control arm resilient relative to said crank is hinged to said plate. The said crank when in its compression release position is located below the spring keeper of one valve and in this position forms an angle of from 69° to 45° with said plate.

A compression-ignition internal combustion engine cylinder head contains an air inlet duct having two outlets encircled by the seats of two inlet valves of a cylinder. The duct extends from a lateral head surface to one outlet and thence to the other. A single covering shield shaped as a circular segment at the commencement of the one outlet has the ends of its inner edge on a line approximately radial of the cylinder as viewed axially and inclined to the axis of the associated valve, and has its inner edge, at the closest approach thereof to the latter axis, spaced from the latter axis an amount 0.25 to 0.45 times the inner diameter of the associated valve seat.

3,590,796

FREE VALVE COMPRESSION RELIEF FOR FOUR CYCLE ENGINES

Joseph R. Harkness, Germantown, and Felix J. Stuckert, Wauwatosa, both of Wis., assignors to Briggs & Stratton Corporation, Wauwatosa, Wis.

Filed Nov. 20, 1969, Ser. No. 878,358

Int. Cl. F01I 13/08

U.S. Cl. 123-182

3 Claims

In a free valve compression relief arrangement for a four-stroke cycle engine, like that of Harkness et al. U.S. Pat. No. 3,306,276, wherein the valve has a lost motion connection with the retainer for its spring, the spring retainer is maintained in its free valve position at predetermined times in the

3,590,798

ENGINE SAFETY DEVICE RESPONSIVE TO ABNORMAL OIL PRESSURE AND COOLANT TEMPERATURE CONDITIONS

Joe E. Goodwin, Houston, Tex., assignor to Sentinel Distributors, Inc., Denver, Colo.

Filed Apr. 21, 1969, Ser. No. 818,013

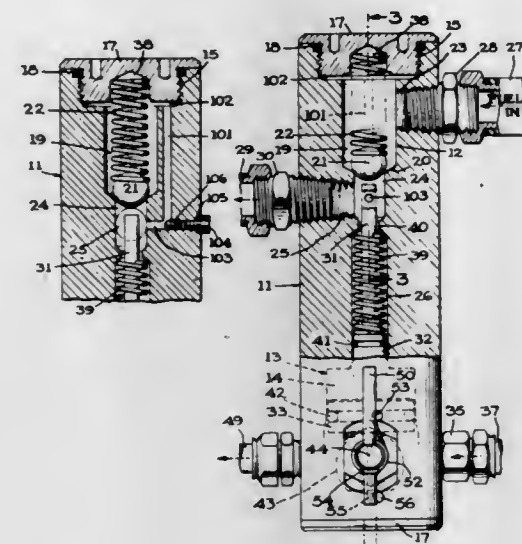
Int. Cl. F01m 1/24

U.S. Cl. 123-198 D

3 Claims

A safety device for controlling the supply of fuel to a vehicular internal combustion engine, responsive to the occurrence of abnormal oil pressure or coolant temperature conditions in lubricating and cooling systems associated with

the engine, has an adjustable, restricted flow bypass around the main fuel valve such that, when the main valve closes automatically due to an emergency condition, sufficient fuel reaches the engine to keep it running at a reduced speed so that the operator retains control of the vehicle.



tomatically due to an emergency condition, sufficient fuel reaches the engine to keep it running at a reduced speed so that the operator retains control of the vehicle.

3,590,799

METHOD OF DRESSING THE GRINDING WHEEL IN A GRINDING MACHINE

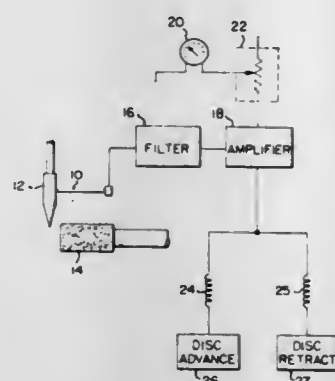
Gerszon Gluchowicz, 5 Urdavagen, 182, 64 Djursholm, Sweden

Continuation-in-part of application Ser. No. 463,939, June 14, 1965, now Patent No. 3,404,670, dated Oct. 8, 1968. This application Sept. 3, 1968, Ser. No. 784,966

Int. Cl. B24b 53/00

U.S. Cl. 125-11

5 Claims



During the dressing of a rotatable grinding disc or wheel, a feeler, which is connected to the dressing tool holder, senses the vibrations of the holder, and transforms them into electrical signals, the potential of which is proportional to the depth to which the tool penetrates the surface of the disc. These signals are used to control the cutting depth of the dressing tool, when necessary; and they may be used to effect repetition of the dressing until a signal of predetermined potential is attained.

3,590,800

MACHINE FOR CLEANING FRANGIBLE MATERIAL FROM SOLID OBJECTS

Edward D. Lewis, Jr., 3805 Wooten Drive, Fort Worth, Tex.

Filed Jan. 7, 1969, Ser. No. 789,520

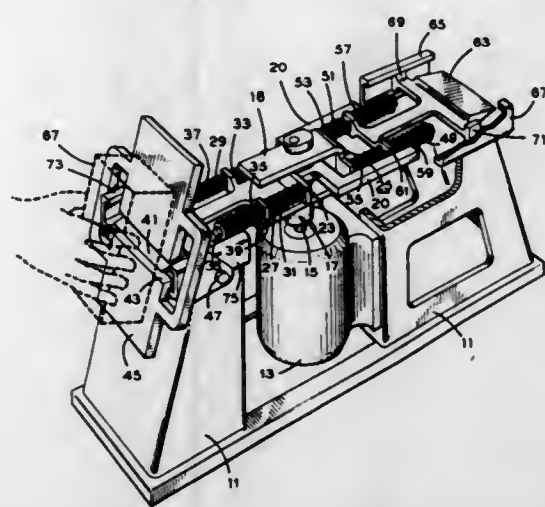
Int. Cl. B28d 1/26; E02d 7/18; B25d 11/12

U.S. Cl. 125-26

9 Claims

A machine for cleaning frangible material such as mortar

This invention relates to a warmer for food. The warmer is heated by the coolant passing through the engine cooling



mass mounted for striking the frangible material at a selected frequency, angle, and penetration.

3,590,801

SELF-CLEANING OVEN HAVING MEANS TO HANG AUXILIARY RANGE EQUIPMENT

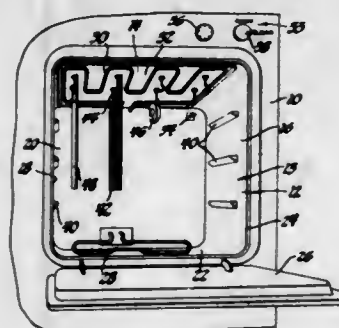
George B. Long, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 28, 1969, Ser. No. 880,610

Int. Cl. A21b 1/00; F24c 15/16

U.S. Cl. 126-19 R

5 Claims



A porcelain-coated self-cleaning oven has means to pyrolytically degrade food soil. The oven is formed with embossments to slidably support an oven rack. Hooks are provided on the top of the oven to suspend the racks and auxiliary range equipment vertically during cleaning.

3,590,802

AUTO-FOOD WARMER

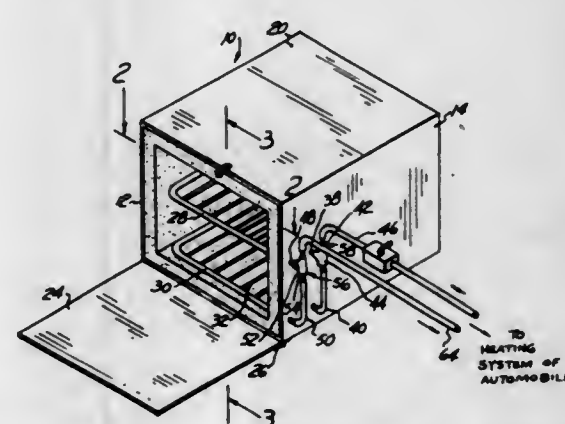
Jacob Fried, 68 Davenport, Detroit, Mich.

Filed July 22, 1968, Ser. No. 746,545

Int. Cl. F24b 1/00

U.S. Cl. 126-19.5

6 Claims



system of a motor vehicle. The warmer comprises an enclosure member; racks of pipes; conduits to the pipes; means insulating heat within the enclosure; the article supposed to be warmed supported by the racks; and the pipes in the racks transferring heat from the engine coolant flowing therein to and from the conduits.

operation for cleaning or conditions the apparatus for cooking and first thermostat cuts the broil burner out when cleaning temperature is approached. A second cooking selector and thermostat selects one of the burners for cooking operation. Hot gases from the oven are discharged into surrounding air after being diluted and cooled by air from the blower.

3,590,803

FOOD-TREATMENT APPARATUS WITH GAS-CIRCULATING MEANS

Paul Sauer, Burg, Germany, assignor to Burger Eisenwerke Aktiengesellschaft, Herborn Dillkreis, Germany

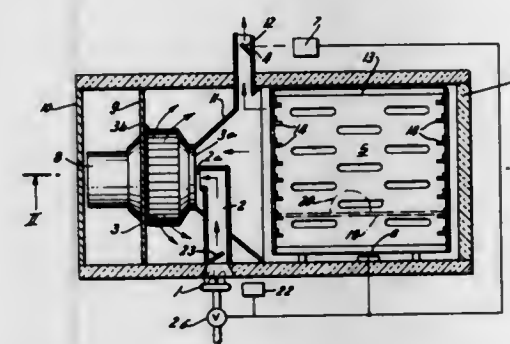
Filed June 26, 1969, Ser. No. 836,742

Claims priority, application Germany, July 20, 1968, B 76 543/36

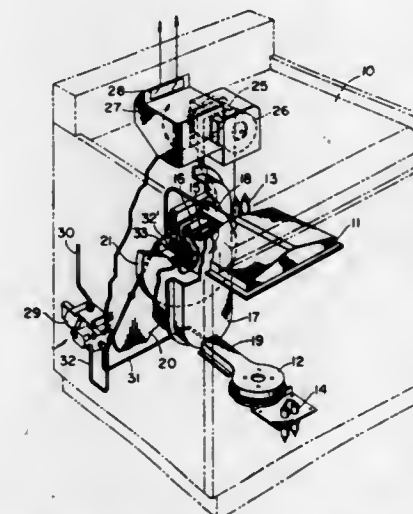
Int. Cl. A21b 1/26; F24c 15/32

U.S. Cl. 126-21

5 Claims



A food-treatment apparatus—an oven—has a housing in which a food-treatment chamber is enclosed along with an axial-input radial-output blower for circulating air in the housing through the chamber. Heat is drawn from an external gas burner through a conduit which opens in the housing adjacent the axial input of the blower. Slightly upstream of this conduit (in the recirculation path) is an exhaust conduit of variable cross-sectional area out through which heated air can flow. The food-treatment chamber is downstream of the mouth of the heat-input conduit and upstream of the exhaust conduit.



3,590,805

GAS RANGE BURNER ASSEMBLY

Richard L. Perl, Mansfield, Ohio, assignor to The Tappan Company, Mansfield, Ohio

Filed Apr. 14, 1969, Ser. No. 815,924

Int. Cl. A21b 1/28; F23d 11/44; F24c 15/32

U.S. Cl. 126-21 A

12 Claims

The gaseous fuel as it is delivered to the burner is heated to expand the same and compensate for expansion of the combustion air which occurs and alter the gas-air ratio. In an oven with a heat exchanger, in which air supplied to the oven burner and the oven exhaust are brought into heat transfer relation, the exhaust is directed over a heat section in the fuel line to the burner to effect the desired fuel temperature rise.

3,590,804

SELF CLEANING GAS FIRED OVEN

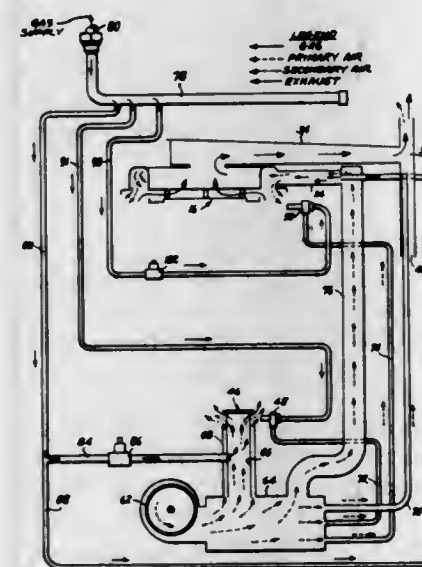
John A. Welshofer, Cleveland, and Earl T. Rhinehart, Apison, both of, Tenn., assignors to Magic Chef Inc., Cleveland, Tenn.

Filed Feb. 5, 1969, Ser. No. 796,756

Int. Cl. A21b 1/28; F24c 3/00

U.S. Cl. 126-21

4 Claims



3,590,806

PORTABLE L. P. GAS SPACE HEATER

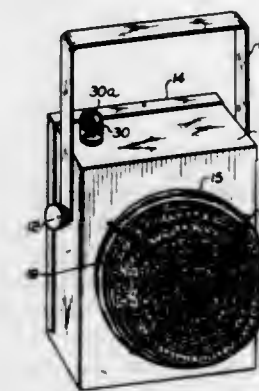
Joseph K. Locke, De Kalb, Ill., assignor to Bernzomatic Corporation

Filed Aug. 21, 1969, Ser. No. 852,015

Int. Cl. F24c 3/04, 3/14

U.S. Cl. 126-92

5 Claims



An attractive lightweight portable L. P. gas space heater comprises a boxlike rectangular housing having space for two disposable L. P. gas cartridges. A circular catalytic heating element is mounted on the front of the heater. The catalytic unit is a porous pad which allows the gas to seep through and upon contact with the air burns the same on its outside surface. Since no premixing with air is required the back space behind the catalytic pad in the heating element is directly connected to one of the two L. P. cartridges in the housing or the carrying case. To permit compact construction, a flexible gas line is used so that the L. P. cylinder can be connected

An oven cavity having an upper broil burner and a lower bake burner both of which are supplied with air from a motor driven blower and a centrifugal switch disables both burners when the blower stops. A first selector places both burners in

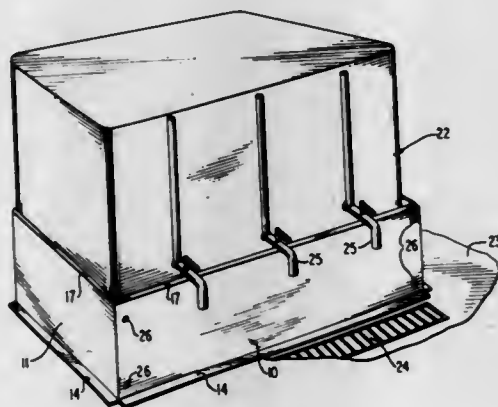
thereto external of the housing. The gas line attaches to the cylinder with a finger adjustable regulator valve which valve, when mounted on the cartridge, is designed to have its control knob extend through the housing on the top portion so that it is readily accessible. The rear wall of the carrying case is hinged to open so that the gas cartridges, one of which is a spare, are accessible and can be readily exchanged.

3,590,807

HEAT SHIELD AND SPLASH GUARD FOR URNS
Everett R. Seek, 316 Linthicum St., Rockville, Md.
Filed May 5, 1969, Ser. No. 821,896
Int. Cl. F24c 15/36

U.S. Cl. 126-201

5 Claims



A unitary three-sided heat shield and splash guard for gas-fired coffee urns and the like commonly found in restaurants. The device protects restaurant personnel and portable beverage receptacles from the flame and also provides positive drainage of any spillage to the counter drain.

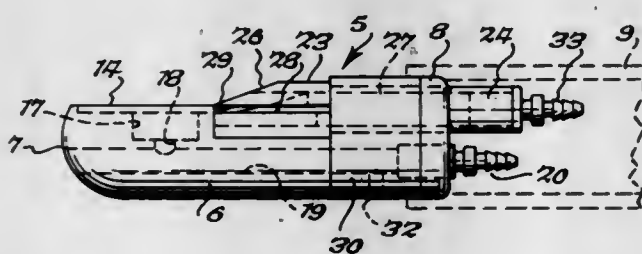
3,590,808

BIOPSY TOOL

Wolf F. Muller, Southampton, N.Y., assignor to United States Catheter & Instrument Corporation, Glens Falls, N.Y.
Filed Sept. 4, 1968, Ser. No. 757,366
Int. Cl. A61b 10/00

U.S. Cl. 128-2 B

9 Claims



A biopsy tool that includes a rigid tip affixed to the distal end of a flexible intestinal intubation tube and is provided with a body portion having a longitudinal duct for the passage of an exchange guide and a radial cavity connected through the lumen of the tube to a vacuum source to draw a tissue sample thereinto. A pneumatically operable knife is longitudinally reciprocable across the open end of the cavity to sever the tissue sample contained therein.

3,590,809

METHOD FOR CENTRAL VENOUS PRESSURE MONITORING

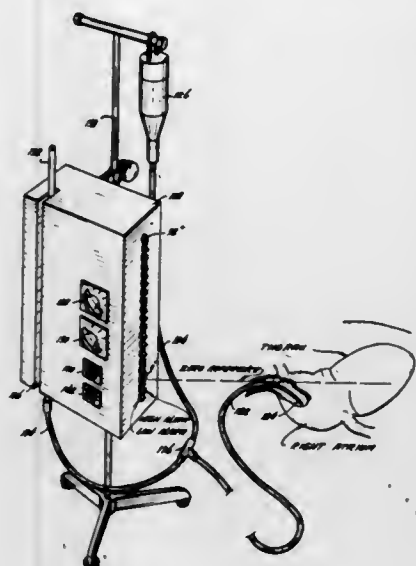
Seymour B. London, 35 East Dillido Drive, Miami Beach, Fla.
Filed Mar. 5, 1968, Ser. No. 710,485
Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 D

2 Claims

Method of central venous pressure monitoring including inserting a catheter in the right atrial cardiac chamber, supporting a vertical column of liquid above said chamber,

transmitting light through the column and the liquid, discriminately sensing that light which has been transmitted



through the liquid and monitoring central venous pressure as a function of liquid level in the column.

3,590,810

BIOMEDICAL BODY ELECTRODE

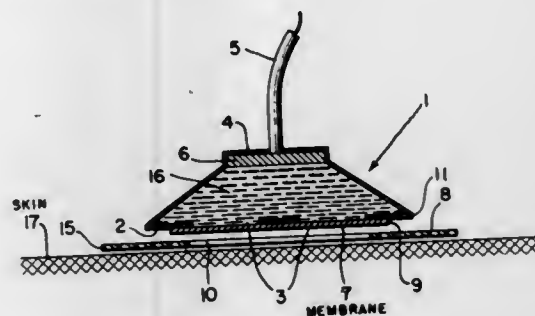
Milos T. Kopecky, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 27, 1968, Ser. No. 732,145

Int. Cl. A61n 1/04

U.S. Cl. 128-2.06

8 Claims



A biomedical body electrode is provided having a nonconductive housing with an apertured face for application to a body surface. A metallic element is mounted within the housing, the element and the face defining a cavity therein. An electrolyte fills the cavity and a membrane is secured to the face to cover the apertures, thereby sealing the electrolyte within the cavity. A lead is connected to the metallic element for connecting the electrode to external instrumentation.

3,590,811

ELECTROCARDIOGRAPHIC R-WAVE DETECTOR

George J. Harris, Framlingham, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Dec. 6, 1968, Ser. No. 781,896

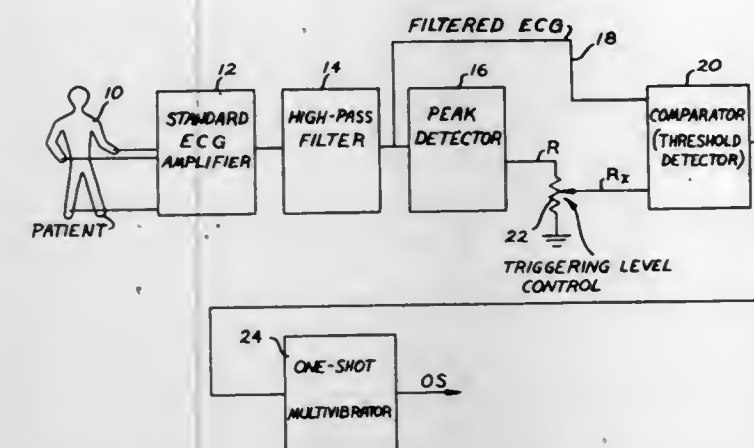
Int. Cl. A61b 5/04

U.S. Cl. 128-2.06

5 Claims

An electrocardiographic R-wave detection circuit in which the ECG signal is applied to one input of a comparator. The threshold level, applied to the other input of the comparator, is below the peak of the R-wave, and above the peaks of the P and T waves. The amplitude of the ECG signal can vary over a wide range depending upon the placement of electrodes, etc. For this reason, the threshold level is continuously adjustable in accordance with the peak swing of the input signal. The threshold level is a fraction of the peak signal swing, the selected fraction being such that the threshold level always falls between the peak of the R-wave

and the peaks of the P- and T-waves. The threshold level adjustment circuit has a time constant of approximately 10 prevent the discharge of the liquid pulses until opened by pressing down on the jet nozzle's fluted knob and has an ad-



seconds. The circuit is thus enabled to operate linearly over a very wide range of signal magnitudes.

3,590,812

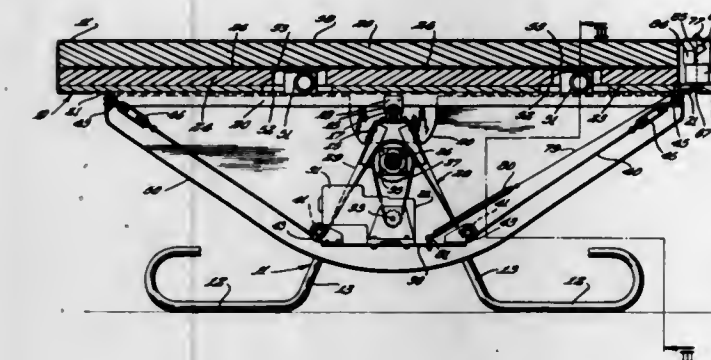
THERAPEUTIC TABLE FOR RELAXATION AND ATTITUDE THERAPY

Alvin Charles Larson, 206 E. Wisconsin Ave., Pewaukee, Wis.
Filed Jan. 30, 1969, Ser. No. 795,205

Int. Cl. A61h 1/00

U.S. Cl. 128-33

8 Claims



Therapeutic table for relaxation and attitude therapy, capable of being tilted up to 45° in either direction about an axis extending parallel to the transverse center of the table. The table includes a flat pad mounted on longitudinally aligned vibrator plates extending substantially the length of the pad. Leg straps for strapping down the ankles are provided at one end of the pad and include tensioning means for the straps accommodating the straps to be relatively loose when the table is in a horizontal position and placing tension on the straps to increase the holding action of the straps against the ankles as the table is tilted to place the head lower than the ankles.

3,590,813

ORAL HYGIENE APPLIANCE

Leon M. Roszyk, Berwyn, Ill., assignor to Sunbeam Corporation, Chicago, Ill.

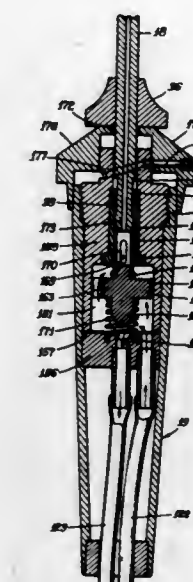
Filed Apr. 15, 1969, Ser. No. 816,332

Int. Cl. A61h 9/00

U.S. Cl. 128-66

15 Claims

An oral hygiene appliance comprising a housing having a hollow base member which supports a liquid reservoir container and a storage and display compartment for the jet nozzles and jet nozzle handle. A liquid pump assembly of the reciprocating piston type is mounted in the base member such that a spout in the bottom of the reservoir container feeds a liquid to the pump chamber. This liquid is converted to a sequential series of liquid pulses by the pump and then delivered through a coiled tube to a jet nozzle control handle which discharges the liquid pulses from a jet nozzle. The jet nozzle control handle has a normally closed valve element to



3,590,814

INTERDENTAL STIMULATOR

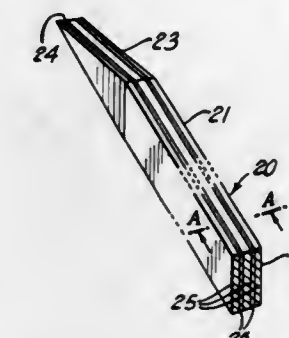
Barley Bennett, and Joseph R. Preston, both of Columbus, Ohio, assignors to Johnson & Johnson

Filed Jan. 3, 1969, Ser. No. 788,823

Int. Cl. A61h 7/00

U.S. Cl. 128-62 A

10 Claims



An interdental stimulator consisting essentially of non-harmful synthetic resinous polymeric material, preferably polystyrene, with cellular and solid-film stratum thereof disposed longitudinally in parallel and alternating sequence with each solid-film stratum joined to adjacent cellular stratum.

3,590,815

PORTABLE MECHANICAL VENTRICULAR ASSISTANCE DEVICE

Peter Shift, RD #2, Lambertville, N.J.
Filed Jan. 7, 1969, Ser. No. 789,551

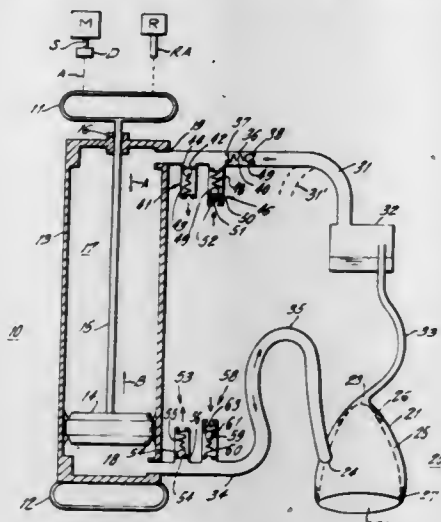
Int. Cl. A61h 7/00

U.S. Cl. 128-64

7 Claims

A portable mechanical ventricular assistance device including a ventricular assistor cup designed to receive the ventricles of the heart. The cup assembly is comprised of a rigid shell having a configuration generally conforming to the surface configuration of the heart ventricles and a flexible liner which is caused to contract and expand about the heart ventricles to effect the pumping action. The heart ventricles are retained within the cup by a substantially sustained negative pressure while the pumping action is produced by the application of alternating positive and negative pressure pulses to the cup. Both the sustained negative pressure and the positive and negative pressure pulses are generated by a hand pump assembly which includes a manually operable handle

connected through a piston rod to a reciprocating piston mounted within the cylinder of the pump. The piston effectively divides the cylinder into two chambers, one of which is coupled through a conduit to provide the sustained negative pressure to the cup. The remaining chamber is coupled



through a second conduit to the ventricle assistor cup to provide for the alternating positive and negative pressure pulses. Suitable adjustable relief valves are provided in each of the conduits to regulate the pressure levels and the positive or negative pressure directed to the cup.

3,590,816

PLACEMENT UNIT FOR INTRAUTERINE CONTRACEPTIVE DEVICES

Gerald S. Rosenthal, Ogden, Utah, assignor to Julius Schmid, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 461,281, June 4, 1965, now abandoned, Continuation of application Ser. No. 515,284, Oct. 24, 1965, now Patent No. 3,374,788. This application Mar. 22, 1968, Ser. No. 715,256

Int. Cl. A61F 5/46

U.S. Cl. 128-130

9 Claims



A unit for correctly placing an intrauterine contraceptive device (IUCD) in the female uterine cavity while preserving the sterility of the IUCD, the unit comprising a plunger attached at its leading end to one end of the IUCD for manipulation of the IUCD into and out of a tubular inserter by manual control exerted upon the trailing end of the plunger which projects beyond the trailing end of the tubular inserter.

3,590,817

ARM AND HAND RECEIVING SUPPORT

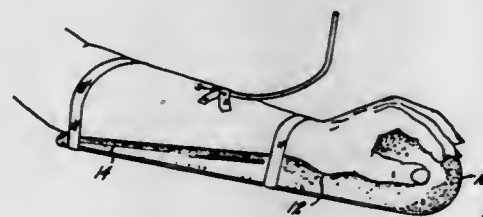
Richard C. Wresch, P.O. Box 842, Lama Linda, Calif.

Filed Aug. 26, 1968, Ser. No. 755,324

Int. Cl. A61F 13/00

U.S. Cl. 128-133

3 Claims



An apparatus for receiving the taped hand and forearm of a patient receiving an intravenous hypodermic injection so that the palm and fingers comfortably grasp a slightly flexible

ball member and the hand heel and forearm rest in a conforming trough.

3,590,818

COMBINATION REFERENCE LEVEL INDICATOR, MANOMETER, INTRAVENOUS FLUID SUPPLY MEANS AND MEANS PERMITTING RAPID ADJUSTMENT OF REFERENCE LEVELS IN ACCORDANCE WITH SHIFT IN PATIENT ELEVATION

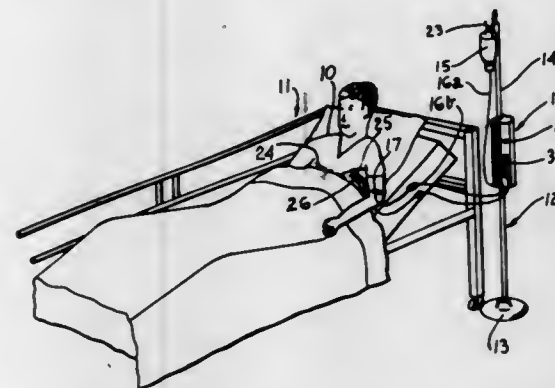
Gerald T. Lemole, 1813 S. Blvd., Houston, Tex.

Filed June 24, 1969, Ser. No. 835,988

Int. Cl. A61M 5/00; A61B 5/02

U.S. Cl. 128-214

8 Claims



The disclosure disposes a reference level indicator gauge, rapidly adjustable on an adhesive strip to establish a patient reference (right atrium) elevation adjacent a manometer on a corresponding adhesive strip with relation to which the manometer may be rapidly adjusted to establish a matching reference elevation. A three-way stop cock separately, and at various times, places intravenous fluid from a supply source counterpoised against a manometer fluid, intravenous fluid from a vein counterpoised against the manometer fluid, and continues therethrough intravenous fluid from said source to said vein.

3,590,819

SEMI-SOLID NURSING DEVICE

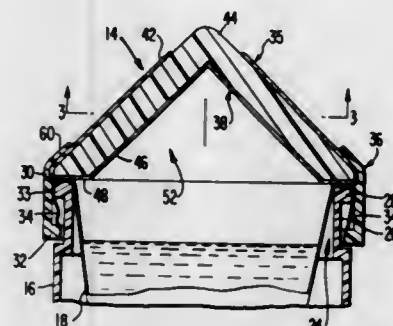
Lisbeth M. Kraft, P.O. Box 607, Goshen, N.Y.

Filed Dec. 4, 1968, Ser. No. 781,190

Int. Cl. A61J 11/04

U.S. Cl. 128-252

9 Claims



There is disclosed herein an improved nursing device and nipple for use by human infants and also by infants of other mammalian species. For human infants, the nursing device is in the form of a rigid casing with a collapsible milk reservoir and an attached nursing nipple. For use by other mammalian species, e.g. in sterile breeding of laboratory animals, other configurations may be employed. The nipple itself is comprised of a body of semisolid open-celled resilient material such as sponge rubber molded to the shape of the mammary gland of the species for which the device is to be used. A nonporous covering is provided on the outside of the body with an opening for fluid withdrawal directly from the cellular structure of the body. A metering device attached to the undersurface of the nipple body provides control of fluid flow by means of a plurality of narrow openings.

3,590,820

ASPIRATOR TIP

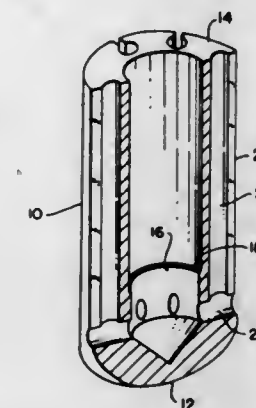
Samuel A. Nehra, 19980 Wedgewood, Grosse Pointe Woods, Mich.; Oscar C. Saad, 25106 Anchorage Drive, Mount Clemens, Mich., and Raymond E. LaBrecque, 11234 Irvington Drive, Warren, Mich.

Filed Feb. 6, 1969, Ser. No. 797,139

Int. Cl. A61M 1/00

U.S. Cl. 128-276

8 Claims



A hollow cylindrical aspirator tip closed at one end and including radially extending angularly spaced-apart primary passages extending therethrough adjacent the closed end thereof and relief passages in communication with the primary passages to prevent drawing sufficient vacuum through the hollow cylindrical tip in the primary passages to damage membranes in contact with the tip over the outer ends of the passages. The relief passages are of a smaller diameter than the primary passages to facilitate maintaining a vacuum in the primary passages at all times. Longitudinally extending slots are provided in communication with each of the relief passages having a cross section less than that of the relief passages to permit draining of fluid into the relief passages while maintaining a vacuum therein.

3,590,821

ACUPUNCTURE DEVICE

Pietro Orlandini, Vellertri, Italy, assignor to Rotodolor s.r.l., Milan, Italy

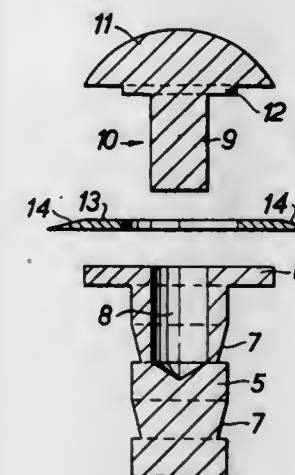
Filed Jan. 21, 1969, Ser. No. 792,302

Claims priority, application Italy, Jan. 23, 1968, 7734B/68

Int. Cl. A61B 17/34; A61H 15/00; F16C 13/00

U.S. Cl. 128-329

2 Claims



An acupuncture device comprising a stick-shaped member having a grip portion and a free-rotating wheel, provided with a plurality of pointed teeth on its entire periphery and arranged at one end of said stick, running of said wheel on the skin of a human being having an analgesic action according to the principles of acupuncture.

3,590,822

CATHETERS

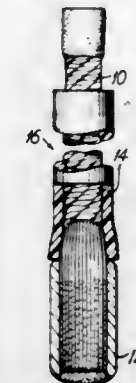
Bernard Ackerman, Metuchen, N.J., assignor to Electro-Catheter Corporation

Filed Apr. 3, 1968, Ser. No. 718,434

Int. Cl. A61M 1/04

U.S. Cl. 128-404

6 Claims



Electroconductive catheters and methods of manufacture thereof.

3,590,823

COMBINATION GIRDLE AND STOCKINGS

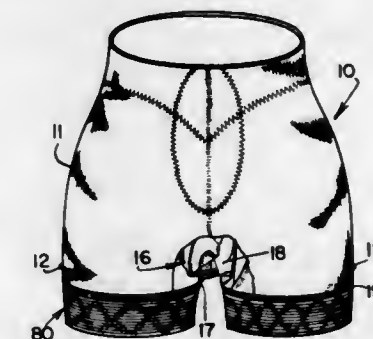
Henry Pope, Jr., Glencoe, Ill., assignor to Bear Brand Hosiery Co., Chicago, Ill.

Filed Apr. 19, 1968, Ser. No. 722,595

Int. Cl. A41C 1/00

U.S. Cl. 128-519

16 Claims



A ladies undergarment and stockings, the undergarment including stomach and buttocks surrounding portions and having downwardly directed leg portions with bottom extremities, each of the bottom extremities carrying a nonslip fabric band thereon for supporting the thigh engaging portion of a ladies stocking. Each of the nonslip fabric bands comprises a longitudinally elastic textile material having a layer of frictional material secured thereto and exposed on the outside surface of the band. Each of the stockings has a thigh engaging portion including a nonslip fabric band thereon identical to that carried by the leg portions of the undergarment, except that the frictional material is exposed on the inside of the band. The stockings are positionable so that the nonslip bands thereof overlie the corresponding nonslip bands of the undergarment, whereby the frictional material exposed on the outside surfaces of the bands of undergarment engage the frictional material exposed on the inside surface of the stockings to detachably secure the stockings to the undergarment.

3,590,824

CORN SHELLER AND SEPARATOR

Lyman J. Gunyou, Celina, and Robert A. Stelzer, Coldwater, both of, Ohio, assignors to Avco Corporation, Coldwater, Ohio

Filed Feb. 28, 1969, Ser. No. 803,393

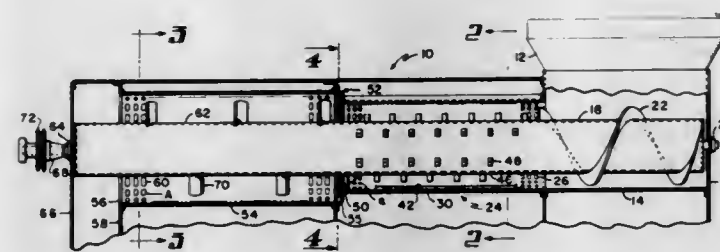
Int. Cl. A01F 11/06

U.S. Cl. 130-6

12 Claims

The disclosure illustrates a corn sheller and separator comprising a uniform-diameter, elongated cylinder journaled for

rotation in first and second perforated cages placed end to end. Unshelled corn is received at one end of the first cage and a series of teeth projecting radially from the cylinder propel the corn through the first cage. The clearance between the teeth and the first cage is selected to promote vigorous rubbing and removal of kernels from the ear of corn. To provide even more effective removal of the kernels the first cage has a series of longitudinal recesses and a lon-



gitudinal rasp bar positioned between two recesses. The second cage forms with the cylinder a much greater clearance than the clearance for the first cage so that the remaining kernels of corn, trash and cobs are maintained in a looser mixture. A series of paddles pitched with respect to the axis of the cylinder propel the mixture in a helix pattern through the second cage so that the remaining kernels are separated from the corn.

3,590,825

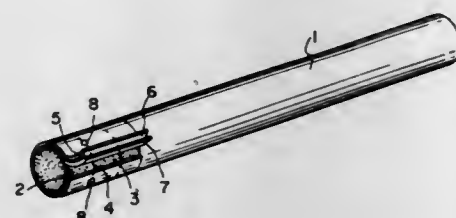
FILTER CIGARETTE HAVING APERTURED BAND
Alfred C. Davis, Westbury-on-Trym, Bristol, England, assignor to Imperial Tobacco Group Limited, Bristol, England

Continuation-in-part of application Ser. No. 435,004, Feb. 24, 1965, now Patent No. 3,410,274, dated Nov. 12, 1968. This application Nov. 29, 1967, Ser. No. 686,482

Int. Cl. A24d 1/02, 1/04

U.S. Cl. 131-10

6 Claims



A cigarette, cigarillo or cigar having a tobacco portion and a stub portion, the stub portion having two sections arranged end to end to form a butt joint, and a band of impermeable material which joins the portions together and surrounds the butt joint, wherein the butt joint is completely covered and the joining band has at least one permeable area at the butt joint for controlling the entry of air at the butt joint. The permeable area of the band is thinner than the remainder of the band. The thinned area is made by shaving off a portion of the surface of the band.

3,590,826

MACHINE FOR BLENDING TOBACCO OR THE LIKE
Waldemar Wochowski, Hamburg-Volksdorf, and Helmut Baumann, Hamburg-Bergedorf, both of Germany, assignors to Hauni-Werke Korber & Co. KG., Hamburg-Bergedorf, Germany

Filed May 2, 1967, Ser. No. 635,597
Claims priority, application Germany, May 4, 1966, H 59 300

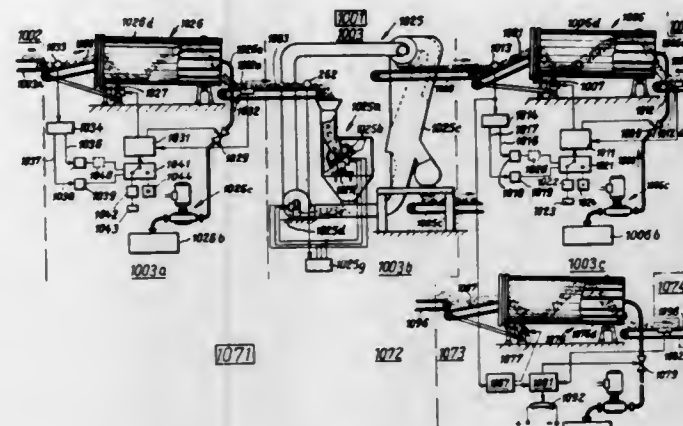
Int. Cl. A24b 7/14, 9/00

U.S. Cl. 131-21

11 Claims

Two or more types of tobacco are fed by separate conveyor lines into a blending unit wherein such types are mixed. One of the conveyor lines contains a measuring and control unit which measures the rate of tobacco feed and

controls the rate of operation of each other conveyor line so that the ratio of tobacco types reaching the blending unit



remains within a desired range. The measuring unit can also control the operating rate of one conveyor line.

3,590,827

FILTRATION DEVICE FOR CIGARETTES

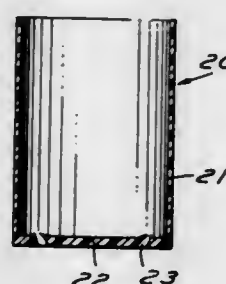
Peter E. Brudy, 224 California Ave.; Otto H. Brudy, 559 Askin Blvd., and Joseph E. J. Habowsky, 3015 Sandwich St. West, Apt. #505, all of Windsor, Ontario, Canada

Filed Feb. 9, 1968, Ser. No. 704,333

Int. Cl. A24f 13/04; A24d 1/04

U.S. Cl. 131-261

4 Claims



A cigarette comprising a filtration device interposed between the tobacco and the mouth of the user. The filtration device includes a wall of impervious material extending transversely to the general direction of movement of the tobacco smoke and a circumferential wall positioned generally rearwardly of the transverse wall. The transverse wall has a plurality of circumferentially spaced openings adjacent the circumferential wall. Each opening has its axis at an angle to the axis of the transverse wall and extending toward the circumferential wall. Each opening converges in a direction toward the circumferential wall.

3,590,828

EYE GUARD AND LASH CLAMP

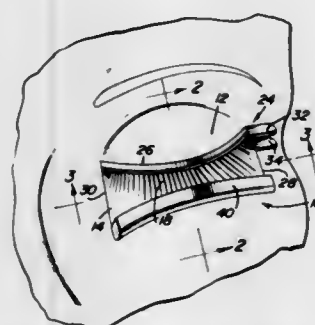
Era Pauline Prewitt, Route #1, Grandview, Tex.

Filed Mar. 23, 1970, Ser. No. 21,705

Int. Cl. A45d 2/48

U.S. Cl. 132-32

8 Claims



A protective shield has an arcuate edge placed against the eyelid to support eyelashes which are held in place by a clip.

Excess cosmetic materials applied to the eyelid and/or lashes are collected within a troughlike formation on the shield spaced from the arcuate edge.

3,590,829

SELF WINDING CURLER

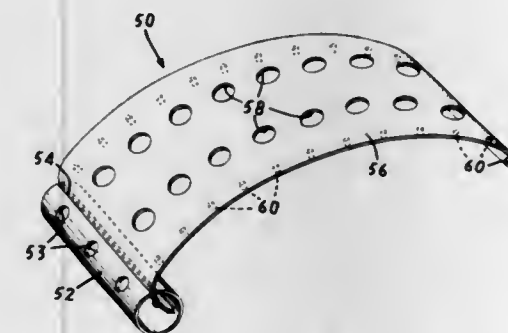
Vincent Parisi, 2 Cornell Place, Englishtown, N.J.

Continuation-in-part of application Ser. No. 689,610, Dec. 11, 1967, now abandoned. This application Dec. 26, 1968, Ser. No. 787,117

Int. Cl. A45d 2/18

U.S. Cl. 132-43

9 Claims



A hair roller with which the user's hair can be wound in a bundle having the strands therein held in windings of varying pitch to give a corresponding varying degree of tension to the hair. Thus the bundle of hair is so controlled that when it is set it possesses a larger curl near the root end and a smaller tighter curl near the tip end giving better overall body to the hair and optimum control over the shaping of the critical tip end. The hair roller comprising a wrapping strip susceptible of being wound upon itself so as to facilitate the winding of the hair therewith into a bundle of hair for setting purposes. The wrapping strip is used in conjunction with a core member of generally cylindrical shape and provided for starting the first winding of the hair at a predetermined diameter. Projections are included on the wrapping strip to space each convolution into which the hair is wound from the others at windings of increasing pitch to impart varying tension to the hair and also allow axial entry of air to the rolled bundle for rapid and more complete drying of the hair. Also, access for radial entry of air to the bundle is provided for by means of suitable openings formed in both the core and wrapping strip.

3,590,830

BARRETTE

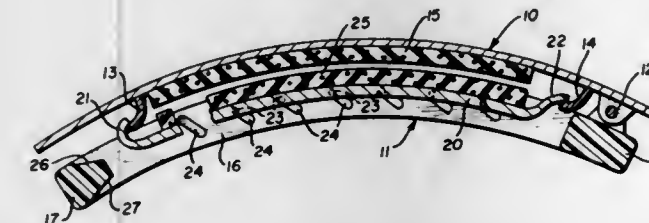
Evelyn J. Hannum, 3880 S. Hillcrest St., Denver, Colo.

Filed May 22, 1970, Ser. No. 39,622

Int. Cl. A45d 8/24

U.S. Cl. 132-48 R

13 Claims



A barrette which comprises a pair of hingedly connected outer and inner body members, one of which is provided with means for grippingly, nonslidably engaging the hair of a wearer, and the other is provided with lift means, including means for manually retracting and extending the lift means relatively to the body member to permit unhindered insertion of the body member in the hair of the user and firm clamping of the hair between the body members when the lift means is extended relatively to the body member in which it is mounted.

3,590,831

ARTIFICIAL HAIRPIECE

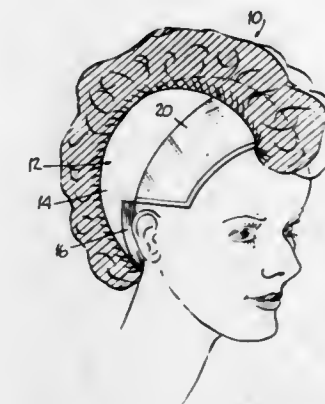
Leon J. A. Buchholt, 565 5th Ave., New York, N.Y.

Filed Jan. 2, 1968, Ser. No. 695,187

Int. Cl. A41g 3/00

U.S. Cl. 132-53

1 Claim



An artificial hairpiece that has a foundation with a flexible elastic crown, a back band that is resilient in the direction of its length and relatively inflexible in the direction of its width, and a front band of relatively inflexible material. Tufts of hair are attached to the outside surface of the crown, the front band and the back band. Advantageously, tufts of hair are also applied along the inner surface of the front and back bands thereby providing an artificial hairpiece that is natural in appearance and easily adaptable to fit different size heads of various users.

3,590,832

COMB AND CONTAINER ASSEMBLY

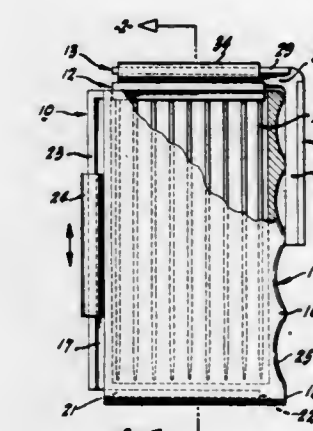
Forest Nelson, Jr., 4490 Arcadia Ave., Oakland, Calif.

Filed Mar. 12, 1969, Ser. No. 806,657

Int. Cl. A45d 24/08

U.S. Cl. 132-136

8 Claims



A comb and container assembly comprising a plurality of comb sections and a container having a chamber for receipt of such comb sections therein. The container is adapted to serve as a handle for any one or all of the comb sections and can be assembled therewith in a handle-forming configuration to enable the resultant comb structure to be conveniently manipulated in combing, styling, and other working of hair, especially hair that is long, thick, coarse and wiry.

3,590,833

COIN-HANDLING APPARATUS

Paul E. Walton, Orlando, Fla., assignor to SWD Machines, Inc., Dallas, Tex.

Filed Aug. 8, 1968, Ser. No. 751,282

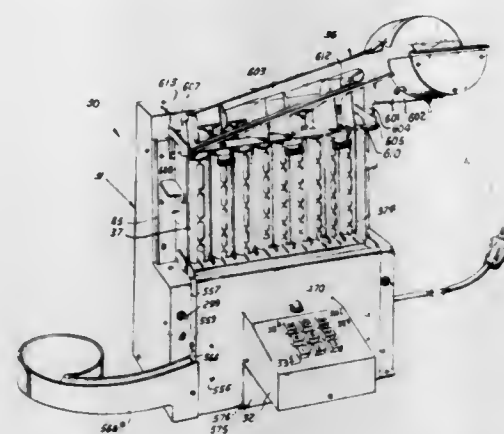
Int. Cl. G07d 1/06

U.S. Cl. 133-2

29 Claims

Coin sorting and dispensing apparatus which includes a coin magazine having a plurality of coin storage tubes in which coins of different denominations are receivable, each tube having individual coin-dispensing means for moving

coins from its lower end and electrically controlled means for individually controlling the operation of the dispensing means. A coin sorter is also mounted above the magazine



into which a mixture of coins of different denominations may be deposited which then moves coins of predetermined denominations to the upper ends of appropriate tubes of the magazine.

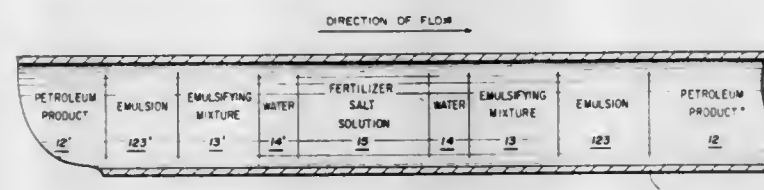
ERRATA

For Classes 134-144, 135-005, 135-026 see:
Patent Nos. 3,590,863 thru 3,590,865

3,590,834
CONTROL OF COMMINGLING BETWEEN IMMISCIBLE FLUIDS IN PIPELINE TRANSPORTATION
Francis B. Henry, Tulsa, Okla., assignor to Williams Brothers Pipe Line Company, Tulsa, Okla.
Filed Oct. 4, 1968, Ser. No. 765,084
Int. Cl. F17d 1/00

U.S. Cl. 137-1

6 Claims

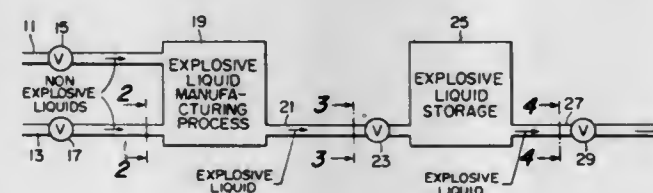


The commingling between two immiscible fluids in a pipeline is minimized by injecting an emulsion-producing detergent through the expected interfacial zone, the detergent being a material that is either soluble or highly dispersible in both fluids or highly dispersible in one and soluble in the other, an example being certain of the nonionic biodegradable alkyl phenol detergents with ester, alcohol and ether group side chains.

3,590,835
METHOD OF TRANSPORTING EXPLOSIVE LIQUIDS
Adolph B. Amster, Silver Spring, Md. Assignor to the United States of America as Represented by the Secretary of the Navy.
Filed Nov. 12, 1969, Ser. No. 875,606
Int. Cl. F17d 1/00

U.S. Cl. 137-1

5 Claims



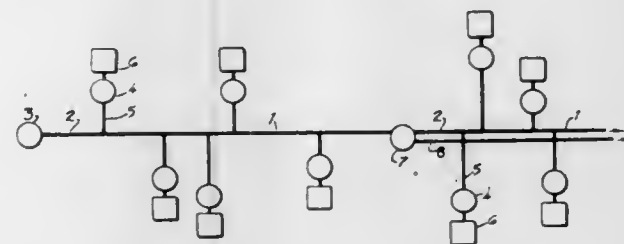
A method of transporting explosive liquids through conduits having square or rectangular cross sections and

preferably through such conduits that are made from plastic or lead material. This transportation method improves the safety of transporting explosive liquids by reducing the possibility of explosion due to low velocity detonation shock waves.

3,590,836
SEWERAGE TRANSMISSION SYSTEM
Ernst Kuntze, Hamburg-Wellingsbuttel; Wilhelm Zander, Wendentorwall, and Bernd Zander, Eichenweg, all of Germany, assignors to Firma Dr.-Ing. W. Zander, Gesellschaft für Rein-und Abwassertechnik m.b.H., Wendentorwall, Germany
Filed Sept. 25, 1968, Ser. No. 762,524
Claims priority, application Germany, Dec. 10, 1965, Mar. 16, 1966, Z 11915 V/85e; Z 12099 V/85e
Int. Cl. F17d 1/12; B65g 53/00

U.S. Cl. 137-12

8 Claims

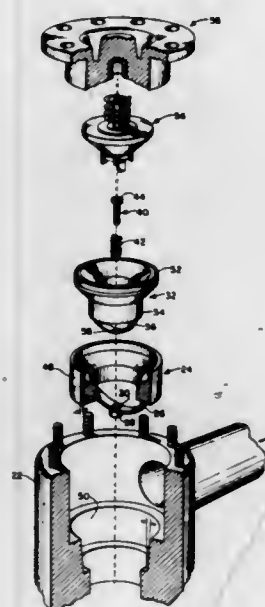


A series of controlled discharge collection stations are linked to a central sewerage transmission pipe, having a relatively small diameter, with conduits pressurized in part with air to create turbulence and minimize settlement within the pipe.

3,590,837
COMBINATION OF VALVE SEAT BASE AND REPLACEABLE VALVE SEATS, AND METHOD OF SECURING TOGETHER AND IN PLACE
Leo Jeanise, 131 Pat LeBlanc St., Schriever, La.
Filed Dec. 30, 1969, Ser. No. 862,228
Int. Cl. F16k 15/00

U.S. Cl. 137-15

5 Claims



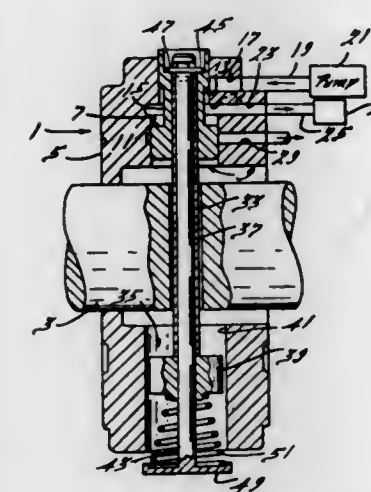
The combination of a hollow valve seat base for force fitting into a valve casing of a pump, said base having a transverse bottom structure defining a center-threaded hole, a hollow valve seat having a transverse bottom structure defining a center hole and adapted to fit into said base with center holes conforming, a bolt threaded to engage the threads of the center-threaded hole of the base through the center hole of the valve seat, and a coil spring mounted on said bolt, the spring and bolt for fastening the base and the valve seat

together under constant pressure of the spring compressed between the bolthead and the valve seat bottom structure, thereby preventing the loosening of the fastening.

3,590,838
SPEED-RESPONSIVE CENTRIFUGAL MASS TYPE GOVERNOR
Charles E. Brady, Bloomfield Hills, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed May 27, 1966, Ser. No. 553,518
Int. Cl. G05d 13/26

U.S. Cl. 137-56

3 Claims

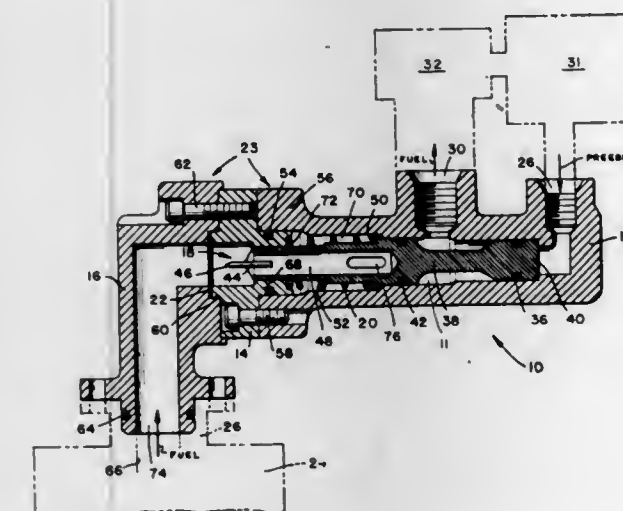


A governor mounted on a rotatable shaft including a rod extending through the rotatable shaft with a valve member on one end and a weight on the opposite end. A spring having a nonlinear low-deflection curve extends between a seat on the other end of the shaft and the weight to oppose the centrifugal force exerted on the valve in such a manner that the net centrifugal force on the valve is approximately linearly proportional to the rotational speed of the shaft.

3,590,839
INTERLOCKING SEQUENCE VALVE FOR LIQUID FUEL
Daniel M. Moore, Glendora, Calif., assignor to The United States of America as represented by the Secretary of the Navy
Filed July 31, 1968, Ser. No. 749,098
Int. Cl. F16k 17/16

U.S. Cl. 137-71

13 Claims



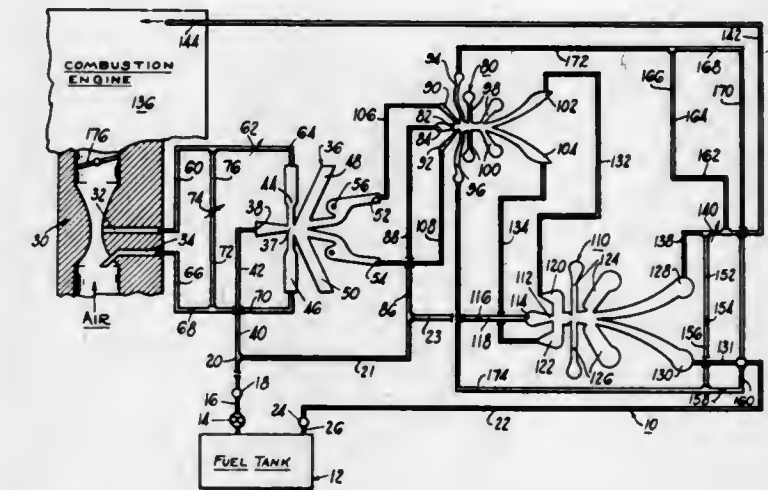
A normally closed check valve, featuring a spring-biased piston assembly, which opens and remains open only as long as a predetermined value of pressure is present at its control port. Linear motion of the piston assembly then moves an O-ring seal mounted on the piston assembly to a position where it no longer inhibits communication between the inlet and outlet ports of the check valve. A decrease in the pressure

below the required value restores the piston assembly to its original position, thereby closing the check valve.

3,590,840
FLUIDIC CONTROL APPARATUS
James M. Hyer, South Bend, Ind., assignor to The Bendix Corporation
Filed May 29, 1968, Ser. No. 732,937
Int. Cl. F15c 1/14

U.S. Cl. 137-81.5

13 Claims

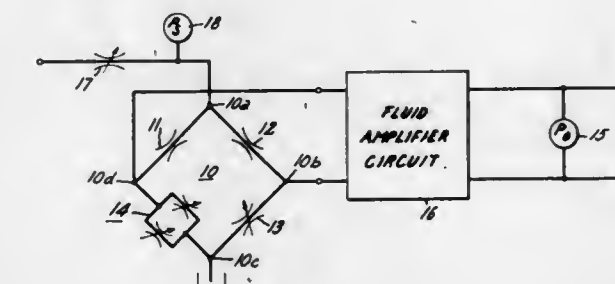


The present invention concerns a fluidic control apparatus for controlling a hydraulic output flow by means of a fluid input comprised of a fluidic amplifier means responsive to a variable fluid differential pressure input with a variable mixture control means operatively connected to said fluidic amplifier means for controlling a hydraulic output in proportion to said input differential. Further, the device may have a mixture control trimming means intermediate said variable fluid differential pressure input and said fluidic amplifier means for adjusting minimum and maximum hydraulic output flow.

3,590,841
FLUIDIC GAGING DEVICE
Hansjoerg Stern, Scotia, N.Y., assignor to General Electric Company
Filed Feb. 19, 1969, Ser. No. 800,623
Int. Cl. F15c 1/04

U.S. Cl. 137-81.5

9 Claims



A fluidic gage having no moving mechanical parts is utilized for continuous monitoring of a particular parameter such as wire diameter, sliver density and object proximity. The gage comprises a bridge circuit including a pair of fluidic resistors having fixed resistances to fluid flow therethrough and a first fluidic variable resistor in three legs of the bridge circuit. A sensing head is connected in the fourth leg of the bridge circuit in fluid communication with the monitored material to function as a second fluidic variable resistor. The first variable resistor is preset to a predetermined resistance value corresponding to a desired value of the monitored parameter. Deviation from the desired value of the monitored parameter causes a linear change in fluid pressure at the input to the sensing head thereby causing an unbalanced condition of the bridge circuit and developing a pressurized

fluid signal which may be utilized for operating a suitable readout device or initiating a control action.

3,590,842 MEANS FOR SWITCHING WALL ATTACHMENT FLUIDIC DEVICES

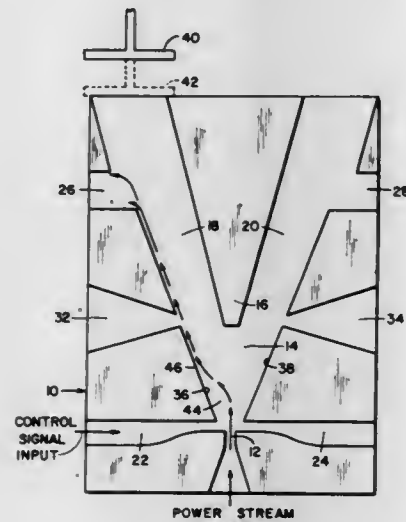
Lynn G. Amos, Powell, Tenn.; Hal L. Moses, Raleigh, N.C., and Donald A. Small, Castine, Maine, assignors to Corning Glass Works, Corning, N.Y.

Filed Apr. 2, 1969, Ser. No. 812,666

Int. Cl. F15c 1/04

U.S. Cl. 137-81.5

4 Claims



An improved bistable device having atmospheric switching ports communicating with each outlet passage and the atmosphere external to the device. The switching ports connect with the outlet passages at the ends of attachment walls upstream of vent ports, and (the switching ports) enable the output state of the device to be switched by fluid control signals whose pressures are not affected by output loading conditions.

3,590,843 MULTIPLE-JET LIQUID LEVEL DETECTOR

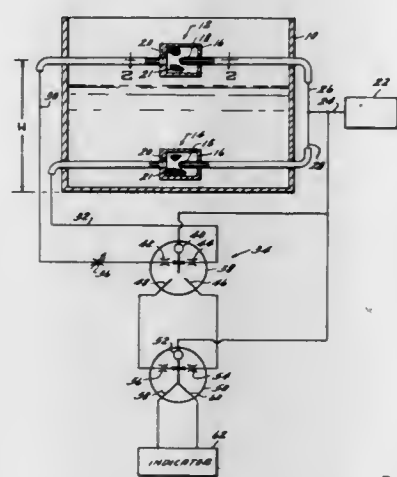
Arthur Stivers Meyer, West Chester, Ohio, assignor to General Electric Company

Filed Oct. 23, 1969, Ser. No. 868,749

Int. Cl. F15c 1/14; G01f 23/14

U.S. Cl. 137-81.5

6 Claims



The disclosure describes a fluid level detector in which two identical fluid jet devices, each comprising a fluid jet nozzle and a receiver, are placed in a fluid container. One such device is located below the nominal fluid level in the container and the other is located at the maximum desired fluid level therein. The degree of pressure recovery in each of the receivers depends upon the presence or absence of fluid at

that device, and a differential pressure sensing means to sense differences in the recovered pressures is provided to indicate presence or absence of liquid at the upper device.

3,590,844 DEVICE FOR DIVIDING THE FLOW OF LIQUID INTO TWO PARTS

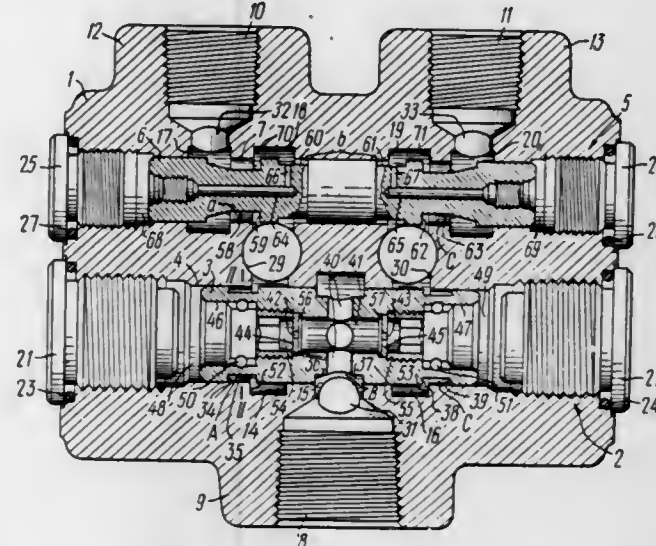
Boris Yakovlevich Lidenzon, Moskovsky prospekt, 238a, kv.1, and Iosif Naumovich Dekhtyar, ulitsa Karazina 7/9, kv.49, both of Kharkov, U.S.S.R.

Filed May 7, 1969, Ser. No. 822,451

Int. Cl. G05d 11/00

U.S. Cl. 137-101

1 Claim



A device for dividing the flow of liquid into two parts comprises a control valve with two constant-section flow restrictors and a pair of restrictor means and another control valve with another pair of restrictor means arranged downstream of the first pair. Each restrictor means forms a variable transverse section slot whereas the outlet of each restrictor means of the first pair is connected to the inlet of one of the restrictor means of the second pair that permits division of the flow of liquid with a great accuracy under all operating conditions.

3,590,845 VEHICLE WASHING EQUIPMENT

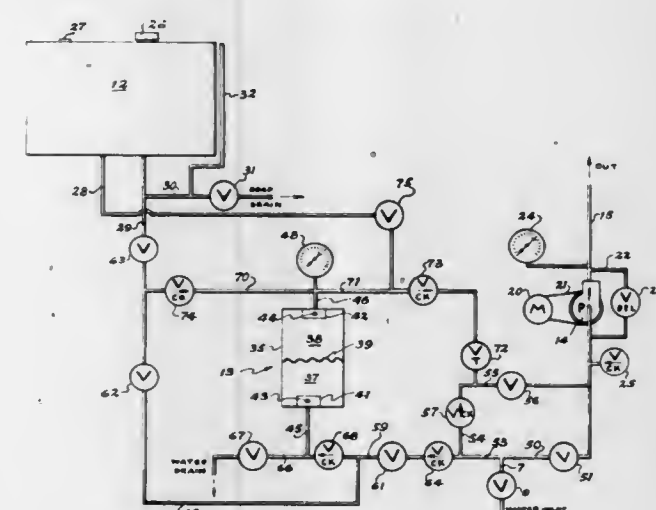
James K. MacLean, 283 Norwood Ave., Buffalo, N.Y.

Filed Nov. 1, 1968, Ser. No. 772,564

Int. Cl. G05d 11/13

U.S. Cl. 137-101.11

9 Claims



In vehicle-washing equipment having an expansion accumulator tank adapted to receive liquid additive and fluid flow means operable during successive wash and rinse cycles of the equipment to expel additive under pressure from the tank into the stream of water.

3,590,846 FLUID-PROPORTIONING DEVICE FOR ADDING A PREDETERMINED PROPORTION OF A SOLUBLE SUBSTANCE TO A FLUID IN A CONDUIT

Eugen Elsele, and Hermann Stell, both of Heilbronn, Germany, assignors to Cillichemie Ernst Vogelmann, Heilbronn, Germany

Filed May 9, 1969, Ser. No. 823,340

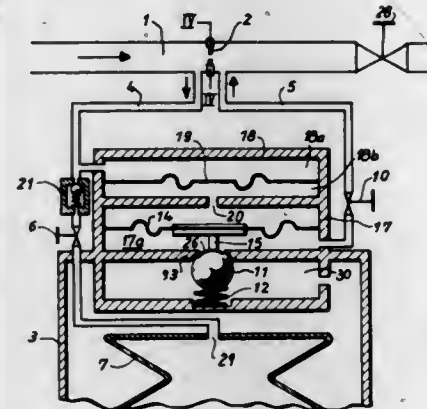
Claims priority, application Germany, May 17, 1968, P 17 73

459.7

Int. Cl. B01d 11/02

U.S. Cl. 137-101.11

7 Claims



A flow-restricting passageway in the conduit diverts fluid into a bypass which leads through a tank where the additive is stored. Excess pressure in the bypass line leading from the conduit into the tank, relative to the pressure in the bypass return line leading from the tank into the conduit downstream of the flow-restricting passageway, is transmitted to a diaphragm interposed in the system. The diaphragm which is operatively connected with a flow-responsive check valve causes the latter to open, permitting fluid flow through the return path until pressure equalization in the bypass is restored. The device provides in this way for uniform concentration of the additive in the fluid returning into the conduit, regardless of fluid oscillations in the bypass caused by pressure fluctuations in the conduit.

3,590,847 CONSTRUCTION FOR IN-LINE PRESSURE CONTROL VALVE

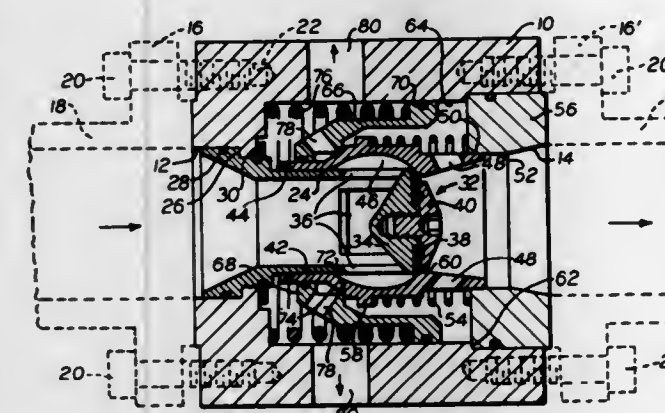
Donald A. Worden, Pompton Plains, N.J., assignor to Marotta Valve Corporation, Boonton, N.J.

Filed Feb. 7, 1968, Ser. No. 703,651

Int. Cl. G05d 11/00

U.S. Cl. 137-116.5

10 Claims



This specification discloses a flow control valve construction in which the valve element remains stationary and the seat moves. The seat is part of an annular piston or similar element which extends circumferentially around the valve element and which cooperates with the valve element to form a partition across the inside of the valve housing when the valve is closed. There is a recess in the inside wall of the piston which provides an offset in the fluid flow passage so

that fluid can flow around the circumferential edge of the valve element when the seat moves away from the valve element to open the valve. The piston can be operated in response to a manual control or a pilot valve. The preferred construction is a pressure reducer with an integral relief valve. The construction provides a compact in-line valve having a diameter not substantially greater than the diameter of the fluid line for which the valve controls the flow.

3,590,848 REGULATOR FOR MAINTAINING WITHIN A RESTRICTED SPACE A CONSTANT PRESSURE WHICH IS LOWER THAN THE AMBIENT PRESSURE

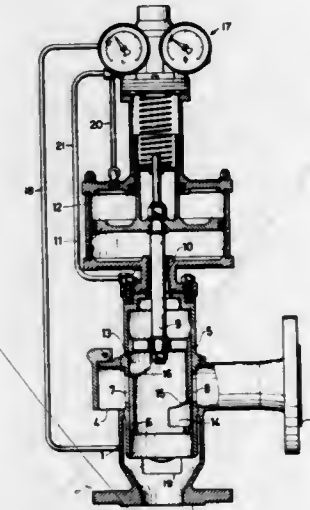
Sven Alvar Svensson, Farsta, Sweden, assignor to Ingenjorsfirman Fliesberg Aktiebolag, Stockholm, Sweden

Filed Oct. 22, 1968, Ser. No. 769,498

Claims priority, application Sweden, Mar. 21, 1968, 3790

Int. Cl. F16k 31/365

1 Claim



A regulator for maintaining within a restricted space a selected pressure less than ambient pressure including a valve connected between a low-pressure generating means, ambient air and the restricted space, and a valve control device operating the valve. The valve comprises a valve housing having ports communicating with the low-pressure generating means, ambient air, and the restricted space, and a hollow piston having openings which can register with the ports to varying degrees. The openings and the ports are of particular designs which enhance the smooth operation of the valve and promote precise control of the exposure of the restricted space to ambient air and the low-pressure generating means.

3,590,849 VACUUM SERVOCONTROL SYSTEMS

Levi J. F. Austin, Orton-on-the-Hill, Atherstone, England, assignor to Clear Hooters Limited, Bedworth, Nuneaton, England

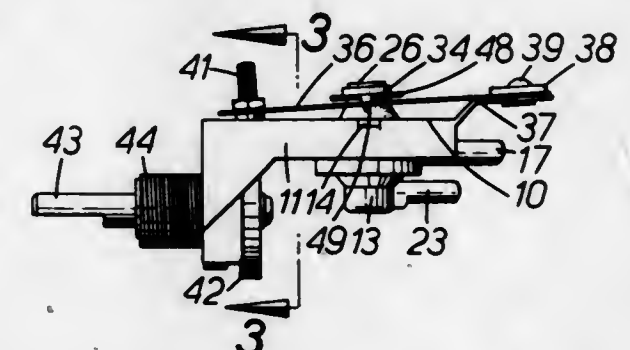
Filed June 20, 1969, Ser. No. 835,149

Claims priority, application Great Britain, June 22, 1968, 29,878/68

Int. Cl. F16k 31/365

U.S. Cl. 137-116.5

3 Claims



In a vacuum modulating valve in which the pressure in an outlet chamber is controlled by a diaphragm having an axial

stem engaged in an opening in a blade spring anchored at one end and cooperating at its free end with a cam for adjustment, a rigid washer located on said stem between the spring and a radial flange on the extremity of the stem is connected to the spring by means permitting relative rocking movement but preventing relative displacement in a direction lengthwise of the spring.

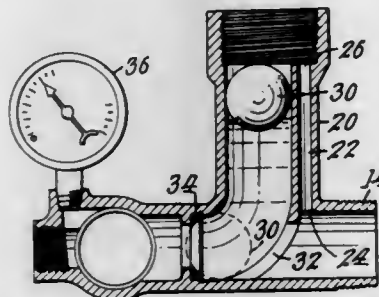
3,590,850

TANK PRECHARGE PRESSURE CHECK VALVE
Frederick G. J. Grise, Ware Point Road, West Brookfield, Mass.

Filed Dec. 16, 1968, Ser. No. 784,029
Int. Cl. F16k 31/22, 15/04

U.S. Cl. 137-192

1 Claim



A check valve including a vertical column which is applied to the outlet of a pressure tank, a ball in the vertical column, and a separate smaller pipe e.g. a Venturi tube, which leads from the tank to the top of the column.

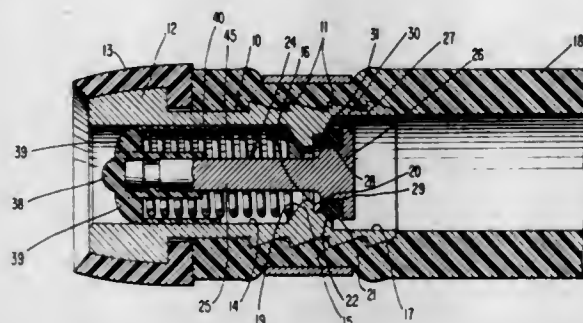
3,590,851
CHECK VALVE

Armen Bogossian, Teaneck, N.J., and Henry H. Mackal, Fort Lauderdale, Fla., assignors to Halkey-Roberts Corporation, Paramus, N.J.

Filed Aug. 6, 1968, Ser. No. 750,507
Int. Cl. F16k 15/20

U.S. Cl. 137-223

10 Claims



A fluid check valve which may be employed, for example, as a mouth inflation valve for hollow inflatable articles. The valve has a hollow body within which an axially positioned valve element reciprocates between a forward, valve closed position, toward which it is constantly urged by a spring, and a rear, valve open position. The valve includes an improved means for guiding the forward end of the valve element within the valve body, said guiding means also serving as the seat for the forward end of the spring and for opening the valve when it is thrust rearwardly with respect to the valve body.

3,590,852
AIR PUMP

Kunio Yamane, 53-6 Yoshinaga, Kishimoto-cho, Saihaku-gun, Tottori, Japan

Filed Mar. 26, 1969, Ser. No. 810,567

Claims priority, application Japan, Apr. 8, 1968, 43/28551

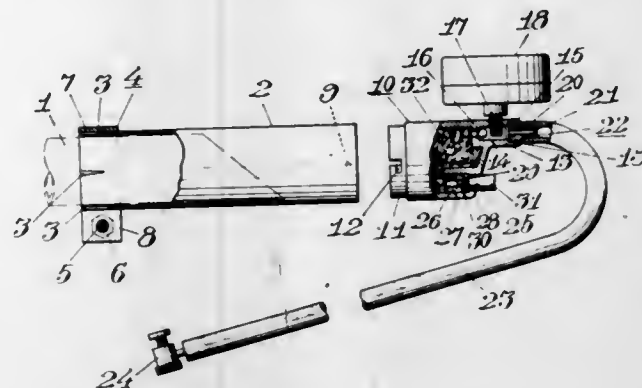
Int. Cl. F16k 15/20

U.S. Cl. 137-223

3 Claims

The present invention discloses an air pump used for utilization of exhaust gas from an automobile, wherein said

air pump comprises a tubular main body having, at one end, an opening connectable directly or through a supplementary means with an exhaust pipe of an automobile and, at other end, a discharge opening provided with a check valve, and a



pipe or conduit having one end connectable with the discharge opening of said tubular main body and other end provided with a mouthpiece or spigot and engageable with an intake port of an object to be supplied with air.

3,590,853

IRRIGATION SYSTEM WITH MISALIGNMENT-SENSING DEVICE

Don A. Haynes, Okemos, Mich., assignor to FMC Corporation, San Jose, Calif.

Filed Sept. 4, 1968, Ser. No. 757,238
Int. Cl. B05b 9/02; E01h 3/02

U.S. Cl. 137-344

9 Claims



A plurality of spaced carriages support a long irrigation pipe and move the pipe across a field. All of the carriages are driven from a long drive shaft mounted on the carriages and made up of rigid sections connected by universal joints adjacent the carriages. Power is supplied from the drive shaft to each carriage through a speed change mechanism comprising a pair of sheaves, one of which is mounted on the drive shaft. A link straddles each universal joint and has one end connected to a movable flange of the sheave on the drive shaft. When one carriage lags or leads the other carriages, the drive shaft bends in one direction or the other at the universal joint and the link moves the flange of the sheave in one direction or the other to speed up or slow down the carriage so that the water pipe is not severely bent. The link is automatically rotated 180° when the carriages are reversed by reversal of the drive shaft so that the speed of the carriages are controlled in either direction of travel of the carriages.

3,590,854

ROLLING CONDUCTOR SUPPORT

Gordon H. Cork, Birmingham, Mich., assignor to Gemco Electric Company, Clawson, Mich.

Continuation-in-part of application Ser. No. 670,646, Sept. 26, 1967, now abandoned. This application Oct. 9, 1968, Ser. No. 770,468

Int. Cl. B65h 75/36

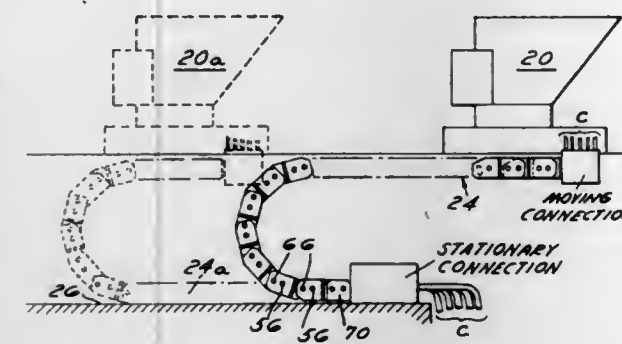
U.S. Cl. 137-355.16

28 Claims

This disclosure relates to a rolling conductor support useful in supporting, guiding and protecting electrical, hydraulic, coolant and the like conductors extending between parts of machines which move relative to one another on guides or tracks. The conductor support comprises a plurality of paral-

lel chains connected in laterally spaced relation by conductor-supporting bridges to which the conductors are fastened by clips or retainer loops. The chains are composed of links pivotally connected at overlapping contiguous ends, with an arcuate slot in one end of each link receiving a stop pin in the overlapping contiguous end of the next link, with the length of the slots determining the bending radius of the chains.

The disclosure also encompasses two or more conductor



supports arranged in stacked relation with means for supporting one on top of the other in spaced-apart relation.

Also disclosed is a flexible, sheetlike member extending between the chains to form a protective covering for the conductors, with retention bars overlying the cover and releasably engaged with the chain links. There is further disclosed a support including cross members extending between the chains forming a platform on which an operator may stand, with the chain links formed with laterally extending flanges to which the cross members are connected.

3,590,855

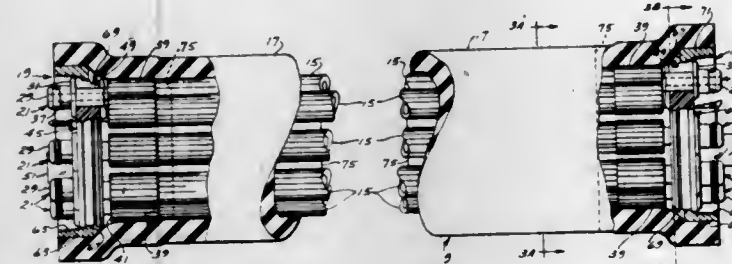
REMOTE-SUPPLY LIQUID DISPENSING SYSTEM
Charles E. Woollen, Clayton, and Robert W. Boehlow, Florissant, both of, Mo., assignors to Multiplex Company, St. Louis, Mo.

Filed Apr. 1, 1969, Ser. No. 812,276

Int. Cl. F16i 39/02

U.S. Cl. 137-375

27 Claims



A remote-supply liquid-dispensing system in which a plurality of counter-mounted dispensing units, each having a plurality of dispensing valves for dispensing different liquids, are supplied with liquids (e.g., syrups, carbonated water, plain water, beer, hot or cold coffee, etc.) from a temperature control unit at a location remote from the dispensing units via a system of thermally insulated fittings and conduits each having a plurality of tubes therein for the respective liquids, with quick-attachable couplings between the ends of the conduits and the fittings adapted for simultaneous quick connection of all the tubes in a conduit to all the tubes in a fitting, with the tubes for the respective liquids in the conduits and fittings in proper register, also the multiple-tube conduit and fittings used in the system.

3,590,856

SINGLE ACTUATOR FOR PLURAL VALVES

Salmon Gerhardus Antonie Fritz, Ficksburg, Republic of South Africa, assignor to Neutralized Valves Proprietary Limited, Johannesburg, Republic of South Africa

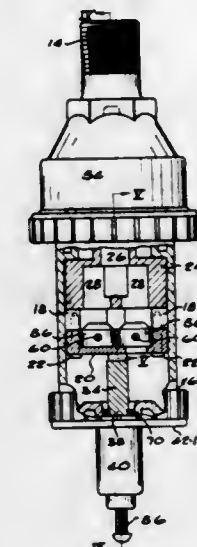
Filed Mar. 31, 1970, Ser. No. 24,062

Claims priority, application South Africa, Apr. 3, 1969, 69/2390

Int. Cl. F16k 11/10

U.S. Cl. 137-411

10 Claims



A valve having internally an axially displaceable fluid passage part presenting on the intake end at least two ports seatable on separate closure elements of which one is fixed and the other movable to a limited extent for the port of the fixed closure element to open before the other port. The passage port is displaceable by manual, mechanical or automatic means. The valve is automatically controllable by changing fluid pressure at the outlet end and provides on said end of the passage a face on which said fluid pressure reacts for application of a closing force against spring biasing applied to the passage part, while at the intake end of the passage part equal faces are presented to neutralize the supply fluid pressure on the passage part.

3,590,857

CONSTANT LEVEL LIQUID SUPPLY MEANS

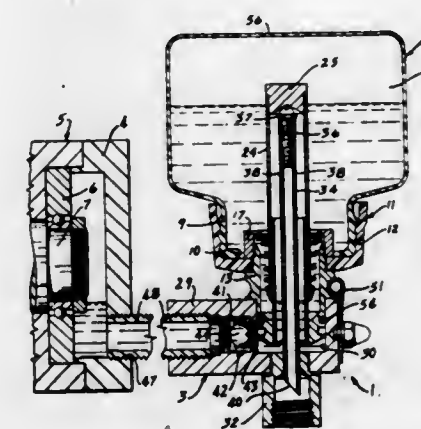
Donald G. Gruett, Manitowoc, Wis., assignor to Oil-Rite Corporation, Manitowoc, Wis.

Filed Jan. 21, 1970, Ser. No. 4,529

Int. Cl. G05d 9/02

U.S. Cl. 137-454

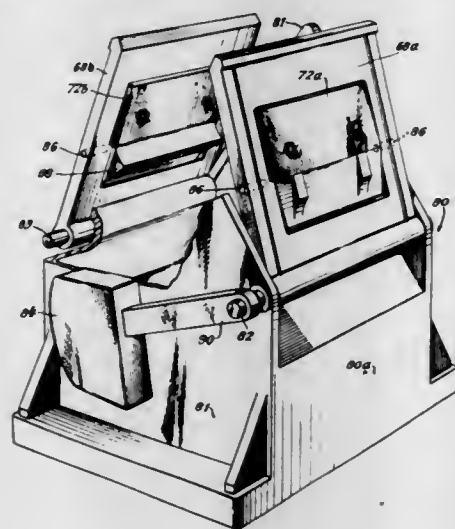
17 Claims



A liquid supply means are disclosed for maintaining a relatively constant level of liquid in a user assembly wherein the liquid is consumed. The supply arrangement includes a base assembly having a bore communicating with the user assembly and socket means communicating with the bore. The liquid supply is contained in a reservoir assembly having outlet means. The reservoir assembly is adapted for disposal in the base assembly socket means with the outlet means in

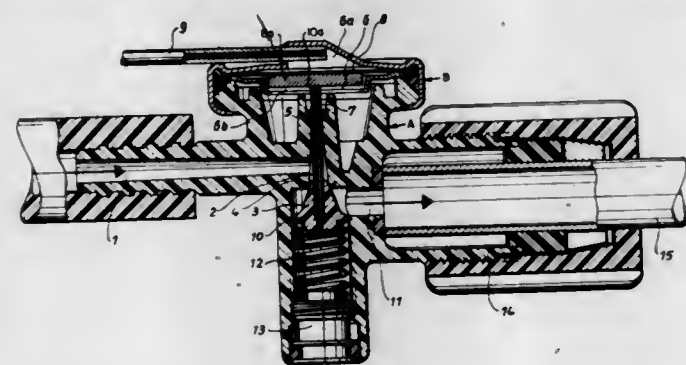
communication with the socket means and user assembly. The desired constant liquid level in the user assembly is established by the reservoir assembly outlet means. Vent means are provided for the reservoir assembly and communicates with the outlet means to vent the reservoir assembly through the outlet means to thereby restore the desired liquid level as liquid is consumed by the user assembly. The reservoir and base assemblies are each provided with valve means adapted to close when the reservoir assembly is separated from the base assembly. The respective valve means are adapted to open in response to a reassembly of the reservoir assembly into the base assembly socket means.

3,590,858
DEVICES FOR VENTING GASEOUS AND/OR VAPOROUS MEDIA
William S. Martin, Copynsfield, Westerham, Kent, England
Filed Oct. 16, 1968, Ser. No. 767,986
Claims priority, application Great Britain, Oct. 19, 1967, Nov. 14, 1967, 47601/67; 51758/67
Int. Cl. F16k 17/19
U.S. Cl. 137—493.3 8 Claims



A vent device for venting a gaseous and/or vaporous medium into the atmosphere, in particular for venting such a medium from a generally enclosed liquid container when liquid is entering the container, said vent device providing a vent orifice arranged for flow therethrough of the medium being vented, and comprising means for varying the cross-sectional area of the orifice in response to the volumetric rate of flow of the medium being vented, said cross-sectional area increasing with increasing flow rate of the medium and decreasing with decreasing flow rate of the medium.

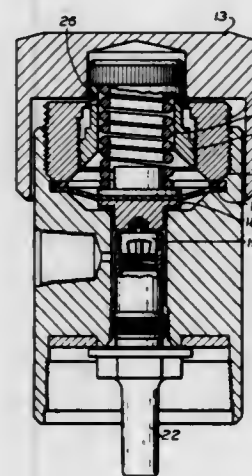
3,590,859
EXPANSION VALVE
Rudibert Gotzenberger, Fellbach, Germany, assignor to Ernst Flitsch, Fellbach, Germany
Filed Feb. 14, 1969, Ser. No. 799,299
Claims priority, application Germany, Feb. 24, 1968, P 16 75 505.8
Int. Cl. F16k 31/12
U.S. Cl. 137—495 3 Claims



An expansion valve for controlling the flow of a fluid medium and being connected to a pressure-generating sensor has

a valve housing defining a valve chamber and a valve head with a membrane therein reacting to the pressure coming from said sensor. A valve pin, connecting the membrane with the valve body of the valve for joint movement therewith, has a bore connecting the outlet end of the valve with an inner membrane chamber. The valve pin passes through a packing located between the inner membrane chamber and the valve chamber for preventing a flow of the medium from the valve chamber into the inner membrane chamber.

3,590,860
PRESSURE REGULATOR VALVE FOR L. P. CARTRIDGES
Irving H. Stenner, Brockport, N.Y., assignor to Bernzomatic Corporation
Filed July 31, 1969, Ser. No. 846,484
Int. Cl. G05d 16/06
U.S. Cl. 137—495 4 Claims



A finger-adjustable pressure regulator valve for regulating and shutting off the flow of gas from a disposable propane cartridge comprises a valve body containing a spring-loaded diaphragm operating on a strand tire core valve. The diaphragm spring is held by a threaded retainer which is adjustable from a full-open position to a full-closed position by rotation thereof with a control knob.

A retainer stop is threaded to the valve body and the spring retainer is threaded therein. During assembly, the retainer stop is threaded in place sufficiently to obtain the diaphragm seal and is then frozen in position as by jamming the threads or by the use of a plastic thread-lock compound.

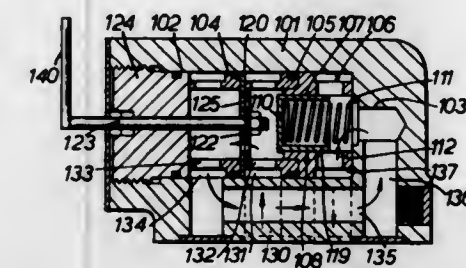
Preferably the finger-adjustable control knob is a bonnet or cap that extends over the valve body, giving a pleasing integral appearance to the regulator. The cap is affixed to the spring retainer after it has been positioned at the maximum pressure control point and frozen, as by press fitting the cap to the retainer.

In a preferred embodiment, a push pin is associated with and extends through the control knob and serves to permit depression of the diaphragm spring to the full-open position, regardless of the setting of the control knob. This is useful in the starting up of certain equipment, such as a space heater, which should be internally flooded with gas to secure proper ignition.

3,590,861
LIQUID FLOW CONTROL VALVES
George Edward Chittenden, and George Park Ferguson MacNeill, both of Coventry, England, assignors to Keelavite Hydraulics Limited
Filed July 15, 1969, Ser. No. 841,957
Claims priority, application Great Britain, May 5, 1969, 22817/69
Int. Cl. G05d 7/01
U.S. Cl. 137—501 5 Claims

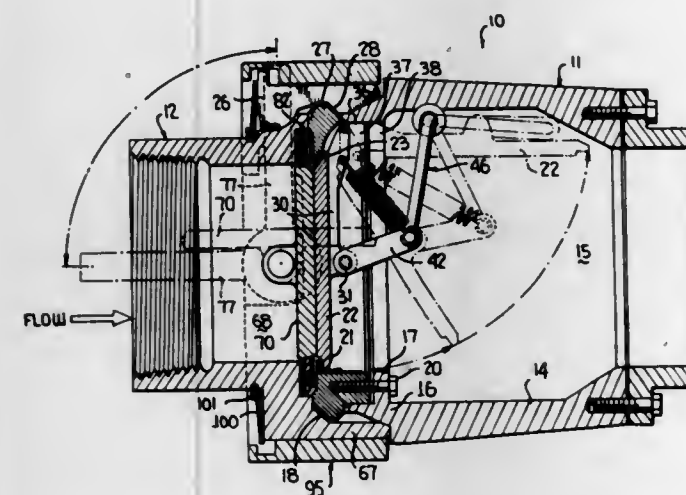
A pressure-compensated liquid flow metering valve which comprises, arranged in the same bore, a variable orifice af-

forded by a port obturated by the skirt of a piston biased in a direction to open the port by a spring and an adjustable fixed orifice through which hydraulic fluid from the inlet flows to the same side of the piston as the spring. Inlet pressure acts on the other side of the piston. Thus the variable orifice is



automatically varied to maintain a constant pressure drop across and hence a constant flow through the fixed orifice. The fixed orifice may be in the crown of the piston and adjustable by a plate movably mounted on the crown or may be a plate valve extending across the bore.

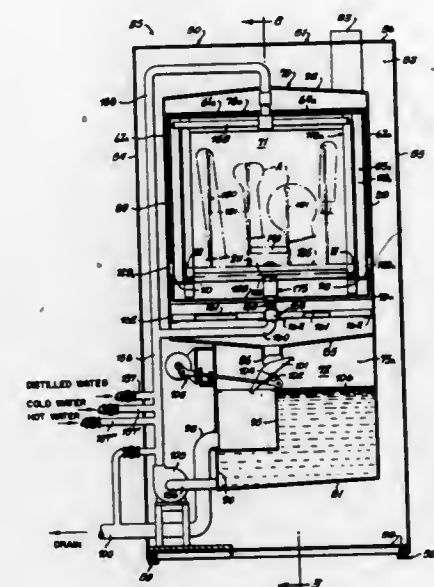
3,590,862
FUEL ADAPTER AND COUPLER ASSEMBLY
Paul A. De Graaf, Los Angeles, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio
Filed Dec. 9, 1968, Ser. No. 782,379
Int. Cl. F16k 15/00
U.S. Cl. 137—522 22 Claims



This disclosure relates to a fuel adapter and coupler assembly which includes an adapter body and a pair of coupler bodies, one for unloading operations and the other for loading operations, the adapter body having valve means connected to an exterior handle such that in one mode of operation the handle can be manually operated to open the valve while in another mode of operation the handle is maintained inoperative by a lost-motion connection and the valve means can therefore be automatically opened by the opening of a poppet valve associated with one of the coupler bodies.

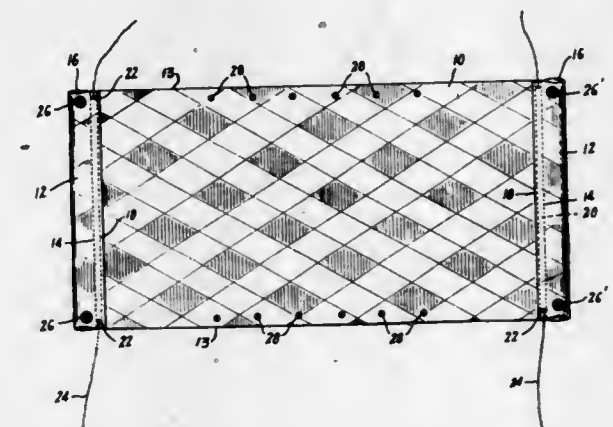
3,590,863
WASHER FOR HOSPITAL AND LABORATORY GLASSWARE AND THE LIKE
Francis S. Faust, Buffalo, and Ernest R. Edmunds, Tonawanda, both of N.Y., assignors to Sybron Corporation
Continuation of application Ser. No. 723,332, Apr. 22, 1968, now abandoned, which is a continuation of application Ser. No. 608,702, Jan. 11, 1967, now abandoned, which is a continuation of application Ser. No. 423,962, Jan. 7, 1965, now abandoned. This application Apr. 28, 1969, Ser. No. 820,708
Int. Cl. B08b 3/02; B67c 1/00
U.S. Cl. 134—144 13 Claims

A washing machine for laboratory-type glassware having



to receive a rollable dolly 135 supporting a variety of holders including a spindle rack 190 and pipette holder 219.

3,590,864
PLIANT SHEET ARTICLE
Nadeshda G. Vechesloff, 50 South Quaker Lane, West Hartford, Conn.
Filed July 25, 1969, Ser. No. 844,979
Int. Cl. E04f 10/02; A45f 5/00
U.S. Cl. 135—5 R 9 Claims

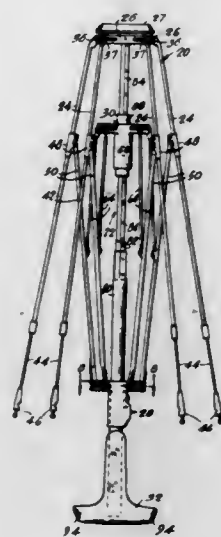


A generally rectangular pliant sheet article has a pole-receiving channel adjacent each of two of its opposed edges, lace-receiving means adjacent each of the channels, and set of relatively small holes adjacent each of the other two opposed edges of the sheet. The article may be used with laces as a stolelike garment or it may be used in combination with pole elements as a flag, a handbag or a canopy assembly.

3,590,865
FLAT UMBRELLA
Manfred Breshney, Mount Royal, Quebec, Canada, assignor to Telesco Brophey Limited, Montreal, Quebec, Canada
Filed Oct. 24, 1968, Ser. No. 770,349
Int. Cl. A45b 19/06
U.S. Cl. 135—26 16 Claims

The umbrella has a telescopic stick and shortenable dome

ribs. The crown and runners are relatively narrow and give



the umbrella a flat cross section when it is in a stowed condition, but circular when in an erected condition.

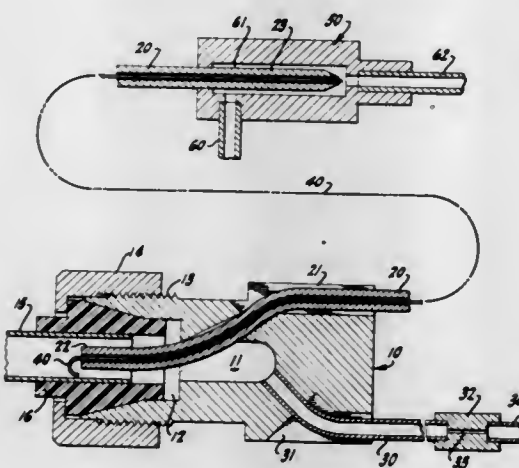
3,590,866

CAPILLARY GAS SPLITTING DEVICE

Robert G. Brownlee, East Palo Alto, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.
Filed Sept. 10, 1969, Ser. No. 856,713
Int. Cl. F15b 21/04

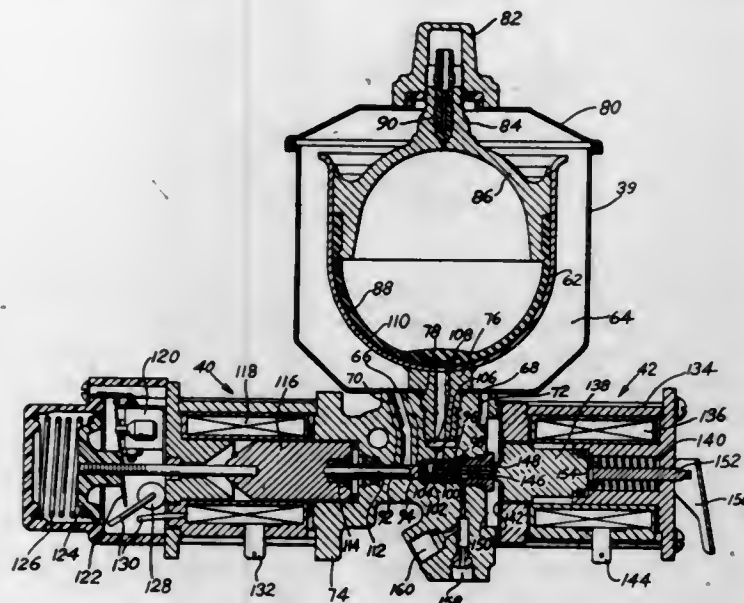
U.S. Cl. 137-561

3 Claims



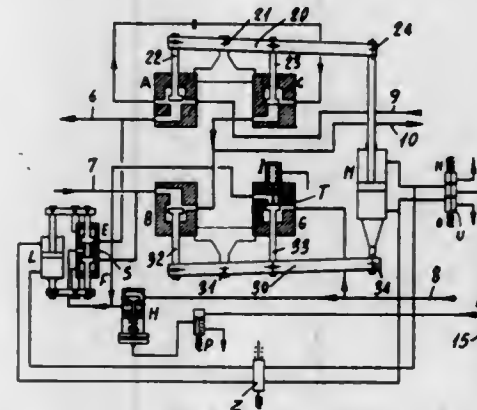
A capillary gas-splitting device incorporating a gas-receiving fitting provided at one end with a cylindrical bore and, leading therefrom, a pair of gas outlet tubes between which the entrant gas is split in a ratio which remains constant despite varying gas inlet pressures and flow rates. The first of said tubes incorporates a relatively short section of capillary tubing at any position along its length, and it opens into the bore adjacent the bottom thereof. The second of said tubes is of capillary size and extends into the bore with its extremity running axially thereof for opening against the incoming gas. Though admitted under pressure, the gas is discharged from each tube at atmospheric pressure, and the ratio of the flow rate of incoming gas passing through the one tube as compared with that through the other is directly proportional to the respective capillary lengths in the two tubes. The capillary tube is adapted at its gas-entrant end to receive lengths of wire of extremely small diameter whereby the split ratio of gases passing through the two tubes may be changed as desired. The exit end of the capillary tube may be provided with a fitting adapted to receive nitrogen or other inert gases and to discharge the same in an annular fashion about the end of the capillary tube for even mixing with the gas stream discharged therefrom.

3,590,867
ELECTROHYDRAULIC CONTROL MEANS
George M. Tam, St. Joseph, Mich., and Franklin O. Wisman, Chambersburg, Pa., assignors to The Bendix Corporation
Filed Dec. 27, 1968, Ser. No. 787,416
Int. Cl. F04b 11/00; B60t 13/14
U.S. Cl. 137-568 17 Claims



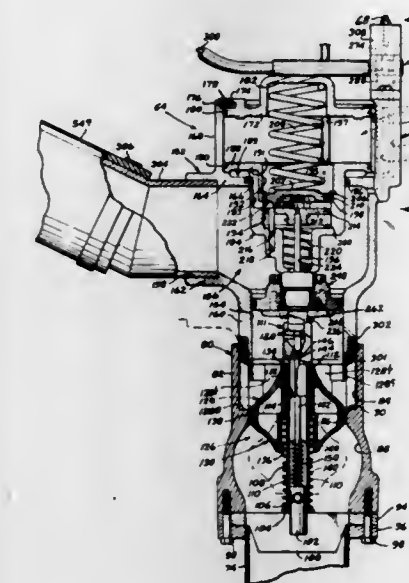
This invention relates to an electrohydraulic system having a controller means which can be regulated to provide a substantially level current for controlling a hydraulic pressure boost and metering valve apparatus which controller is adapted to be manually and hydraulically operated. In addition, the invention also relates to the integration of a hydraulic fluid supply, pump, accumulator and metering valve in a common housing.

3,590,868
CONTROL APPARATUS FOR CONNECTING AND DISCONNECTING ONE OF A PLURALITY OF FUEL OIL BURNERS
Enrico Pontiggia, Milan, Italy, assignor to Breda Termomeccanica & Locomotive S.p.A., Milan, Italy
Filed Dec. 18, 1968, Ser. No. 784,579
Claims priority, application Italy, June 28, 1968, 18377A/68
Int. Cl. F16k 31/163
U.S. Cl. 137-609 6 Claims



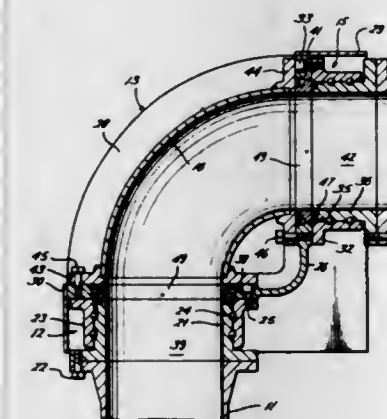
A control apparatus for connecting and disconnecting one of a plurality of fuel oil burners comprising: a plurality of simple seating plug valves A, B, C, G connected respectively in the oil delivery, oil return, and recirculating pipes and in the cooling and scavenging fluid delivery pipe, wherein the fluid pressure cooperates, when the valves are closed, in exerting the sealing pressure on the valve seating. A pneumatic or hydraulic servomotor operated by a single pilot slide valve simultaneously controls all the valves, including valve means provided to intercept the scavenging and cooling fluid of the burner, through lever systems.

3,590,869
PRESSURE-FLUID-ASSISTED APPARATUS FOR DISCONNECTABLY COUPLING A PAIR OF CONDUITS
Carl V. Von Linsowe, 2820 Julio Ave., San Jose, Calif.
Filed June 11, 1969, Ser. No. 832,161
Int. Cl. F16l 29/00
U.S. Cl. 137-614.03 16 Claims



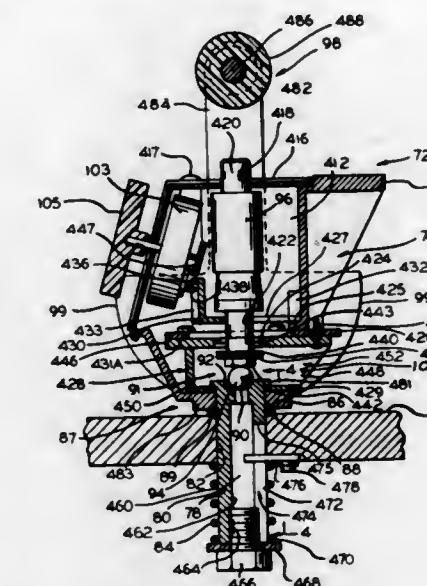
Apparatus employing pressure fluid assistance for disconnectably coupling a pair of conduits, one of which contains fluid under pressure. The apparatus includes a pair of interconnectable body members attached to the conduits, a pressure-fluid-actuated driver mechanism for driving the two body members together, and a fluid communicator for supplying pressure fluid from the one conduit to the driver mechanism with the body members moved toward one another. The apparatus further includes pressure-fluid-actuated locking mechanism which, during interconnecting of the body members, receives fluid from the fluid communicator, and locks the body members against separation prior to the establishment of fluid communication between the two conduits.

3,590,870
LOADING ARM
Albert A. Ashton, Dallas, Tex., assignor to Youngstown Sheet and Tube Company, Youngstown, Ohio
Filed Nov. 26, 1969, Ser. No. 880,195
Int. Cl. B67d 5/06
U.S. Cl. 137-615 15 Claims



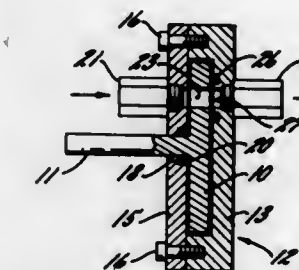
This patent discloses a loading arm in which packing in the swivel joints at the upper end of the riser pipe and at the innermost end of the inner arm may be readily and easily changed or serviced without disassembly of either swivel joint.

3,590,871
COMBINATION SAFETY AND MANUAL RELEASE VALVE
Winston L. Shelton, Jeffersontown, Ky., assignor to Miles Filter Products, Incorporated
Filed May 14, 1969, Ser. No. 824,431
Int. Cl. F16k 31/48 11 Claims
U.S. Cl. 137-624.12



The disclosure relates to a relief valve arrangement for vessels operating under pressure including a weighted ball valve arrangement that opens when pressure exceeds a predetermined amount, or when actuated by a timer mechanism, a spring action valve that opens when pressure exceeds a higher predetermined amount, and a swing or rocker lever arrangement for manually opening the spring action valve to vent the pressure to atmosphere.

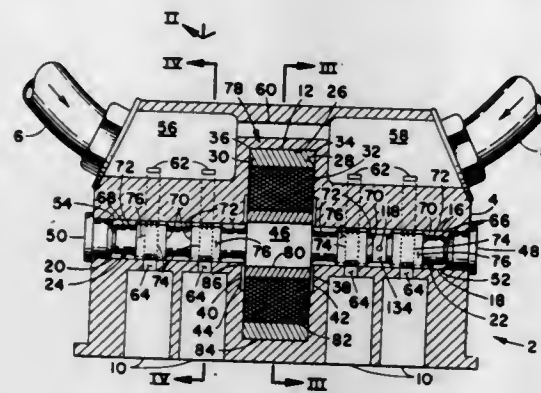
3,590,872
ROTARY VALVE
Andrew J. Balty, Elmhurst, Ill., assignor to J. E. Watkins Co., Maywood, Ill.
Filed Feb. 5, 1969, Ser. No. 796,728
Int. Cl. F16k 11/02, 5/14
U.S. Cl. 137-625.46 5 Claims



A rotary valve is described in which a disc control member having a confined flow passage is rotatable within a housing to bring the flow passage into alignment with an inlet and an outlet opening on opposite sides of the housing. The outlet opening is sealed against leakage by an elastomeric ring seated in an annular recess surrounding the outlet opening and facing the disc control member. As an alternative, an additional outlet opening is provided away from the axis of the inlet opening, and the disc control member is provided with a passage communicating therebetween.

3,590,873
VALVE MECHANISM
Billy E. Duff, Richardson, and Joe D. Usry, Arlington, both of, Tex., assignors to LTV ElectroSystems, Inc., Greenville, Tex.
Filed July 26, 1968, Ser. No. 748,013
Int. Cl. F16k 31/04 9 Claims
U.S. Cl. 137-625.46
A valve mechanism for regulating the flow of fluid including a valve body having a chamber with a movable valve

spool disposed therein. A valve actuator is operatively connected to the valve spool for moving the valve spool between a closed position and a predetermined open position. A control system is provided which is operable to detect movement



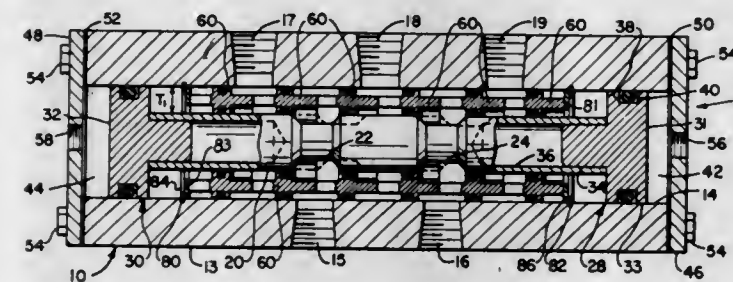
of the valve spool from the predetermined open position and for generating an error signal which is effective to energize the actuator to return the valve spool to the predetermined open position.

3,590,874 VALVE DESIGN

David Y. Rice, Cleveland, Ohio, assignor to David Y. Rice Co., Cleveland, Ohio
Filed Nov. 21, 1969, Ser. No. 878,752
Int. Cl. F16k 11/07

U.S. Cl. 137—625.48

7 Claims



A valve comprising a body having a circular bore and a plurality of fluid passages which extend into the bore at positions spaced longitudinally thereof. An elongated valve spool member extends axially through the bore and in combination therewith defines an annular channel. Positioned within the annular channel and surrounding the spool member are a plurality of generally cylindrical members each of which terminates in end faces perpendicular to its axis. Each of the members includes a circumferential seal ring that extend about the outer surface of the member substantially at its midplane for sealing between the member and the wall of the bore. The members also have a seal ring positioned about their inner surface for sealing between the member and the spool. Additionally, flow passages are formed through the cylindrical members on opposite sides of the seal rings.

3,590,875 AIR MOTOR VALVE

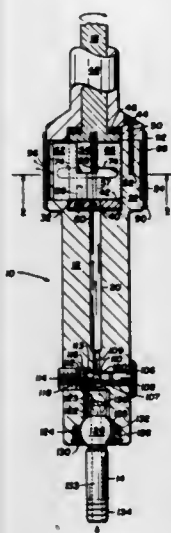
Oren V. Northcutt, Box 176, Point, Tex.
Division of Ser. No. 639,767, May 19, 1967, Pat. No. 3,498,186.
This application Dec. 8, 1969, Ser. No. 882,903
Int. Cl. F16k 11/14

U.S. Cl. 137—630.14

1 Claim

An air motor including an outer casing having a three-lobed chamber defined in one end thereof which rotatably receives a cylindrical rotor. Air under pressure is fed through a suitable inlet into one end of the chamber. Two pairs of perpendicularly disposed vanes are slidably disposed in slots in the rotor and radially extend from the rotor into unoccupied outer portions of the three-lobed chamber. The vanes have relieved portions along the sides thereof to provide,

along with the slots in the rotor, communication between the air inlet and the outer portions of the three-lobed chamber. Passage of air under pressure through the air inlet into the



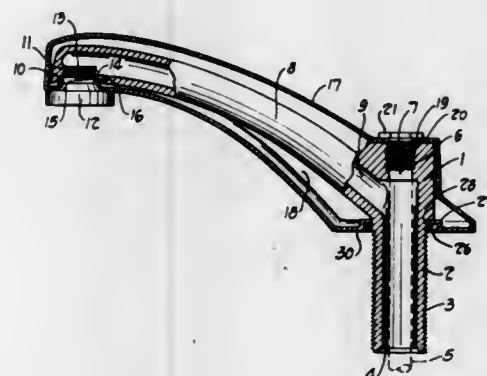
outer portions of the chamber acts upon the vanes to cause rotation of the rotor. The valve of the invention is included in the outer casing to vary the passage of air in order to control the rotation speed of the rotor.

3,590,876

LAVATORY SPOUT CONSTRUCTION
Stephen A. Young, c/o Stephen A. Young Corp., Flora, Ind.
Filed Jan. 9, 1970, Ser. No. 1,682
Int. Cl. F16k 27/12; F16l 7/00

U.S. Cl. 137—801

4 Claims



The disclosure herein is of a lavatory spout of composite construction to provide a unitary member which eliminates plating of brass castings, this being a sometimes difficult and unsatisfactory process because of inclusions in the casting, the spout hereof availing of a cover of die-cast parts which are easier to plate, cover up the brass casting, and are secured thereto by parts which make assembly feasible and produce what actually appears to be a solid, single member functionally the exact equivalent of the usual spout.

3,590,877

EXPLOSIVE-ACTIVATED PLUG
Phillip M. Leopold, Alliance, Ohio, and Louis A. Sturiale, Irwin, Pa., assignors to The Babcock & Wilcox Company, New York, N.Y.

Filed Sept. 20, 1968, Ser. No. 761,273

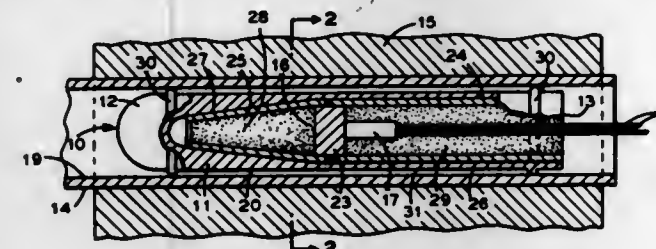
Int. Cl. F16l 55/10

U.S. Cl. 138—89

4 Claims

A plug which can be inserted into a tube and containing a

shaped explosive charge which is detonated to expand the plug against the surrounding tube surface with an impact that



effects a circumferential weld bond between the plug and tube surface to seal the tube.

3,590,878

SUPPORT FOR UNDERWATER PIPE LINES
Walter Brown, Long Beach, Calif., and Donald E. Smith, Nashville, Tenn., assignors to North American Rockwell Corporation

Filed Jan. 8, 1970, Ser. No. 1,493

Int. Cl. F16l 3/02

U.S. Cl. 138—106

11 Claims



This invention relates to a stiffener assembly for controlling the bend of a pipe or pipe bundle in areas where large bending moments are expected. A plurality of stiffeners are secured along the length of pipe in an end-to-end relationship and in such a manner as to allow the pipe to deflect to a point where the bending stress is still below its yield point.

3,590,879

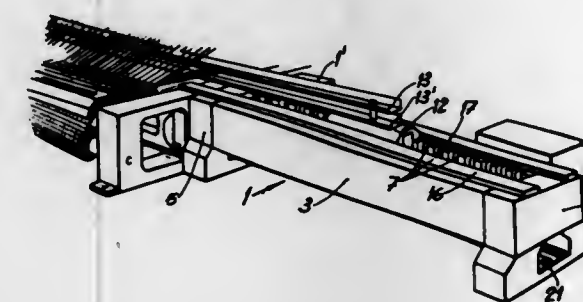
DRIVING DEVICE FOR THE WEFT INSERTERS OF WEAVING MACHINES WITH A FIXED WEFT SUPPLY
Jose Bassa Basart, Calle Bailen, 150, Barcelona, Spain
Filed Aug. 29, 1969, Ser. No. 854,061

Claims priority, application Spain, Aug. 29, 1968, 357,882

Int. Cl. D03d 47/00

U.S. Cl. 139—123

6 Claims



A device for driving inserters of weft threads on fixed weft reserve looms having a rigid inserting element wherein electromagnetic organs made up of a rectilinear and horizontal

stator, a mobile part carrying the inserter elements and a control element drive the inserters. The mobile part is preferably a grooved core of magnetic material having copper sheets placed in the grooves to form an armature so that the mobile part functions similarly to the rotor of an induction motor and carries one or two rigid inserter elements which are provided on their free ends with clamps or clips to catch the weft threads.

3,590,880

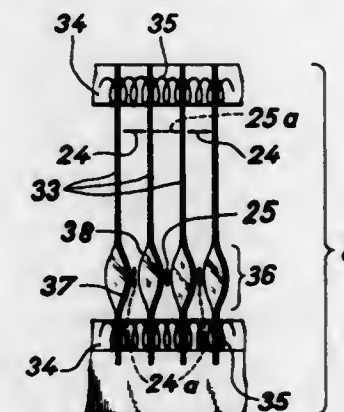
APPARATUS AND METHOD FOR OPERATING A LOOM
Josef Kathriner, Kolbrunn, Zurich, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland
Filed Jan. 17, 1969, Ser. No. 792,003

Claims priority, application Switzerland, Jan. 19, 1968, 895/68

Int. Cl. D03d 49/62; D03c 9/02

U.S. Cl. 139—192

15 Claims



The ribbonlike warps in the bottom of the shed are inclined to the horizontal so as to permit clearance for the shuttle guide elements during return of the reed from the beat-up position. These warps are caused to twist out of the horizontal by the droppers in the reed, comb or heads.

3,590,881

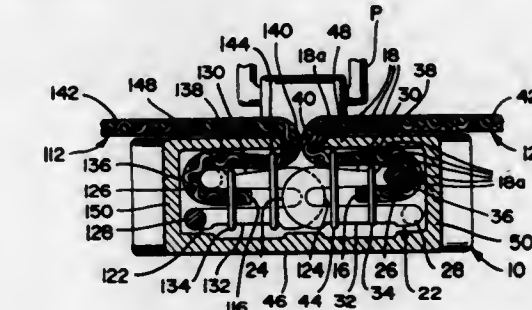
SLIDE FASTENER CARRIER TAPE
William F. Van Amburg, Meadville, Pa., assignor to Textron Inc.

Filed Oct. 22, 1969, Ser. No. 868,542

Int. Cl. A44b 19/00

U.S. Cl. 139—384

11 Claims



A slide fastener including a folded carrier tape having warp threads at the folded portions made of a synthetic, self-lubricating material such that the carrier tape resists wear at the folded portions and the movement of a slider along the folded portions is facilitated.

3,590,882

OPTICAL WEFT STOP MOTION FOR A WEAVING MACHINE
Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland
Filed Apr. 23, 1969, Ser. No. 818,636

Claims priority, application Switzerland, Apr. 26, 1968, 6295/68

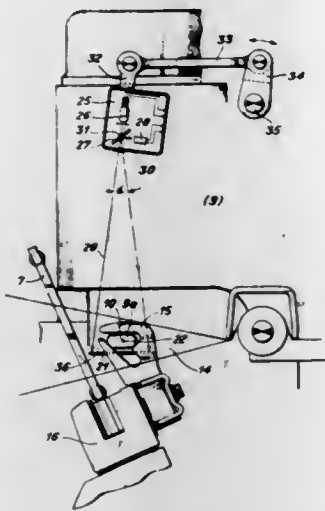
Int. Cl. D03d 51/34

U.S. Cl. 139—370

10 Claims

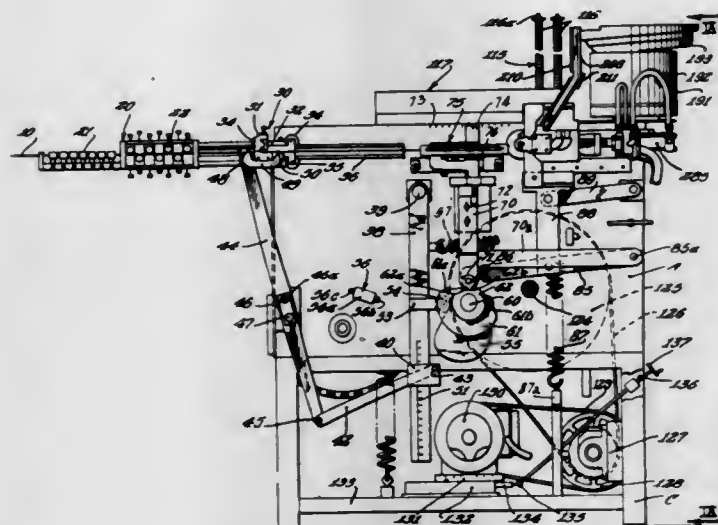
The beam is caused to move through an angle to cover the area in which a weft yarn may be displaced. Detection of a

weft yarn in this area allows continued operation of the weaving machine whereas absence of the weft yarn causes



the weaving machine to shut down. The means to move the light beam is synchronized with the weaving machine drive.

3,590,883
METHOD AND APPARATUS FOR MANUFACTURE OF WIRE CLIPS
Josef K. Kihls, Hamilton, Ontario, Canada, assignor to Rohn Manufacturing Co., Peoria, Ill.
Filed Apr. 16, 1969, Ser. No. 816,716
Int. Cl. B21f 45/16
U.S. Cl. 140-1 22 Claims



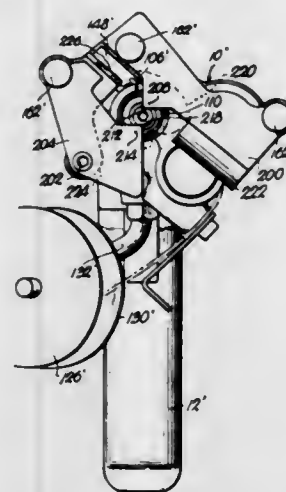
Apparatus and method for automatically producing bent wire clips comprises a vertical and horizontal wire straightener which receives and straightens a continuous length of wire, a hitch feed assembly through which the wire passes and which is adjustable to measure and intermittently feed the exact length of wire required for the various sized clips, a wire cutoff assembly, a wire-forming means and a grommet inserting means. As the wire piece is cut off from a length of continuous wire it is gripped by a pair of upper and lower coacting pressure plates which clamp a central portion of the wire piece and secure it during formation of the clip ends. To form a spiral end standoff clip that may be snapped on a cylindrical pole the wire forming means comprises a rotating and laterally movable spiral twist winder which forms the one end of the wire piece about a twist wind arbor while a grommet hook has been formed on the forward end of the wire piece. An insulating grommet may be supplied by a feed system and pushed into the grommet hook by a synchronized air ram. The upper and lower pressure plates now release the finished product and the same is blown off the spiral twist winder onto an extension arm from which it may be counted and packaged.

3,590,884
EVEN WIRE WRAP FOR FLEXIBLE DUCT CONSTRUCTION
Clarence H. Helbing, Shelbyville, Ind., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed Dec. 12, 1968, Ser. No. 783,273
Int. Cl. B21f 3/00, 3/02
U.S. Cl. 140-92.1 4 Claims



As assembly for fabricating flexible insulated duct on a mandrel wherein wire is wrapped about the mandrel and onto a connector member, and in which the mandrel is provided with means coating with an edge of the connector member to prevent wire from building up in successive side-by-side and/or overlapping wraps before being wrapped onto the connector member.

3,590,885
TOOL FOR TYING WIRE
James E. Ward, 984 Seco St., Pasadena, Calif.
Continuation-in-part of application Ser. No. 758,263, Sept. 9, 1968. This application July 31, 1969, Ser. No. 846,416
Int. Cl. B21f 9/02, 45/00, 7/00, 15/04
U.S. Cl. 140-93.6 10 Claims

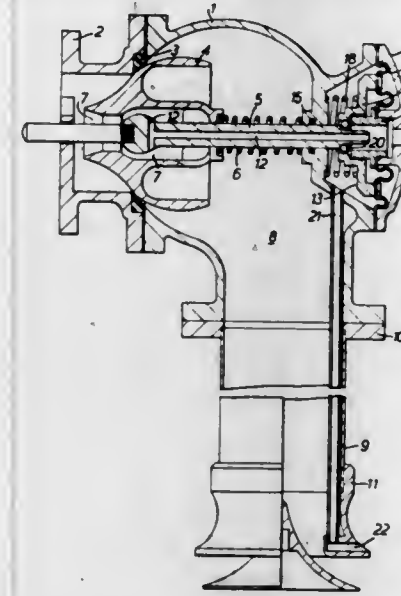


A handtool for wire tying of reinforcing bars or the like is equipped with means to avoid bunching or piling of the convolutions of the tie on top of one another. Shiftable, spring-loaded plates on one end of the body of the tool are shifted by the ends of the wire loop during twisting such as to move the body away from the bars and leave sufficient clearance for the formation of an elongated tie with the convolutions wound spirally in side-by-side relationship, closely resembling a plier-made twist.

ERRATUM
For Class 140-119 see:
Patent No. 3,590,391

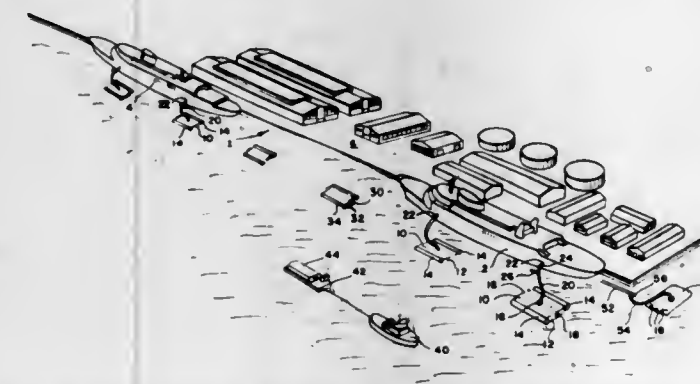
3,590,886
LIQUID FLOW CONTROL VALVES
William Frank Judd, London, England, assignor to Whessoe Limited
Filed July 29, 1968, Ser. No. 748,371
Claims priority, application Great Britain, Aug. 21, 1967, Sept. 4, 1967, 38428/67; 40341/67
Int. Cl. B67d 5/04
U.S. Cl. 141-198 7 Claims
This invention is concerned with means for controlling the flow of liquid through a drop pipe into a vessel comprising a valve movable between a closed position in which the liquid

can flow at a limited rate only and an open position in which the liquid can flow at a higher rate, a releasable locking device normally preventing movement of the valve from the closed to the open position, a pneumatic operating chamber, means responsive to the pressure in the operating chamber for releasing the locking device, a relief passage communicating with the operating chamber and having an opening ad-



acent the delivery outlet of the drop pipe, thereby maintaining the pressure in the operating chamber substantially normal until the said opening is blocked by the rise of liquid level in the vessel, and means for applying a pressure differing from that of the atmosphere to the operating chamber, whereby upon said opening becoming blocked said nonatmospheric pressure is established in the operating chamber and the locking device is released.

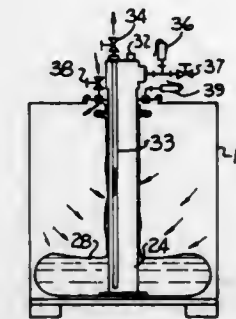
3,590,887
PORT FACILITY SHIP SEWAGE COLLECTION, TRANSPORTATION AND DISPOSAL SYSTEM
Harold G. Quase, Potomac, Md., assignor to Underwater Storage, Inc., Washington, D.C.
Continuation-in-part of application Ser. No. 710,084, Mar. 4, 1968, now Patent No. 3,528,462. This application Feb. 7, 1969, Ser. No. 797,601
Int. Cl. E03f 1/00
U.S. Cl. 141-1 15 Claims



Port facility sewage disposal systems for large ships in port employing large collapsible waste-containing bags which are submergible and anchorable adjacent a ship and which when filled are towable to a remote location for emptying and processing are described herein.

3,590,888
COMPOSITE CONTAINER AND METHOD OF HANDLING FLUENT MATERIALS
Clarence B. Coleman, 2401 Merced St., San Leandro, Calif.
Filed Dec. 5, 1966, Ser. No. 599,070
Int. Cl. B65b 3/00; B65d 25/14; B67c 3/00
U.S. Cl. 141-5 15 Claims
A composite container is assembled by introducing a flexible bag, in collapsed condition, into a rigid shell through an

opening therein and distending the bag for all-around support by the shell by injecting inflation gas through a multipassage conduit extending through the shell and bag openings; fluent material to be confined is thereafter admitted to the bag while simultaneously exhausting displaced gas through the same conduit means. The material can be discharged through



the nozzle means by pumping or by forcing gas into the space between the shell and bag to collapse the bag; or a separate opening can be formed in the bottom of the bag. The two passages may end at the conduit means, and at least one communicates directly with an upper part of the bag to discharge displaced gas. The conduit means has a plate or bar to position the bottom of the bag within the shell.

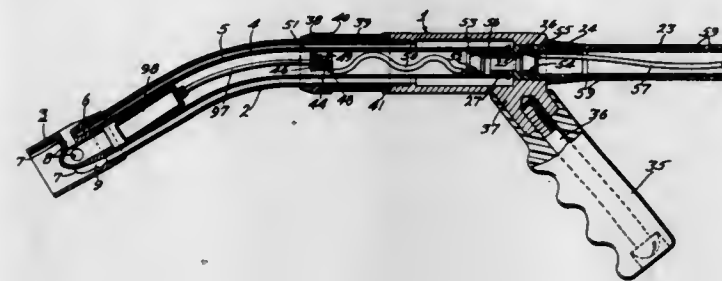
3,590,889
INJECTOR FILLING APPARATUS
Tom H. Vannus, Pomona, Calif., assignor to Hamilton Company, Whittier, Calif.
Filed Apr. 15, 1969, Ser. No. 816,352
Int. Cl. B01z 3/00
U.S. Cl. 141-18 5 Claims



Apparatus for filling at least the needles of injector devices or syringes by pressure. A vial having a fluid sample therein has means for putting the sample under substantial pressure for forcing same into an injection device.

3,590,890
NOZZLE FOR LIQUID-FUEL-DISPENSING APPARATUS
Einar T. Young, Newtown Square, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
Continuation-in-part of application Ser. No. 746,165, July 19, 1968, now abandoned. This application Feb. 3, 1969, Ser. No. 796,003
Int. Cl. B67d 5/373
U.S. Cl. 141-192 7 Claims
A nozzle, for use with liquid-fuel-dispensing apparatus employing a liquid fuel pump, carries electrical control means which permits the pump to be energized only when the nozzle is properly inserted into the metallic fill pipe of a fuel

tank. Automatic shutoff means, associated with a return vapor line extending from the fuel tank to a vacuum pump in



the housing of the dispensing apparatus, is provided to stop the dispensing of fuel when the tank is full.

3,590,891

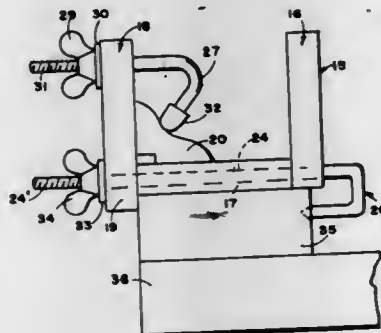
EASILY ANCHORED MITRE BOXES

John Guglielmo, No. 64 Valley View Drive, Yonkers, N.Y.
Filed Sept. 16, 1969, Ser. No. 858,311

Int. Cl. B27b 21/00

U.S. Cl. 143-86

11 Claims



A channel-form wooden mitre box whose front wall member extends a bit below resting surface, has front-to-back through-holes near each side end passing through the bottom wall member, in which holes are slidable, rotatable shanks carrying a washer behind a wingnut at their threaded front ends which extend forwardly of the box structure, and said shanks are bent at their rearwardly extending ends to provide lateral extensions, which may be straight pieces or hook-forms. The downward extension of the front wall member and said rear lateral extensions of the shanks, serve as the jaws of a clamp, upon tightening the wingnuts. For the straight pieces, a tabletop is provided with two spaced holes to receive them. For the hook-forms, a wooden block is secured atop a table or two nails are driven into the tabletop in spaced relation, for the hooks to engage.

3,590,892

POWER-DRIVEN CONTINUOUS CUTTING STRIP AND METHOD OF UTILIZATION THEREOF

Jack W. Ehlen, Torrance, Calif., assignor to McCulloch Corporation, Los Angeles, Calif.

Division of Ser. No. 605,371, Dec. 28, 1966, Pat. No. 3,468,351.

This application Aug. 6, 1969, Ser. No. 848,049

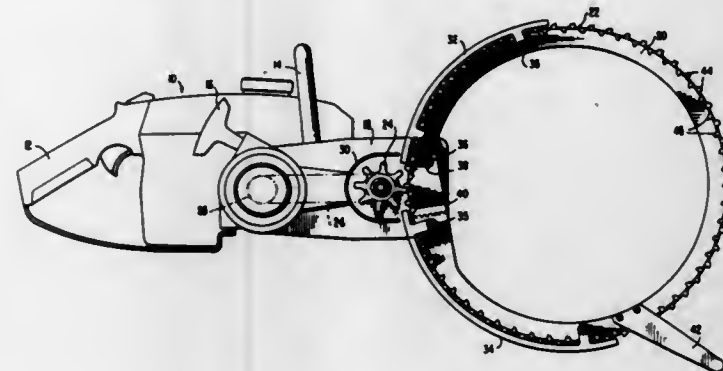
Int. Cl. B27b 33/06, 1/00

U.S. Cl. 143-133

4 Claims

A flexible cutting strip including stabilizing portions operable to slidably engage a ringlike base and cutting teeth formed integrally with one base.

A method of cutting wherein a flexible cutting strip is constrained to follow a circular and continuous cutting path so



as to prevent flexing of the cutting strip and where a circular support follows and supports the strip as it is moved into a kerf.

3,590,893

METHOD OF FASTENING BLADES TO SAWING TOOLS

Tadeusz Burkiewicz, Traugutta 90, Gdansk-Wrzeszcz, Poland

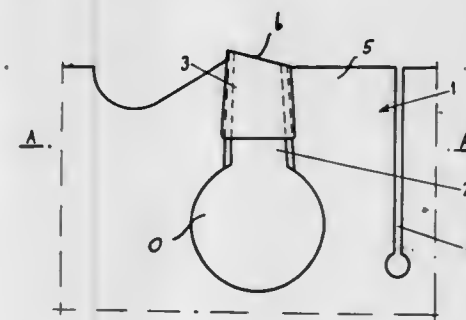
Filed Jan. 22, 1968, Ser. No. 699,552

Claims priority, application Poland, Jan. 21, 1967, 118,629

Int. Cl. B27b 33/12

U.S. Cl. 143-145

7 Claims



A saw blade having cutting bodies wedged in resilient seats in a blade body with the cutting edges of the cutting bodies protruding from the blade body.

3,590,894

SHEARING DEVICE

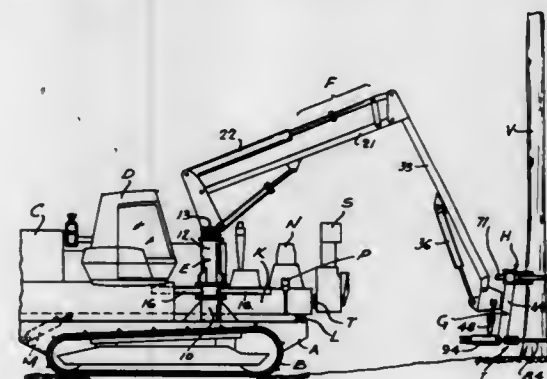
John H. Boyd; David O. Cunningham, and Robert G. Elms, all of Woodstock, Ontario, Canada, assignors to Timberjack Machines Limited, Woodstock, Ontario, Canada

Filed July 22, 1968, Ser. No. 746,430

Int. Cl. A01g 23/02

U.S. Cl. 144-34 E

8 Claims



A shearing device having a pair of relatively pivotal, coplanar blades for use in cutting through a tree. To counteract the "squeezing out" effect of forcefully closing the blades these are formed by taking a steel plate, cutting it down the center and then forming sharpened edges on it. Prior to these steps the plate is formed in both surfaces with

a shallow spherical concavity so that the resultant blades have tapers extending along their edges towards a midpoint. In operation these tapers tend to center the object being cut about such midpoint.

ERRATUM

For Class 144-300 see:
Patent No. 3,590,768

3,590,895

OFFSET SCREWDRIVER WITH INTERCHANGEABLE HEADS

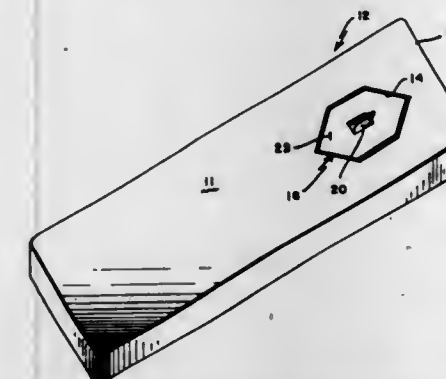
Theodore E. Wirtanen, Chelmsford, Mass., assignor to the United States of America as represented by the Secretary of the Air Force.

Filed Mar. 18, 1969, Ser. No. 808,122

Int. Cl. B25b 15/02

U.S. Cl. 145-50

2 Claims



A flat bar having an extended flat surface is recessed adjacent one of its ends to receive any one of a plurality of screwdriver heads of complementary configuration. The configuration is preferably a regular hexagon having vertical walls. Some of the walls of the recess are provided with springs which are adapted to mesh with recesses present in all of the walls of each head so that each head is capable of a multiplicity of angular positions. Each head is provided with a differently designed screwdriver tip.

3,590,896

APPARATUS FOR SHREDDING OR CUTTING HEADS OF LETTUCE, CABBAGE AND THE LIKE

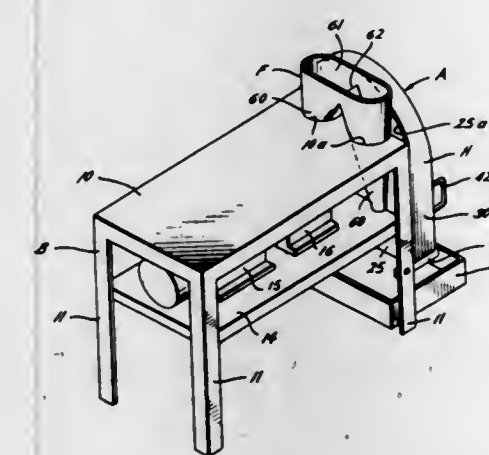
Halbert R. Hill, and Garfield C. Siverson, both of Harris County, Tex., assignors to Moore & Stephenson, by said Hill, Houston, Tex., part interest to each

Filed Apr. 14, 1969, Ser. No. 815,961

Int. Cl. B02c 18/06

U.S. Cl. 146-114

8 Claims



An apparatus for cutting or shredding cabbage, lettuce and the like to make salads, slaw and similar items, wherein means is provided for a self-feeding of the heads to a rotating cutter blade to thereby eliminate hand or pusher feeding of such heads. The rotating cutter is mounted for rotation in a vertical plane and is disposed so that it is readily accessible for a rapid and thorough cleaning without requiring removal of the cutter or any disassembly thereof.

888 O.G.-5

3,590,897

SPIDER WHEEL

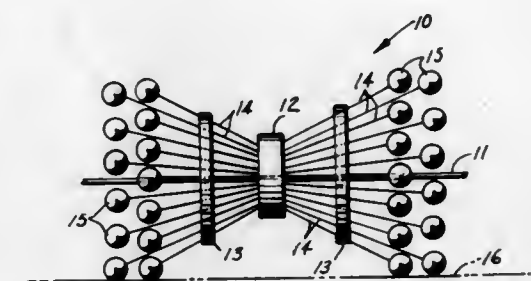
Edwin C. Bragdon, 5445 Val Verde St., Houston, Tex.

Filed Oct. 21, 1969, Ser. No. 868,042

Int. Cl. B60b 9/04; B62d 57/00

U.S. Cl. 152-12

2 Claims



A soft resilient wheel having a multiple number of radial elements of springing material in order to cushion a vehicle and also properly support the vehicle upon various types of surfaces.

3,590,898

WHEEL AND TIRE HAVING HEMISPHERICAL SHAPE

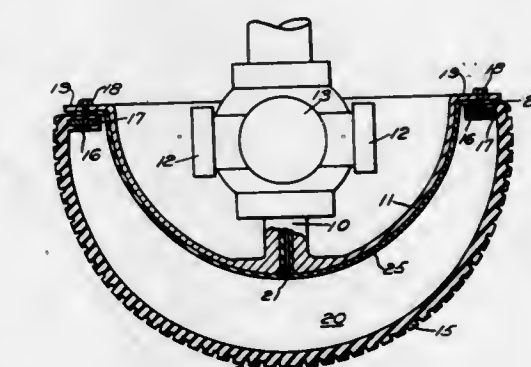
Erling P. Toennesen, 102 Ruggles Ave., Newport, R.I.

Filed May 26, 1969, Ser. No. 827,678

Int. Cl. B60c 3/00

U.S. Cl. 152-352

9 Claims



A hemispherical driving element for use with the mechanism shown in U.S. Pat. No. 3,364,874 and comprising a hemispherical rim with a hemispherical tire encasing the rim and means to attach the tire thereto, the tire being spaced from the rim by some cushioning means such as foam cells or air under pressure or both. A driving means is attached to the element and means are provided for moving the driving means and element from a position with its axis of rotation perpendicular to the surface engaged by the element to positions at angles to the perpendicular for driving the vehicle by contacting the tire along a circle spaced from the axis of rotation. Deflation of the tire may assist in more compactly housing the element in a recess in the fuselage of an airplane or the like.

3,590,899

ROTOR CONSTRUCTION OF THIN FILM TREATMENT APPARATUS

Adolf Ulrich Liechti, Muri, and Ulrich Kaspar Zbinden, Zurich, both of, Switzerland, assignors to Luwa Ag.

Filed Aug. 29, 1969, Ser. No. 854,150

Claims priority, application Switzerland, Sept. 11, 1968,

13,603/68

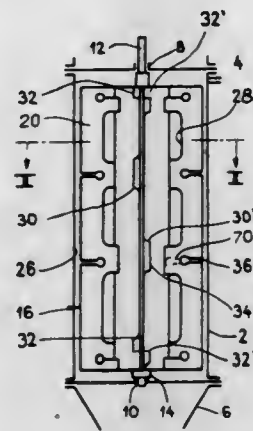
Int. Cl. B01d 1/22

U.S. Cl. 159-6 W

12 Claims

There is disclosed a rotor for a thin film treatment apparatus which incorporates a central tubular body and a number of axially and radially extending rotor blades arranged about the periphery thereof. The edges of the rotor blades confronting the tubular body possess connection ton-

gues, or equivalent structure, which are connected, for instance by welding, with the surface of the tubular body. According to an important aspect of the invention at least a part of the connection tongues, externally of the planes containing the side surfaces of the associated rotor blades are con-



nected with the tubular body, and further, the rotor blades exhibit indented spaces arranged spaced from one another in the lengthwise direction. More specifically, these indented spaces extend centripetally over a portion of the radial width of the associated rotor blade from the lengthwise extending edge of such rotor blade facing away from the tubular body.

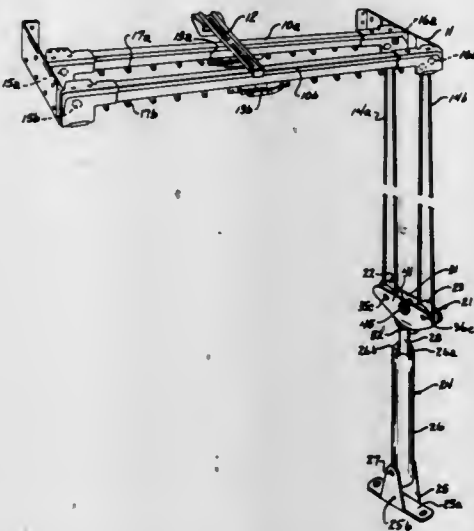
3,590,900

CORD TENSION PULLEY ASSEMBLY

Ferdinand F. Salzmann, Madison, Wis., assignor to Consolidated Foods Corporation, Chicago, Ill.
Filed Oct. 17, 1969, Ser. No. 867,295
Int. Cl. A47h 11/06, 5/032

U.S. Cl. 160-126

9 Claims



A cord tension pulley for double traverse rod installations having a dual pulley mounting head and a common cord-tensioning apparatus for the dual head. The dual head has a cover plate which normally retains the cords on the pulleys and which is mounted for movement to an open position to allow the dual traverse cords to be individually inserted and removed from the ends of the pulleys.

3,590,901

REPLACEMENT COVER AND ITS APPLICATION TO AN OUTDOOR CHAIR

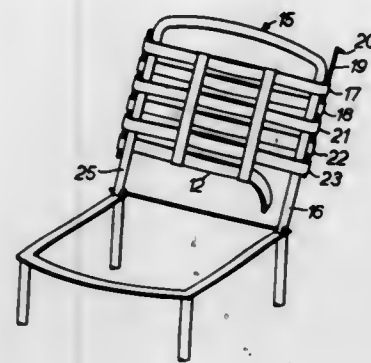
Emanuel Dubinsky, 703 East Tremont Ave., New York, N.Y.
Filed May 19, 1969, Ser. No. 825,764
Int. Cl. A47c 7/16

U.S. Cl. 160-327

6 Claims

An outdoor aluminum frame chair is provided with a replacement cover which can be easily installed without taking apart the chair frame. The replacement cover is made by winding vinyl tubing on a temporary jig of oblong shape cor-

responding to the size of the chair frame. Upon completion of the winding, the top and bottom portions of the vinyl tubing are heat-sealed together in two places by a semicontinuous heat seal extending at right angles to the direction of the



winding. Then the cover is removed from the jig and is applied to the frame of a chair. Looped strands of the edges of the cover are alternately placed above and below the frame tubes of the chair and wirelike rods of various types are used to attach these strands to the two opposed frame tubes.

3,590,902

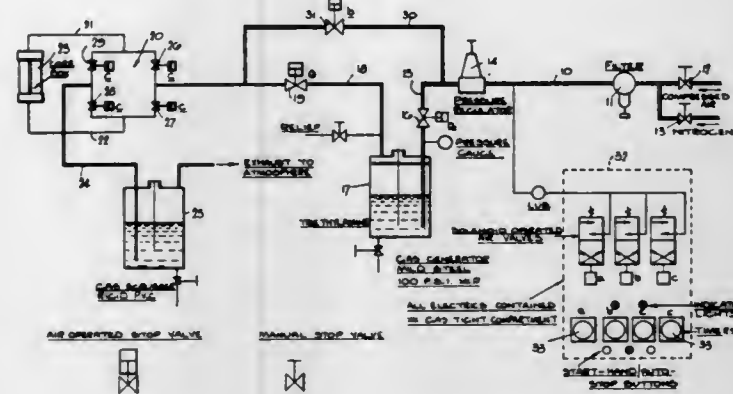
PRODUCTION OF FOUNDRY CORES AND MOLDS

James Walker, Lower Gornal, near Dudley, and Geoffrey W. Westwood, Walsall, both of, England, assignors to Fosco Fordath A. G., Zug, Switzerland
Filed May 27, 1968, Ser. No. 732,217
Claims priority, application Great Britain, Feb. 14, 1968, 7211/68

U.S. Cl. 164-43

Int. Cl. B22c 1/22, 9/12

15 Claims



A foundry core is prepared by coating said with a mixture of a novolac resin and a polyisocyanate the coated sand being introduced into a core box, mold or pattern and a volatile amine, such as triethylamine, passed into the core box, mold or pattern to obtain a rapid cure.

3,590,903

PRODUCTION OF METAL CASTINGS

Percy Ronald Taylor, Wrexham, Wales, assignor to Monsanto Chemicals Limited, London, England
Filed Mar. 19, 1968, Ser. No. 714,347
Claims priority, application Great Britain, Mar. 31, 1967, 14824/67

U.S. Cl. 164-53

Int. Cl. B22d 23/00

16 Claims

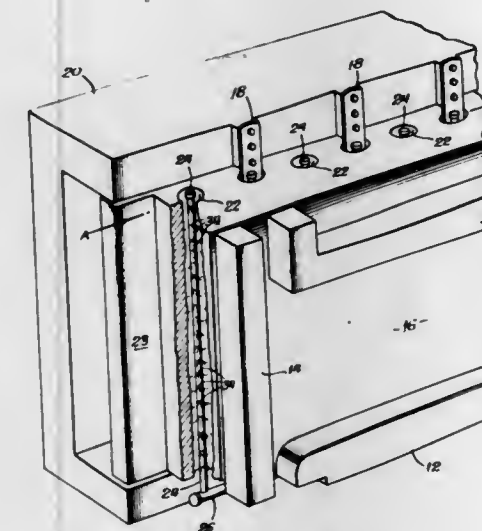
A process for the production of a metal casting which has a substantially pit-free surface whereby the metal is cast into a mold such as a block or piece mold which has a layer of particulate active carbon, that is undergoing combustion, covering that portion of such mold which contains or holds said cast metal.

3,590,904
METHOD AND APPARATUS FOR COOLING GRAPHITE MOLDS

James Woodburn, Jr., Wheaton, Ill., assignor to AMSTED Industries Incorporated, Chicago, Ill.
Continuation-in-part of application Ser. No. 626,812, Mar. 29, 1967. This application June 4, 1968, Ser. No. 737,256
Int. Cl. B22d 7/10, 27/04

U.S. Cl. 164-126

5 Claims



Water sprays are located inside holes bored vertically at the centerline of graphite mold blocks, in order to cool and prolong the life of the mold.

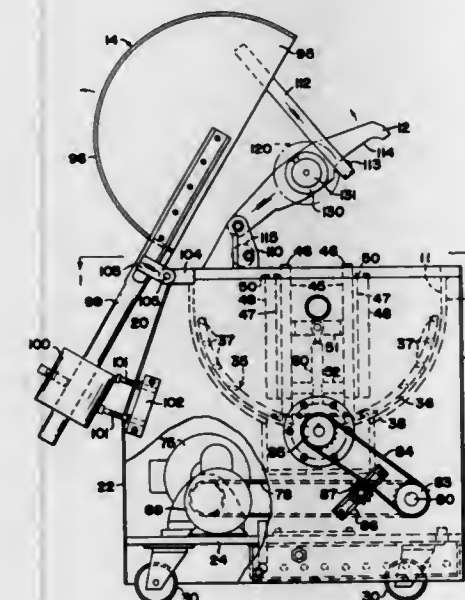
3,590,905

APPARATUS FOR FORMING CERAMIC SHELL MOLDS

Claude H. Watts, Lyndhurst, and Floyd D. Benthimer, Warrensville Heights, both of, Ohio, assignors to Precision Metalsmiths, Inc.
Filed Apr. 8, 1968, Ser. No. 719,575
Int. Cl. B22c 13/08

U.S. Cl. 164-165

12 Claims



Apparatus for use in forming ceramic shell molds including a slurry tank, a pair of pivoted arms adapted to support a pattern setup for rotation about a horizontal axis and to lower the setup into the tank for the application of a slurry coating, and a cover adapted to close and seal the tank, whereby a vacuum can be produced therein during application of the slurry coating.

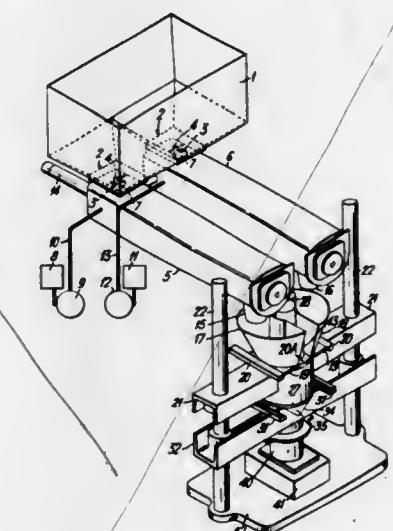
3,590,906
COLD-BOX RESIN-BONDED FOUNDRY CORE-MAKING MACHINE

Derek Randolph Bayliss, Kidderminster, and Terence Hugh Middleton, Shirley, both of, England, assignors to British Leyland Austin-Morris Limited, Birmingham, England and The Borden Chemical Company U. K. Limited, Southampton, England
Filed Feb. 10, 1969, Ser. No. 798,032
Claims priority, application Great Britain, Feb. 16, 1968, 7592/68

U.S. Cl. 164-200

Int. Cl. B22c 15/24

3 Claims



An apparatus for performing the method of producing resin-bonded foundry cores by the cold-box technique which involves delivering two segregated mixes, of sand and resin and of sand and hardener respectively, into a mixing device to produce a homogeneous final mixture of all the materials, and blowing the final mixture into a mould cavity in a corebox.

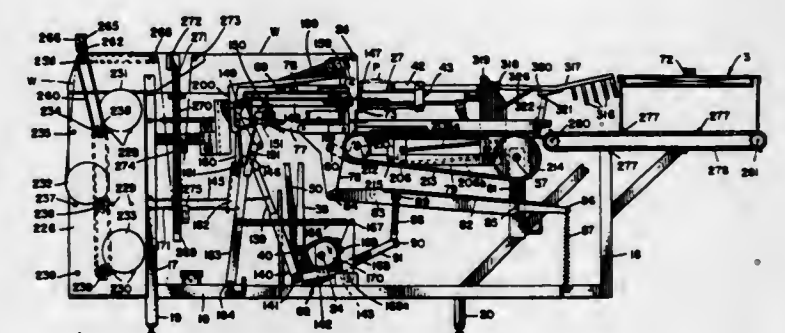
3,590,907

ROLL SUPPORTS FOR AUTOMATIC WRAPPING MACHINES

Erik O. Vilen, Niles, Ill., assignor to Triangle Package Machinery Company, Chicago, Ill.
Division of Ser. No. 632,959, Apr. 24, 1967, Pat. No. 3,486,294.
Filed Aug. 26, 1969, Ser. No. 853,142
Int. Cl. B65h 75/02, 17/12

U.S. Cl. 242-55

4 Claims



A plurality of vertically spaced rolls of wrapping material are supported at one end of a wrapping machine, one of which is in an operative position where the web of material is being fed through the machine, and the others are in a storage position. The support for the operative position of each roll includes a driving shaft and an idler shaft on which the roll rests and is adjacent the storage support therefor to which the roll may be transferred by mere manual force when not in use.

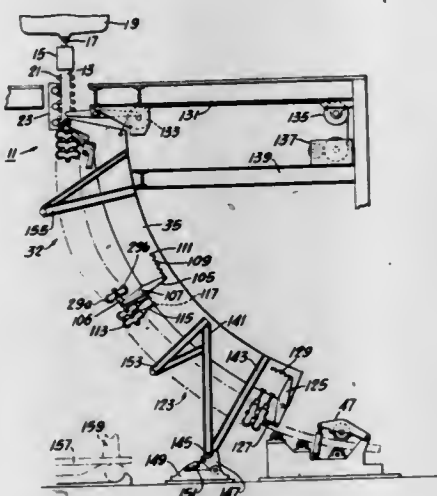
3,590,908

APPARATUS FOR BENDING CONTINUOUS CAST SLABS
Kurt Reinfeld, and Emmanuel V. Gouye, both of Pittsburgh, Pa., assignors to Koppers Company, Inc.
Filed June 30, 1969, Ser. No. 837,851

Int. Cl. B22d 11/12

U.S. Cl. 164—282

7 Claims



A slab emerging from a casting mold is supported by an articulated roller chain resiliently biased and mounted to a frame. Groups of rollers comprising such chain are mounted to equalizing brackets, and one group of rollers is secured to a piston-cylinder assembly. When the piston cylinder assembly is actuated, the rollers connected thereto exert a bending force on the slab which curves and is supported by the articulated roller chain.

3,590,909

OXYGEN BOILER

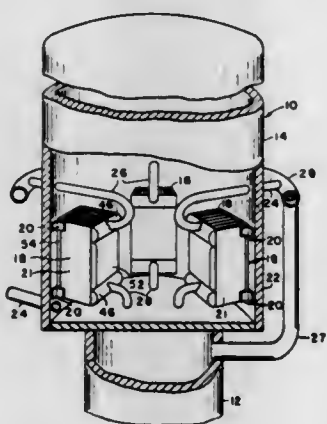
Alan G. Butt, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Oct. 29, 1969, Ser. No. 872,228

Int. Cl. F28g 13/06

U.S. Cl. 165—108

6 Claims



An oxygen reboiler is provided with a brazed plate fin-type heat exchanger at least partially submersed in a body of liquid oxygen. The flat vertical oxygen passages thereof are open at the top and bottom and have no fins or other separate extended heat transfer surface therein which may tend to cause accumulations of hazardous acetylene. These passages are closed at their vertical edges to promote percolator action of the liquid oxygen therein when heated by nitrogen passing through adjacent passages. The conventional closing bar or other elongated member normally brazed between plate surfaces to close these vertical edges has been substantially eliminated from the oxygen passages to thereby reduce the diffusion of molten braze metal onto the plate surfaces thereof. The vertical edges of these passages have been closed with a vertical panel spaced from the plate surfaces.

HEATING-COOLING AIR-CONDITIONING SYSTEM CONTROL

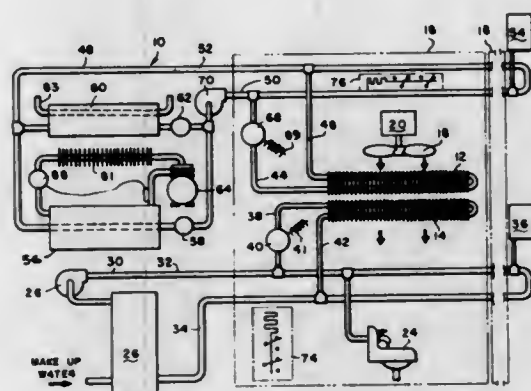
John W. Lorenz, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Jan. 2, 1970, Ser. No. 311

Int. Cl. F24f 3/00

U.S. Cl. 165—22

7 Claims



A zone-type heating-cooling air-conditioning system is shown wherein each zone or unit is provided with a primary heat exchanger circuit and a secondary heat exchanger circuit. The primary heat exchanger is arranged to be supplied with warm water during the heating season and chilled water during the cooling season. The secondary heat exchanger is arranged to be supplied with domestic warm water. Each of the heat exchangers is provided with a control valve for controlling the circulation of heat exchange fluid therethrough. A fan is arranged to circulate air of the respective zone serially in heat exchange relationship with the primary heat exchanger and the secondary heat exchanger. A zone temperature control system responsive to the temperature of the respective zone and the temperature of the heat exchange fluid being supplied to the primary heat exchanger controls the operation of the valves and fan.

COMBINATION REFRIGERATOR INCLUDING CONVERTIBLE COMPARTMENT

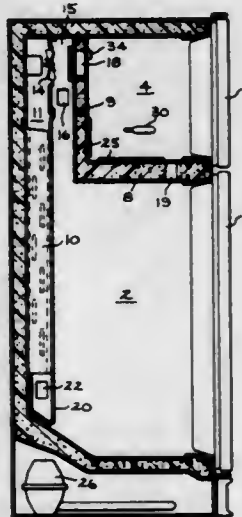
Julius B. Horvay, Louisville, Ky., assignor to General Electric Company

Filed Sept. 10, 1969, Ser. No. 856,739

Int. Cl. F25b 29/00

U.S. Cl. 165—30

5 Claims



A combination refrigerator including a freezer compartment, a fresh food compartment and a convertible compartment includes means for supplying below freezing air to all of the compartments. Electric housing means are provided in the convertible compartment for operation of the convertible compartment at an above freezing temperature.

3,590,912

VERTICAL STAGGERED SURFACE FEEDWATER HEATER

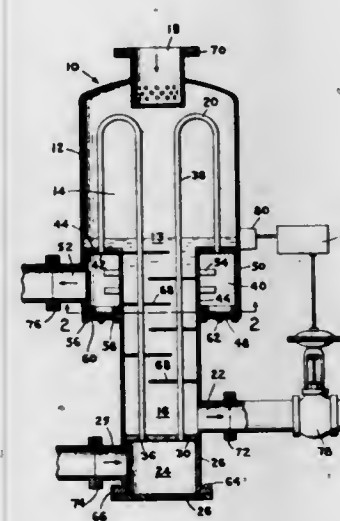
Frederick T. Elder, Mountain Lakes, and Renato R. Noe, Union City, both of N.J., assignors to Worthington Corporation, Harrison, N.J.

Filed Jan. 22, 1969, Ser. No. 792,953

Int. Cl. B60h 1/00

U.S. Cl. 165—39

9 Claims



A multipass vertical heat exchanger constructed to provide different lengths of heat exchange tubing for carrying liquid on different passes through the heat exchanger. The construction avoids unnecessary flooding of heat exchange tube surface with steam condensate in the higher passes of the heat exchange tubing through the heat exchanger.

3,590,913

WALL ELEMENT HAVING MEANS FOR SELECTIVE HEATING AND COOLING THEREOF

Hans R. Tschudin, Sissach, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland

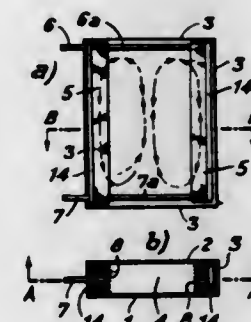
Filed July 1, 1968, Ser. No. 741,524

Claims priority, application Switzerland, July 4, 1967, 9611/67

Int. Cl. F24d 12/00; F24f 5/00

U.S. Cl. 165—48

20 Claims



The wall element is formed as a window with an enclosed space. Heat transmitters or exchangers are disposed in the enclosed space to either heat or cool a circulating light-transmitting heat carrier medium in the space so as to balance the heat loss effect of windows in buildings. The medium can be circulated through the enclosed space in any of a number of paths.

3,590,914

COUNTERCURRENT FLOW PLATE-TYPE HEAT EXCHANGER WITH LEAK DETECTOR

Franklin D. Duncan, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Oct. 1, 1969, Ser. No. 862,832

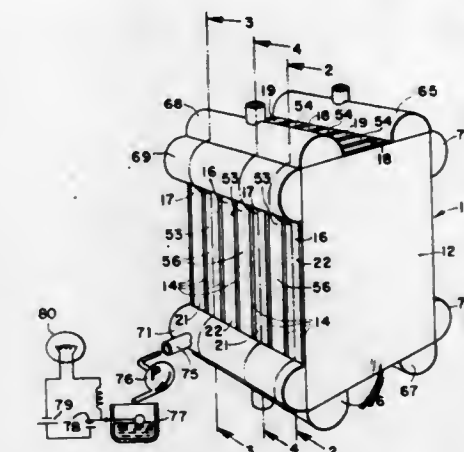
Int. Cl. F28f 3/00

U.S. Cl. 165—70

10 Claims

A countercurrent flow plate-type heat exchanger having barrier spaces between adjoining heat exchange passage and

a header conducting a heat exchange fluid other than that flowing through said passage. The barrier spaces contain a corrugated metallic fin material to impart structural continui-



ty to the heat exchanger core and to provide the heat-conducting link between adjacent fluid-conducting passages. The various barrier spaces are placed in fluid communication with a leak detection means by way of barrier space headers.

3,590,915

HEAT SINK ASSEMBLY FOR ELECTRONIC COMPONENTS

Gunter Riedel, Konstanzstr. 63, Munich 13, and Herbert Prenzlau, Rauschbergweg 3, Olching, both of Germany

Filed Apr. 15, 1969, Ser. No. 816,334

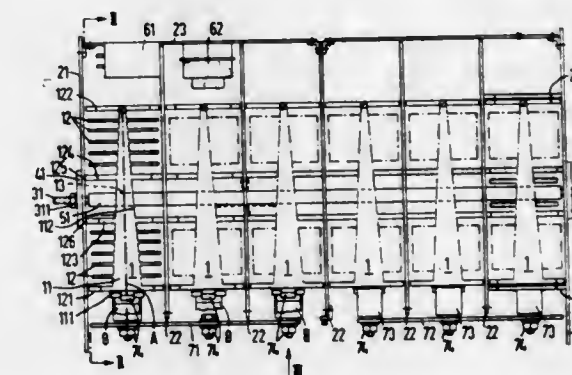
Claims priority, application Germany, Mar. 18, 1969

P 19 13 546.7

Int. Cl. F28f 7/00; H01l 3/00

U.S. Cl. 165—80

10 Claims



A heat sink modular assembly for electronic components is composed of a plurality of heat sink structures which all have substantially the same design, a prismatic overall shape with at least one geometrical plane of symmetry. Each individual heat sink of the assembly has a core with cooling vanes protruding therefrom and with means for attaching at least one semiconductor component, each core being traversed by one or more bores. The structures are aligned with, and adjacent to one another and are rigidly held together by at least one tensioning rod passing serially through the bores of the heat sink cores, thus forming a single rigid group in which the longitudinal axes of the respective heat sink structures extend transversely of the rod. At least two pairs of the cooling vanes extend from each core on opposite sides of the core axis in a plane parallel to the tensioning rod and are axially spaced from each other at opposite sides of the tensioning rod. The vanes of these pairs have abutment faces at their respective edges. All of these abutment faces on one side of the axis are situated in a plane perpendicular to the tensioning rod and parallel to the plane of symmetry, and all of the abutment faces on the opposite side of the rod are located in another plane parallel to the plane of symmetry. The entire heat sink structure inclusive of all other vanes is accommodated between the two abutment face planes.

3,590,916

THIN FILM APPARATUS

Arnold Mutzenberg, Buchs, Saint Gall, and Fritz Widmer, Fallanden, Zurich, both of, Switzerland, assignors to Luwa AG, Zurich, Switzerland

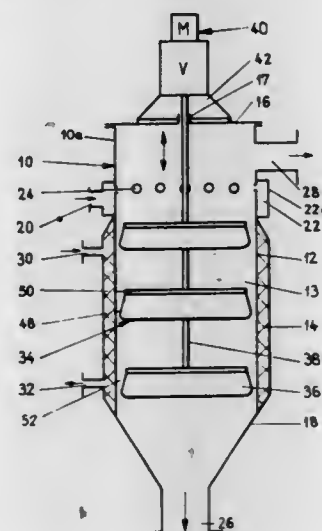
Filed Mar. 21, 1969, Ser. No. 809,333

Claims priority, application Switzerland, Mar. 25, 1968, 4347/68

Int. Cl. B01d 1/22

U.S. Cl. 165-94

22 Claims



There is disclosed a thin film apparatus for the thermal treatment of fluent or flowable materials in a treatment compartment. A treatment member serves to spread or distribute the material to be treated in the form of a thin film upon the treatment wall of the treatment compartment. According to an important aspect of the invention, the treatment member comprises at least one spreader element for the material to be treated. Drive means serve to impart relative movement between the treatment member and the treatment wall.

3,590,917

PLATE-TYPE HEAT EXCHANGER

Johann Huber, Am Grindelberg, and Leonhard Poth, Pulach, both of, Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany

Filed Nov. 4, 1968, Ser. No. 773,268

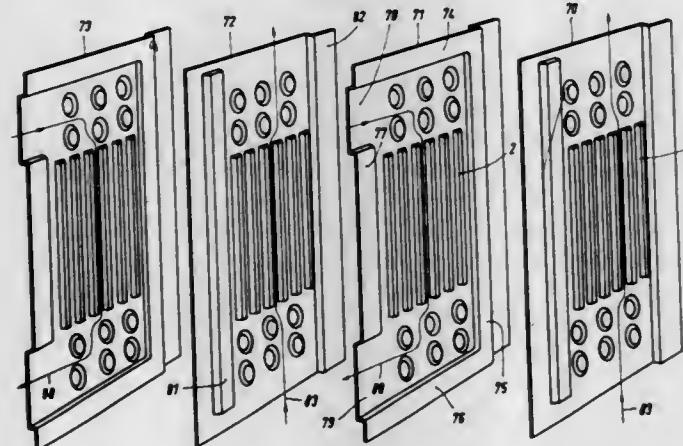
Claims priority, application Germany, Nov. 3, 1967

P 16 01 216.1

Int. Cl. F28f 3/08

U.S. Cl. 165-167

3 Claims



A plate-type heat exchanger in which the stamped plates have corrugated central portions flanked by noncorrugated inlet and outlet zones. The sinusoidal and trapezoidal section corrugations of the plates are offset by half the distance between the corrugations to form uniform cross section channels throughout the stack. The plates are bonded together along marginal portions and at their bearing faces with a thermosetting synthetic resin.

3,590,918

METHOD AND APPARATUS FOR OBTAINING PURE SPRAY WATER FOR STEAM DESUPERHEATING PURPOSES

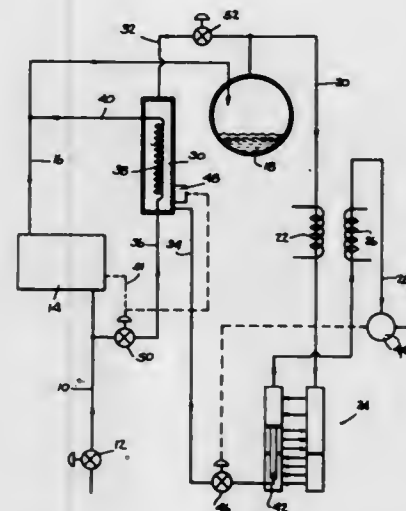
Albert H. Rawdon, Jr., Shrewsbury, Mass., assignor to Riley Stoker Corporation, Worcester, Mass.

Filed June 11, 1969, Ser. No. 832,265

Int. Cl. B60h 1/00

U.S. Cl. 165-1

10 Claims



This invention relates to a method and apparatus for obtaining pure spray water for steam desuperheating purposes wherein a portion of the steam produced in the boiler is passed through a condensing chamber, and the liquid condensate is then used as the spray water.

3,590,919

SUBSEA PRODUCTION SYSTEM

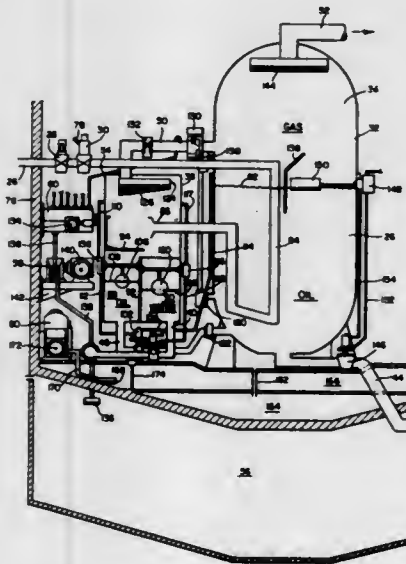
William A. Talley, Jr., Dallas, Tex., assignor to Mobil Oil Corporation

Filed Sept. 8, 1969, Ser. No. 855,961

Int. Cl. F21b 43/01

U.S. Cl. 166-.5

5 Claims



A subsea production method and apparatus separates substantially waterfree gas from oil in a subsea satellite located adjacent a plurality of subaqueous wells. Production fluid from the subaqueous well enters the satellite through production fluid lines, passes through a heat exchanger, and enters into a liquid knockout section. Separated gas and oil then enter into a low-temperature separator to complete the separation of the substantially waterfree gas from the oil. A hydrate depressant is injected into the substantially waterfree gas before entry into the low-temperature separator through a variable choke so as to depress the formation of hydrates from any water remaining in the substantially waterfree gas.

3,590,920

REMOTE-CONTROLLED OIL WELL PIPE SHEAR AND SHUTOFF APPARATUS

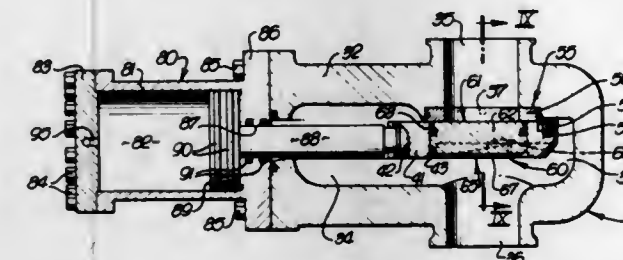
Valdek J. Orund, Anaheim, and Edward T. Cugini, Brea, both of, Calif., assignors to Shaffer Tool Works, Brea, Calif.

Filed Mar. 12, 1969, Ser. No. 806,516

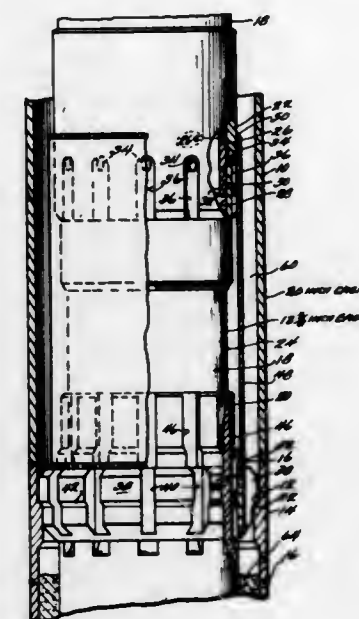
Int. Cl. E21b 29/00

U.S. Cl. 166-55

10 Claims



In an offshore oil well production system including a surface platform, a submerged wellhead, and a pipe string interconnecting the wellhead and platform, the provision of a pipe shear and shutoff apparatus between the platform and wellhead having a housing with a throughbore with an enlarged intermediate chamber and end bores for receiving a section of the pipe and means within the apparatus for shearing the pipe and closing the fluid passage through the apparatus when the pipe is severed, means for selective actuation of the apparatus and remote control means for the actuating means which is operative at a remote location from the wellhead notwithstanding the loss of physical connection between the platform and wellhead through the pipe string, such as when the pipe string is ruptured.



disconnection and reconnection of the sub (for temporary abandonment of the well) and for cutting the inner casing below its hang point (for recovery of the string in a permanent abandonment of the well).

3,590,923

METHOD OF DETERMINING FLUID SATURATIONS IN RESERVOIRS

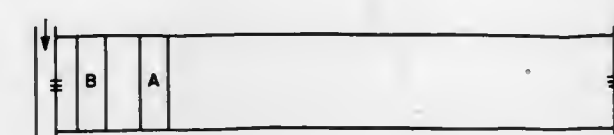
Claude E. Cooke, Jr., Houston, Tex., assignor to Esso Production Research Company

Filed Dec. 3, 1969, Ser. No. 881,774

Int. Cl. E21b 43/22, 47/00

U.S. Cl. 166-252

10 Claims



A method for determining fluid saturations in a subterranean reservoir formation containing one mobile fluid phase and one or two substantially immobile fluid phases. A carrier fluid which is miscible with the mobile fluid and substantially insoluble in the immobile phase or phases is injected into the formation at one location and displaced through the formation to a second location. The carrier fluid contains two or more tracers having different partition coefficients between the carrier fluid and immobile phase or phases. As the carrier fluid moves through the reservoir, one of the tracers is retarded more than the other due to its higher solubility in the immobile phase and the tracers separate. The degree of separation of the tracers is related to the quantities of mobile and immobile fluids in the reservoir. By monitoring formation fluids at the second location to detect the presence of the tracers, the relative fluid saturations can be determined using chromatographic analytical techniques.

3,590,922

WASHING CEMENT FROM AROUND DISCONNECTIBLE DOWN HOLE CONNECTION

John Slack, and Willis Marvin Phipps, both of Houston, Tex., assignors to Gray Tool Company, Houston, Tex.

Filed Nov. 14, 1969, Ser. No. 876,809

Int. Cl. E21b 43/10

U.S. Cl. 166-208

11 Claims

After an inter casing string annulus has been cemented to a level above a down hole hanger in the inner string, a sub is

3,590,924

DUAL NOZZLE SPRINKLER HEAD

Howard W. Emmons, Sudbury; Cheng Yao, Weston, and James B. Smith, Wellesley Farms, all of, Mass., assignors to Factory Mutual Research Corporation, Boston-Providence Turnpike, Mass.

Filed Dec. 24, 1968, Ser. No. 786,659

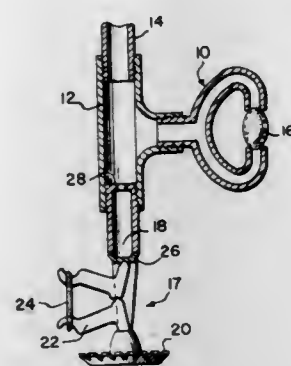
Int. Cl. A62c 37/12

U.S. Cl. 169-17

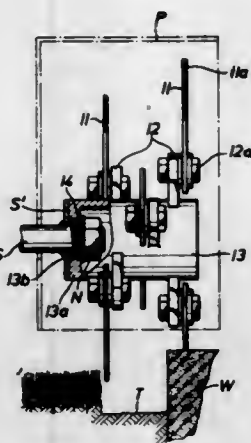
Method and apparatus for dispersing a fire extinguishant in

11 Claims

which dual nozzles are employed in each sprinkler head to form separately a fine mist for cooling and a spray of coarse droplets to penetrate a fire plume and reach fuel surfaces to extinguish a fire.



body on different size, rotatable lawn edger shafts. Rotation of the edger shaft extends the blades by centrifugal force to cut a relatively wide path between a lawn and a boundary such as a sidewalk.



droplets to penetrate a fire plume and reach fuel surfaces to extinguish a fire.

cut a relatively wide path between a lawn and a boundary such as a sidewalk.

3,590,925

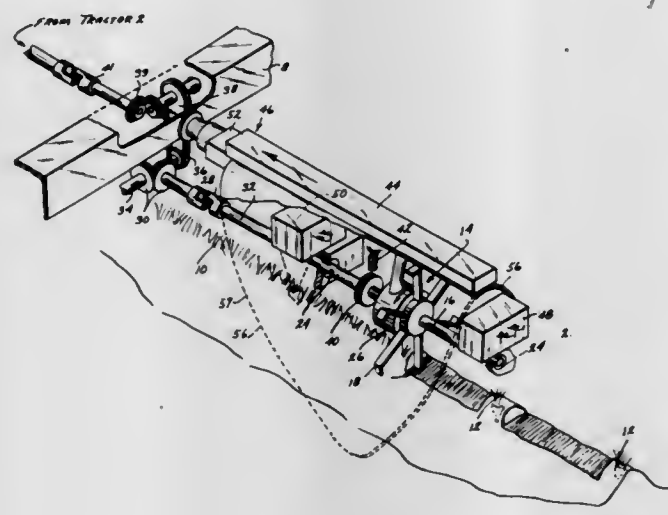
AUTOMATED AGRICULTURAL SYSTEM

Arthur L. Troutner, Boise, Idaho; Don Lebell, Santiago, Chile, and William A. Koelsch, San Jose, Calif., assignors to Tara Corporation

Filed May 6, 1968, Ser. No. 728,857
Int. Cl. A01b 63/110

U.S. Cl. 172-6

3 Claims



The present invention relates to an automated agricultural system for variously servicing the plants of a row crop and particularly to such a system for scanning rows of the crop to accomplish such services as thinning, weeding, blocking, fertilizing, and so on. The system selectively identifies row plants that are to be preserved, a system for processing radiation that is reflected from such plants. The system, as disclosed, also includes specific structure for thinning row plants, spaced apart by a preselected distance.

3,590,926

CUTTING BLADE ASSEMBLY FOR LAWN EDGERS

Frank J. Tepera, 1183 Curtin, Houston, Tex.

Filed Aug. 19, 1968, Ser. No. 753,465
Int. Cl. A01b 45/04

U.S. Cl. 172-15

6 Claims

Cutting blades are pivotably secured to a series of staggered, radially projecting arms extending from a tubular body. A centrally apertured plate is secured to one axial end of the body to receive an adapter bushing for mounting the

3,590,927

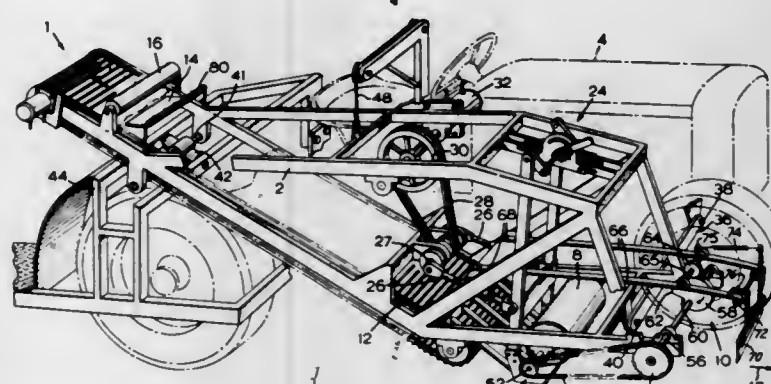
MOUNTING FOR SOD-CUTTING MACHINE

Gerardus Johannes Brouwer, Keswick, Ontario; John Van Dyken, Newmarket, Ontario, and Klass Oussoren, Newmarket, Ontario, all of, Canada, assignors to The Ryan Equipment Company, St. Paul, Minn., by said Brouwer Division of Ser. No. 560,770, June 27, 1966, Pat. No. 3,509,444.

Filed Sept. 29, 1969, Ser. No. 861,661
Int. Cl. A01b 45/04

U.S. Cl. 172-19

7 Claims



A sod cutter having a vibrating sod undercutting blade. Several thin, flat guide strips, connected to the rear of the blade, extend rearwardly to the front end of a conveyor mounted behind the blade, to guide cut sod from the blade onto the conveyor. A cutoff blade, to cut sod to length, is periodically driven into the ground by springs. A tiltable mounting permits the cutoff blade, as it is slowly raised between strokes by a spiral cam, to tilt rearwardly during times when it drags along the ground.

The sod cutter is guided over the ground by a roller and is mounted on a support vehicle at two pivot points spaced lengthwise along and centrally located widthwise of the cutter. This allows the cutter to rock laterally with its roller independently of the support vehicle, to adjust to local variations in the surface traversed.

3,590,928

TRANSPORT WHEEL LINKAGE MECHANISM

Ferdinand Mirus, Ojai, Calif., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

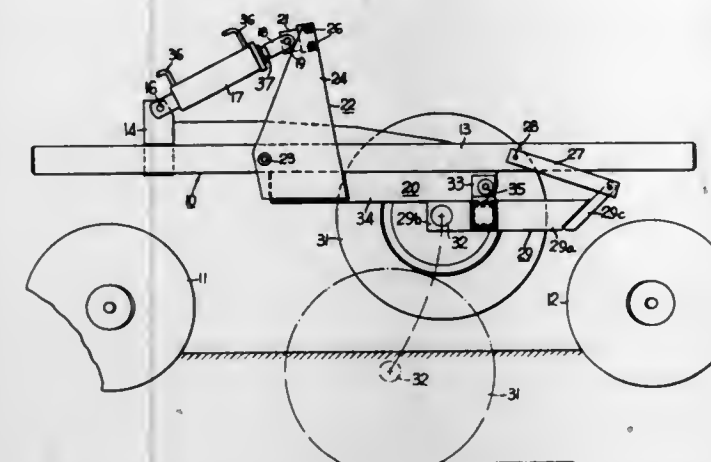
Filed Apr. 28, 1969, Ser. No. 819,553
Int. Cl. A01b 63/22, 73/00

U.S. Cl. 172-240

5 Claims

A semimounted or pulled type agricultural implement having wheels used for transport and depth control and wherein

such wheels are positioned between a front and a rear ground working tool. Linkage for supporting such wheels adjacent the center of gravity for transport purposes and for position-



ing such wheels sufficiently spaced from the discharge portion of the front ground working tool as to avoid plugging of material between such tool and such wheel.

is provided with an angular scale and the body being correspondingly provided with an index, or vice versa.

3,590,929

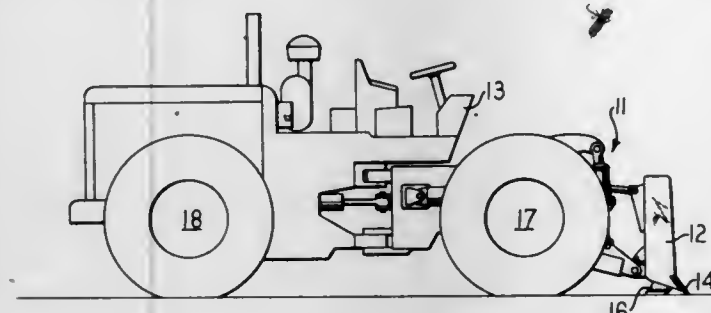
BULLDOZER BLADE MOUNTING

Leon A. Wirt, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Aug. 15, 1968, Ser. No. 752,873
Int. Cl. E02f 3/76

U.S. Cl. 172-803

7 Claims



A bulldozer blade mounting for minimizing mechanical stresses during tilting of the blade and for maintaining generally constant blade pitch during raising and lowering of the blade, comprising three generally parallel members pivotally mounted between the blade and its supporting vehicle. Two of the members are parallel push arms arranged in a generally horizontal plane relatively adjacent the base of the blade. The third member is an extendible link arranged in a generally central location between the vehicle and an upper portion of the blade to provide triangular support for the blade and to permit pitching of the blade.

3,590,930

ARRANGEMENT FOR GUIDING A ROCK DRILL

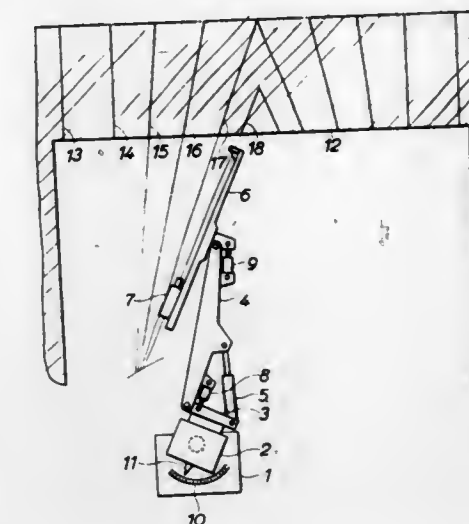
Teuvo Tapio Gronfors, Oy Tampella Ab., Tampere, Finland

Filed Dec. 4, 1968, Ser. No. 781,104
Int. Cl. E21c 9/00

U.S. Cl. 173-20

5 Claims

The present invention concerns an arrangement for guiding a rock drill, the arrangement consisting of a base, a body, a turnplate turnable about a horizontal axis and attached to the body, a jib attached to the turnplate and turnable in a plane passing through the axis of the turnplate, and a feed device attached to the free end of the jib and turnable in the same plane, in which device a drill has been mounted, the jib and body on one hand and the feed device and jib on the other hand being mutually connected by hydraulic cylinders, which cooperate in such manner that the drilling front, or the direction of the feed device, automatically remains unchanged regardless of the motions of the jib, and in which



A lifting device for cuttings made in cable tool drilling comprising an elongated body having a central portion of "H" cross section including a central web and a cavity opening outwardly from each side, staggered integral lifting fins being disposed along the two opposed walls of the cavities and adjacent said web, each fin having a flat cuttings supporting surface and tapering downwardly to merge with the wall, and attaching means at each end for operative insertion of the device in a drilling string.

3,590,932

LIGHT PRESSURE OPERATED MICROBALANCE

Jens P. Dybwad, and Karl P. Zinnow, both of Arlington, Mass., assignors to The United States of America as represented by the Secretary of the United States Air Force

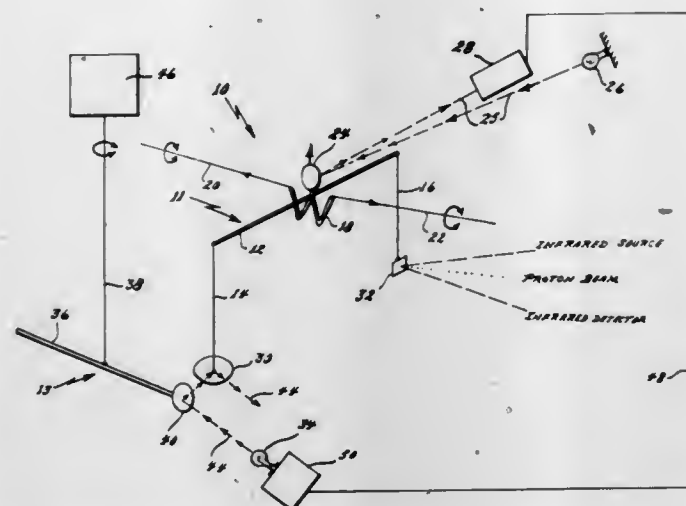
Filed Apr. 30, 1970, Ser. No. 33,444
Int. Cl. G01g 3/00, 7/00, 23/32

U.S. Cl. 177-210

10 Claims

A microbalance utilizing the pressure of light for counterbalancing small changes in mass or force on the balance hav-

ing a balance device and measuring device. The sample to be investigated is supported by the balance device, while the counteracting light pressure is reflected from the measuring device to the balance device. A detector determines when the balance device is out of equilibrium and accordingly va-



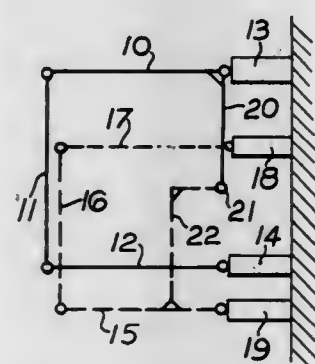
ries the intensity of the light in order to counteract the unbalance. During this operation the measuring device determines how much light force was necessary to counterbalance the mass change on the sample and restore the system to equilibrium.

3,590,933 WEIGH BEAMS

Arthur Walter Forman, Northwood, England, assignor to Driver Southall Limited, Birmingham, England
Filed Dec. 16, 1968, Ser. No. 783,887
Int. Cl. G01g 3/08

U.S. Cl. 177-229

17 Claims



A weighing apparatus comprising a pair of beam members, each having a load or resistant carrying portion which extends on the same side of the fixed supporting fulcrum of the beam members, said beam members being interconnected so that deflection in one direction of the said portion of one of the members causes deflection of the like portion of the other member in the opposite direction. The beam members each operate as one arm or half-beam of a balance (which may be of Roberval type) and which is of compact construction and has low sensitivity to external vibration.

3,590,934

CONTROL COLUMN FOR TERRAIN VEHICLE

Joachim Wappler, 11 Clayhall Crescent, Downsview, Ontario, and Arno C. Schwarz, 55 Oakmount Road Apt. 1503, Toronto, 5 Ontario, both of, Canada

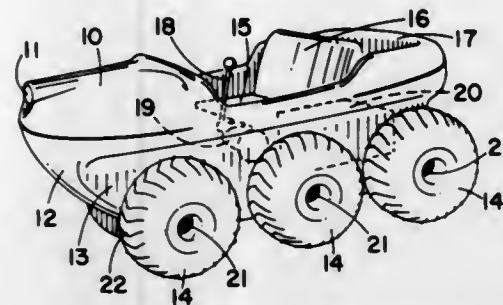
Filed June 10, 1968, Ser. No. 746,718
Int. Cl. B62d 11/08

U.S. Cl. 180-62

10 Claims

A single control stick for a motor-driven vehicle with wheels pivotally mounted on a locating means for movement in two planes of movement, a first plane of movement along

the longitudinal axis to provide accelerating action or braking action, a second plane of movement normal to the first



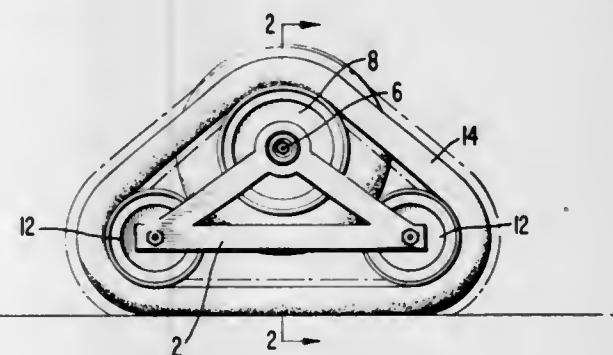
plane for steering action which is done by braking the wheels separately.

3,590,935 CLUTCH AND ATTACHMENT DEVICE FOR VEHICLE WHEELS

Angelo Cella, 50 Notley Road, Silver Spring, Md.
Filed Nov. 4, 1968, Ser. No. 772,943
Int. Cl. B62d 55/04

U.S. Cl. 180-9.5

2 Claims



In a traction device for use with vehicle drive wheels having an endless track member mounted on spaced drive wheels, one of the drive wheels having a bracket extension member with manually operable clamping bolts for positive engagement with the rims of the vehicle drive wheels.

3,590,936

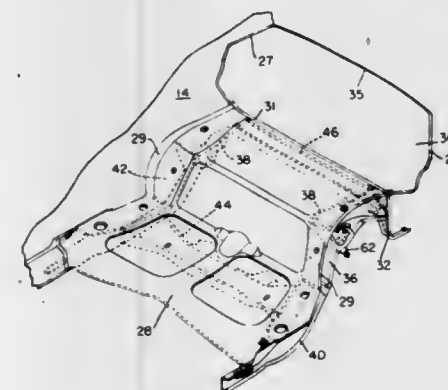
STRUCTURE OF A MOTOR VEHICLE

Henry W. Wessells, III, Paoli, and Walter S. Eggert, Jr., Huntingdon Valley, both of, Pa., assignors to The Budd Company, Philadelphia, Pa.

Filed July 25, 1969, Ser. No. 844,999
Int. Cl. B60k 5/12; B62d 23/00

U.S. Cl. 180-64 R

4 Claims



A vehicle rear structure of a unitized body structure for supporting a rear-mounted engine and providing reinforced collision resistant bumper-supporting structure. The engine mount consists of a pair of crossbeams connected to the integral sidesills having studs and nuts secured thereon for attaching the engine. The sidesills are fabricated from an L-

shaped angle section, the rear floor pan and inner unside panels.

3,590,937

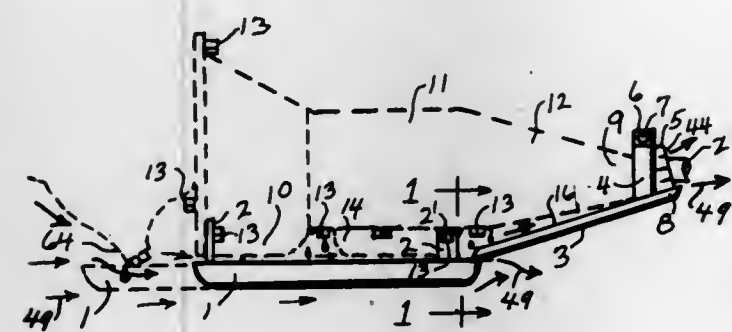
PROCESS INVENTION SUBSTANTIALLY PERFORMED IN A SURFACE, MATERIAL AND HEALTH PROTECTIVE APPARATUS

Peter Andrews, 190 Gebhardt Road, Penfield, N.Y.
Continuation-in-part of application Ser. No. 508,625, Oct. 21, 1965, now Patent No. 3,396,810, which is a division of application Ser. No. 288,159, June 17, 1963, now abandoned. This application Aug. 5, 1968, Ser. No. 750,094

Int. Cl. B62d 25/20

U.S. Cl. 180-69.1

26 Claims



A process substantially performed in a motor vehicle fluid or oil dripping and/or centrifugally thrown-out fluid or oil retaining receptacle apparatus which is secured to a motor vehicle. This process invention is for increasing the rate of oxidation and thickening of the fluid retained substantially in at least one fluid retaining portion of the disclosed apparatus, whereby the retained fluid is increasingly prevented from being spilled, ejected or dumped substantially out of the apparatus and onto, for example, a roadway's, race track's or highway's, car, truck and/or bus-traveled surface, and thereby substantially prevents "summer icing" of the disclosed traveled surfaces and "viscous hydroplaning" of the motor vehicle's tires thereon, regardless if the motor vehicle is abruptly started, stopped, curving or traveling at a high rate of speed.

3,590,938

VEHICLE SPEED CONTROL SYSTEM

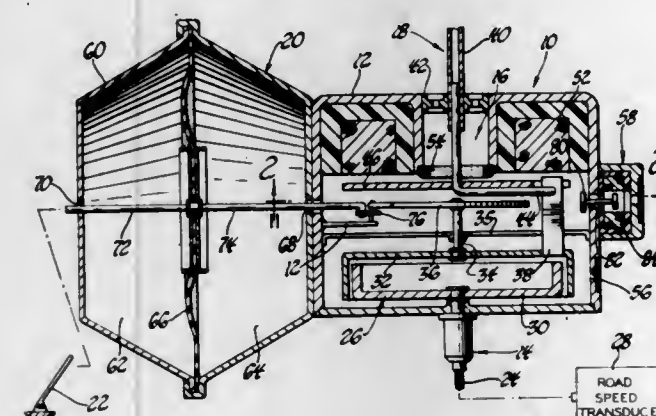
I. Macit Gurol, Farmington, Mich., assignor to GSE Incorporated, Detroit, Mich.

Filed May 21, 1969, Ser. No. 826,470

Int. Cl. B60k 31/00

U.S. Cl. 180-108

32 Claims



An automotive speed control system including a fluid pressure modulator and a throttle actuator responsive to pressure variations in the modulator to control throttle setting. The modulator includes a housing communicating with a subatmospheric pressure source through a fluid conduit and communicating with atmospheric pressure through a primary opening. A valve element rotatable to a position representing indicated vehicle speed drives a memory disc carrying the fluid conduit to a corresponding position. At the

desired speed, the memory disc is fixed in position and the primary opening is closed. Rotation of the valve element relative to the fluid conduit thereafter modulates pressure in the housing and controls the throttle actuator.

3,590,939

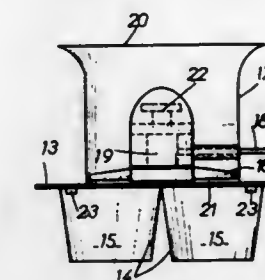
AIR CUSHION VEHICLE HAVING LIFT FANS

Andre Grihangne, 186, Avenue Victor Hugo, 75-Paris, France
Filed Nov. 25, 1968, Ser. No. 778,712

Claims priority, application France, Nov. 29, 1967, 130,270
Int. Cl. B60v 1/06

U.S. Cl. 180-118

1 Claim



Air-cushion vehicle comprising one or more variable-pitch, axial flow, ducted lift fans, the pitch variation of which is controlled in dependence of the cushion pressure, attitude, lift power requirements or other conditions of operation of the vehicle.

3,590,940

WELL-LOGGING APPARATUS

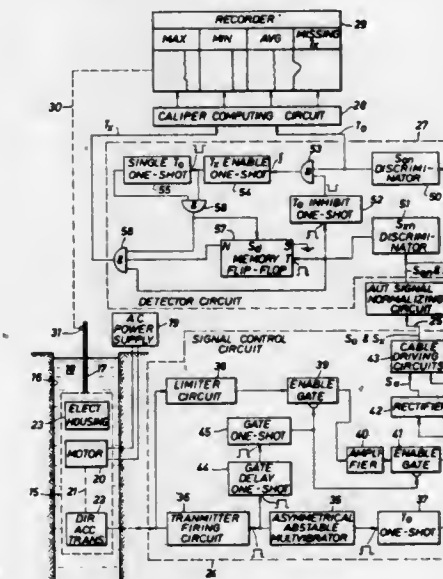
Geary L. Leger, Yucalpa, Calif., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed May 26, 1969, Ser. No. 827,798

Int. Cl. E21b 47/08; G01v 1/00

U.S. Cl. 181-0.5 BE

16 Claims



In accordance with an illustrative embodiment of the present invention, a well tool having a rotating transducer is moved through a well bore. The transducer is repetitively energized to emit acoustic energy into the media surrounding the well too, which energy is reflected off of various circumferential portions of the well bore wall and returned to the rotating transducer. An electrical signal pulse is developed in response to each burst of reflected energy received by the transducer and this pulse, along with an electrical sync pulse representative of the time at which the transducer is energized, is transmitted to the surface of the earth. At the surface of the earth, the time relationship of the sync and signal pulses to one another is measured to provide information concerning the average well bore radius or diameter, well bore eccentricity, as well as information as to the authenticity of these caliper measurements. To provide this information, the time spacing between the sync and signal pulses is converted to an amplitude signal. This amplitude signal is

then filtered to provide an average radius measurement and the maximum and minimum amplitude levels of this amplitude signal per revolution or so of the rotating transducer are measured to provide maximum and minimum radius measurements. To check the authenticity of these measurements, circuits are provided for determining if there is a signal pulse for every sync pulse.

3,590,941

SPEAKER ENCLOSURE

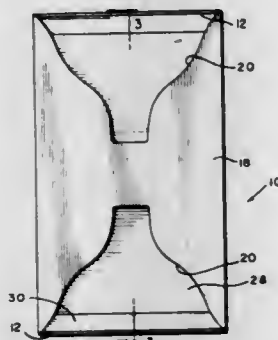
John A. McKenzie, North Vernon, Ind., assignor to Arvin Industries, Inc., Columbus, Ind.

Filed Oct. 10, 1969, Ser. No. 865,415

Int. Cl. G10k 13/00; H04r 1/28

U.S. Cl. 181-31

8 Claims



A speaker enclosure for improving the frequency response of a loudspeaker. The speaker is placed within the enclosure and has its face aligned perpendicularly with the front side of the enclosure, so that the speaker axis is directed parallel to the sound output opening of the enclosure. The smallest dimension of the speaker face corresponds with the depth of the enclosure, and said speaker face is sealed against a baffle system which forms a channel directed divergingly outward from the speaker toward one end of the enclosure. A faceplate is sealed over the front of the enclosure and against the forward edge of the baffle system, said faceplate being provided with a cutout portion over the channel of the baffle system. The cutout portion is narrow at the face of the speaker, and becomes gradually wider toward the end of the enclosure to control the uniformity of the frequency response of the enclosure.

3,590,942

OMNIDIRECTIONAL LOUDSPEAKER SYSTEM

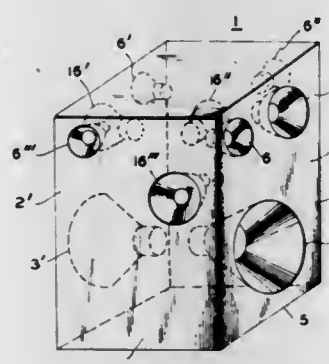
Peter Globa, Natick, Mass., assignor to H. H. Scott, Inc., Maynard, Mass.

Filed Dec. 15, 1969, Ser. No. 884,830

Int. Cl. G10k 13/00; H04r 1/28

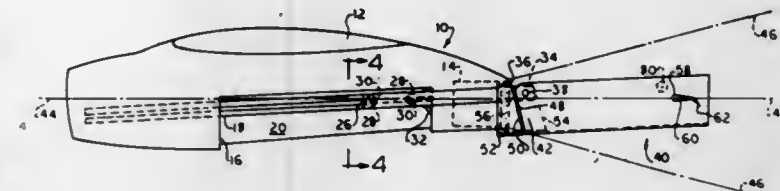
U.S. Cl. 181-31

3 Claims



The present disclosure relates to a quadrant-type loudspeaker particularly adapted for the audiofrequency band, having a pair of opposing low-band speakers mounted at different distances from the floor or other resting surface for the loudspeaker system and a plurality of asymmetrically mounted high-, and in some cases, mid-frequency speakers.

3,590,943
SOUND SUPPRESSING APPARATUS
Victor Millman, 5037 Faber Way, San Diego, Calif., and Remo Tontini, 4434 Santa Monica, San Diego, Calif.
Filed Apr. 4, 1969, Ser. No. 847,069
Int. Cl. B64d 33/06; B64c 9/38
U.S. Cl. 181-33 HC 12 Claims



Support means carried by engine housing has pivotal mounting means at aft end. Support means axially slidable between forward stowed position and aft deployed position. In latter, pivotal mounting means is adjacent to nozzle exit. Noise shield is swingably mounted on mounting means to swing vertically on lateral axis. Shield is elongate and preferably trough shaped to surround jet stream and reflect noise upward. Optimum results require holding shield at suitable angle to intercept expansion boundary of jet stream. Aft end of shield is supported or forced up in flight to best position by aerodynamic reacting vanes, which may be preset or controlled in response to sensor carried by shield. When support means is stowed, shield is carried forward to stow in streamlined relation to engine housing.

3,590,944

METHOD AND APPARATUS FOR SUPPRESSING THE NOISE OF JET-PROPELLED AIRCRAFT

Victor Millman; Remo Tontini, and Edwin C. Kamps, all of San Diego, Calif., assignors to Rohr Corporation, Chula Vista, Calif.

Filed Apr. 17, 1969, Ser. No. 817,018

Int. Cl. B64d 33/06; B64c 9/38

U.S. Cl. 181-33 HC

7 Claims



A panel of substantially hemicylindrical form is mounted on the engine nacelle of a jet-propelled aircraft with the longitudinal axis of the panel extending axially of the nacelle. The panel is movable axially of the nacelle between a retracted position wherein it is alongside the latter and a deployed position wherein it is disposed downstream from the nacelle and tilted upwardly at an angle relative to the longitudinal axis of the thrust nozzle of the engine contained in the nacelle so as to intercept the expansion boundary of the jet stream issuing from said nozzle several nozzle diameters downstream of the nozzle. Means are provided for moving the panel between its retracted and deployed positions.

3,590,945

TUNED RESONANCE MUFFLERS

Milo E. Murphy, 2299 Ximeno Avenue, Long Beach, Calif.

Filed Apr. 3, 1970, Ser. No. 25,438

Int. Cl. F01n 1/08, 1/22, 7/10

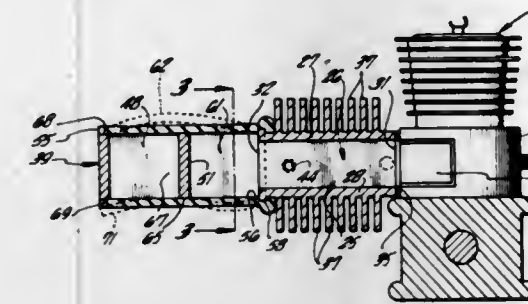
U.S. Cl. 181-40

11 Claims

An exhaust tube has transverse cooling fins extending from two opposite sides. A restrictive band circles the exhaust gas emitter to hold the tube entry port against the emitter exhaust port. A U-shaped bracket extends from adjacent the exit port of the tube, which has either a fixed or an adjustable baffle secured transversely of the legs of the U. A resilient sheath covers the bracket and is sealed to the tube at one end

and open at the other end but blocked by the base bar of the U-shaped bracket. Gas passes about each transverse edge of the baffle, distending the sheath. Gas passes the end base bar,

area of the passageway through which the gases flow is as large or larger than the inlet port and the outlet port of the muffler so that little, if any, back pressure is created as the gases move through the muffler. Gas currents are trapped in "alcoves" adjacent the baffle elements which enhance the flow of gases through the muffler and which also serve to equalize the pressure within the muffler.



3,590,948

BASKET-LEVELING SYSTEM FOR BOOM STRUCTURES

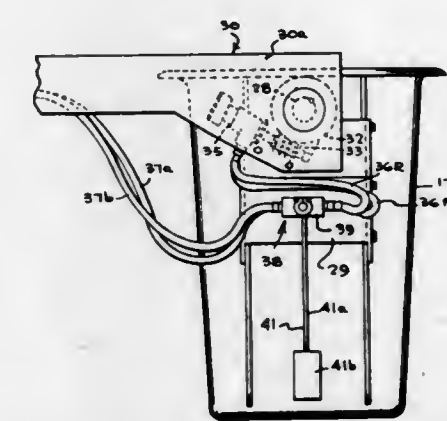
Edwin Earl Milner, Jr., Williamsburg, Va., assignor to Baker Equipment Engineering Co., Inc., Richmond, Va.

Filed Feb. 10, 1970, Ser. No. 10,469

Int. Cl. B66f 11/04

U.S. Cl. 182-2

12 Claims



also, so that the sheath pulsates in two zones in accordance with the gas output and the position of the baffle with respect to the length of the gas column.

3,590,946

EXHAUST SYSTEM

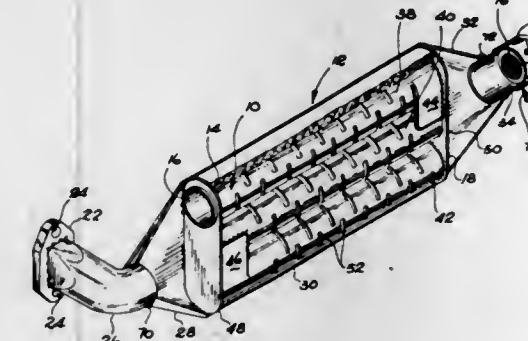
Emmet J. Corn, Jr., Lakewood, Calif., assignor to Mini-Fold Scooter Co., Inc.

Filed Dec. 3, 1969, Ser. No. 881,826

Int. Cl. F01n 1/10, 1/04

U.S. Cl. 181-50

3 Claims



An elongate core member is disclosed defining indentations therein which afford a fluted interior passage, the walls of the indentations being relatively thin at times defining openings therethrough. The core member is disclosed in a folded configuration enclosed by a housing with a cushioned lining pad separating the core member from the housing. A screen is positioned in the duct which is partially defined by the core, to assure the passage of only particles of minimum size.

A mobile aerial tower having a pivotally mounted boom for movement about a vertical and a horizontal axis, and a load-supporting platform such as a workman's basket supported on the outer end of the boom for pivoted movement about a horizontal axis, a reversible fluid motor for rotating the platform about the horizontal axis, a hydraulic control valve having a portion maintained in preselected orientation relative to the platform for controlling hydraulic fluid supply to the motor, and a pivotally supported weighted pendulum connected to the valve to continuously regulate fluid flow to the motor so as to maintain the platform in a preselected level condition.

3,590,949

LIBRARY HELPER AND BOOK STORAGE

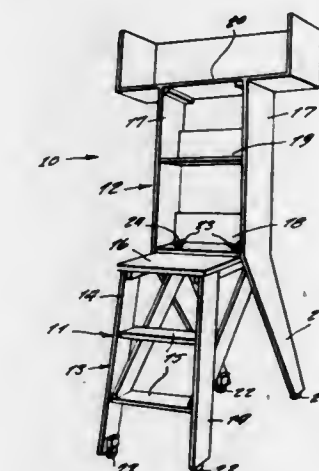
Orville E. Monroe, 4 S. 115 Lincoln Ave., Lisle, Ill.

Filed June 23, 1969, Ser. No. 835,347

Int. Cl. E06c 7/14

U.S. Cl. 182-129

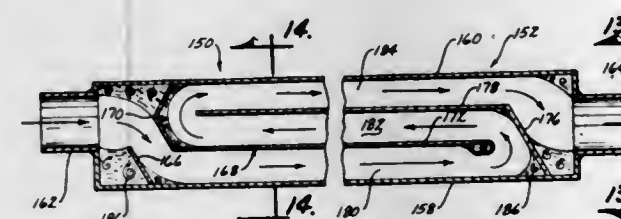
1 Claim



3,590,947
MUFFLER FOR INTERNAL COMBUSTION ENGINES
Theo A. Latch, 808 West Main Street, Marshalltown, Iowa; Russell A. Casey, 102 Cherry Street, Marshalltown, Iowa, and Gordon K. Edwards, R.R. #1, Albion, Iowa
Filed Sept. 4, 1968, Ser. No. 757,234
Int. Cl. F01n 1/08, 7/18

U.S. Cl. 181-53

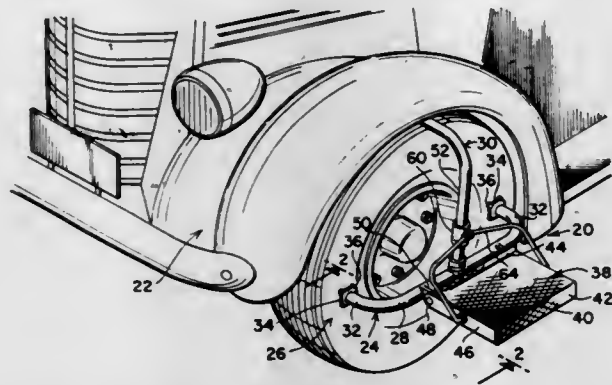
7 Claims



A muffler for internal combustion engines including a hollow casing having a plurality of baffle elements positioned therein which cause the gases to make a plurality of 180° turns as the gases move therethrough. The cross-sectional

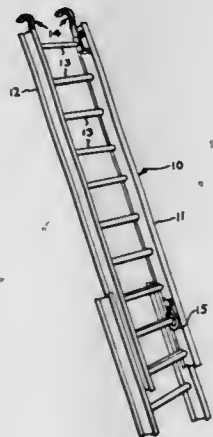
An item of furniture for a library, the device comprising a ladder for gaining access to the upper shelves of a library, the upper portion of the ladder including several shelves upon which books may be transported and from which the books may be transferred into the library bookcases, and the lower end of the ladder being mounted upon casters so as to be readily movable in front of the library bookcases.

3,590,950
PORTABLE STEP FOR VEHICLE MAINTENANCE AND REPAIR
 Phillip M. Wilson, 5415 Hartly Road, Satsuma, Ala.
 Filed May 1, 1970, Ser. No. 33,687
 Int. Cl. E06c 5/24
 U.S. Cl. 182-150 10 Claims



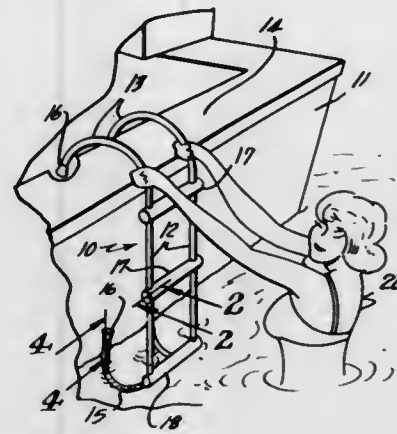
A portable step includes a platform hingedly secured to a frame which mounts on a tire of a vehicle to provide a standing surface for a mechanic servicing the vehicle. The frame includes a horizontal rod having feet which contact diagonally opposite portions of the tire sidewall. A vertical hook support is pivotally connected at its base to the center of the rod and the free end thereof engages the rear surface of the tire adjacent the uppermost portion thereof. To provide an adjustable platform stop, a sleeve is slidably mounted on the hook support and a bracket extends between the sides of the platform and the sleeve. In an alternate embodiment, the hook length is adjustable by engaging a prominence projecting from the base of the hook into one of a plurality of vertically spaced notches.

3,590,951
HOOK ASSEMBLY FOR LADDER
 Lewis W. Berger, Louisville Ladder Company, 1163 Algonquin Parkway, Louisville, Ky.
 Filed Jan. 12, 1970, Ser. No. 2,038
 Int. Cl. E06c 7/48
 U.S. Cl. 182-206 12 Claims



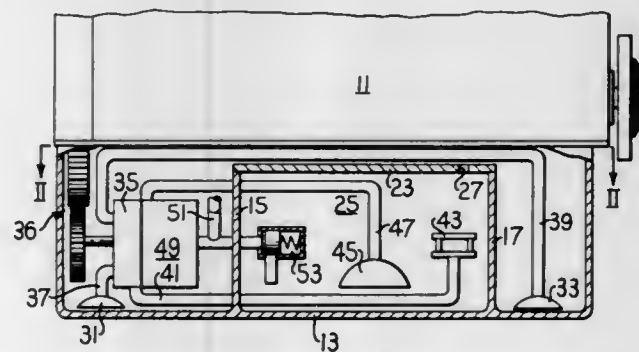
A retractable hook assembly for a ladder includes a bracket secured to the ladder side rail and a hook extending through the bracket. The hook is free to move, linearly and pivotally, relative to the bracket. A locking means is secured to the hook and has at least two surfaces each adapted to be brought into locking engagement with a locking surface on the bracket. A recess is provided adjacent the locking surface so that the hook can be moved linearly against the force of a biasing spring into alignment with the recess and then pivoted relative to the bracket to selectively bring either of the surfaces on the locking means into locking engagement with the locking surface on the bracket.

3,590,952
BOAT LADDER
 Charles F. Thomas, Orlando, and Allen C. Thomas, Tampa, both of Fla., assignors to Jackson Recreation Products, Inc., Winter Park, Fla.
 Filed Sept. 25, 1969, Ser. No. 861,082
 Int. Cl. E06c 7/06, 1/36
 U.S. Cl. 182-206 7 Claims



A standoff boat ladder apparatus for boarding a boat, or the like, has a pair of spaced rails, each rail having both ends curved whereby one end may be hooked over the gunnell of a boat, to hold the rail to the boat, and the other end curved to act as a standoff from the freeboard of the boat. The rails are held in spaced relationship to each other by a plurality of rungs each connected to each rail in a manner that each rail may be rotated in the rungs. The rails may be folded by rotating the rails and may be rotated into an operative position and locked by sliding a rung onto one of the curved portions of the rails.

3,590,953
ENGINE OIL PAN
 John C. Wellauer, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
 Filed Apr. 1, 1969, Ser. No. 811,975
 Int. Cl. F01m 1/06
 U.S. Cl. 184-6 B 6 Claims

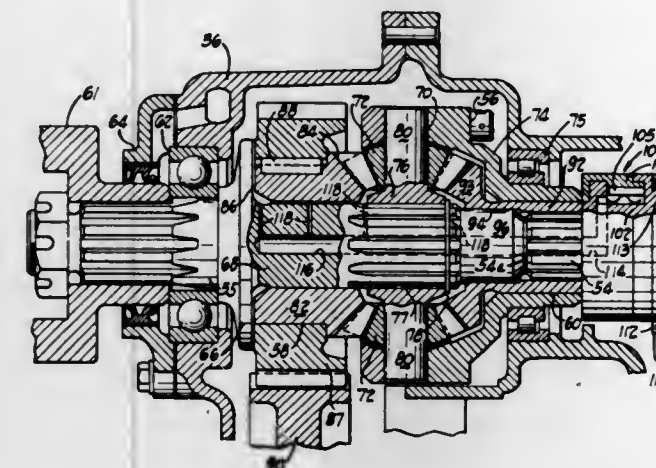


An engine oil pan in which oil is scavenged from the pan at selected positions and delivered to a compartment within the pan, from which it is pumped to the machinery which is to be lubricated.

3,590,954
DIFFERENTIAL MECHANISM
 Ronald S. Plantan, Wickliffe, Ohio, assignor to White Motor Corporation, Cleveland, Ohio
 Filed Dec. 5, 1969, Ser. No. 882,593
 Int. Cl. F16n 7/40
 U.S. Cl. 184-6 U 20 Claims

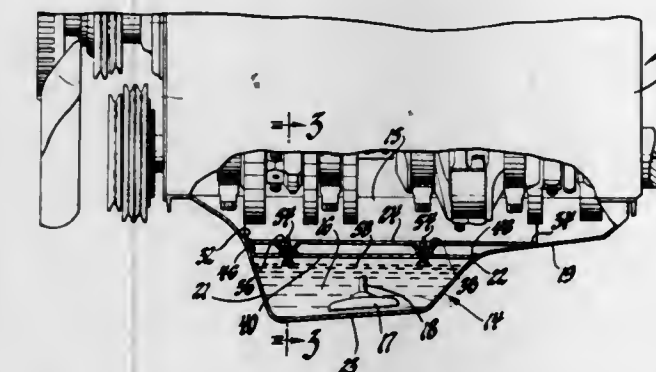
A motor vehicle having a tandem driven axle in which the driven axles are driven from an interaxle differential mechanism. The interaxle differential mechanism is connected to a positive displacement lubricant pump which pumps lubricant upon differentiation of the interaxle differential mechanism. The discharge of the pump commu-

nicates with passageways which direct pumped lubricant to relatively moving parts of the interaxle differential. The pump discharge is throttled by these passageways so that the connection passage to block or unblock flow therethrough. Each selector valve is carried in a corresponding bore in the pump discharge is throttled by these passageways so that the



back pressure of the oil impedes the operation of the pump. The pump is then effective to transmit torque between relatively moving parts of the interaxle differential to limit slipping of the differential.

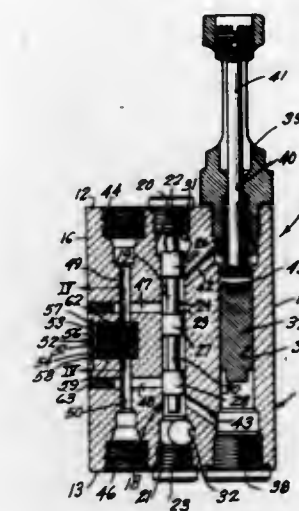
3,590,955
ENGINE OIL PAN
 John C. Rau, Southfield, Mich., assignor to General Motors Corporation, Detroit, Mich.
 Filed Dec. 19, 1969, Ser. No. 886,712
 Int. Cl. F01m 1/06
 U.S. Cl. 184-6 B 6 Claims



An oil pan assembly for the combustion engine in a motor vehicle in which an oil pan of suitable configuration is provided with baffles therein to provide an upper oil collecting chamber and a lower sump chamber in communication with each other through float valve controlled drain openings, the float valves being responsive to the relative oil level in the sump chamber.

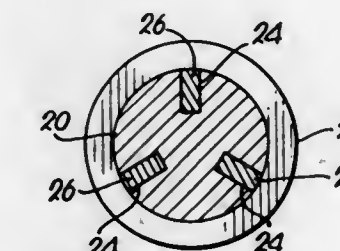
3,590,956
CROSSOVER VALVE FOR LUBRICANT DISTRIBUTOR
 Ronald F. Obergefell, Cleveland, Ohio, assignor to Houdaille Industries, Inc., Buffalo, N.Y.
 Filed Apr. 9, 1969, Ser. No. 814,717
 Int. Cl. F16n 7/14
 U.S. Cl. 184-7 5 Claims

A lubricant distributor for receiving lubricant under pressure from a source and for dividing, metering and directing the lubricant to a plurality of points of use. The lubricant distributor includes a plurality of cylinder piston units in which the pistons are moved reciprocally back and forth by the pressurized lubricant. Pairs of outlets corresponding in number to the number of cylinder piston units communicate with the opposite end of the cylinder and serve to discharge lubricant alternately therefrom as the pistons are moved back and forth. Passages are formed in the distributor for cross-connecting the two outlets associated with each cylinder piston unit and a selector valve is associated with each cross



distributor for rotation only, and is restrained against axial movement.

3,590,957
DISTRIBUTION OF SOLID LUBRICANTS HAVING FUSIBLE BINDERS
 Mahlon E. Campbell, Merriam; Vernice Hopkins, Overland Park, and Roger J. Schroeder, Overland Park, all of Kans., assignors to Midwest Research Institute, Kansas City, Mo.
 Filed Nov. 25, 1968, Ser. No. 778,553
 Int. Cl. F16n 15/00
 U.S. Cl. 184-99 9 Claims

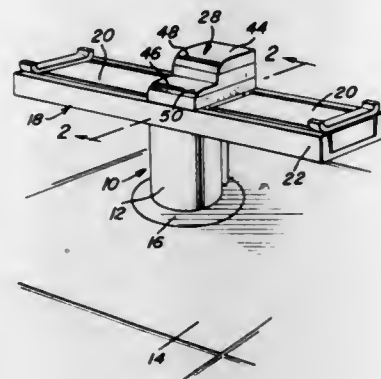


A solid lubricant having a low fusion temperature binder is applied to the wear surface of a machine element by transferring the lubricant from a reservoir disposed such that the lubricant is in heat exchange relationship with the element. The melting temperature of the lubricant binder is greater than the normal operating temperature of the element, thus melting of the binder and attendant transfer of the lubricant, such as by flow thereof in the melted state, occurs when the element develops excessive heat due to lubrication depletion. Depending on the melting temperature of the binder, the solid lubricant may be employed for primary lubrication or utilized as a backup lubricant which is distributed on the wear surface in the event of depletion of the primary lubricant.

3,590,958
ADAPTER BLOCK FOR VEHICLE LIFTS
 Lloyd F. Elswick, 1543 Lime St., Clearwater, Fla.
 Filed June 6, 1969, Ser. No. 831,002
 Int. Cl. B66f 7/00
 U.S. Cl. 187-8.74 3 Claims

A front-to-rear reversible spacing block for disposition in the center upwardly opening recess of the saddle atop a vehicle lift post. The lower portion of the block is contoured to snugly seat in the recess and the upper portion of the block includes downwardly facing surfaces for resting upon the

upper surfaces of the saddle disposed about the recess. Further, the exposed upper portion of the block is stepped

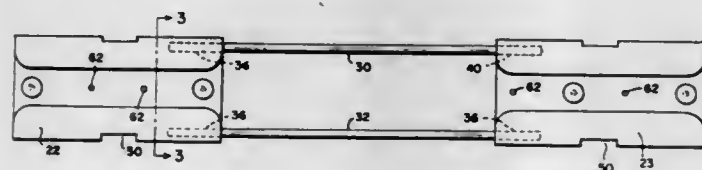


for adapting to forward center lift portions of various vehicles in reversed positions of the block.

3,590,959
BUMPER FOR AUTOMOBILE PARKING LOTS
Matthew E. Ferketich, Southampton, Pa., assignor to Robinson Steel Company, Philadelphia, Pa.
Filed July 23, 1969, Ser. No. 844,081
Int. Cl. B60t 3/00

U.S. Cl. 188—32

1 Claim

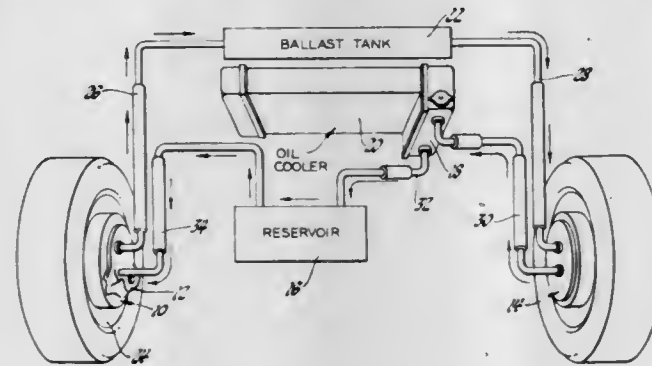


A bumper for parking lots comprises two body members for engaging the front wheels of a car being parked, connected by rod members. Each body member has a substantially flat forwardly presenting face disposed at an angle to the horizontal and supported by a depending web extending from the rear face along a longitudinal line between the upper and lower surfaces. The body can have two faces and two webs the webs being joined at the center and a plurality of holes being provided at the junction to accommodate pins to fix the bumper in position on the parking lot.

3,590,960
BRAKE FLUID COOLING ARRANGEMENT
Donald W. Reynolds, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed June 2, 1969, Ser. No. 829,572
Int. Cl. F16d 65/84

U.S. Cl. 188—71.6

12 Claims



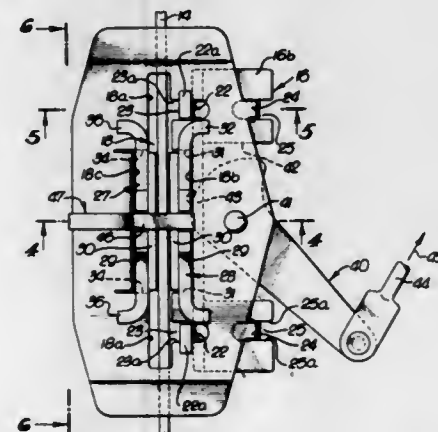
Fluid cooled brake cooling systems in each of which a plurality of vehicle wheel brakes are connected in series in a cooling circuit. In each system disclosed the circuit includes a pump driven by one of the wheels. In one embodiment the pump moves cooling fluid through a ballast tank, another

wheel brake, a heat exchanger, and a cooling fluid reservoir. The fluid from the reservoir is returned to the wheel brake having the pump as a part of the brake assembly. In another embodiment, the pump driven by one of the wheels having a first brake to be cooled moves heated fluid from the first brake through a heat exchanger which cools the fluid, to a second wheel brake to be cooled where the fluid receives heat, then through the heat exchanger to again cool the fluid, after which this cooled fluid is returned to the brake with the pump. A cooling fluid reservoir is connected with the line connecting the pump output and the heat exchanger so that the reservoir can receive fluid from this point and a vent is provided. The reservoir outlet is connected at two points in the circulation system, these two points being between the two outlet points of the heat exchanger and the brake to which fluid flows from each outlet point. The wheel driven pump provides for circulation of cooling fluid through the entire system.

3,590,961
CLOSED LOOP CALIPER TYPE DISC BRAKE AND SUPPORT MEANS THEREFOR
Franklin B. Airheart, Granada Hills, Calif., assignor to Airheart Products, Inc., Van Nuys, Calif.
Filed Apr. 3, 1969, Ser. No. 813,262
Int. Cl. B60t 65/00

U.S. Cl. 188—73.4

11 Claims

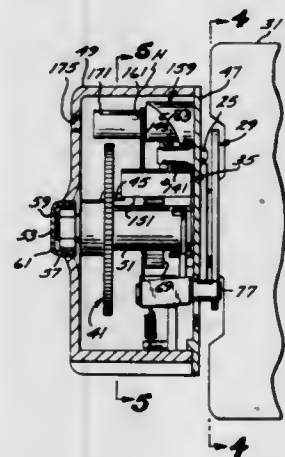


The disclosure concerns a disc brake assembly of low-cost construction, as for example making use of metal stampings, and wherein a clamping part or parts including linings may be dropped into place in support members for retention, such members being themselves retained against separation while free for relative lateral shifting bringing the clamping parts into clamping engagement with opposite faces of a rotor.

3,590,962
METERING BRAKE
Tommy M. Parker, Lakewood, and Anthony R. Ford, West Covina, both of, Calif., assignors to Marvin Dizack, Seymour Grubman, and Stanford Tabb, by said Parker
Filed Jan. 6, 1969, Ser. No. 812,504
Int. Cl. B60t 7/18

U.S. Cl. 188—111

10 Claims



A metering brake including a housing mountable on the frame of a shopping cart wheel. A locking pin projects

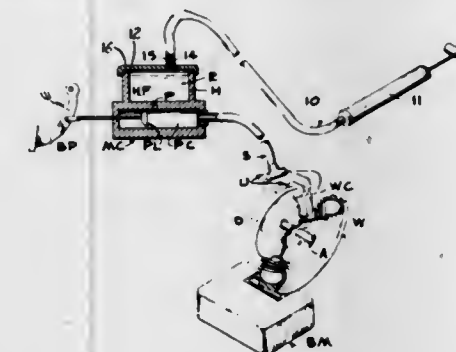
through the housing and is biased to engage a stop carried on the wheel but is held from such engagement by a pivotal holding bracket. Metering means within the housing includes a cam follower driven by a cam mounted on the wheel and, after a predetermined distance, moves a trip element into engagement with the holding bracket to release the lock pin to engage the stop thereby braking the cartwheel. An actuator is provided for actuating the metering means as the cart leaves the store and reset means is provided for retracting the lock pin and resetting the metering means when the cart is retrieved.

3,590,963
METHOD AND APPARATUS FOR FREEING WHEELS HAVING DISC BRAKES
Dennis Wright, Altoona, and James T. Winkles, Center, both of, Ala., assignors to Harold D. Harvey, Calhoun County, Ala.

Filed Apr. 10, 1969, Ser. No. 814,899
Int. Cl. B60t 11/30

U.S. Cl. 188—152

10 Claims

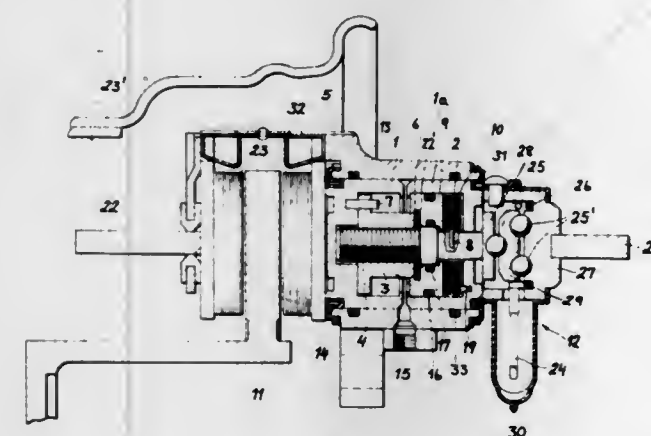


Method and apparatus for freeing vehicular wheels having disc brakes for rotation wherein the method includes the step of imposing a vacuum on the fluid in the wheel cylinder to release the braking pad from the disc so that the disc and wheel assembly can be freely rotated. The apparatus includes a cover for the master cylinder of the braking system and a vacuum pump operatively associated with the cover whereby a vacuum exerted by the pump is imposed on the hydraulic fluid in the braking system to withdraw the braking pad from the disc.

3,590,964
SPRING-LOADED ADJUSTMENT MECHANISM FOR HYDRAULIC DISC BRAKE
Gerhard Krause, Frankfurt am Main, Germany, assignor to Alfred Teves GmbH, Frankfurt am Main, Germany
Filed Oct. 25, 1968, Ser. No. 770,749
Claims priority, application Germany, Dec. 12, 1967, T 35 459

U.S. Cl. 188—196

10 Claims



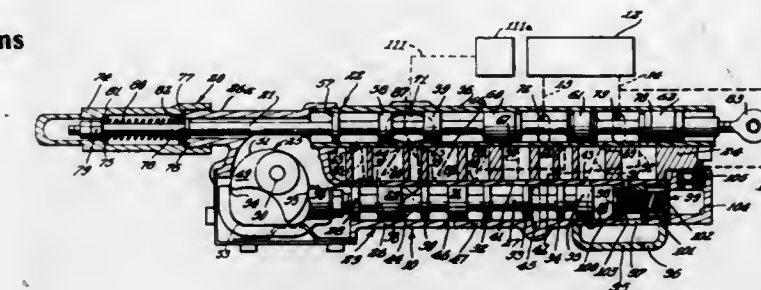
A spring-loaded adjustment mechanism for a hydraulic disc brake is provided with a threaded member acting upon

the brake piston and rotatable to displace this piston and adjust the brake. A spiral spring engages this member and is prestressed so as to turn the member in the adjusting sense on increase of brake play beyond a predetermined limit to reset the original brake play by resetting the rest position of the piston. A blocking piston is clampingly engageable with the spring on actuation of the brake to immobilize it so that no rotation of the adjustment member is possible with the brake actuated.

3,590,965
SEQUENCE AND DIRECTION VALVE
Frank L. Oppenheimer, Cincinnati, Ohio, assignor to TRW Inc., Cleveland, Ohio
Filed June 10, 1969, Ser. No. 831,967
Int. Cl. F16d 71/04; B64c 13/36

U.S. Cl. 192—3

9 Claims

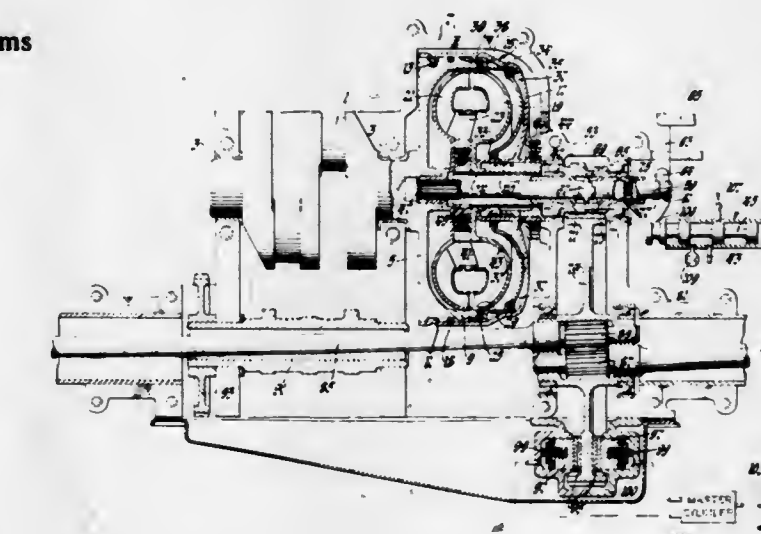


A valve assembly adapted to control rotary actuators by providing velocity reduction and stopping function to the actuator and thereby greatly enhancing the positional accuracy of the rotary actuator to duplicate the velocity reduction and stopping characteristic of a linear actuator. The valve assembly includes a directional control spool valve and a sequence control spool valve which is to slow and stop the actuator at the end of the desired output displacement. In the preferred embodiment, the valve assembly also controls the engagement and disengagement of a braking means associated with the actuator and includes means to control the speed of travel of the actuator in one direction by applying a variable back pressure on the exhaust line from the actuator.

3,590,966
HYDRODYNAMIC TORQUE TRANSMITTING UNIT WITH FLUID
Gilbert K. Hause, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 10, 1969, Ser. No. 805,745
Int. Cl. F16d 67/00; F16h 57/10

U.S. Cl. 192—3.33

4 Claims



Power transmission in which the input rotor of a hydrodynamic torque-transmitting unit and a rotatable trans-

mission input are selectively clutched and unclutched to control power flow through the unit. Controls associated with a gear selector mechanism for forward and reverse gearing effect the momentary disconnection of the input rotor and the transmission input when shifting gears. Disc brakes selectively engageable with the differential input provide vehicle service brakes. The housing of the torque-transmitting unit is rigidly connected to the transmission input by deforming a portion of the housing into appropriate openings formed in the transmission input.

3,590,967

MAIN CLUTCH WITH ELECTRIC AUXILIARY CLUTCH AND BRAKE

Sadayuki Kajitani; Masahiro Yokoyama, and Katsuhiko Eguchi, all of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

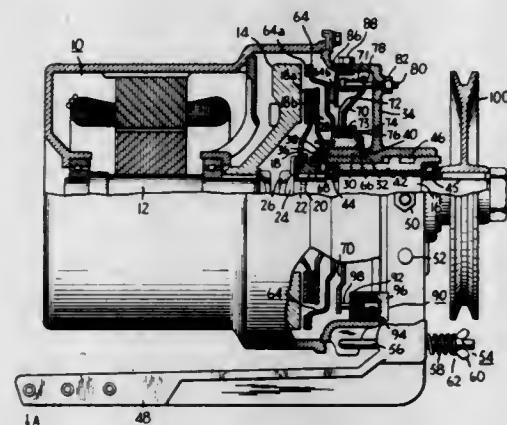
Filed July 7, 1969, Ser. No. 839,403

Claims priority, application Japan, July 9, 1968, 43/58316

Int. Cl. F16d 67/06

U.S. Cl. 192-18 B

2 Claims



A main clutch engages a flywheel on a motor to drive an output shaft at a high speed. To decelerate the shaft, the main clutch disengages from the flywheel while simultaneously an electromagnet is energized to engage an auxiliary clutch with a flywheel. That clutch drives the main clutch through a brake disc with slip permitted between the main clutch and disc. When the electromagnet is deenergized the auxiliary clutch disengages from the flywheel and engages a brake shoe resulting in its stoppage.

3,590,968

RELEASE MECHANISM IN A FRICTION CLUTCH

Richard Binder, Schweinfurt am Main, Germany, assignor to Fichtel & Sachs AG, Schweinfurt am Main, Germany

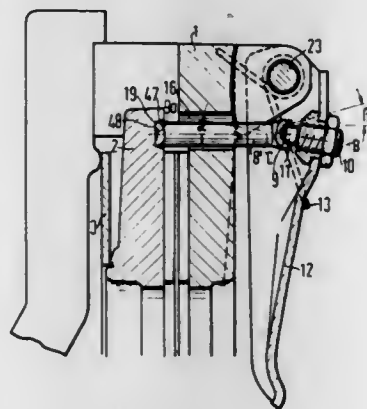
Filed May 22, 1969, Ser. No. 826,948

Claims priority, application Germany, May 25, 1968, P 17 50 689.7

Int. Cl. F16d 21/06

U.S. Cl. 192-99 A

10 Claims



Movement of each clutch release lever mounted on the casing of a friction clutch is transmitted to the pressure plate

of the clutch by a motion transmitting train which includes an axially elongated pin interposed between the associated lever and the pressure plate between two knife-edge bearings. Each bearing consists of a frustoconical recess in one of the connected members and a bearing pin on the other member. The convexly arcuate edge about the circular end face of the pin is the knife edge of the bearing, which engages the concavely arcuate intersection between the frustoconical wall and the bottom wall of the recess.

3,590,969

FIXED POINT STOP MECHANISM FOR DRIVEN ROTARY MACHINE

Sadayuki Kajitani; Masahiro Yokoyama, and Yukio Kajino, all of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

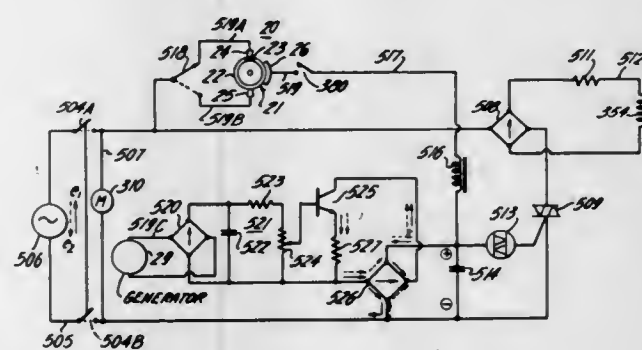
Filed May 29, 1969, Ser. No. 828,844

Claims priority, application Japan, June 3, 1968, 43/37935

Int. Cl. F16d 71/04; D05b 69/26

U.S. Cl. 192-146

7 Claims



An electric motor puts a sewing machine in its normal operation through a clutch. Upon stopping the machine, a transistor and a capacitor fire a thyristor to permit the energization of an electromagnet. This causes the clutch to be partly braked to put the machine in sustained rotation at a low speed. When a position sensor senses the machine being at a selected one of its predetermined positions the electromagnet is deenergized to stop the machine at that selected position through the operation of the brake.

3,590,970

CONVEYOR ROLLER

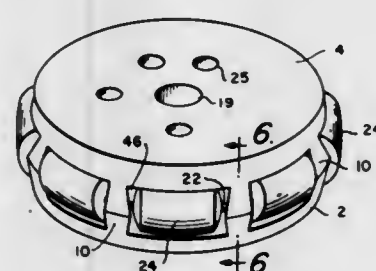
Andrew T. Kornylak, Hamilton, Ohio, assignor to Kornylak Corporation, Hamilton, Ohio

Filed Dec. 9, 1968, Ser. No. 782,038

Int. Cl. B65g 13/00

U.S. Cl. 193-37

22 Claims



A conveyor roller comprising a hub and a plurality of rollers mounted in the periphery of the hub. In some forms of

the invention the hub is divided into two segments on one or more planes normal to the axis of rotation. The segments are contoured to define bearings and pockets for the mounting of the rollers when secured together. In other forms of the invention the hub is divided into three segments on two or more planes normal to the axis of rotation. The segments are contoured to define bearings and pockets for the mounting of the rollers when secured together. The rollers are arranged in parallel planes and are circumferentially staggered to provide a continuous support for the load. The hub members and rollers are preferably formed by moulding of synthetic plastics.

3,590,971

CRADLE FOR COIN SORTER

Wilson M. Stewart, 110 Isabella St., Ottawa, Ontario, Canada

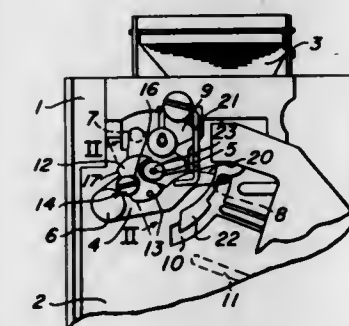
Filed Aug. 21, 1969, Ser. No. 851,929

Claims priority, application Canada, Apr. 14, 1969, 048,657

Int. Cl. G07f 3/02

U.S. Cl. 194-103

2 Claims



A cradle for use in a coin sorter is provided with an adjustable biasing weight so that coins of less than an acceptable weight can be prevented from rocking the cradle.

3,590,972

DEVICE FOR STACKING EGG-TRAYS

Jacob H. Mosterd, c/o Apparatenbouw MOBA N.V., Stationsweg 117, Barneveld, Netherlands

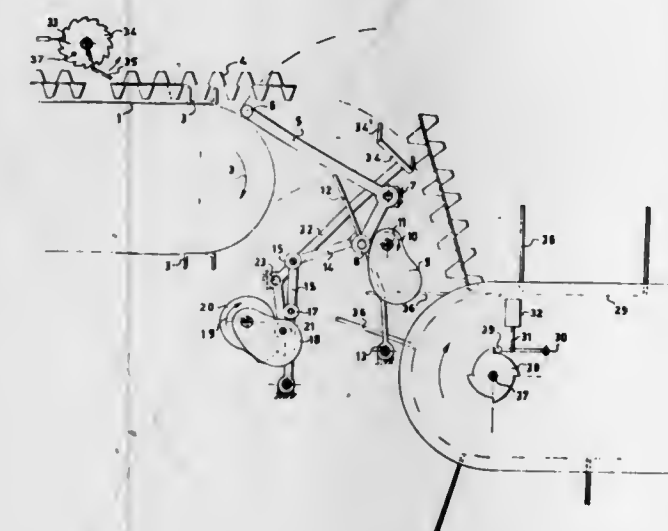
Filed Apr. 8, 1969, Ser. No. 814,369

Claims priority, application Netherlands, Apr. 8, 1968, 68/04963

Int. Cl. B65h 3/30

U.S. Cl. 198-20

6 Claims



The invention relates to a device for handling mainly flat objects, which device has a supply belt, a swinging member

for lifting an edge of a flat object protruding from the output end of the supply belt to inverse said object, a swingable flap for receiving the objects and bringing them into a standing position unto a transport belt, as well as means for backing the object for preventing it from falling back when moved unto said transport belt.

3,590,973

CONVEYOR WITH CONTAINER EJECTOR

Robert P. Sorensen, Rockford, Ill., assignor to Anderson Bros. Mfg. Co., Rockford, Ill.

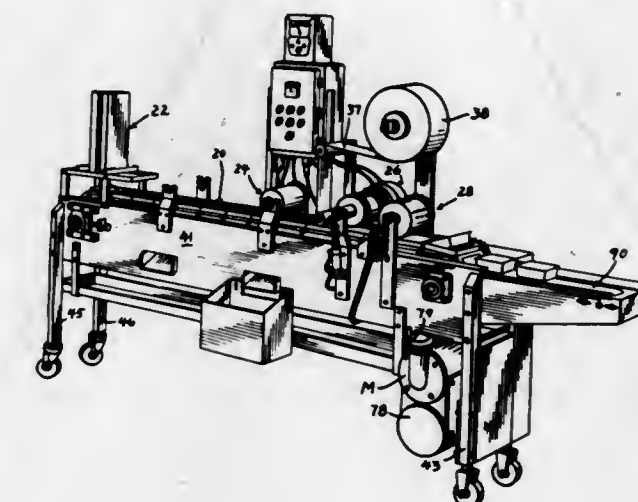
Division of Ser. No. 554,284, May 24, 1966, Pat. No. 3,436,894.

Filed Oct. 14, 1968, Ser. No. 767,274

Int. Cl. B65g 47/00, 15/00

U.S. Cl. 198-25

6 Claims



A packaging machine has a conveyor which advances a number of containers from a container denester past a filler, sealing head, and cutter. The conveyor has a plurality of pivotally interconnected pockets which have open bottoms. At the outlet end of the conveyor are provided a plurality of shoes which move through the open bottom of the pockets to eject the containers.

3,590,974

DESCRAMBLER

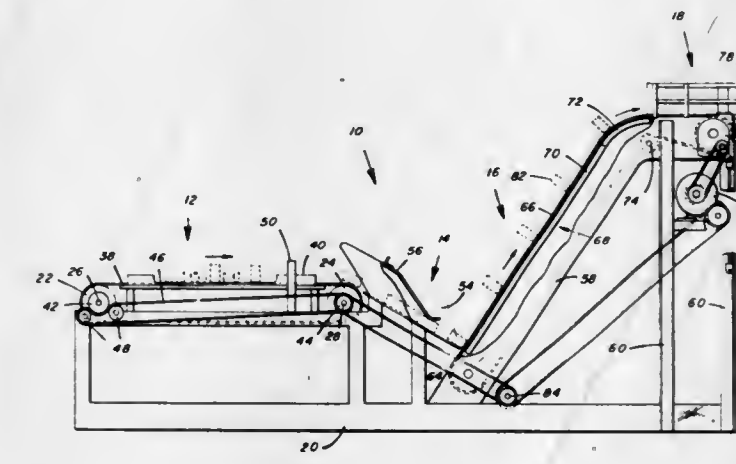
Marion W. Loveless, 419 South Allegheny, Tulsa, Okla.

Filed Aug. 4, 1969, Ser. No. 847,259

Int. Cl. B65g 47/00, 47/30

U.S. Cl. 198-30

4 Claims



In an apparatus for the descrambling and aligning of objects, which device has a supply belt, a swinging member paramagnetic cans, an elevator conveyor has a magnetic

plate directly beneath the upper flight of the belt, the magnetic plate having an upper end contoured so as to be in a plane substantially tangential to the upper roller so that the cans riding on the elevator conveyor are held in an upright position by the magnetic attraction force of the magnetic plate and are conveyed onto a discharge conveyor in the same upright position.

3,590,975

CIGAR CONVEYOR

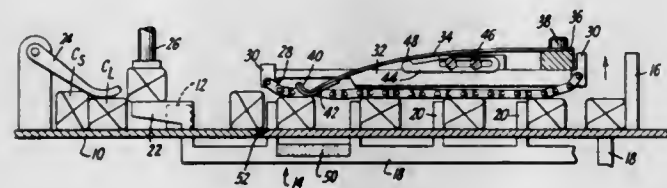
Frank Hollenton, Richmond, Va., assignor to AMF Incorporated

Filed Jan. 28, 1969, Ser. No. 794,638

Int. Cl. B65g 47/14

U.S. Cl. 198—33 AD

9 Claims



Apparatus for orienting rectangularly shaped cigars carried on a walking beam structure wherein a spring finger mechanism is provided for engaging the upper surface of cigars which are incorrectly positioned to rotate the cigar about its longitudinal axis as it is moved on the walking beam.

3,590,976

APPARATUS FOR SORTING RING-SHAPED PARTS

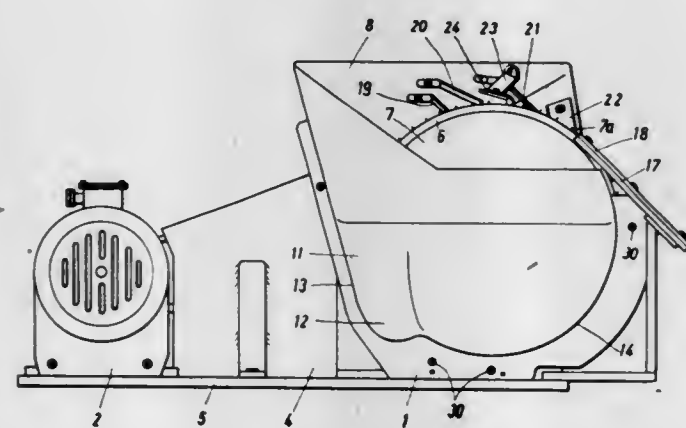
Richard Weiss, Egesheim; Heinz Neumann, Spaichingen, both of, Germany, assignors to Richard Weiss OHG, Egesheim, Germany

Filed Apr. 22, 1969, Ser. No. 818,354

Int. Cl. B65g 47/24

U.S. Cl. 198—33 AA

10 Claims



Apparatus for sorting nuts, washers or similar ring-shaped parts comprises a hopper for a supply of randomly oriented parts, a wheel which extends into the supply of parts and is provided with radial pins which spear the parts during travel through the hopper, and a chute extending tangentially of the wheel and positioned to receive speared parts from the pins. The wheel is provided with blades which agitate the contents of the hopper, and the hopper carries leaf springs which

separate improperly engaged parts and orient partially speared parts prior to transfer into the inlet of the chute.

3,590,977

VARIABLE INDEX FINGER ASSEMBLY

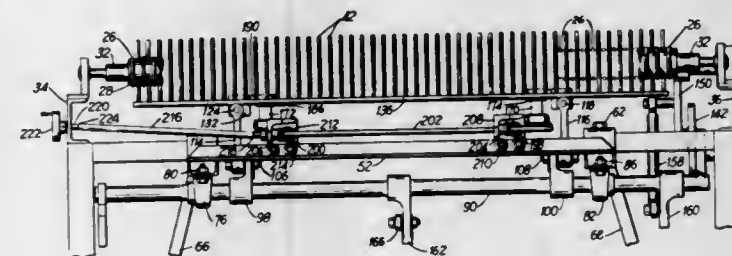
Arthur Stanford, Richmond, Va., assignor to AMF Incorporated

Filed June 2, 1969, Ser. No. 829,564

Int. Cl. B65g 47/26

U.S. Cl. 198—34

1 Claim



Apparatus for metering articles, which comprises conveyor means, gating means mounted adjacent said conveyor means, means for moving said gating means between a first position whereat it is operable to block articles being advanced by said conveyor means and a second, inactive, position, and means for adjusting the position of said gating means longitudinally with respect to said conveyor means.

3,590,978

AUTOMATIC LOADING APPARATUS

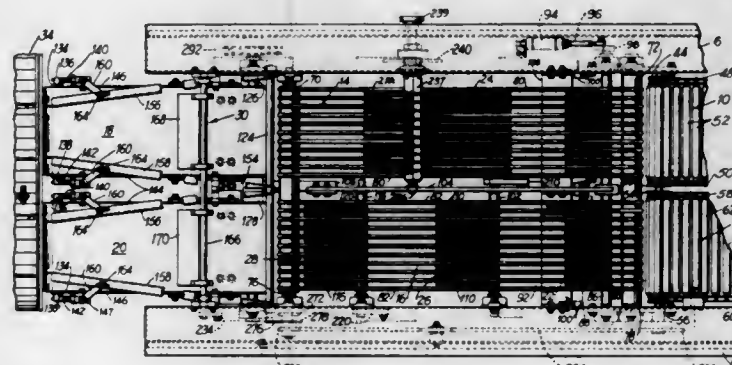
Roy W. Carnes, Henrico County; Fred D. Marasso, Richmond, and Robert E. Rademacher, Henrico County, all of, Va., assignors to AMF Incorporated

Filed Sept. 27, 1968, Ser. No. 763,099

Int. Cl. B65g 57/081

U.S. Cl. 198—35

4 Claims



Apparatus for loading articles comprising means for advancing two articles to a gating means, means for opening the gating means after both articles arrive thereat, means for placing one of the two articles in a receptacle, means for advancing the other article to a second gating means, means for moving the receptacle to a position opposite the last named advancing means, means for opening the second gating means in a timed relationship to the receptacle advancing means and means for placing the other article in said receptacle.

3,590,979

MECHANICAL PART FEEDER

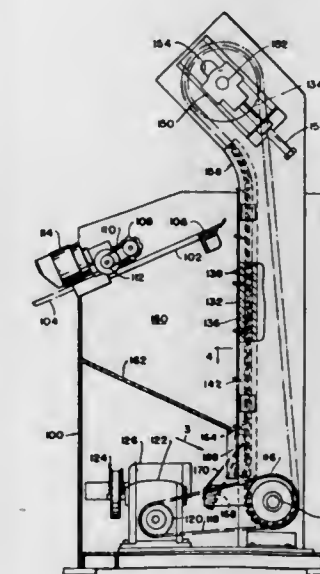
Fritz J. Lupo, Bloomfield Hills, Mich., assignor to Feedmatic-Detroit, Inc., Southfield, Mich.

Filed Aug. 26, 1968, Ser. No. 755,121

Int. Cl. B65g 47/18

U.S. Cl. 198—53

3 Claims



A feeder for distributing small parts such as nuts, to a multiplicity of separate feed tracks. The articles are elevated along the underside of an inclined mechanical conveyor or belt on which they are distributed substantially uniformly across the width thereof, and are permitted to drop from the belt onto the feed tracks.

3,590,980

CONVEYER BELT SUPPORTS

Bengt Lennart Bengtsson, Sperlingeavagen 11, 260 36, Hittarp, Sweden

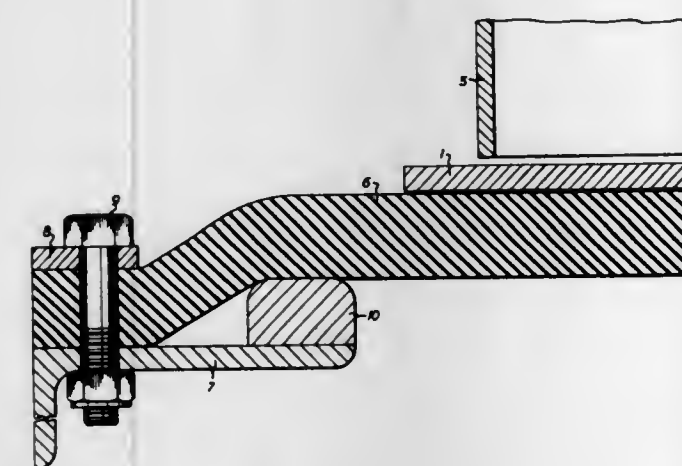
Filed May 19, 1969, Ser. No. 825,888

Claims priority, application Sweden, May 22, 1968, 6944/68

Int. Cl. B65g 47/18

U.S. Cl. 198—57

2 Claims



In a belt conveyor where the belt consists of rubber or like material, that part of the conveyor belt where the material to be conveyed is dropped onto the belt, is supported by a mat of elastic material to prevent damage to the belt, the mat being secured outside the edges of the conveyor belt.

3,590,981

GUIDE WITH ENERGY-ABSORBING BAFFLES

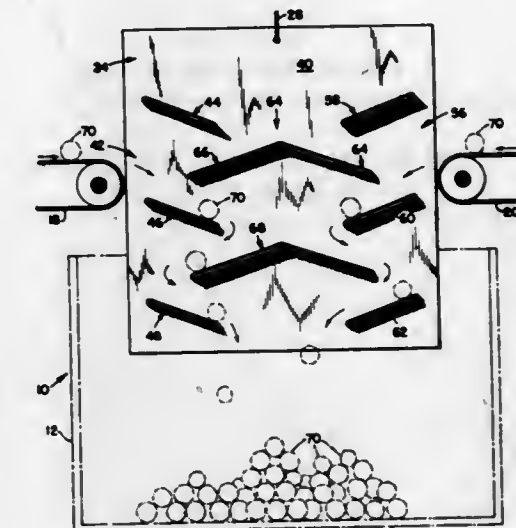
Philip R. Adrian, Escalon, Calif., assignor to Fruit Harvesting Co., Inc., Escalon, Calif.

Filed May 1, 1969, Ser. No. 821,004

Int. Cl. B65g 47/44, 11/08

U.S. Cl. 198—72

3 Claims



An orchard harvester including a guide adapted to receive fruit from a conveyor and guide it into a crate, the guide having thereon a plurality of stacked, spaced baffles which allow the fruit to fall through the guide and into the crate, meanwhile absorbing the energy of the falling fruit and limiting the acceleration thereof.

3,590,982

ARTICLE TRANSFER APPARATUS

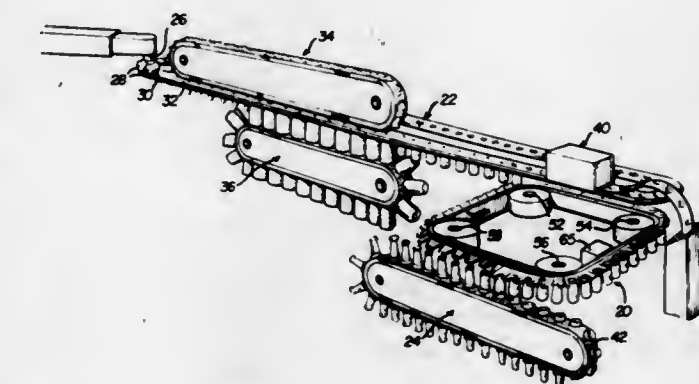
John D. Banyas, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Filed May 19, 1969, Ser. No. 825,850

Int. Cl. B65g 15/00

U.S. Cl. 198—179

13 Claims



Apparatus for transferring bulblike glass articles from a ribbon-type forming machine to a receiving conveyor. The transfer apparatus includes a plurality of individual transfer devices mounted for movement along an endless rectangular path, one run of which extends in parallel operative relationship with the article-forming ribbon machine and another run of which extends in parallel operative relationship with a receiving conveyor. The individual transfer devices include an open-ended U-shaped article support yoke and a pair of article retainer fingers both mounted upon a carrier member mounted upon a carriage which is in turn mounted upon a bracket driven in movement along the generally rectangular endless path referred to above. The bracket is supported for vertical movement as it moves along its path, while the carriage is mounted on the bracket so that it may be extended or withdrawn horizontally in a direction normal to the path of movement of the bracket along its endless path. The carrier is in turn slidably mounted on the carriage for sliding movement parallel to the path of movement of the carriage on the bracket. Movement of the carrier relative to the bracket is

confined to a range less than that of the movement of the carriage relative to the bracket, the excess movement or overtravel of the carriage as compared to the carrier being employed to open and close the retainer fingers at selected portions of the endless path. Vertical movement of the bracket and extending or withdrawing movement of the carriage upon the bracket is accomplished by means of cams mounted upon the frame of the transfer machine.

3,590,983

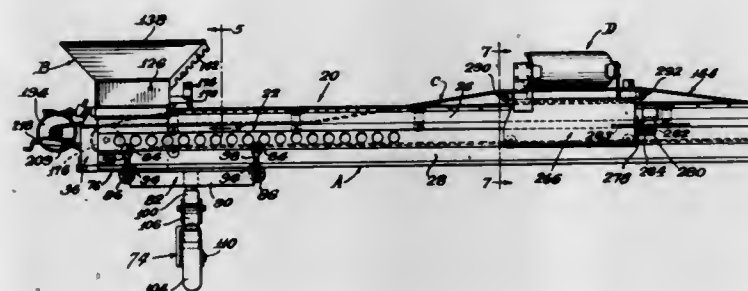
CONCRETE CONVEYOR

Robert F. Oury, Elmhurst, Ill., assignor to Rotec Industries, Inc.

Filed June 6, 1968, Ser. No. 735,004
Int. Cl. B65g 57/00, 15/00

U.S. Cl. 198-185

22 Claims



A conveyor mechanism particularly for conveying concrete mix from one place to a place of use. An elongated and movable support frame of unique design is provided and serves several functions, including support of the conveyor mechanism and variable adjustment for the idlers supporting a belt conveyor, and it also includes enclosed chambers for cables, drive chains, and the like. The frame has a hopper at one end for receiving relatively large quantities of concrete. A belt conveyor is movably carried on the frame and moves the concrete from the hopper to the desired place of use. A plow is movably mounted on the frame and the path of travel of the concrete mix carried on the conveyor is intercepted by the plow and is diverted laterally from the longitudinal axis of the conveyor to the place of desired use. The belt conveyor is supported generally in a U-shape, by a unique structure, between the hopper and the plow; at the plow the belt is desirably moved into a flattened condition to provide a proper discharge for the concrete mix.

3,590,984

BELT CONVEYOR DEVICE WITH A BELT GUIDING ASSEMBLY COOPERATING WITH THE OUTSIDE OF THE CONVEYOR BELT

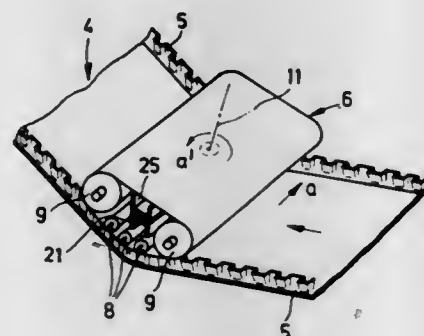
Gunther Nolte, Mannheim-Käfertal, Germany, assignor to Conard Scholtz AG, Hamburg, Germany

Filed May 6, 1969, Ser. No. 822,236
Claims priority, application Austria, May 15, 1968, A4661-68

Int. Cl. B65g 15/62

U.S. Cl. 198-202

9 Claims



A belt conveyor device including a conveyor belt, which has a raised strip along each edge on one surface for laterally

confining material being transported on the belt, moving along a path having straight portions interconnected by a curved portion and a belt guiding assembly for guiding the conveyor belt through the curved portion of the path. The belt guiding assembly includes a pair of end rollers and intermediate rollers which are rotatably journaled in a housing and extend across the width of the conveyor belt. A cover belt is supported on the rollers to travel in an arcuate path while contacting the edge strips of the conveyor belt moving through the curved portion of the path. The housing is mounted to be rotatable on a pivot axis so that the belt guiding assembly promptly corrects any deviation in the path of the conveyor belt.

3,590,985

AXIALLY ROTATABLE DELIVERY CONVEYOR

Jerome Hirsch, 1931 N.E. 187 Drive, North Miami Beach, Fla.

Filed May 14, 1969, Ser. No. 824,558
Int. Cl. B65g 33/00

U.S. Cl. 198-213

9 Claims



An axially rotatable delivery conveyor including interconnected straight lengths and curved lengths in which the lengths include an inner core and an outer core having a cylindrical surface coaxial with respect to the axis of rotation of the delivery conveyor and in which outer cylindrical surface a spiral track is provided of an area substantially less than the outer surface so that the conveyor is adapted to be supported by bearing means engaging the smooth outer surface on rotation of the conveyor to travel hooklike articles having a bight portion engaged in the spiral track; the curved lengths include a flexible inner core and the outer cylindrical surface is composed of interconnected links having an outer surface similar to that of the straight lengths, that is, concylindrical and including the spiral track.

3,590,986

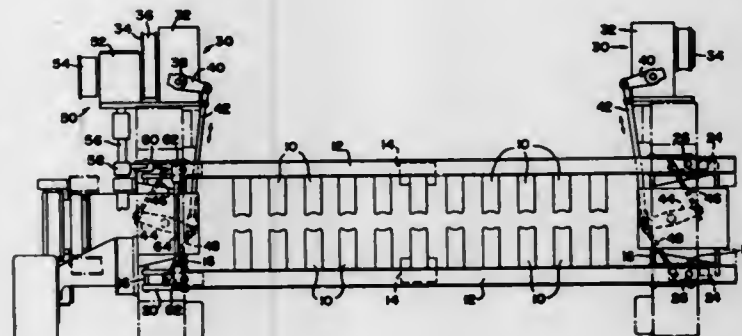
TRANSFER FEED

Ralph L. Andrews, and William Hollenbeck, both of Hastings, Mich., assignors to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Filed Oct. 1, 1968, Ser. No. 764,248
Int. Cl. B65g 25/04

U.S. Cl. 198-218

2 Claims



A transfer feed in which the work gripping fingers are connected to a pair of feed bars. The bars are supported intermediate their ends and at their ends for sliding lateral and longitudinal movement. Cam units are connected to the bars at either end to effect the lateral movement and a third cam unit connected to one end of the bars effects longitudinal movement. No torsional forces are imposed on the bars thus permitting the feeding of heavier parts than has been possible with other types of feeds.

3,590,987

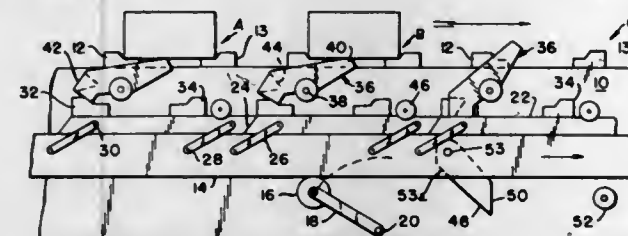
LIFT AND CARRY ACCUMULATOR

Dewey M. Evans, Farmington, and Peter J. Manetta, Warren, both of, Mich., assignors to Simplex Corporation, Detroit, Mich.

Filed Sept. 17, 1969, Ser. No. 858,835
Int. Cl. B65g 25/04

U.S. Cl. 198-219

10 Claims



An accumulator system including a walking beam transfer bar having a plurality of part carriers movable thereon between idle and carrying positions. Part sensors are provided at each of a plurality of stations and means responsive to the position of the part sensors elevate selected carriers to part carrying position during initial forward movement of the transfer bar. Means interconnect the part carriers so that all carriers in rear of an empty station are shifted to part carrying position.

3,590,988

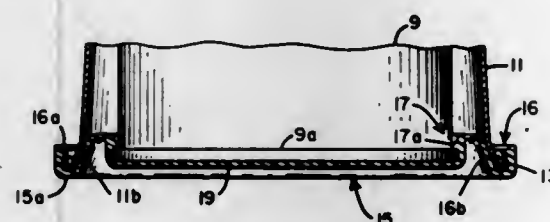
DISPLAY AND SHIPPING CONTAINERS

Bartley Douglass Hollar, Longmont, Colo., assignor to Gould-National Batteries, Inc., St. Paul, Minn.

Filed Jan. 3, 1969, Ser. No. 788,714
Int. Cl. B65d 25/00

U.S. Cl. 206-45.34

3 Claims



A display and shipping container having a transparent housing that forms locking engagement with a base member having an inner product engaging ring for holding the product securely within the container.

3,590,989

PROTECTIVE BOTTLE DISPLAY AND SHIPPING CONTAINER

John C. Wittwer, RFD #2, Mt. Kisco, N.Y.

Filed Dec. 9, 1968, Ser. No. 782,157
Int. Cl. B65d 79/00

U.S. Cl. 206-47

4 Claims



A clear plastic container having a base configured to define an item-receiving compartment having an open end.

Shock absorbing material is introduced into the open lower end after which the lower end is sealed. The item is carried within the sealed recess is thus protected against shock and vibration during handling and transmit.

3,590,990

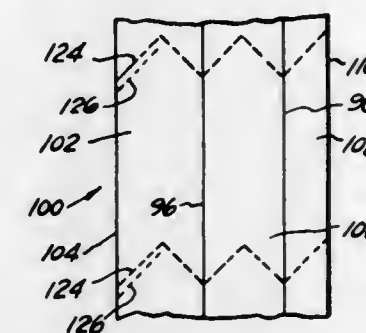
ROLLED GARMENT HOLDING BAG MATERIAL

David Rubin, 900 Whitmore, Detroit, Mich.

Continuation-in-part of application Ser. No. 752,337, Aug. 13, 1968. This application Mar. 21, 1969, Ser. No. 809,120
Int. Cl. B65d 85/18

U.S. Cl. 206-59 F

3 Claims



A prefolded roll of film material for garment holding bags is folded along a pair of longitudinally extending folded edges forming three longitudinally extending portions. One portion is disposed between the two folded edges. The remaining two portions are folded over the first portion so as to be disposed adjacent one another. In a second embodiment a fourth portion extends from a third longitudinally extending folded edge for forming garment bags with inner and outer pockets. In the alternative, rolls of completed bags may be formed by perforating, folding and seaming the strip of material before it is put into rolls.

3,590,991

PACKAGING MATERIAL AND PACKAGE: USEFUL IN PACKAGING ORIENTED PLASTIC STRAPPING

William H. Sloan, Vienna, W. Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 25, 1969, Ser. No. 819,300
Int. Cl. B65d 85/676

U.S. Cl. 206-59 C

3 Claims



A packaging material consisting essentially of a layer of plasticized polyvinyl butyral resin next to a layer of aluminum foil which is next to a layer of material selected from the class consisting of cellulosic material and polymeric material, and a moisture impregnable and compression fixa-

ble package which utilizes the packaging material and is useful in packaging polyamide strapping, leaving no residue on the strapping after the strapping is unreeled.

3,590,992

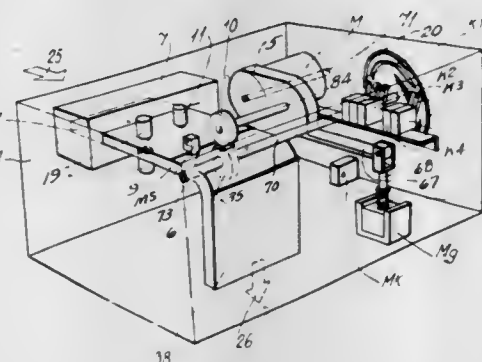
METHOD AND APPARATUS FOR EXAMINING AND IDENTIFYING BANKNOTES AND THE LIKE

Karl Gunnar Rune Soderstrom, Skebokvarnsvagen 151, Bandhagen, Sweden

Division of Ser. No. 529,644, Nov. 7, 1966, Pat. No. 3,448,855. Filed Jan. 30, 1969, Ser. No. 795,215

Int. Cl. B07c 5/06

U.S. Cl. 209-73



The disclosure involves a method for checking banknotes or the like in a checking station which includes the step of gauging mechanical dimensions at least one distinguishing area of the banknote. The gauged values obtained are compared with standard signals and a comparison signal produced which is then utilized to distinguish between genuine banknotes and forged or damaged banknotes. The disclosure also involves an apparatus for checking banknotes or the like and for passing genuine notes to an item dispensing device. The apparatus includes a gauging means for gauging mechanical dimensions at least one distinguishing area of the banknote. A comparator means is used for comparing the gauged values with standard values so as to produce a comparison signal. Utilizing means are provided which are responsive to said comparison signal to differentiate between genuine and forged or damaged banknotes. Means are provided for passing the genuine notes to a collection station and for returning notes which are forged or damaged.

3,590,993

MUSHROOM GRADER

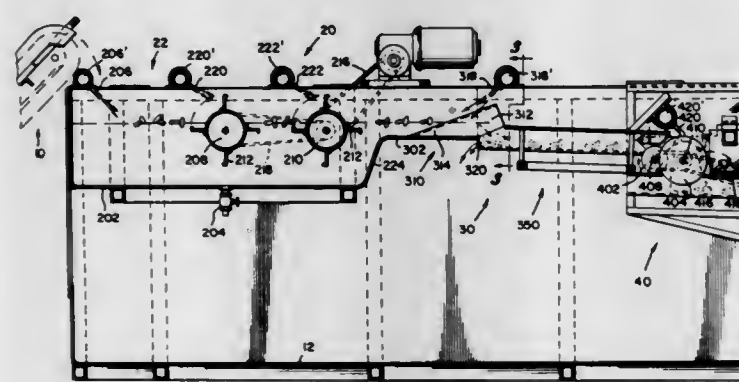
William H. Baker, Wilmington, Del., assignor to American Specialty Foods, Inc., Wilmington, Del.

Filed Mar. 13, 1969, Ser. No. 806,991

Int. Cl. B07c 1/04

U.S. Cl. 209-73

18 Claims



A device for continuously grading uncut mushrooms according to size is provided wherein the mushrooms are moved hydraulically at a controlled rate past a plurality of stations. At each station the mushrooms are aligned axially

into rows and are then serially graded into three different sizes before moving on to the next station. Each size grader comprises a pair of rotating capstan wheels which define a circular opening therebetween so that the axially aligned mushrooms which are undersize fall through the circular opening, while those of the selected grade, having a cap diameter too great to fit through the opening, pass over the downstream capstan wheel and are thereby graded according to size.

3,590,994

FRUIT SORTING AND BOX FILLING DEVICE

Roger Goudreau, 5342 De Repentigny, Montreal; Jean-Jacques Jobin, 6259 Louis Hemon, Montreal; Fernand Goudreau, 3247 Du Mail, St. Michel; Yvon Roy, 5312 Palmpol, St. Leonard, and Luigi Vaccaro, 7270 Vannes, St. Leonard, all of, Canada

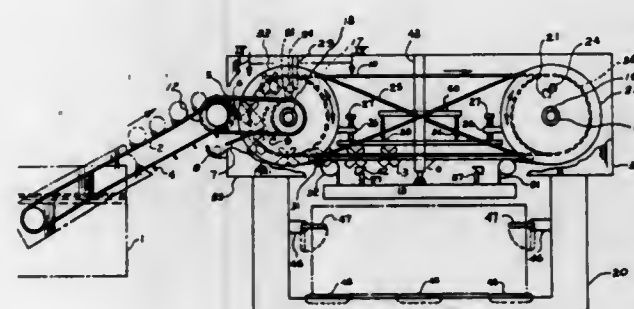
Filed Apr. 18, 1969, Ser. No. 817,351

Claims priority, application Canada, Apr. 20, 1968, 017987

Int. Cl. B07c 1/14

U.S. Cl. 209-73

13 Claims



A device for grading fruits according to their sizes and for gently depositing them in a container. The fruits are picked up in a reservoir by a conveyor belt. The fruits larger than a predetermined size are then deposited in horizontal carriers moving continuously on an endless chain. At a position of transfer, the fruits in the horizontal carriers are deposited in a vertical carrier which deposit them in a container.

3,590,995

GRAIN CLEANER

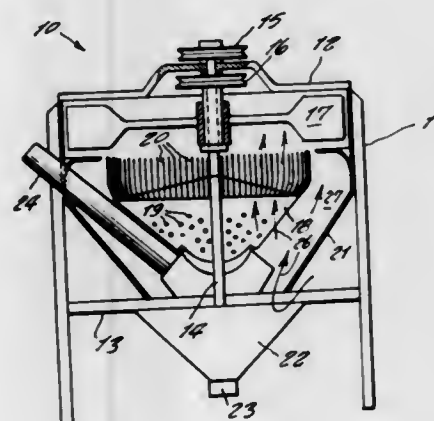
Lyle F. Truckenbrod, Rural Route 1, Mendota, Ill.

Filed Aug. 11, 1969, Ser. No. 848,889

Int. Cl. B07b 4/08

U.S. Cl. 209-140

3 Claims



A machine for cleaning grain, the machine comprising a rotating, perforated cone into which uncleaned grain is placed; air blown upwardly through the perforations cause chaff and foreign particles to be blown upward through a fan, while the relatively heavier grain is thrown by centrifugal force sideward out of the cone in a clean condition.

3,590,996

FLOTATION OF SULFIDE ORES

Guy H. Harris, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich.

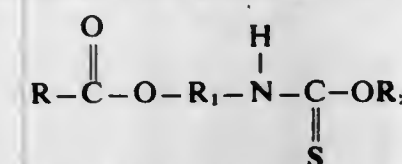
Filed Feb. 3, 1969, Ser. No. 796,159

Int. Cl. B03d 1/02; C07c 153/07

U.S. Cl. 209-166

10 Claims

An improvement in the concentration of ores by flotation which comprises subjecting a sulfide ore in the form of a pulp to a flotation process in the presence of an effective quantity of a flotation collector corresponding to the formula



wherein R and R₂ are hydrocarbyl groups and R₁ represents an alkylene or heteroalkylene group. Certain of the indicated compounds provide for enhanced recovery and/or selectivity of sulfide minerals of Cu, Zn, Mo, Co, Ni, Pb and As over iron sulfide. The compounds are also useful as fungicides and herbicides.

3,590,997

FLOTATION OF SULFIDE ORES

Guy H. Harris, Concord, Calif., and Terry D. Filer, Idaho Falls, Idaho, assignors to The Dow Chemical Company, Midland, Mich.

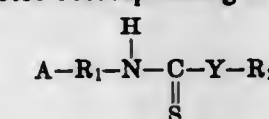
Filed Feb. 13, 1969, Ser. No. 799,071

Int. Cl. B03d 1/00; C07c 153/00

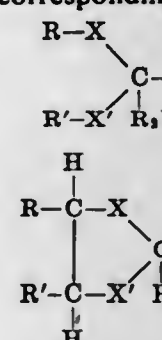
U.S. Cl. 209-166

8 Claims

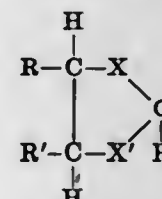
An improvement in the concentration of ores by flotation which comprises subjecting a sulfide ore in the form of a pulp to a flotation process in the presence of an effective quantity of a flotation collector corresponding to the formula



wherein A is a radical corresponding to the formula



or



X and Y consist of -S- or -O-; R, R' and R₂ are hydrocarbyl groups, R₁ is an alkylene group and R₃ is H or a lower alkyl group. Certain of the indicated compounds provide for enhanced selectivity and/or recovery of sulfide minerals of Cu, Zn, Mo, Co, Ni and Pb over iron sulfide.

3,590,998

FLOTATION OF SULFIDE ORES

David J. Collins, Walnut Creek, and Guy H. Harris, Concord, both of, Calif., assignors to The Dow Chemical Company, Midland, Mich.

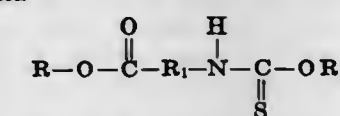
Filed Feb. 3, 1969, Ser. No. 796,158

Int. Cl. B03d 1/02; C07c 153/07

U.S. Cl. 209-166

6 Claims

An improvement in the concentration of ores by flotation which comprises subjecting a sulfide ore in the form of a pulp to a flotation process in the presence of an effective quantity of a flotation collector comprising a compound corresponding to the formula



wherein R and R₂ are hydrocarbon groups and R₁ is an alkylene group. Certain of the indicated compounds provide

enhanced recovery of and/or selectivity of sulfide minerals of Cu, Zn, Mo, Co, Ni, Pb and As over iron sulfide.

3,590,999

FLOTATION OF SULFIDE ORES

Wayne D. Gould, Miami, Ariz., and Guy H. Harris, Concord, Calif., assignors to The Dow Chemical Company, Midland, Mich.

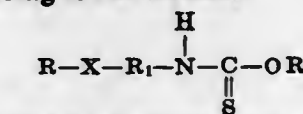
Filed Feb. 13, 1969, Ser. No. 799,119

Int. Cl. B03d 1/02

U.S. Cl. 209-166

10 Claims

An improvement in the concentration of ores by flotation which comprises subjecting a sulfide ore in the form of a pulp to a flotation process in the presence of an effective quantity of a flotation collector comprising a thiocarbamate compound corresponding to the formula



wherein X comprises a chelating group and R is hydrogen or a hydrocarbon radical containing from 1 to 10 carbon atoms; R₁ is an alkylene group, and R₂ is a hydrocarbon radical usually containing from 1 to 7 carbon atoms. Certain of the indicated compounds provide enhanced selectivity and/or recovery of sulfide minerals of Cu, Zn, Mo, Co, Ni, Pb and As over iron sulfide.

3,591,000

METHOD AND APPARATUS FOR SIZING AND SEPARATING SOLIDS

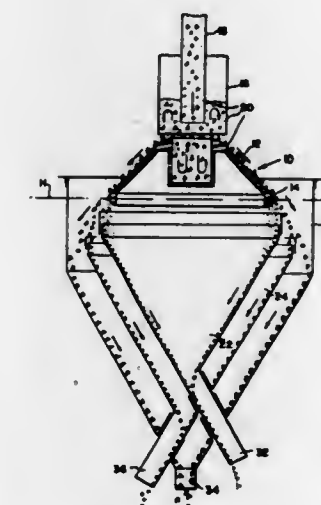
Ira B. Humphreys, 910 American National Bank Bldg., Denver, Colo.

Continuation-in-part of application Ser. No. 697,166, Jan. 11, 1968, now abandoned. This application Oct. 27, 1969, Ser. No. 871,452

Int. Cl. B03b 3/00

U.S. Cl. 209-210

8 Claims



A method and apparatus for sizing and separating solid particulates through utilization of the Coanda effect obtained by introducing a liquid slurry containing suspended solid particulates of differing sizes and shapes therein onto a torus or curvilinear surface to enable the particulates to separate out of the slurry stream as the same flows over the torus and collecting the particulates in different zones corresponding to their zones of discharge from the slurry with the larger particulates being collected at the greatest distance tangentially from the torus.

3,591,001

SIFTING APPARATUS

Guy Quesnel, GH, France, assignor to Stein & Roubaix, Paris, France

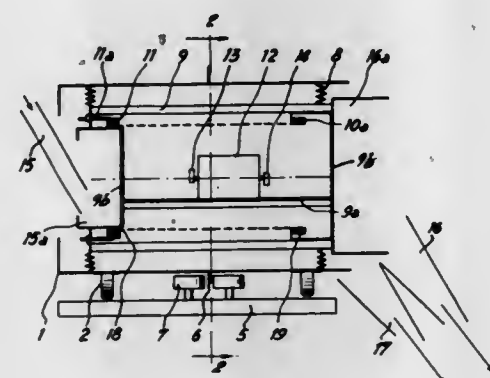
Filed Feb. 3, 1969, Ser. No. 796,039

Claims priority, application France, Feb. 9, 1968, 139277

Int. Cl. B07b 1/26

U.S. Cl. 209—287

3 Claims



A sifting apparatus comprising screens arranged in polygonal formation within a rotary drum, the assembly of screens being resiliently suspended within the drum and subjected to vibration by a motor driving eccentric weights.

3,591,002

HIGH PRESSURE FLUID FILTER

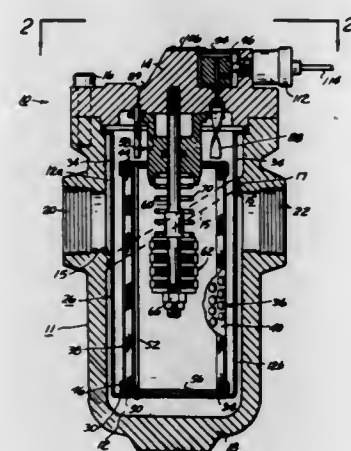
Nils O. Rosaen, Bloomfield Hills, Mich., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Jan. 31, 1969, Ser. No. 795,629

Int. Cl. B01d 35/14

U.S. Cl. 210—90

11 Claims



A high pressure fluid filter provided with a pressure responsive member adapted to remain in unchanged position as long as the pressure acting on both sides of the pressure responsive member is balanced but which, upon an unbalance on either side of the pressure responsive member due to a contaminated filter element, is caused to move towards the side where the pressure is less and to thereby mechanically actuate a visual indicator device to signal the particular condition of the filter element and to further provide a bypassing arrangement to bypass the filter element upon an extremely contaminated condition of the filter element.

3,591,003

DIFFERENTIAL PRESSURE-RESPONSIVE SIGNALLING

DEVICE AND A FILTER ASSEMBLY HAVING SAME

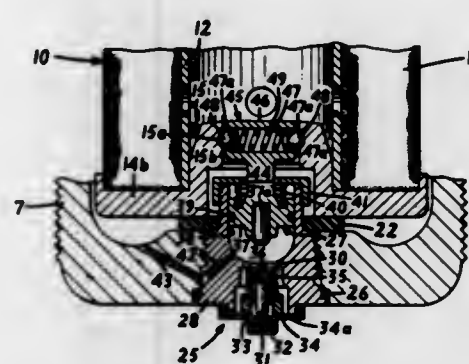
Roydon B. Cooper, Locust Valley, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.

Continuation-in-part of application Ser. No. 812,166, Apr. 1, 1969. This application Feb. 11, 1970, Ser. No. 10,550

Int. Cl. B01d 27/10

U.S. Cl. 210—90

25 Claims



A differential pressure-responsive signalling device, such as a pressure indicator, and a filter assembly incorporating it, are provided, having locking means for holding the indicator in its actuated position until the indicator is released by the locking means automatically upon the removal of the filter element from its position in the assembly.

3,591,004

FUEL OIL FILTER DESIGN

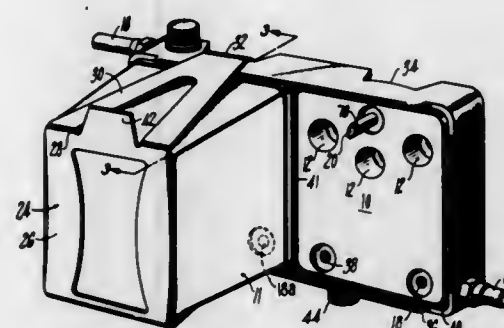
Vernon D. Roosa, c/o Hartford Machine Screw Company, P.O. Box 1440, West Hartford, Colo.

Filed July 12, 1968, Ser. No. 744,413

Int. Cl. B01d 27/06

U.S. Cl. 210—94

17 Claims



A form-sustaining disposable liquid fuel filter cartridge permanently confining a filter element has spaced apart non-coaxial ported resilient abutments on a flat wall of the cartridge housing facing in a common direction to provide a tripod mount for the cartridge and self-adjusting seals for the inlet and outlet passages provided by the ported abutments when the cartridge is mounted on its flat supporting base by a resilient sheet metal spring clamp exerting a biasing force offset from each of the abutments. The rectangular high capacity filter element within the cartridge is accordion pleated and longitudinally corrugated to bias the edges of the element against the walls of the cartridge to which the edges are bonded when the filter element is packed during assembly and to provide enlarged nonclogging entrance openings for the element. Filter elements may be placed in series in a single cartridge for dual filtering of the fuel and an automatically pierced initially sealed ported abutment used to keep contaminants out of the downstream side of the filter element before use.

3,591,005

WATER SOFTENER REGENERATOR VALVE

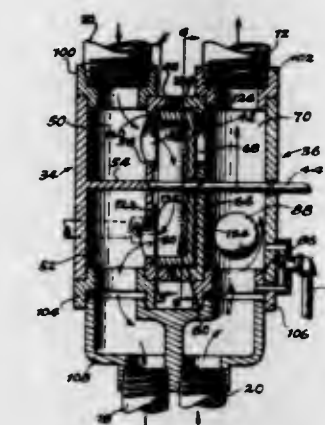
Hal Travers, Snyder, N.Y., assignor to Marine Midland Trust Company of Western New York, Buffalo, N.Y.

Filed Apr. 28, 1966, Ser. No. 546,056

Int. Cl. B01d 29/38

U.S. Cl. 210—136

5 Claims



An automatic control valve for water softening systems employs a housing which contains a valve body and has chambers which are connected selectively by the valve body to effect the sequential stages of soft water supply, regeneration and backwash of the conditioning tank. The valve body is intermittently actuated by clock mechanism to effect the sequential stages.

3,591,006

RAKE CLEANING TOOL

Ignaz Daferner, Karlsruhe, Germany, assignor to Maschinenfabrik H. Geiger, Karlsruhe, Germany

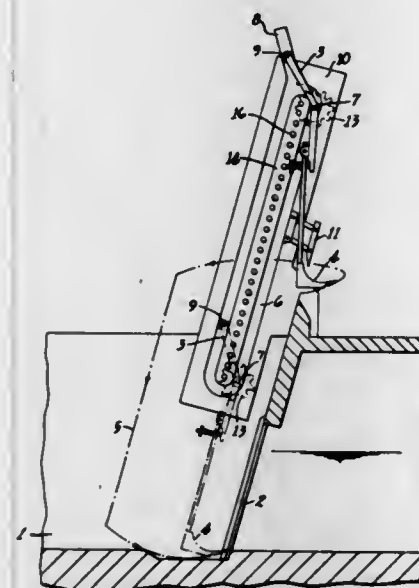
Filed Oct. 4, 1968, Ser. No. 765,187

Claims priority, application Germany, Oct. 6, 1967, P 16 58 096.4

Int. Cl. B01d 35/00

U.S. Cl. 210—159

5 Claims



A cleaning apparatus for use in connection with a screen placed in a water-carrying flume comprising guide tracks, at least one rake adapted to move up and down in front of the screen to remove residual dirt therefrom, a movable driving element fixedly coupled to said rake and adapted to engage the guide tracks for movement thereon, wherein the guide tracks include ascending and descending guide track portions and the stationary driving element comprises a rack, the movable driving element comprising a driving gear coupled to the rack and a pair of guide rollers, one of the guide rollers being coupled to the driving gear and guiding it in one of the track portions during the upward movement of the rake and in the other of the track portions during the downward movement of the rake, the other of the guide rollers moving in one of the track portions during both of the up and down movements of the rake device, the guide tracks including a reversal portion at both ends thereof whereby a continuous path of movement results for the driving gear.

ERRATUM

For Class 210—232 see: Patent No. 3,591,580

3,591,007

LIQUID FILTERING EQUIPMENT

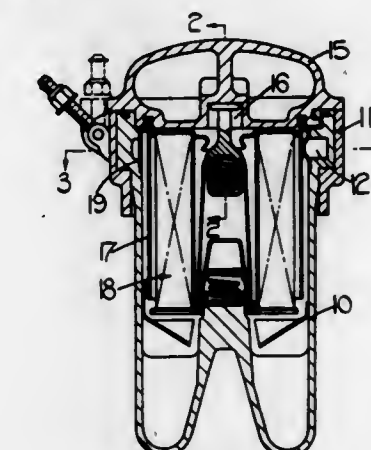
Harold Crowther, Solihull, England, assignor to Joseph Lucas Industries Limited, Birmingham, England

Filed Mar. 17, 1969, Ser. No. 807,498

Int. Cl. B01d 35/02; B01d 29/42

U.S. Cl. 210—234

16 Claims



A liquid filtering equipment has a body and a lid which respectively include an inlet and an outlet for the fluid to be filtered. A filter element is supported within the body between the inlet and the outlet. The body and lid together may be mounted in a support which also forms part of the equipment and which includes inlet and outlet passages with which the inlet and outlet in the body and lid respectively align. The body and lid may thus be removed as a unit from the support without disturbing the filter element.

3,591,008

APPARATUS FOR FILTERING UNDER PRESSURE LIQUIDS TO BE CLARIFIED AND/OR PURIFIED, WITH AUTOMATIC DISCHARGE OF SOLID RESIDUES

Attilio Diefenbach, Via Borgazzi n 90, Monza, Milan, Italy

Filed Dec. 9, 1968, Ser. No. 783,781

Claims priority, application Italy, Dec. 9, 1967, 23696A/67 Int. Cl. B01d 25/34

U.S. Cl. 210—237

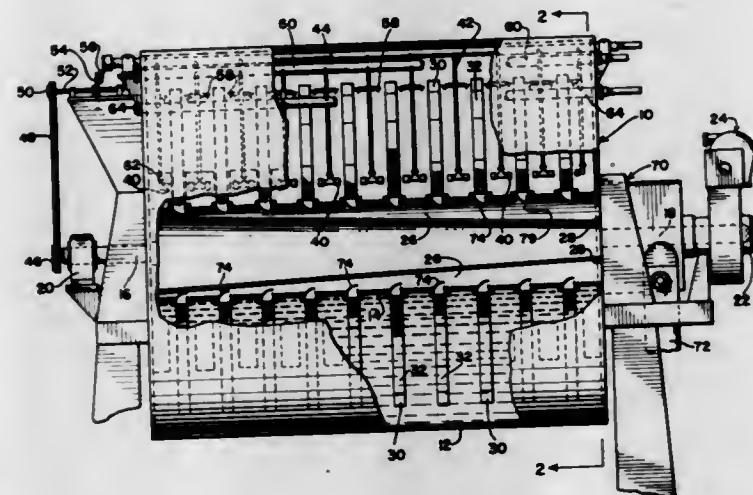
18 Claims



A press filter is formed of an outer filtering element concentrically arranged about an inner filtering element and

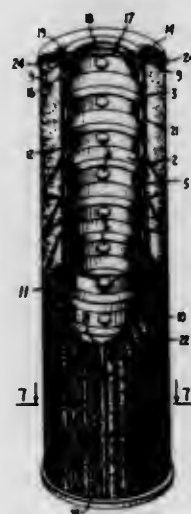
forming an annular space therebetween. A filtering cloth is located within the annular space and is attached to each of the filtering elements. The filtering cloth forms a chamber into which a liquid containing solid particles is charged, with the cloth removing the solids and the liquid passing through the cloth and the filtering elements. The filtering elements and the filtering cloth are axially displaceable between a filtering position and a discharge position where the solids are removed from the filtering cloth.

3,591,009
DISC FILTER HAVING FILTRATE DIRECTING MEANS
Oscar Luthi, 51 Browning Ave., Nashua, N.H., and James P. Ross, 24 Coles Grove, Derry, N.H.
Filed Aug. 22, 1969, Ser. No. 852,424
Int. Cl. B01d 33/38, 33/26
U.S. Cl. 210-247 8 Claims



A disc filter wherein baffles are mounted on the core adjacent the connections of the filter disc passages to the core drainage passages, such baffles controlling the communication of the filter disc passages with the core outlet means and defining flow openings to equalize filtrate flow through each filter disc. The flow openings are located whereby filtrate discharged to the core passages from the filter disc passages flows in a direction towards the core outlet means.

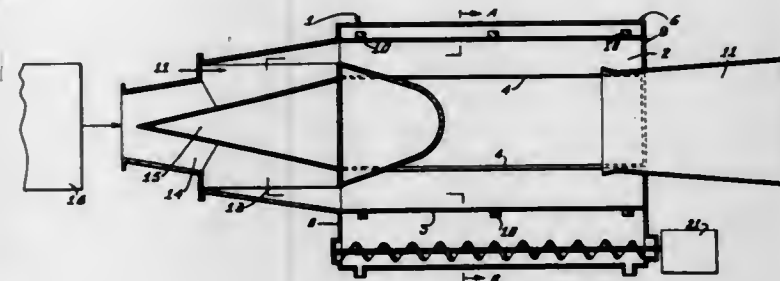
3,591,010
FILTER HAVING A MICROPOROUS LAYER ATTACHED THERETO
David B. Pall, Roslyn Estates, and Cyril A. Keedwell, Jericho, N.Y., assignors to Pall Corporation, Glen Cove, N.Y.
Division of Ser. No. 637,850, May 11, 1967, Pat. No. 3,407,252 which is a continuation of Ser. No. 328,297, Dec. 5, 1963, abandoned. Filed June 10, 1968, Ser. No. 777,928
Int. Cl. B01d 27/06
U.S. Cl. 210-493 10 Claims



A corrugated filter element having a microporous layer deposited on a substrate sheet provided with portions of material such as newspapers so they are accessible and can be tied into a bundle while still in the rack comprises four

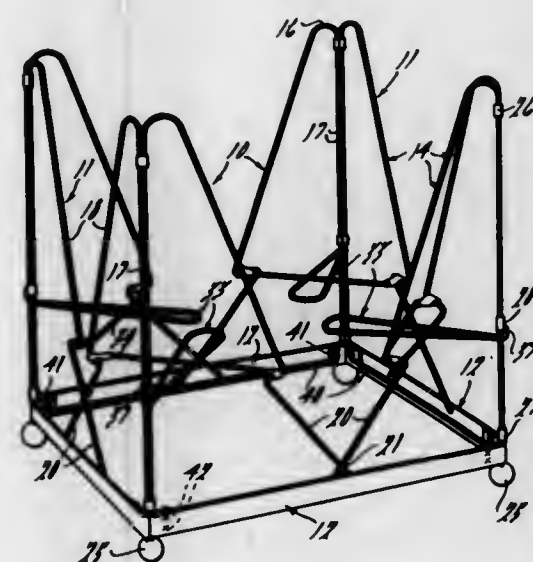
reduced porosity at the areas of the base folds of the corrugations.

3,591,011
APPARATUS FOR SEPARATING SOLID PARTICLES FROM A FLUID MEDIUM
Heinz Holter, Hochstrasse 37, and Heribert Dewart, Bahnhofstrasse 23, both of 4390 Gladbeck, Germany
Filed Oct. 13, 1969, Ser. No. 865,857
Claims priority, application Germany, Apr. 29, 1969, P 19 21 785.7
Int. Cl. B01d 21/26 11 Claims



An elongated separation chamber for conducting a fluid medium and having a peripheral wall with discharge openings provided in this wall. A motion imparting member is arranged in the region of the inlet of the separation chamber and is operative to cause the fluid medium to move within the separation chamber along a helical path towards the outlet of the chamber so that solid particles suspended in the fluid medium are moved along and against the peripheral wall and are thereby forced through the discharge openings in the wall while the fluid medium is discharged via the outlet of the chamber.

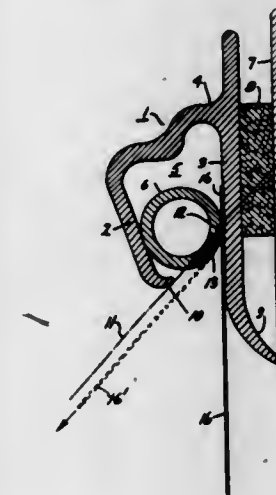
3,591,012
RACK, PARTICULARLY FOR HOLDING AND TYING NEWSPAPERS
Maurice J. Grady, 1829 Sycamore, Royal Oak, Mich.
Filed Mar. 16, 1970, Ser. No. 19,877
Int. Cl. A47f 7/00
U.S. Cl. 211-50 17 Claims



A rectangular open-topped rack for supporting stacked flat material such as newspapers so they are accessible and can be tied into a bundle while still in the rack comprises four

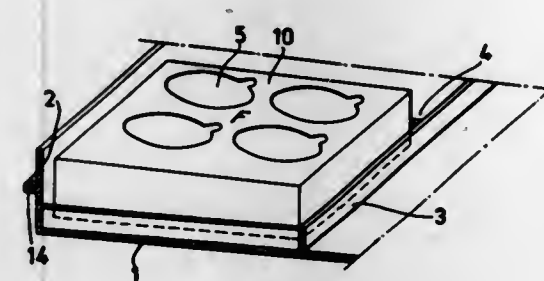
upright panels each consisting of a horizontal base strip and two bent wires shaped to modified inverted V upstanding from the base strip and having vertical legs at each end hinged to an adjacent panel. Each corner of the rack supports an elevated platform section which bridges and braces the wires of adjacent V's. The other legs of the V's of each panel incline downwardly toward one another and cross each other above the base strip but are spaced apart both above and below the platform level and the platform sections are also spaced apart. The base strips are also hinged together at the corners of the rack, permitting the entire structure to be folded flat when the platform sections are removed.

3,591,013
HANGER FOR FLEXIBLE SHEET MATERIAL
Pieter Von Herrmann, Schenectady, N.Y., assignor to Mohawk Precision Corporation
Filed Jan. 3, 1967, Ser. No. 606,630
Int. Cl. A47f 1/08
U.S. Cl. 211-50 4 Claims



A hanger for temporarily holding sheet material by wedging action of rollers between convergent walls, including a special lip on the end of the front wall to prevent improper insertion and to assist release of improperly inserted sheets.

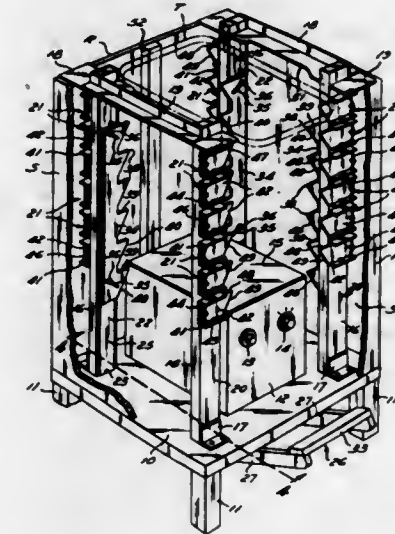
3,591,014
DEVICE FOR STORING AND DISTRIBUTING, FOR EXAMPLE MEDICINE CUPS
Sture Lindgren, Karlslan 6, and Ove Gustav Littorin, Gavlegatan 27, both of Stockholm, Sweden
Filed July 1, 1968, Ser. No. 741,371
Claims priority, application Sweden, June 30, 1967, 10141/67
Int. Cl. B65d 1/34
U.S. Cl. 211-72 1 Claim



Medicine distribution apparatus including a tray divided into a number of sections or compartments and having a stand of cardboard or the like fitting in each compartment with each stand provided with holes, for example four, for the insertion of disposable medicine cups, the stand in some cases being arranged so that the portion thereof removed to form a hole for a medicine cup is utilizable as a cover for the medicine cup on which cover markings indicating instructions for the medicine may be placed. The medicine cups are

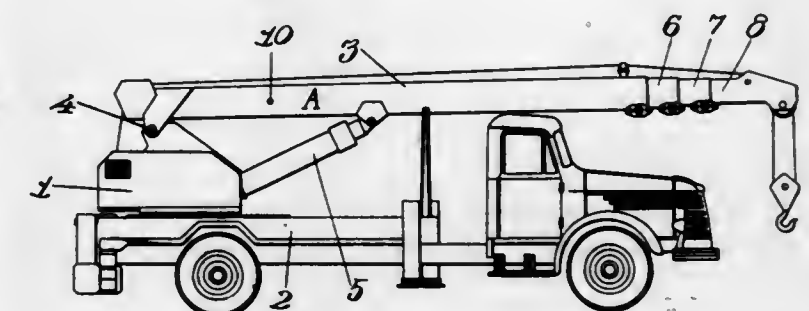
provided with an edge by which they are supported in the holes in the stands.

3,591,015
ELEVATOR RACK
Blasie d'Anka, Cleveland, Ohio, assignor to Crescent Metal Products, Inc., Cleveland, Ohio
Filed May 28, 1969, Ser. No. 828,666
Int. Cl. A47f 3/14; B65g 25/08, 47/82
U.S. Cl. 211-126 7 Claims



A rack for horizontally supporting a plurality of trays, baskets, or pans vertically spaced apart from each other and in vertical alignment. The rack includes a foot-operated elevator for simultaneously lifting all the trays supported by the rack from one level to the next higher level. The rack is adapted to receive and to be loaded with trays at a lower level and to deliver trays at an uppermost level.

3,591,016
BOOM EXTENSION MEANS HAVING MORE THAN THREE BOOM EXTENSION MEMBERS FOR USE WITH A TRUCK CRANE
Masatoshi Hanada, Takamatsu, Japan, assignor to Kabushiki Kaisha Tadano Tekkosho, Takamatsu, Japan
Filed July 19, 1967, Ser. No. 654,484
Int. Cl. B60p 1/46, 1/54
U.S. Cl. 212-55 1 Claim



A boom construction comprises a tubular base member which is adapted to be mounted on a platform or a vehicle in a manner permitting it to be pivoted about a horizontal axis and to be swung about a vertical axis. Three separate additional boom members are telescoped within the base boom member and are movable relative to the base member and each other under the control of a plurality of fluid control cylinders which are mounted within the boom members. The first control cylinder is pivoted to the first inner one of the additional boom members preferably at the inner end thereof and it carries a piston having a piston rod which is pivoted at its inner end to the base boom member. A second fluid cylinder is pivoted to the second inner boom member and has a piston which is slidable therein with a piston rod which

is pivoted at its inner end to a second boom member. Finally, a third inner boom member which is telescopic within the interior of all of the other boom member carries a third fluid cylinder having a third fluid piston slidable therein with a third connecting rod therefor which is connected at its inner end to the second innermost boom member. A feature of the construction is that the piston rods connected between the base member and the first boom member and the second boom member and the first boom member are provided with a double set of flow passages therethrough so that the fluid pressure which is directed into the first fluid cylinder on a pressure side thereof and which will cause expansion of the first boom member in respect to the base member will be directed through the other passage and into the pressure side of the second fluid cylinder to facilitate expansion of the second boom member in respect to the first boom member. The outermost fluid cylinder requires a piston rod with only one passage to complete the pressurization cycle for each of the fluid control cylinders and the expansion of all the boom members to an erected position simultaneously.

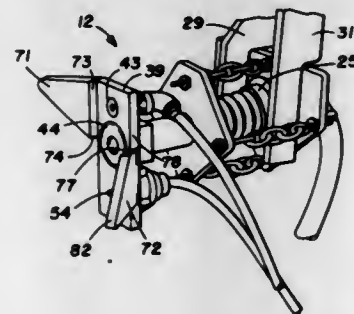
3,591,017

AUTOMATIC LINE CONNECTOR FOR RAILWAY CARS
Geoffrey W. Cope, Williamsville, and Swamidass K. Punwani, Lancaster, both of, N.Y., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Sept. 19, 1969, Ser. No. 859,431
Int. Cl. B61g 1/06, 5/06

U.S. Cl. 213-76

6 Claims



An automatic line connector for railway cars useful in automatically connecting the airbrake lines of the cars upon mechanical coupling of the cars as well as electrical conductors and/or other air lines. The connector includes a gathering head adapted to universally mate with identical gathering heads of other railway cars. Positioned rearwardly of the gathering head is a first support plate which is attached to the railway car coupler. Means such as a spring act between the gathering head and the support plate for yieldably urging the gathering head to a forward position and permitting rearward motion of the gathering head either upon contact with a mating gathering head or during motion of the railway car. Tethering means, such as chains, are provided for limiting the forward travel of the gathering head under the influence of the spring and permitting oblique movement of the gathering head upon mating and during movement of the railway car. In a preferred embodiment the chains are attached at one end to the support plate and at the other end to a second support plate which is affixed to a shaft extending rearwardly from the gathering head, the shaft serving to transmit air between the railway cars.

3,591,018

CARTON LOWERING MACHINE

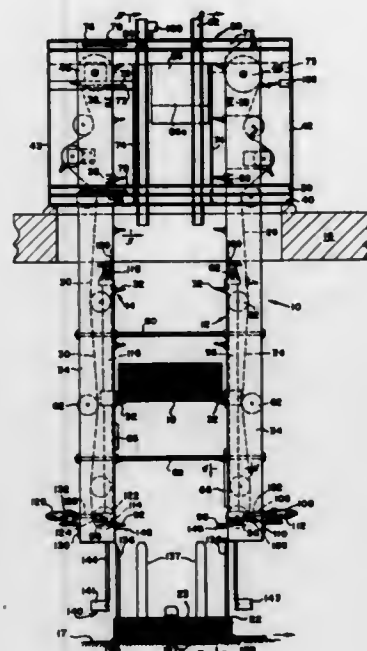
John Chard Nalbach, New York, N.Y., assignor to Colgate-Palmolive Company, New York, N.Y.
Filed June 1, 1968, Ser. No. 741,654
Int. Cl. B65h 7/04, 29/50

U.S. Cl. 214-6

12 Claims

A machine for handling and stacking sheetlike material including vertically opposed endless chain tracks, each having opposed cooperating tabs adapted to carry a number of sheets therebetween. A sheet transfer assembly is positioned adjacent the bottom end of the chain tracks to receive the sheets from the tab members and deposit them on a stack in

a supply magazine from which sheets are periodically removed for a desired purpose. A control system responding to the height of the sheet stack within the magazine cycles



the transfer assembly and the chain tracks to supply sheets automatically to the magazine as required to maintain a predetermined supply therein.

3,591,019

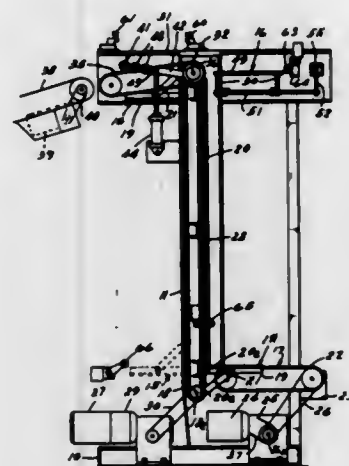
STACKER FOR CASES AND THE LIKE

Robert L. Beninger, Sheboygan; Grant Hill, Jr., Elkhart Lake; Lawrence C. Oertle, Jr., Random Lake, and Paul W. Jacobsen, Kiel, all of, Wis., assignors to H. G. Weber and Company, Inc., Kiel, Wis.

Filed June 26, 1969, Ser. No. 836,869
Int. Cl. B65g 57/06

U.S. Cl. 214-6

3 Claims



Stacker for cases having an elevated loading station and a lower delivery station and two platforms, connected to a pair of endless chains, driven in one direction. The platforms are spaced along the chains so that when one platform is at the delivery station the other platform is entering the loading station. The platforms each include two laterally spaced material carrying surfaces accommodating the platform to pass beneath the delivery station and deposit a column of cases thereon. The loading station includes an infeed conveyor, a stop gate limiting travel of a case along the infeed conveyor when another case is at the loading station, and slide rails supporting the case free from the platform as the platform has moved to its loading station, and movable to release the case onto the platform for lowering movement thereby.

3,591,020

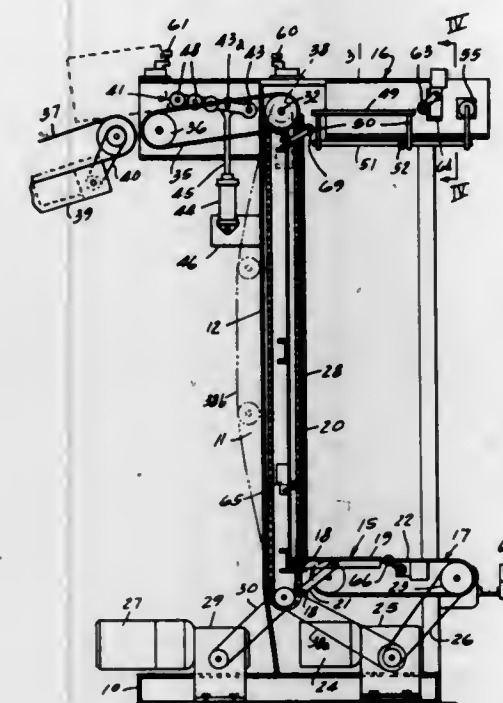
STACKER FOR CASES AND THE LIKE

Robert L. Beninger, Sheboygan; Grant Hill, Jr., Elkhart Lake, and Lawrence C. Oertle, Jr., Random Lake, all of, Wis., assignors to H. G. Weber and Company, Inc., Kiel, Wis.

Filed June 26, 1969, Ser. No. 836,870
Int. Cl. B65g 57/06

U.S. Cl. 214-6 DK

5 Claims



Stacker for boxlike articles, such as shipping cases, operating on the principle of successively depositing a first case onto a platform and stacking the other cases on the first case one on top of the other, as the platform moves downwardly, to provide a vertical column of cases, in which the lowermost case of the column is deposited on a delivery station and the entire column is delivered from the stacker. The platform is guided for vertical movement in a plurality of horizontal planes and is carried by an endless chain, driven by power to move the platform from its loading to delivery stations. The loading station includes slide rails extending along opposite sides of the platform and a fluid pressure-operated motor for moving the slide rails outwardly of the platform to deposit a case on the platform. The delivery station may be a delivery conveyor extending within the platform to accommodate the platform to deliver a stack of cases thereto. An infeed conveyor is provided to deliver cases to the loading station. A stop gate is operable to prevent the delivery of a case to the loading station, while one case is on the loading station.

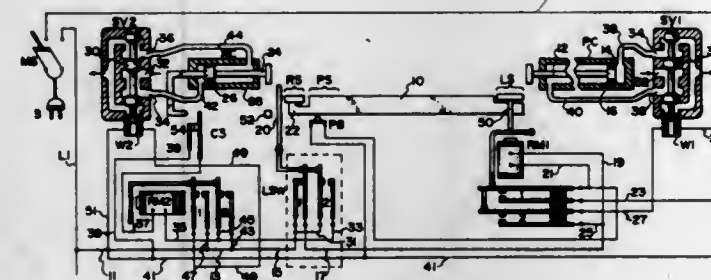
3,591,021

AUTOMATIC LOADING APPARATUS FOR A CHARGE TABLE

Frank B. Hall, Chicago, Ill., assignor to Pettibone Mulliken Corporation, Chicago, Ill.
Filed July 3, 1969, Ser. No. 838,789
Int. Cl. B65g 61/00

U.S. Cl. 214-7

11 Claims



A charge table for storing billets until they are required at a grinding location. The billets are successively loaded on the

table at a loading station, each billet being pushed forwardly on the table to a pickoff station where they are removed as required. Means are provided whereby billet accumulation takes place in the forward region of the table, thus insuring the presence of a billet at all times at the pickoff station.

3,591,022

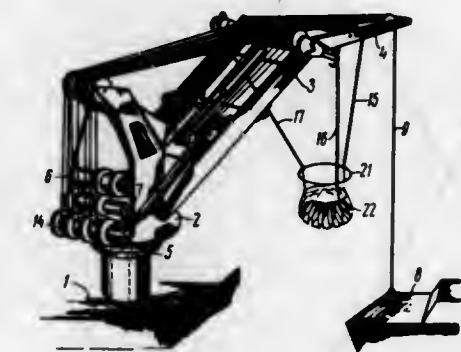
CARGO CRANE

Anatoly Emelyanovich Polyakov, Ulitsa Gagarina 6, Kv. 58; Ivanovich Evgeny, Murmansk, prospekt Lenina, 34, Kv. 3, and Alexei Petrovich Milyakov, Ulitsa Kholobystova, 31, kv. 72, all of Murmansk, U.S.S.R.

Filed Apr. 23, 1969, Ser. No. 818,631
Claims priority, application U.S.S.R., June 24, 1968, June 24, 1968, 1252801; 1252802
Int. Cl. B65g 67/58

U.S. Cl. 214-13

7 Claims



A cargo crane for transporting cargo from one object to another object under conditions of the mutual vibration of objects, particularly ships operating under rough sea conditions, in which cargo ropes, a horizontally mounted jib and a suspension define an imaginary isosceles truncated pyramid, with the ropes being so connected to the system following up the mutual vibration of objects as to provide equal tension of the ropes, thereby ensuring nonimpact and a precise placing of the cargo.

3,591,023

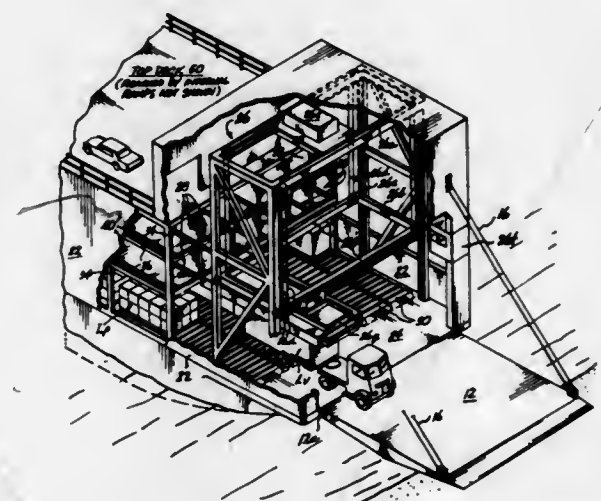
MECHANICALLY PROGRAMMABLE MARINE TRANSPORT CARGO HANDLING AND STOWAGE SYSTEM

Rudolph Allen, 4561 Lake Washington Blvd., Kirkland Wash.

Filed Jan. 30, 1969, Ser. No. 795,266
Int. Cl. B65g 63/04

U.S. Cl. 214-14

29 Claims



The disclosed system is applicable to towed or powered cargo vessels. Central to one of its three distinct cargo handling phases, the system features an open staging deck on the vessel to and from which cargo is moved by way of a ramp

that can be lowered directly to the beach. Practical vessel design and ramp length permitting the vessel to remain afloat during such cargo transfers are achievable with special beach grades, variable ballasting of the vessel and adjustable slope of its loading ramp. Sidewise cargo transfer at a dock is also permitted, as are transship transfer operations by the same vessel. Central to a second of the three cargo-handling phases is an overarching three-directional crane-moving individual cargo units successively between the staging deck and elongated cargo stowage cells. The cells are arranged in tiers and extend longitudinally of the vessel with entrance ends preferably in a common vertical crane transfer plane adjacent to the staging deck. The cargo cells have individual conveyors, which function in the third of the three cargo-handling phases to move the inserted cargo units between successive stowed positions along the cells and crane transfer position at the cell entrances. With the total sequence of handling operations thus divided into these three phases and programmed large numbers of cargo units may be loaded and unloaded in a short time. Moreover rearranging of cargo units within or between cells while en route for convenience in subsequent transfer operations between the vessel and the shore or for transshipping is also readily achieved. Also disclosed are cargo unit shuttle conveyors featuring line-controlled cam bar mechanisms driven and controlled from the cell ends through lines to raise, lower and move individual cargo units in the cell.

3,591,024

MOBILE POWER SHOVEL STRUCTURE

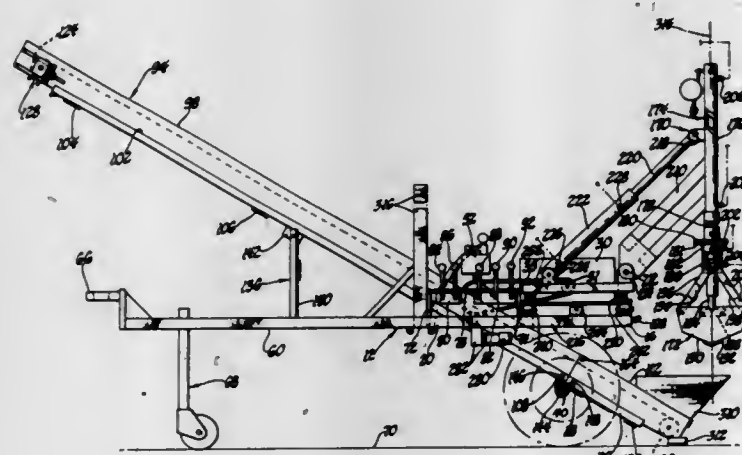
Glen V. Runge, Hudsonville, Mich., assignor to Kent Engineering, Grand Rapids, Mich.

Filed Apr. 7, 1969, Ser. No. 813,913

Int. Cl. E02f 7/00

U.S. Cl. 214-91

8 Claims



A mobile power shovel structure has a frame supported on ground-engaging wheels and in turn supporting a prime mover and power operated clamshell-like shovel bucket which can be telescopically raised and lowered as well as variably inclined with respect to the ground and even translationally positioned from a digging position to a dumping position; a power conveyor carried by the frame accepts the material dumped by the bucket and conveys such material to a cooperating receiving receptacle such as a dump truck.

3,591,025

LOAD-HANDLING APPARATUS WITH BOOM-MOUNTED CONSTANT ATTITUDE LOAD-HANDLING MEANS

Lynn F. Perrott, 15928 N.E. Rose Parkway, Portland, Oreg.

Filed Mar. 18, 1969, Ser. No. 808,090

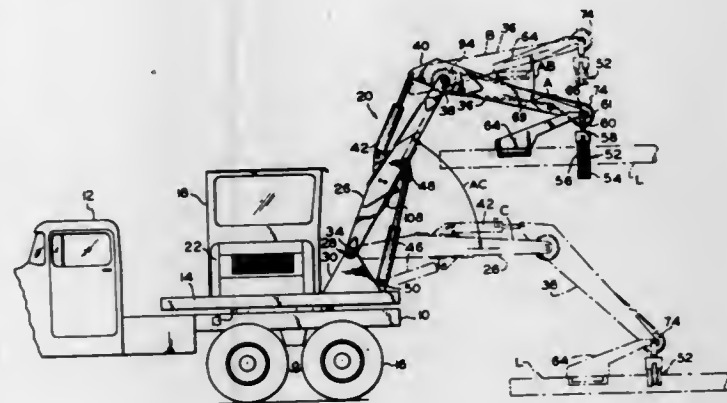
Int. Cl. B66c 1/42

U.S. Cl. 214-147

18 Claims

A mobile loader of the type having an articulated boom structure pivoted to a mobile base and with a log grapple mechanism pivoted to the free end of the boom structure. The boom structure includes an inner main boom pivoted to the base for movement in a vertical plane and an outer boom

stick pivoted to the outer end of the main boom for movement in the same vertical plane. A heel boom is pivoted to the outer end of the boom stick and includes a special mounting hub incorporating a sprocket which pivots with the heel boom about its pivot axis. The sprocket forms part of a mechanical linkage differential system which extends within the boom structure to the base and which maintains the heel



boom in a constant attitude with respect to the base during vertical pivoting movement of the boom structure. This differential system includes an idler sprocket at the intersection of the main boom and the boom stick, and a rod, lever and cylinder linkage connecting such sprocket to the base in a manner permitting actuation of the heel boom independently of pivotal movement of the main boom and boom stick.

3,591,026

FOOD MOLDING PROCESS

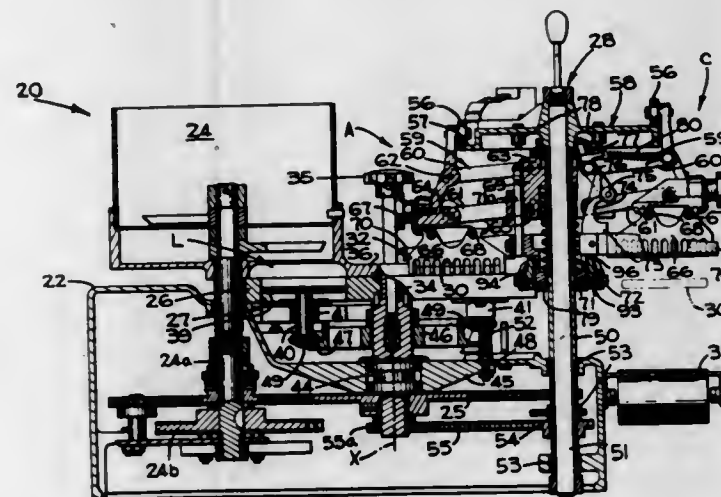
Eugene F. Feisthausen, Hoopston, Ill.

Continuation-in-part of application Ser. No. 602,062, Dec. 15, 1966, now Patent No. 3,460,191. This application May 7, 1969, Ser. No. 822,628

Int. Cl. B65g 31/04

U.S. Cl. 214-152

1 Claim



A method of transferring patties in a hamburger patty-forming machine having turreted-mounted pickup blade units and a unitary stripper, comprising lowering the blade unit at the mold to impale a hamburger, raising the blade unit and indexing it to a discharge conveyor, camming up the stripper unit and spring lowering it between a fixed upper position and fixed lower position with the stripper unit at its lowered position clearing the impaled product at the pickup station but applying a downward acceleration to the impaled product at the discharge conveyor that exceeds the acceleration of gravity and cleanly separates the product from the stripper unit.

3,591,027

HIGH-SPEED CONTAINER-DRAINING APPARATUS

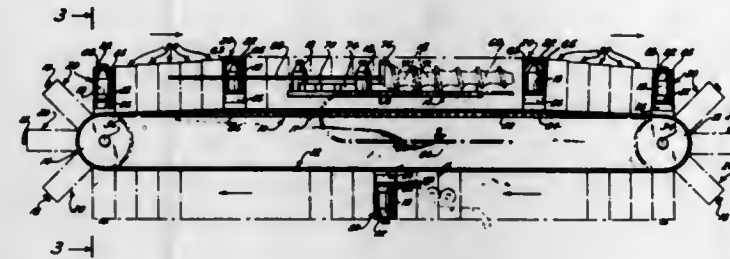
Jerry L. East, Lynchburg, Va., assignor to Simplimatic Engineering Co., Lynchburg, Va.

Filed Apr. 10, 1969, Ser. No. 814,946

Int. Cl. B65b 69/00

U.S. Cl. 214-311

27 Claims



Open-ended containers with rinse water in them are carried along a drying path which includes a curved path segment, the containers being carried along that curved segment with their open ends facing radially outwardly. As a result, an outwardly directed centrifugal force expels the rinse water from the containers. Means are provided to increase the effective radius of the curved path segment, thereby to increase the effective net centrifugal force acting on the rinse water.

3,591,028

LIFT TRUCK AND ADAPTER

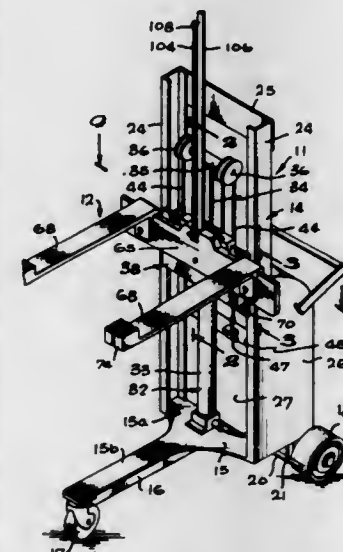
Murry G. McClung, Jr., 200 South Camden Drive, Beverly Hills, Calif.

Filed Sept. 8, 1969, Ser. No. 855,815

Int. Cl. B66f 9/14

U.S. Cl. 214-313

5 Claims



The application discloses a lift truck embodying a vertically movable load-supporting member actuated by a fluid ram connected thereto through the medium of sheaves and cables, together with adapter equipment carried by the load-supporting member and having a pivoted frame with forwardly extending arms to support a bowl or other object with handles at the sides. Manually operable means is provided for pivoting the frame and releasably locking it in a selected position.

3,591,029

CYCLE CARRIER FOR AN AUTOMOTIVE VEHICLE

Boyde A. Coffey, 1712 Vallecito Drive, La Puente, Calif.

Filed Aug. 28, 1968, Ser. No. 756,067

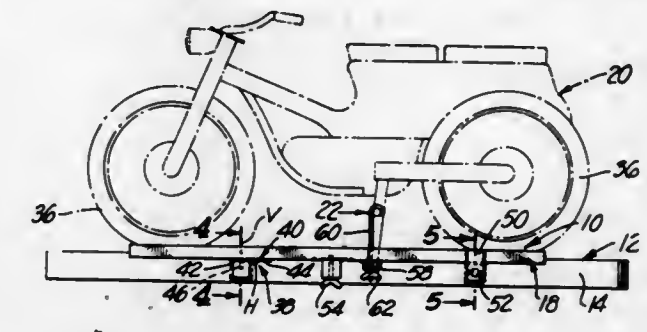
Int. Cl. B60r 9/10

U.S. Cl. 214-450

4 Claims

A cycle carrier for an automotive vehicle is provided. The carrier has a cycle-supporting platform which is attached to

the vehicle for movement between an elevated travel position, wherein the platform is disposed to support the wheeled cycle for transportation by the vehicle, and a lower cycle-



loading and unloading position, wherein the platform is disposed to permit rolling movement of the cycle to and from the platform.

3,591,030

OVERLOAD-DETECTING MECHANISM FOR A LIFT TRUCK

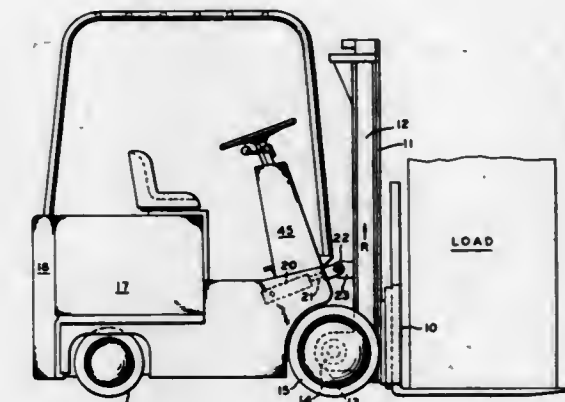
John J. Pachter, Harvey, Ill., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Dec. 10, 1968, Ser. No. 782,529

Int. Cl. B66f 9/20

U.S. Cl. 214-673

7 Claims



In a load-handling truck the load is accepted by a ram that is mounted on a support of the truck frame adapted to deflect slightly under the stress of the load against the ram. This deflection of the support is amplified through a multiplying lever mechanism using as fulcrums a part of the support and a fixed part of the truck so spaced from the support that it is not affected by the load. The multiplied movement is used to actuate a control or signals.

3,591,031

BOTTLE OPENER

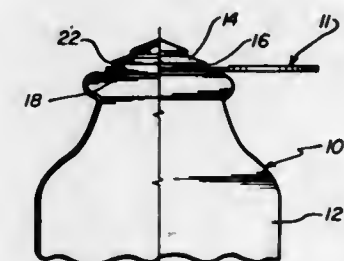
Henry Komendowski, Evanston, Ill., assignor to Automatic Liquid Packaging, Inc., Elk Grove Village, Ill.

Filed Aug. 7, 1969, Ser. No. 848,245

Int. Cl. B65d 1/00, 17/18

U.S. Cl. 215-46

6 Claims



A throwaway bottle for use with plastic bottles having a cap or end closure integrally molded thereon, to open these bottles by removing the caps or end closures.

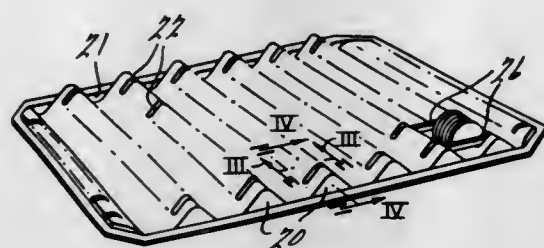
3,591,032 RECEPTACLE-PALLET

Jack E. Baxter, Cincinnati, Ohio, assignor to The Baxter Company

Filed Apr. 14, 1969, Ser. No. 815,586
Int. Cl. B65d 1/36

U.S. Cl. 217-26.5

2 Claims



A rigid traylike sheet is contoured to provide a plurality of work-holding channels defined by wavy walls of sawtooth section extending both above and below end walls which form a part of the perimeter.

3,591,033

LIFTING PLATFORMS FOR SUPPORTING LOADS

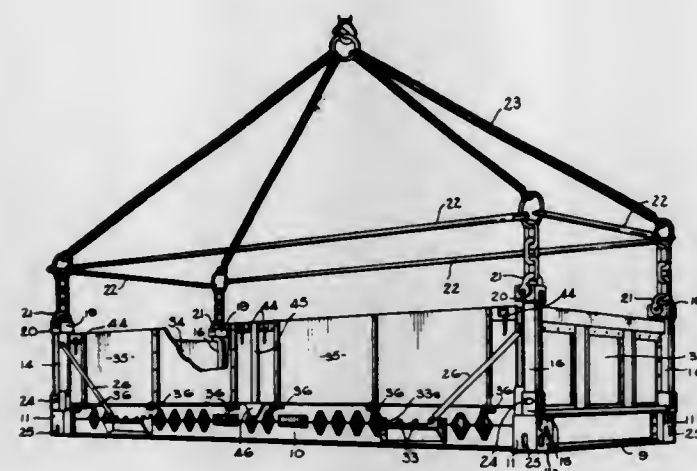
Philip Partridge, Askham, near Retford, Nottingham, England, assignor to W.H.D. Developments Limited, Langwith Junction near Mansfield, Nottingham County, England

Filed Mar. 17, 1969, Ser. No. 807,527
Claims priority, application Great Britain, Mar. 23, 1968, 14121/68

Int. Cl. B65j 1/02

U.S. Cl. 220-1.5

3 Claims



Load-supporting platform provided with foldable corner posts, connected both when folded and upstanding, at the same relative positions, to the spreader bars of a platform-lifting crane sling.

3,591,034 TRANSPORT CRATE

Alfred Lohr; Helmut Hemmann; Hartmut Bussewitz; Gunter Leonhardt, all of Herborn, Germany; Carl H. Schroter, Dillenburg, and Helmut Lukas, Bicken, both of, Germany, assignors to Burger Eisenwerke Aktiengesellschaft, Herborn, Germany

Filed Aug. 12, 1969, Ser. No. 849,417
Claims priority, application Germany, Aug. 31, 1968, Aug. 24, 1968, Feb. 24, 1969, Feb. 20, 1969
P 17 86 209.8; P 17 86 159.5; P 19 09 124.8;
G 69 06 597.0

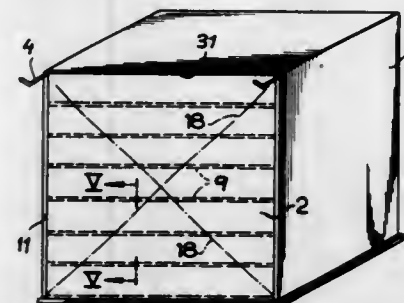
Int. Cl. B65d 87/00

U.S. Cl. 220-1.5

16 Claims

A crate for the transportation of goods has a prismatic shell with a side opening closable by a pliable door which can

be rolled or folded about an edge of that opening and which includes a series of transversely spaced, parallel stays interconnected by a flexible sheet. The ends of the stays and/or



the edges of the sheet can be engaged by a variety of detents, disposed along opposite sides of the opening, to hold the door locked.

3,591,035

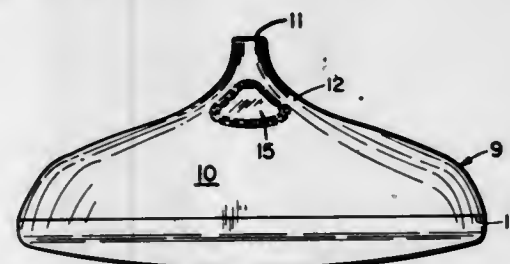
RECTANGULAR CATHODE-RAY-TUBE ENVELOPES

Albert M. Gossle, Painted Post, and Lawrence B. Hausheer, Corning, both of, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Sept. 12, 1969, Ser. No. 857,485
Int. Cl. H01j 61/30; H01k 1/28

U.S. Cl. 220-2.1 A

10 Claims



A rectangular cathode-ray-tube envelope including a funnel member, component or part formed with sidewalls which flare outwardly from a circular small end of the member or component through a transition region of the member near the small end thereof to a substantially rectangular large end of the component or member. The sidewalls in the transition region of the funnel member or part deviate somewhat from their usual circular cross-sectional configuration and are formed with cylindrically curved portions thereon so that cross sections taken in the transition region in planes lying parallel with the ends of the member have generally oblate configurations with substantially straight line opposed sides.

3,591,036

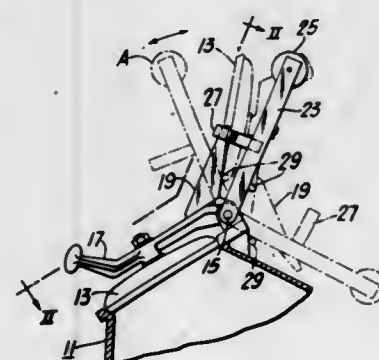
ASCENSION-PIPE-LID-OPENING MECHANISM

Gilbert C. Nestler, Pittsburgh, Pa., assignor to Koppers Company, Inc.

Filed Sept. 30, 1969, Ser. No. 862,221
Int. Cl. B65d 43/16, 51/10

U.S. Cl. 220-36

3 Claims



The lid of an ascension pipe elbow is provided with a hinge lug and a counterweighted arm. The arm engages the lug and

first breaks the tar seal around the cover and then pivots the cover to its full-open position. When the cover is closed, the counterweighted arm also tends to keep the cover in the closed position.

3,591,037

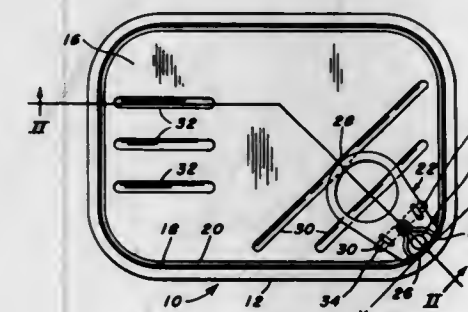
CONTAINER WITH REMOVABLE PANEL PORTION

Howard Dale Schrecker, Hyde Park, and Robert Edwin Heffner, Lower Burrell, both of, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Feb. 24, 1969, Ser. No. 801,656
Int. Cl. B65d 17/24

U.S. Cl. 220-54

7 Claims



A container having a removable panel portion in one of its walls defined by a score line around the periphery of such portion and having a pull tab attached to the removable portion at its starting end and a plurality of parallel ribs downwardly embossed in the removable portion adjacent its starting end substantially parallel to a line tangent to the score line at such starting end, and additional parallel ribs downwardly embossed in the removable portion adjacent its terminal end substantially normal to a line tangent to the score line at such terminal end.

3,591,038

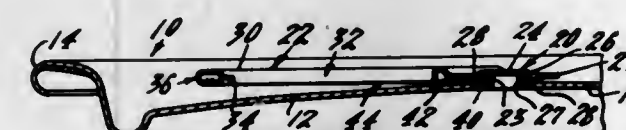
EASY-OPEN END WITH ABUSE-RESISTANT OPENING TAB

Alexander Walker Mooring, Norwalk, and Harley Earl Simmons, Stamford, both of, Conn., assignors to American Can Company, New York, N.Y.

Filed Sept. 12, 1969, Ser. No. 857,396
Int. Cl. B65d 17/24

U.S. Cl. 220-54

3 Claims



A scored can end closure is provided with an opening tab which is secured adjacent the score to a panel of the closure by a rivet and is held against vibration during shipment to prevent inadvertent rupture of the score. The opening tab is formed with downwardly curled edges, at least one portion of which is opened up, or made greater in diameter than the adjacent portions, so that it extends downwardly and contacts the end at an area spaced from the rivet, even when the panel is bulged outwardly by internal pressure, and thus dampens the tab against vibration during long distance shipment in freight cars and trucks.

3,591,039

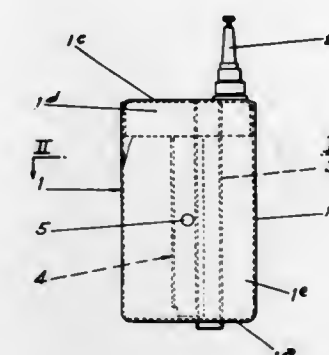
FUEL CONTAINER FOR GAS LIGHTER

Robert R. Hocq, Boulogne-Billancourt, France, assignor to Societe Franco-Hispano-Americaine Francipam, Paris, France

Filed Nov. 10, 1969, Ser. No. 875,337
Claims priority, application France, Nov. 13, 1968, 173471
Int. Cl. B65d 7/44

U.S. Cl. 220-71

3 Claims



A fuel container for a gas lighter which is designed to avoid damage to a lighter in which it is installed should the pressure inside it rise to a dangerous level. The fuel container has a reinforcement inside it which is of H, I, U, or Z section with the flats of the reinforcement soldered to opposite inside walls of the container. The walls are also provided with openings in them which are sealed by the flats during normal conditions, but should the pressure rise beyond a predetermined level the solder connections to the walls are separated and the excess gas pressure is relieved through the openings.

3,591,040

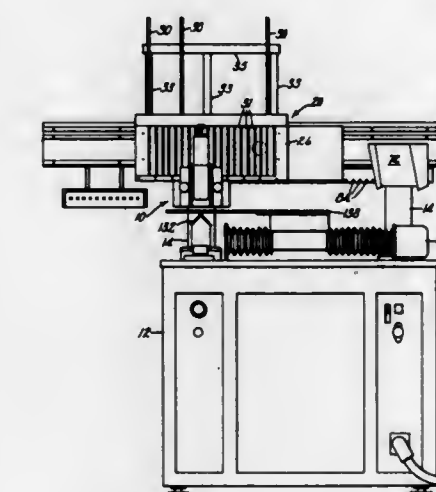
MECHANISM FOR SEQUENTIALLY SUPPLYING COMPONENTS SELECTED FROM A PLURALITY OF SOURCES

Arthur H. Lambert, Los Angeles, Calif., assignor to USM Corporation, Flemington, N.J.

Filed Feb. 14, 1969, Ser. No. 799,463
Int. Cl. G07i 11/00

U.S. Cl. 221-10

3 Claims



A linear positioning mechanism sequentially shifts an array of articles according to manual or automatic control to release them individually and in selected succession for delivery to a single discharge locality. By way of example, an aligned plurality of stacks of electronic components such as discrete integrated circuits (the stacks respectively comprising electrically identical components which may differ electrically from those in the other stacks of the plurality) is moved according to control data along an axis successively to register selected stacks with a gravity-feed chute. The latter may be part of a component-mounting machine, or be a magazine loadable according to a desired program, to facilitate subsequent sequentially mounting of the components.

3,591,041

DENESTING MACHINE

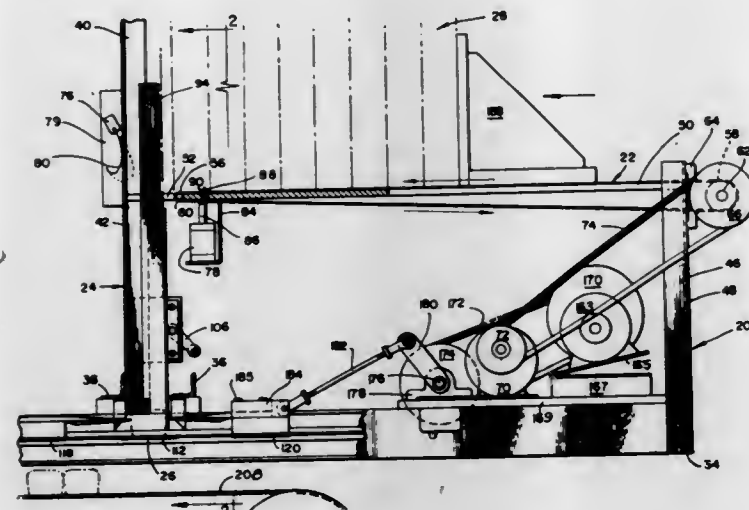
Santo DiGrande, Medford, Mass., assignor to True Plastic Corporation, Boston, Mass.

Filed Jan. 31, 1969, Ser. No. 795,508

Int. Cl. G07f 11/12; B65g 59/00; B65h 3/00

U.S. Cl. 221-11

8 Claims



A machine for denesting and dispensing individual containers comprising a magazine for holding a stack of containers, conveying means for delivering additional stacks of containers to the magazine, and a release mechanism mounted for reciprocal movement transversely to the bottom end of the magazine for selectively denesting and discharging individual containers from the magazine. The reciprocal release mechanism comprises oppositely mounted members which are alternately inserted between the two lowermost containers in the magazine so as to release only the lowermost container while holding the balance of the stack within the magazine.

3,591,042

ARTICLE-VENDING MACHINE

Harold D. Baum, 6610 North Clark St., Skokie, Ill.

Continuation of application Ser. No. 693,587, Dec. 26, 1967,

now Patent No. 3,409,110, which is a continuation of

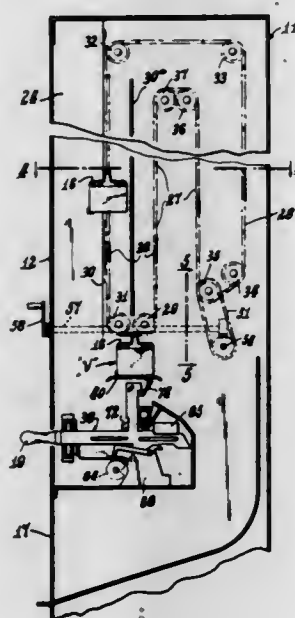
application Ser. No. 481,188, Aug. 20, 1965, now Patent

No. 3,360,091. This application Nov. 5, 1968, Ser. No. 773,532

Int. Cl. G07f 5/00

U.S. Cl. 221-19

32 Claims



Merchandise-vending apparatus of a kind having a plurality of merchandise carriers, each having merchandise con-

tainers thereon adjustable in size and wherein the carriers are selectively movable into positions to vend merchandise therefrom. The apparatus includes vending or ejector mechanism individually adjustable for positioning to orient the mechanism with the merchandise containers.

3,591,043

ARTICLE CONTAINER AND DISPENSER

Kelly Murphy, 55 West 14th St., New York, N.Y.

Filed Apr. 21, 1969, Ser. No. 817,711

Int. Cl. B65d 83/04

U.S. Cl. 221-64

15 Claims



A plurality of articles are stacked within a resiliently deformable, normally closed housing and held in position by a first stop member located beneath the lowermost of the stacked articles. The application of an external force to the housing produces an opening at one end of the housing and causes the first stop member to move away from the lowermost of the stacked articles while a second stop member is positioned intermediate the lowermost article and the articles stacked thereabove thereby to permit the lowermost one of the stacked articles to be released through that opening while the remainder of the stack is held in place.

3,591,044

PATCH-FEEDING DEVICE FOR CIGAR-MAKING MACHINE

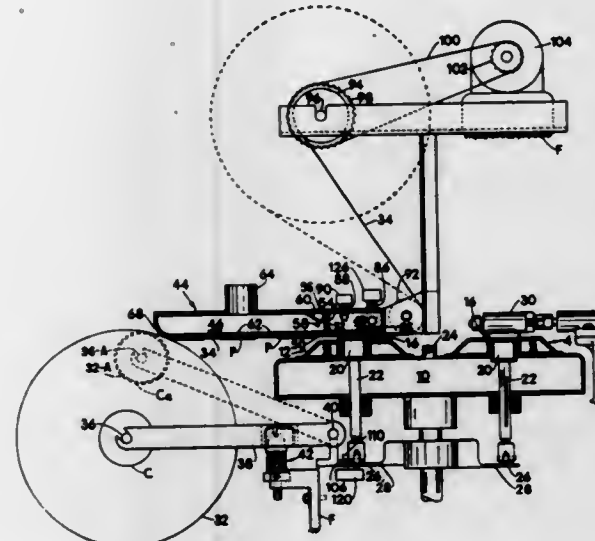
Harry Allison Hooper, Larchmont, N.Y.; Frank Hollenton, Richmond, Va., and Warren Arthur Brackmann, Ontario, Canada, assignors to AMF Incorporated

Filed Jan. 10, 1969, Ser. No. 790,302

Int. Cl. B65h 5/28

U.S. Cl. 221-73

11 Claims



Apparatus for feeding stretched oriented tobacco leaf patches from a roll into the die turret of a cigar machine.

3,591,045

HELICAL COIL VENDING MACHINE

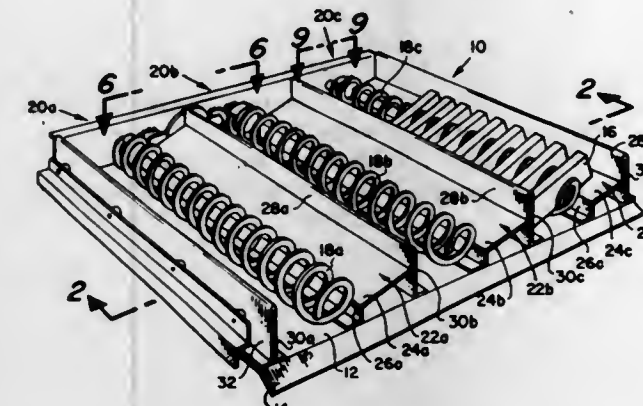
John C. Sturrock, Lomira, Wis., assignor to Raymond F. Jones, Hillsborough, Calif.

Filed Nov. 24, 1969, Ser. No. 879,319

Int. Cl. G07f 11/00

U.S. Cl. 221-75

10 Claims



Improved dispensing shelves for cabinet-type vending machines having a plurality of helical feeder coils for advancing articles interposed between the convolutions of the coils to a delivery opening. The articles are supported on sloping supports having a lower front edge terminating in a downward step immediately adjacent one side of a cooperating coil. Guide rails disposed from and adjacent the opposite side of cooperating coils maintain various sized article in engagement with the coils. Single coil driver mechanisms rotate individual coils on selective activation and additional double coil drive mechanism for discrete pairs of coils connected in tandem operate the paired coils in an alternating manner form a single activating signal.

3,591,046

CONVERSION ACCESSORY FOR VENDING MACHINES

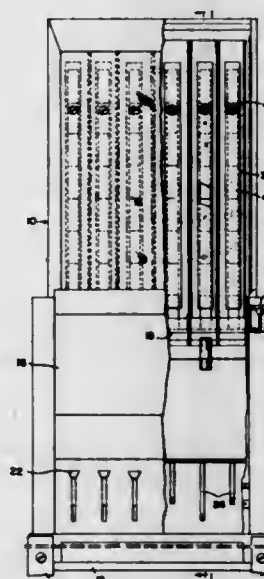
Earl James Corbin, 2214 Holliday, Wichita Falls, Tex.

Filed May 23, 1969, Ser. No. 827,405

Int. Cl. A47f 1/04; G07f 11/00

U.S. Cl. 221-155

2 Claims



A vending machine conversion device to enable elongated articles of merchandise to be dispensed from vending machines which normally dispense short blocky-type articles of merchandise. The conversion device consists of an elongated transparent tube, which may be plastic, secured to the vending machine so that each tube may occupy a chute, from which merchandise has been previously vended, which tube is held a spaced distance above the merchandise support member, so that merchandise may be ejected at an angle by

an ejector that is of lesser height than the length of the merchandise. The transparent tube is supported a spaced distance below the top of the vending machine to enable ready insertion of merchandise into the tubes form which it is vended. The tubes are readily removable and replaceable when desired or may be removed from the machine to enable the machine to be used as originally designed, in a minimum of time.

3,591,047

CUP BOUNCE SUPPRESSION BY A VACUUM

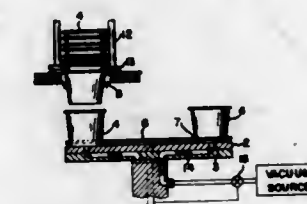
Russell C. Buhle, Clarendon Hills, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Oct. 8, 1968, Ser. No. 765,779

Int. Cl. B65g 59/10

U.S. Cl. 221-211

2 Claims



A cup feed system which uses vacuum means to suppress cup bounce when a cup is fed from above onto a cup feed station.

3,591,048

COVER DISPENSER

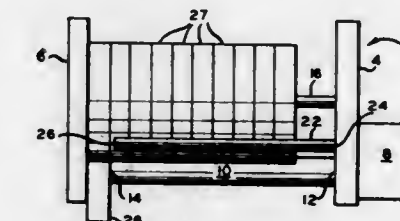
Michael R. Myers, Kansas City, Mo., assignor to Phillips Petroleum Company

Filed Sept. 10, 1969, Ser. No. 856,743

Int. Cl. B65g 59/00

U.S. Cl. 221-277

6 Claims



An improved apparatus having a single rotating roller for maintaining and individually dispensing a disc-shaped article from a stack of said discs.

3,591,049

BOTTLE STORAGE AND DISPENSING UNIT

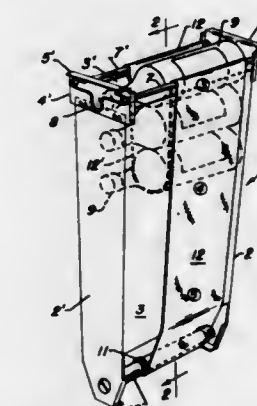
Nicholas A. Auremma, Miami, Fla., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Nov. 6, 1969, Ser. No. 874,605

Int. Cl. B65h 1/08

U.S. Cl. 221-279

8 Claims



A bottle storage and dispensing unit utilizing a frame adapted to be suspended from below a cart or counter work

surface. The frame in turn holds a looped belt which is supported over spaced upper roller surfaces and attaches at one end to a lower positioned spring loaded roller so as to provide a means for holding and counterbalancing the weight of a plurality of bottles stacked horizontally therein. A preferred construction provides that the upper roller supports for the belt will be spring biased in a lateral direction to hold the top bottle, as well as the stack, from being lifted up and out of the frame; however, the supports are such that they can be spread apart laterally by a lifter means to permit the bottles to be removed one at a time. Also, a preferred lifter means construction has a dual function in being designed to be lockable to prevent bottle removal as well as being usable to assist in lifting an uppermost bottle.

3,591,050

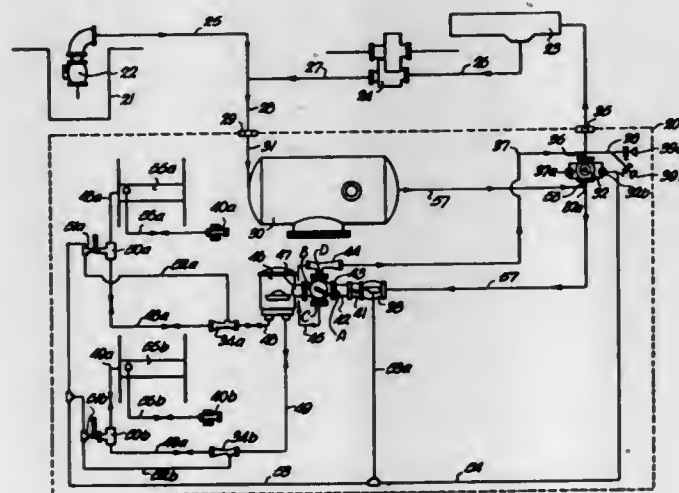
TURBOJET AIRCRAFT FUELING AND DEFUELING DEVICE

Vincent J. Kupersmith, Shawnee Mission, Kans., and Homer C. Hartung, Kansas City, Mo., assignors to Autotank Company, Kansas City, Mo.

Filed Dec. 2, 1968, Ser. No. 780,444
Int. Cl. B67d 5/08, 5/58

U.S. Cl. 222-23

6 Claims



A fueling and defueling system and device for turbojet aircraft having: (1) fuel filtering functions on bypass operation, (2) combined fuel flow circuits on recycle fuel flow reset and defueling, and (3) a vacuum defueling system created by recycle flow from the fuel source.

3,591,051

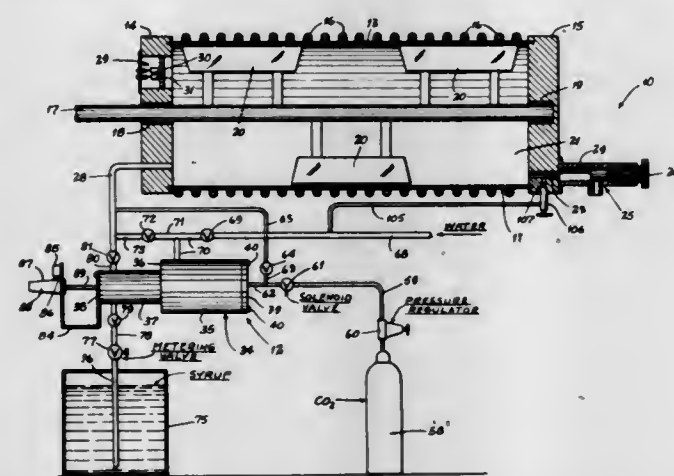
CONTROL TO PROPORTION INGREDIENTS SUPPLIED TO DRINK DISPENSERS

Orville Mitchell; John D. Harris, and Dudley C. Smith, all of Dallas, Tex., assignors to John E. Mitchell Company, Dallas, Tex.

Filed Mar. 17, 1969, Ser. No. 807,494
Int. Cl. B67d 5/30

U.S. Cl. 222-56

9 Claims



A control for proportioning ingredients supplied to a drink dispenser. A housing having separate water, syrup and carbon

dioxide chambers. A slide reciprocative within the housing and having walls defining a wall of each chamber. Reciprocations of the slide alternately expand and contract the volumes of the chambers while maintaining desired relative proportions of the water, syrup and carbon dioxide. Valves operate in response to reciprocation of the slide to control the introduction of ingredients to and the discharge from their respective chambers, the slide being reciprocative in response to alternate introduction of ingredients to respective chambers.

3,591,052

COLD CHAMBER PRESSURE CASTING MACHINE

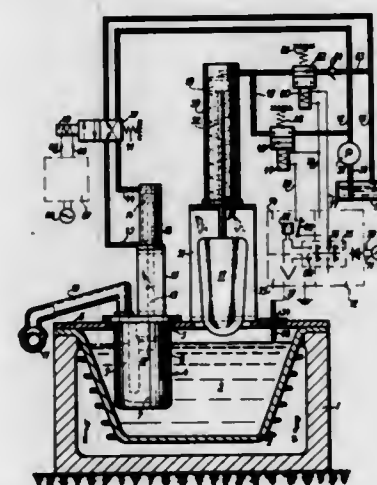
Alfred Nef, Uzwil, Switzerland, assignor to Gebrüder Buhler A. G., Uzwil, St. Gall, Switzerland

Filed Nov. 5, 1968, Ser. No. 773,464
Claims priority, application Switzerland, Nov. 8, 1967, 15610/67

U.S. Cl. 222-64

Int. Cl. B67d 5/08; B22d 17/32

16 Claims



A cold chamber pressure casting machine includes a mold charge injector, a melting or heat retaining crucible and a piston pump extending into the crucible and connected to the injector, the piston pump having a pump chamber communicating with a feed opening which is beneath the level of melt in the crucible. A displacement means is operatively associated with the melt in the crucible to control the level thereof, and a control means controls operation of the displacement means. A melt level feeler is positioned in the crucible in the range of the melt surrounding the piston pump, and influences operation of the control means. The displacement means may comprise a solid body which may be inserted into or retracted from the melt, or may comprise an inverted bell means connected to a source of fluid under pressure and communicating with the melt in the crucible. A float may be provided in the bell. The melt level feeler may comprise one or more electrodes, a pressure responsive means connected to a pressure fluid type operator of a control valve, or a float operated switch.

3,591,053

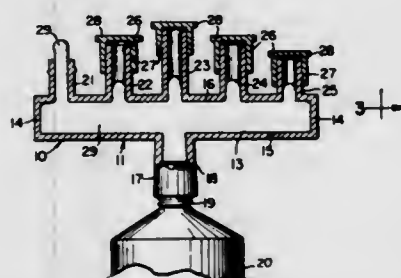
SANITARY TOOTHPASTE DISPENSER

Orrin H. Thomas, Williamsport, Pa., assignor to Richard L. Hughes and J. C. Enterprises, Tloga, Pa., part interest to each

Filed Feb. 24, 1969, Ser. No. 801,607
Int. Cl. B65d 35/38

U.S. Cl. 222-92

1 Claim



A sanitary dispenser for tubes of toothpaste wherein there is provided a member for attachment to the neck of a

toothpaste tube, there being a plurality of nozzles or tube members extending therefrom whereby toothpaste can be dispensed selectively from any of the tubular members onto a toothbrush or the like.

3,591,054

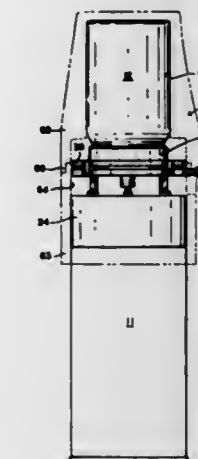
DISPENSING PACKAGE AND CONNECTING DEVICE

Gilbert De Wayne Miles, Ossining, N.Y., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Apr. 7, 1969, Ser. No. 814,129

Int. Cl. B67d 5/64; B65d 81/32

U.S. Cl. 222-135



Two aerosol-type containers are interconnected in operative assembly for simultaneously dispensing and mixing their contents by a connecting device comprising first and second members releasably connected to the respective containers. These two members are connected for limited relative rotation and for selective relative axial movement, and they have cooperating structure which in a first nondispersing position of relative rotation prevents said relative axial movement and in a second dispensing position of relative rotation permits said axial movement. A discharge spout unit on one of said members operatively connected to both members is adapted to dispense the mixed contents of both containers, whereby the contents are simultaneously discharged from both containers, mixed and dispensed from the spout unit when said cooperating structure is associated in said second dispensing position and the members and their respective containers have been moved toward each other. The containers may for example contain respectively fluid shave cream and a material adapted for exothermic interaction therewith for dispensing self-heated warm lather from the discharge spout.

3,591,055

MIXING VALVE ASSEMBLY FOR BEVERAGE DISPENSERS

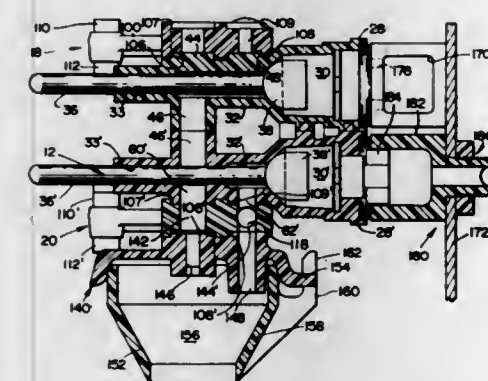
Robert L. Norton, Norfolk, Mass., assignor to Jet Spray Cooler, Inc., Waltham, Mass.

Filed Dec. 20, 1968, Ser. No. 785,722

Int. Cl. B67d 5/60

U.S. Cl. 222-145

13 Claims



A mixing valve assembly for beverage dispensers including a pair of identical molded valve housings aligned parallel and

one above the other and with one inverted with respect to the other. Means are provided on the housings to attach the two parts together, and a pair of identical valve actuator supports are connected to the housings, one above the upper housing and one below the lower housing. Identical mounting lugs are connected to the rear portions of the joined housings to support the assembly on a bracket.

3,591,056

PIPETTING SYRINGE OF PRECISELY VARIABLE DISPLACEMENT VOLUME

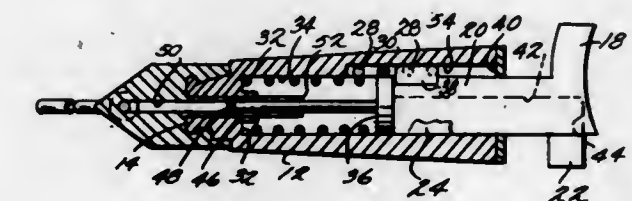
Richard J. Griffin, Denver, Colo., assignor to Whale Inc., Nashville, Tenn.

Filed June 12, 1969, Ser. No. 832,805

Int. Cl. G01f 1/106

U.S. Cl. 222-309

11 Claims



A pipetting syringe of precisely variable displacement volume which includes a dispenser body having a plurality of holes for receiving and holding a removable stop pin in a selected one of the holes and wherein a fill plunger having a projection thereon for engagement with the stop pin is located within the body. An ejection plunger is slidably located within the body and within a longitudinal groove of the fill plunger for ejecting material from the syringe. The stop pin is placed in the desired hole which corresponds to the desired volume to be received and ejected by the syringe and the fill plunger is then pushed forwardly as far as possible and released so that a fill spring mounted within the body and in engagement with the ejection plunger forces the plungers rearwardly. The syringe is thus filled and the material is then ejected by independently pushing the ejection plunger forward.

3,591,057

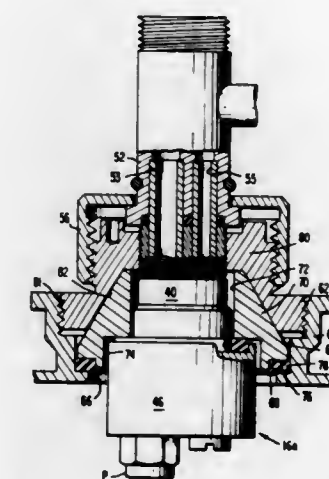
TAPPING DEVICE FOR BEER KEGS AND THE LIKE

Mack S. Johnston, Rolling Hills, Calif., assignor to Republic Corporation, Beverly Hills, Calif.

Continuation of application Ser. No. 737,982, June 18, 1968, which is continuation-in-part of application Ser. No. 607,297, Jan. 4, 1967, and a continuation-in-part of 587,627, Oct. 18, 1966, which is a continuation of application Ser. No. 406,682, Oct. 27, 1964, now abandoned. This application Mar. 27, 1970, Ser. No. 23,454

Int. Cl. B65d 83/14

19 Claims



The present device comprises a keg tapping unit which is connected about a "Peerless" type keg opening by insertion

through the side filling opening of the keg and in a large "Golden Gate" type keg opening by insertion through the tapping opening. An adapter is provided for connecting the key unit in the larger opening and includes a generally conical member engaged about the tapping unit and having a flange engageable against a shoulder within the keg opening. A coupling nut engages the tapping unit and is threaded about the internal threads in the larger opening to secure the tapping unit to the keg.

3,591,058

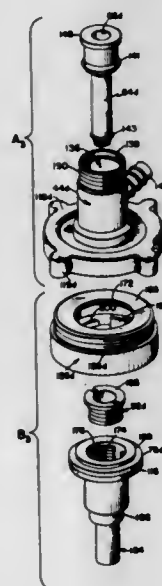
TAPPING DEVICE FOR BEER KEGS AND THE LIKE
Mack S. Johnston, Rolling Hills, Calif., assignor to Republic Corporation, Beverly Hills, Calif.

Division of Ser. No. 587,627, Oct. 18, 1966, which is a continuation of Ser. No. 406,682, Oct. 27, 1964, abandoned, which is a continuation-in-part of Ser. No. 150,982, Nov. 8, 1961, abandoned, and a continuation-in-part of Ser. No. 395,084, Sept. 8, 1964, Patent No. 3,231,154, said Ser. No. 395,084 is a continuation of said Ser. No. 150,982, which is a continuation-in-part of Ser. No. 25,592, April 29, 1960, abandoned, Ser. No. 159,818, Dec. 8, 1961, Patent No. 3,156,252 is a continuation of said Ser. No. 25,592. Filed Nov. 5, 1968, Ser. No. 773,387

Int. Cl. B65d 83/00

U.S. Cl. 222-400.7

7 Claims



The tapping device includes a keg adapter semipermanently secured within a keg opening and having liquid and gas passages. A valve having a bifurcated stem is disposed in the liquid passage whereby beer flow results. The keg adapter is secured by a ring which locks under the keg flange by cooperation with a collar which locks the keg adapter flange to the keg flange. A coupler having segregated liquid and gas passages is attached to the keg adapter when the keg is tapped.

3,591,059

METERING VALVE WITH AIR SHUTOFF
Carl L. Stearns, Granada Hills, Calif., assignor to Riker Laboratories, Inc., Northridge, Calif.

Filed Mar. 10, 1969, Ser. No. 805,534

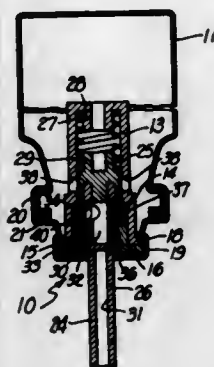
Int. Cl. B65d 83/14; G01f 11/38

U.S. Cl. 222-402.20

10 Claims

A valve for use in dispensing a metered amount of an aerosol spray. A valve with a body mounted on the container and a moving stem having a metering chamber and an outlet chamber. A spring urging the stem to a closed position blocking the metering chamber from the atmosphere, with

the stem movable to a charge position for charging the metering chamber, with discharge of the metered amount from



the metering chamber through the outlet chamber occurring as the stem returns to the closed position.

3,591,060

COMBINED HANDLE AND SPOUT
Mikio Nakamura, Weston, Ontario, and Lawrie G. McIntosh, Etobicoke, Ontario, both of Canada, assignors to McGraw-Edison of Canada Limited, Toronto, Ontario, Canada

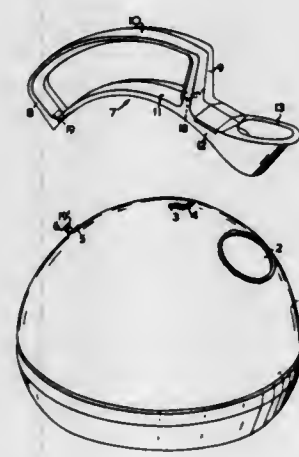
Filed Apr. 23, 1969, Ser. No. 818,603

Claims priority, application Canada, Nov. 29, 1968, 036,500

Int. Cl. B65d 25/28

U.S. Cl. 222-475

10 Claims



The invention relates to a combined handle and spout for a liquid containing vessel and where such handle and spout are formed as a unitary member.

3,591,061

APPARATUS FOR SUPPORTING AND FOLDING PLEATED FABRIC

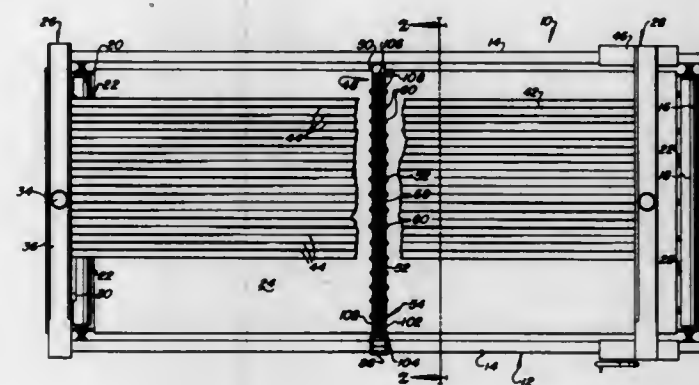
John T. Boyes, 1834 Maine St., Quincy, Ill.

Filed Nov. 10, 1969, Ser. No. 875,022

Int. Cl. A41h 43/00; D06j 1/00

U.S. Cl. 223-32

5 Claims



Apparatus for supporting and unloading pleated drapery panels from a drapery pleating and finishing machine. An

elongated frame operable to be removably positioned beneath a pleated drapery panel includes a series of interconnected isosceles links forming a "lazy tong" mechanism. Slender pins or rods, comprising the pivot axes of the interconnected links forming the lazy tong, extend into the folds of the drapery to support the same and keep the folds in the formed position. The lazy tong mechanism is operable to be contracted to bring the folds closely adjacent each other thereby facilitating handling of the drapery panel without distorting the folds while the panel is removed from the machine. The supporting apparatus is pivotally secured to a toggle action clamp which is operable to removably fasten the apparatus to the pleating machine.

3,591,062

BOW QUIVER

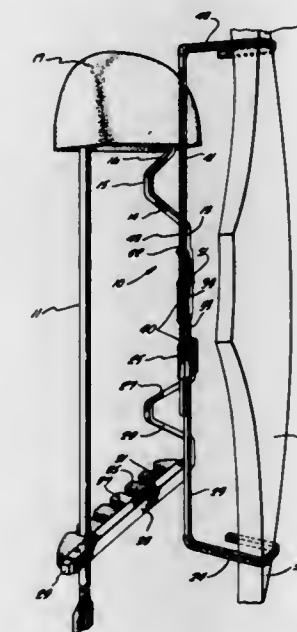
Richard S. Karbo, Whittier, Calif., assignor to The Leisure Group, Inc., Los Angeles, Calif.

Filed July 24, 1969, Ser. No. 844,497

Int. Cl. F41c 33/00

U.S. Cl. 224-1-B

7 Claims U.S. Cl. 226-22



A bow quiver is described having an elongated frame having a quiver hood attached to the one end of the frame and an arrow clip attached to the other end thereof. Mounting means including a fixed arm and a slide arm are provided having clamps located at their ends for gripping the tapered portions of the bow. A spring biased latch mechanism is connected to the frame and is adapted to permit the slide arm to move in the direction to shorten the effective length between the clamps to enable the clamps to be wedged onto the tapered portion of the bow. The latch mechanism is further constructed to lock the slide arm with respect to the frame to maintain the clamps in the wedged position.

3,591,063

SURFBOARD CARRIER

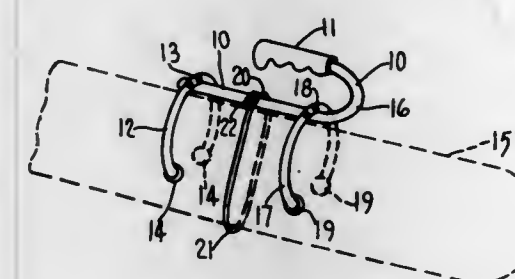
Arthur R. Pearce, 8 Kupper Drive, Normandy Beach, N.J.

Filed Aug. 8, 1969, Ser. No. 848,604

Int. Cl. B65d 71/00

U.S. Cl. 224-55

1 Claim



A surfboard carrier comprises a frame member having a hand grip on its upper portion. Attached at its middle, to the

rear of the frame member, is a downwardly-directed, two ended gripping member having cushion pad gripping means at both its opposing ends, the pads serving to protect the surfboard, which is inserted between them. Another downwardly directed gripping member is attached, at its middle, to the forward portion of the frame member, and it also has its opposing free ends provided with cushion pad gripping means to protect the surfboard which is inserted between them. At least one strap has one end attached to the frame member near midpoint between the two gripping members. It is used to circumscribe and to hold tightly the surfboard, after which its other end is fastened to the frame member.

3,591,064

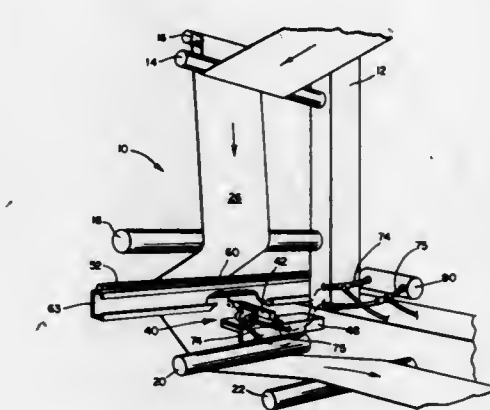
CONTINUOUS BAND DIRECTOR

William Kirk Wyatt, Lansdale, and John R. Brownell, Telford, both of Pa., assignors to Turbo Machine Company, Lansdale, Pa.

Filed June 23, 1969, Ser. No. 835,418

Int. Cl. B65h 25/08

3 Claims



A control means for directing the traverse of a moving band of continuous material which passes over a plurality of tensioning bars and is subject to deviations in its transverse position due, in part, to its inherent properties in such an environment, comprises a bar contacting the face of the band of material and capable of being tilted with respect to the dominant moving plane of said face by means disposed of the end of said bar, and most preferably by means connected to said bar spaced from the axis thereof, to pivot said bar. The bar is moved by an amplifier-controller servosystem which is constantly error sensitive.

3,591,065

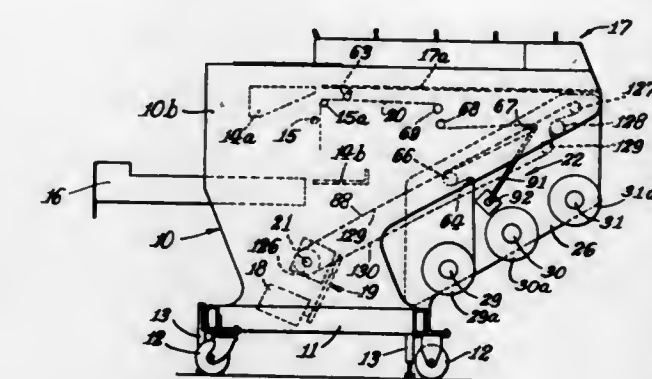
FILM FEED MECHANISM FOR A WRAPPING MACHINE
Omar Hansen, Jr., Yardley, Pa., and Donald K. Shannon, Poneto, Ind., assignors to J. B. Dove, Inc., Fallsington, Pa.

Filed Apr. 3, 1969, Ser. No. 813,150

Int. Cl. B65h 23/18

U.S. Cl. 226-25

14 Claims



This disclosure deals with a film feed mechanism for an automatic wrapping machine including a wrapping mechanism

for wrapping each article of a series of articles in a thin protective film. The feed mechanism draws film from a film supply and feeds it to the wrapping mechanism which is constructed to pull film thereto as needed during each wrapping cycle. In the feed mechanism, film is trained around a stripper roll, through means for tensioning the film and forming a reserve supply loop, and then to the wrapping mechanism. A continuously moving drive member extends adjacent the stripper roll, and a driven member connected to the stripper roll is adapted to be drivingly engaged by the drive member in order to turn the stripper roll. Means responsive to the length of film in the reserve supply loop is connected to move the drive member into engagement with the driven member and thus turn a stripper roll when the length of film in the supply loop is depleted, and to move the drive member out of engagement with the driven member when the length of film in the supply loop is replenished.

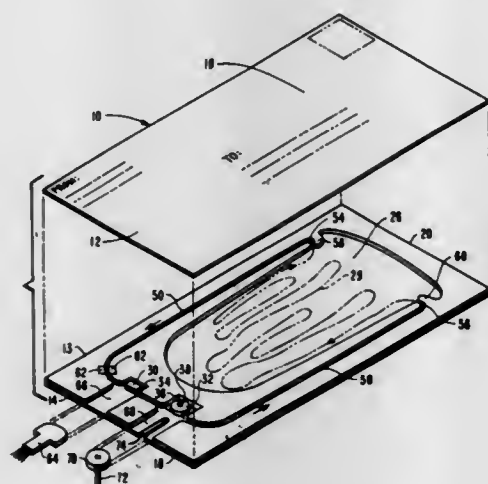
3,591,066

DIRECTLY MAILABLE DEVICE HOUSING A MAGNETIC RECORDING MEDIUM

Norman G. Young, 409 S. Commonwealth, Apt. 12, Los Angeles, Calif.

Filed Apr. 3, 1969, Ser. No. 813,147
Int. Cl. G11b 23/06

U.S. Cl. 226-89



A flat, letter size housing contains a recording medium in the form of an endless loop. The medium is adapted to move within a guide channel past a pressure pad and a spring-biased pinch roller disposed within the housing and recessed or set back from one edge of the housing a sufficient distance to protect the medium during handling and mailing of the device. The transducing head and a single drive capstan are introduced into the housing, for cooperation with the recording medium opposite the pressure pad and pinch roller, through a narrow slot arrangement coupling the one edge of the housing and the guide channel.

3,591,067

ASSEMBLY JIG FOR THE NAILING OF WOOD FRAME MEMBERS

Garye R. Vial, Mira Loma, Calif., assignor to FMC Corporation, San Jose, Calif.

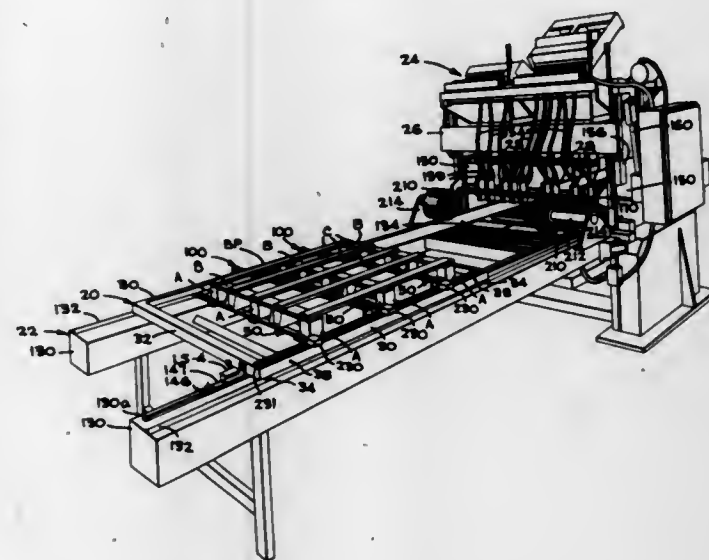
Filed May 28, 1969, Ser. No. 828,489
Int. Cl. B27f 7/22

U.S. Cl. 227-4

13 Claims

A jig for assembling wooden pallet members prior to nailing which jig comprises a rigid rectangular frame structure that is arranged upon a pair of parallel tracks for horizontal movement beneath an automatic nailing machine. Transversely extending and adjustably mounted support members are adapted to carry either the supporting blocks or the supporting stringers of the two basic types of pallets, and vertically yieldable plates are mounted upon said support members to underlie the overlapped top boards of the pallets and thereby allow nails to be driven through the boards to be clinched from beneath. As the assembled pallet structure passes

beneath the nailing machine, a series of switches stop it at the proper locations for nailing and an overhead brush in-



9 Claims ensures proper alignment of the overlying pallet members prior to nailing.

3,591,068

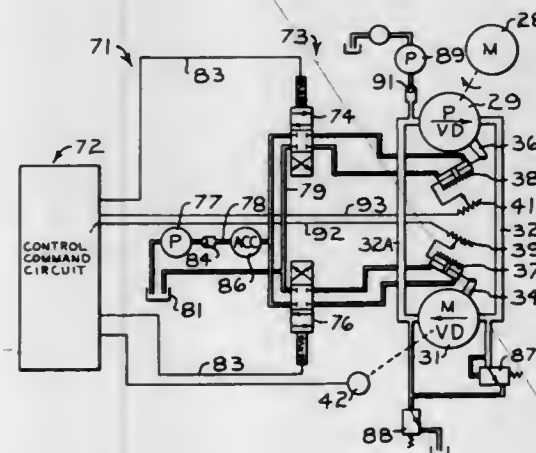
SPEED PROGRAMMED FRICTION WELDER

Charles G. Farmer, Edelstein; Calvin D. Loyd, Peoria; Robert G. Miller, Princeville, and Theodore L. Oberle, Washington, Ill., assignors to Caterpillar Traction Co., Peoria, Ill.

Division of Ser. No. 568,920, July 29, 1966, Pat. No. 3,462,826.
This application Nov. 8, 1968, Ser. No. 795,758
Int. Cl. B23k 27/00

U.S. Cl. 228-2

15 Claims



A friction welding machine of the kind in which two workpieces are rotated in rubbing contact at a common interface to develop weld heat by friction and plastic working includes a variable speed drive for rotating one workpiece with respect to the other to produce the rubbing contact and a programmer for generating a desired speed signal and a controller for producing an actual speed in accordance with the desired speed.

3,591,069

WINDOW CONTAINER PACKAGING MATERIAL

William C. Heller, Jr., and Donald W. Davis, both of Milwaukee, Wis., assignors to William C. Heller, Jr., Milwaukee, Wis., by said Donald W. Davis

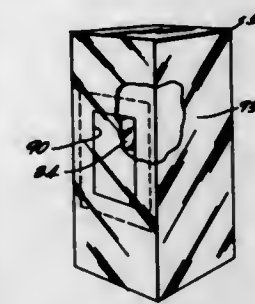
Division of Ser. No. 531,899, abandoned. This application
Oct. 29, 1969, Ser. No. 872,080
Int. Cl. B65d 27/04

U.S. Cl. 229-37

12 Claims

A packaging material for containers having coated window openings therein for viewing the contents. The window

openings are formed in a container base sheet and covered by a transparent window sheet secured to the base sheet. The



window sheet and base sheet are covered with a layer of transparent film to provide a window container packaging material having improved resistance to rupture and leakage.

3,591,070

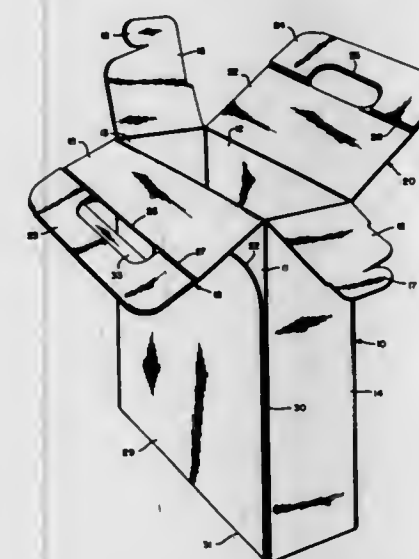
TOTE BOX

George Vrana, Flushing, N.Y., assignor to Riegel Paper Corporation, New York, N.Y.

Filed Nov. 24, 1969, Ser. No. 879,077
Int. Cl. B23k 1/08

U.S. Cl. 229-38

6 Claims



A rectangular paperboard carton having an easily erectable, flat lying carrying handle structure is disclosed. The carry handle includes a pair of full carton depth top closure flaps and a pair of tuck flaps, both of which are tuckable into the carton structure articulated to an edge of the top closure flaps. The tuck flaps include registrable handhole cutouts.

3,591,071

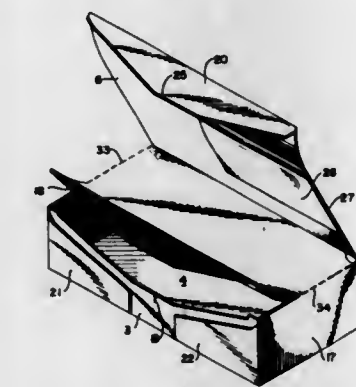
EASY-OPEN RECLOSABLE CARTON

Charles W. Rosenberg, Jr., Niagara, N.Y., assignor to F.N. Burt Company, Inc., Buffalo, N.Y.

Filed Aug. 29, 1969, Ser. No. 854,106
Int. Cl. B65d 5/54, 5/70

U.S. Cl. 229-51 TC

12 Claims



A reclosable carton produced from a paperboard blank and having an easy opening tear tab closure flap is disclosed.

When the tear tab is torn away from the front panel of the carton and the tear tab and attached cover panel are lifted, a tear-out cover panel and a tear-out portion of the front panel are exposed which may be removed, permitting the carton to be reclosed with the cover panel covering the top of the box and the tear tab tucked along the interior side of the front panel. Conveniently, the tear-out cover panel which is torn out may be a coupon integral with the carton blank and further coupons may be retained between the cover panel and the tear-out cover panel.

3,591,072

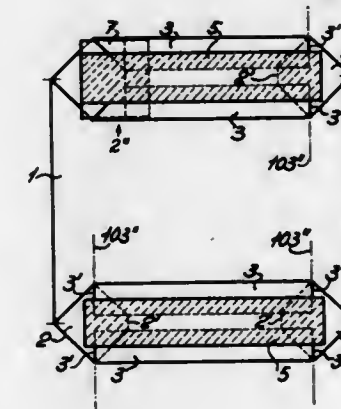
LEAKPROOF BAG

Aldo Sannino, Romanodi Lombardia, Bergamo, Italy, assignor to Natro-Cellulosa S.P.A. Industria, Imballeghi Carta Piazza della Repubblica, Milano, Italy

Filed July 16, 1969, Ser. No. 842,236
Claims priority, application Italy, July 18, 1968, Feb. 5, 1969, 19148A/68; 12454A/69
Int. Cl. B65d 33/02, 31/14

U.S. Cl. 229-62.5

12 Claims



A bag, which may be provided with a valve or other discharge or filling member, is made from a flat tube of sheet material having a pair of faces joined together at opposite sides. A pair of coplanar and similar trapezoidal flaps of the sheet material are formed on the faces with each flap having a broad base joined to the respective face along a respective junction line running transverse to and between the sides. The flaps each further have a narrow base which defines a fold line with a respective rectangular lip of the sheet material, both of the lips extending inwardly toward each other and serving as the eventual bottom or top surface of the bag. The tube is further provided with two inwardly bent corner portions which bridge between the flaps and is divided by an imaginary line into a triangular and a trapezoidal region. The triangular region has two sides coextensive with and joined to two respective confronting sides of the two flaps while its base coincides with the broad base of the trapezoidal region. Between each side of each trapezoidal region and the adjacent side of each lip is a small gore of the sheet material which lies between the lip and the trapezoidal region in the finished bag. A tape is glued over the free edges of the lips and extends beyond them onto the triangular corner regions to hold the bag tightly shut.

3,591,073

WALL MOUNTED ASHTRAY WITH BOTTOM DISCHARGE RECEPTACLE

Harry F. Dennis, Cincinnati, Ohio, assignor to The F. A. Lawson Company, Cincinnati, Ohio

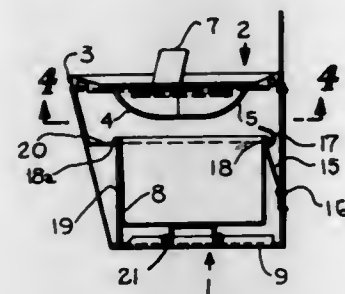
Filed Apr. 4, 1969, Ser. No. 813,554
Int. Cl. A24f 19/08

U.S. Cl. 232-43.2

3 Claims

A wall hung ashtray or smoker's urn having a permanently attached cover part, including pivoting tray members, and a

removable ash receptacle detachably mounted within the body of the urn, the urn having an open bottom through



which the receptacle may be removed for the discharge of its contents.

3,591,074 PRESETTABLE COUNTER HAVING ROTARY RESETTING MEANS

Reinhard Irion, Aldingen Kreis Tuttlingen; Kurt Wilhelm Kratt, Aldingen Kreis Tuttlingen, and Hans Hermann Neher, Hausen am Tann, all of, Germany, assignors to J. Hengstler K. G. Zahlerfabrik, Aldingen KR. Tuttlingen, Germany

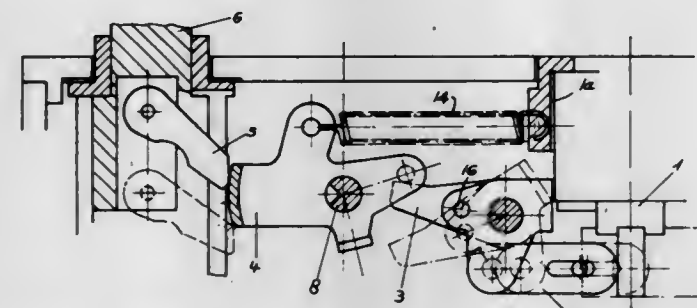
Filed Jan. 13, 1969, Ser. No. 790,691

Claims priority, application Germany, Feb. 22, 1968, P 15 74 738.3

Int. Cl. G06f 15/18

U.S. Cl. 235-132 R

5 Claims



A rotary digital counter having a plurality of digit wheels adapted to assume a plurality of positions which represent respective preset counts, manually operable presetting push-buttons for setting the digit wheels, a rotary resetting shaft, a locking arrangement adapted to assume a locking position in which a setting of the digit wheels by the presetting push-button is prevented; a latch normally maintains the locking arrangement in a locking position until the digit wheels are reset.

3,591,075 THERMOSTAT FOR ENGINE COOLING WATER

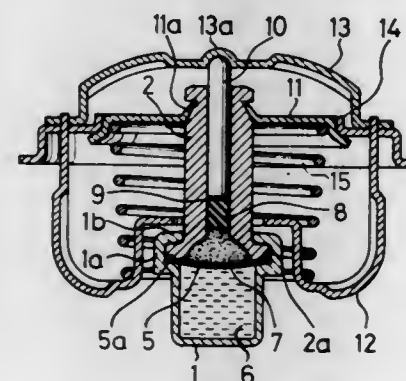
Yukio Onishi, 18-3, 1-chome Nakamachi Hoyashi, Tokyo, Japan

Filed July 3, 1969, Ser. No. 838,935

Int. Cl. F01p 7/16

U.S. Cl. 236-34

1 Claim



The present invention is concerned with an improvement in thermostats to be installed between the water manifold

and the radiator in the cooling system of a water-cooled internal combustion engine for controlling the flow rate of the engine cooling water to assure its smooth circulation and to prevent the overheating of the engine and the deterioration of the oil by maintaining normal engine temperature to increase the durability of the engine.

3,591,076 CEILING AIR TERMINAL

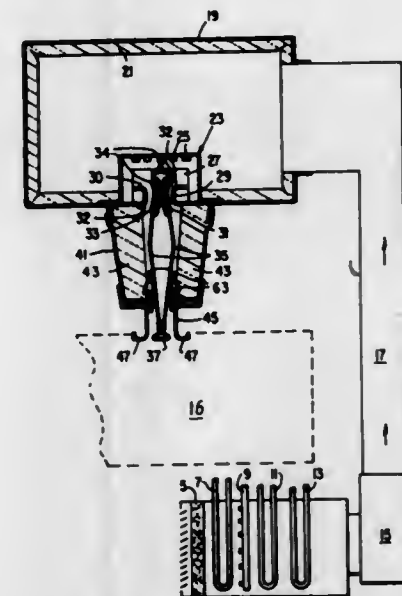
David F. Bryans, Cazenovia, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed June 2, 1969, Ser. No. 829,620

Int. Cl. F24f 7/00

U.S. Cl. 236-49

2 Claims



A ceiling terminal to distribute conditioned air into an area to be conditioned employing inflatable bladder dampers to regulate the quantity of air discharged into the area served thereby. The terminal damper-control module assembly is slidably engaged within the terminal for ease of removal therefrom for cleaning, adjustment, or repair purposes.

3,591,077 PROPORTIONING TEMPERATURE CONTROL APPARATUS

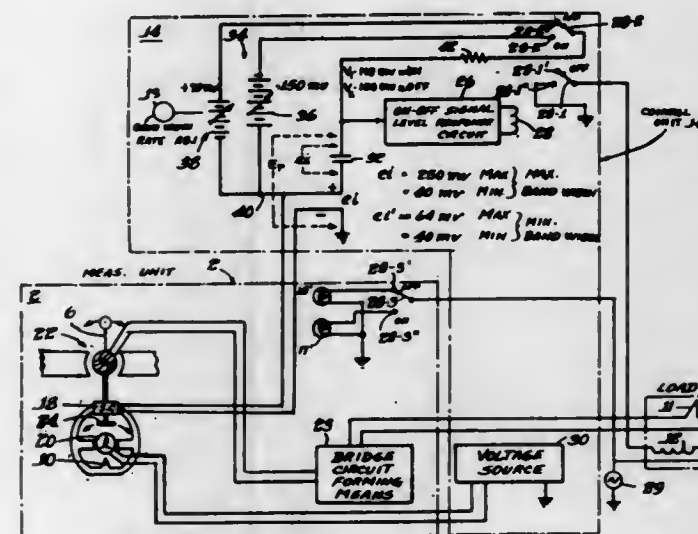
Aldor H. Alton, Lake Zurich, and Michell I. Kohn, Wheeling, both of, Ill., assignors to Gulon Industries, Inc., Metuchen, N.J.

Filed May 26, 1969, Ser. No. 827,714

Int. Cl. G05d 23/22, 11/28

U.S. Cl. 236-69

19 Claims



A proportioning temperature control apparatus provides for a variable width temperature band over which proportional control is effected, and wherein variation of the band-

width automatically varies the rate at which proportional control is effected at various points within the band, the rate decreasing with decreasing bandwidth. The variable bandwidth is effected most advantageously by means of a unique control circuit which utilizes a capacitor whose voltage is added or otherwise mixed with the output of a means for generating a progressively varying voltage as the temperature of the environment being controlled varies within the control band. A capacitor charge circuit selectively controls the application of a pair of variable DC voltages to the capacitor depending upon the presence or absence of heating or cooling signals in the output of the control apparatus. These DC voltages are selected to be near the voltage values to which the capacitor must be charged to effect the turn-on and turn-off of the heating or cooling producing signals involved. Variation of one or the other of the DC voltages referred to automatically varies the control bandwidth and the rate of control.

3,591,078 THERMOSTATIC DEVICE

Maurice Feinberg, 2 Jackson St., Waltham, Mass.

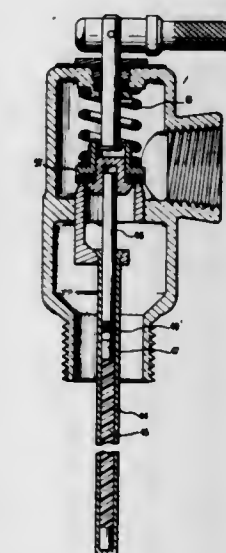
Division of Ser. No. 313,885, Oct. 4, 1968, Pat. No.

3,319,467. This application June 17, 1965, Ser. No. 481,999

Int. Cl. G05d 23/02; G01k 5/00

U.S. Cl. 236-93

5 Claims



A thermosensitive control device comprising a rigid thermally conductive casing closed at one end and open at the other end, said casing including a substantially cylindrical enclosed housing having first and second opposed end walls and a sidewall, said first and second end walls being of greater thickness than said sidewall and said first end wall having a single central opening provided therein and an elongated tubular casing section having a cross-sectional area which is less than the cross-sectional area of said housing, said casing section having open inner and outer ends, the inner end thereof being inserted into said housing through said single central opening in the first end wall thereof, said first end wall having an inner surface which angles outwardly away from the inner end of said casing section toward said sidewall and second end wall a single thermal drive element formed by a thermally sensitive, inelastic plastic rod expandable as substantially a solid at elevated temperatures below 300° F. received within said housing and casing section and abutting said second end wall, the portion of said rod within said housing being of greater diameter than the portion of said rod within said casing section whereby the outer surfaces of said rod are in contact with the inner surfaces of said housing sidewall and casing section, a drive piston received within the open outer end of said casing section, said drive piston being movable outwardly of said casing in response to the expansion of said plastic rod at elevated temperatures, and biasing means mounted upon said piston, said biasing means being operative to bias said piston toward said plastic rod to maintain said sealing means in tight sealing engagement with the inner surface of said casing section.

3,591,079 HEATING SYSTEM AND HEAT GENERATING PUMP

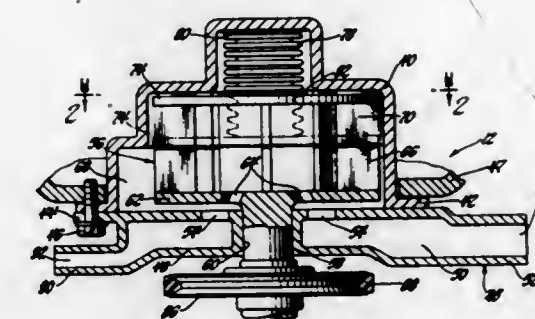
Theodore F. Peters, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 26, 1969, Ser. No. 880,112

Int. Cl. B60h 1/08; F02n 17/04

U.S. Cl. 237-8 A

6 Claims



Heating system for heating the interior of a vehicle in which an engine driven fluid pump circulates fluid through the vehicle engine, the heater core and the engine radiator. The pump has a thermally responsive bellows that moves a blocker plate to a retracted position under predetermined temperature conditions exposing a stator to the fluid flow path so that the temperature of the fluid is increased by turbulent fluid friction and by the friction between stator blades and the fluid. As the fluid attains a predetermined thermal energy level, the bellows expands to move the blocker plate to a fluid-blocking position so that the stator is out of the flow path and fluid friction is decreased thereby enabling the pump to operate at its highest efficiency.

3,591,080 ELECTROSTATIC SPRAY GUN

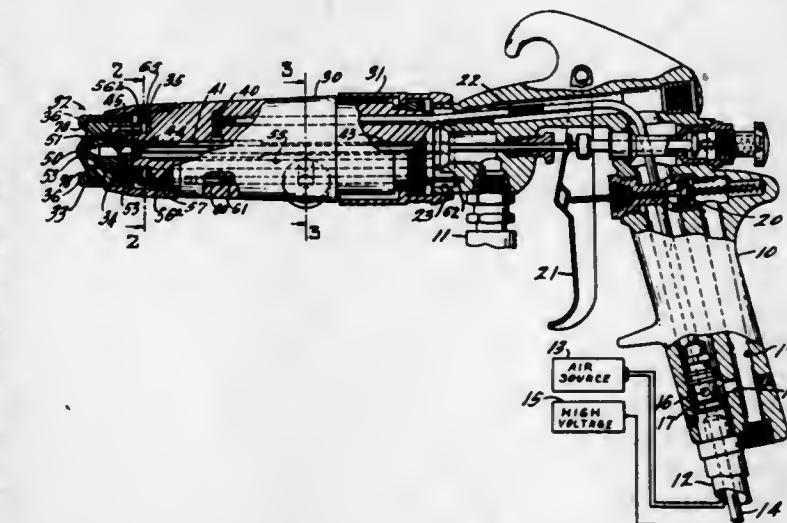
Erhard Kock, Toledo, Ohio, assignor to Champion Spark Plug Company, Toledo, Ohio

Continuation-in-part of application Ser. No. 696,938, Jan. 10, 1968, now Patent No. 3,471,089. This application Sept. 15, 1969, Ser. No. 858,009

Int. Cl. B05b 5/00

U.S. Cl. 239-15

2 Claims



The invention is directed to an air atomizing electrostatic spray gun having a spray head of insulating material. Electrostatic charging of the fluid stream is accomplished by conduction, and it has been found that prolonged spraying causes a charge to accumulate on the spray head, with a resulting deterioration in transfer efficiency. The invention includes means to maintain the efficiency of the system by the incorporation of an intermediate potential electrode to remove any accumulation of charge from the front surfaces of the gun.

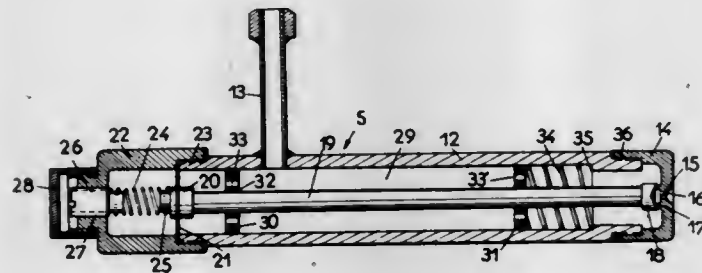
3,591,081

PROCESS AND INSTALLATION FOR BURNING LIQUIFIED HYDROCARBONS

Paul Andre, Deuil-la-Barre, France, assignor to Campagne Des Gaz De Petrole Primagaz, Paris, France
 Filed Mar. 4, 1969, Ser. No. 804,197
 Claims priority, application France, Mar. 29, 1968, 146120
 Int. Cl. F02m 45/10

U.S. Cl. 239-95

2 Claims



A process and apparatus for burning liquified hydrocarbons in which the liquid is supplied to an injector at a pressure not less than the vapor pressure at ambient temperature and is burnt in a pulsed airflow. The injector has a valve which is spring biased and is opened by the pressure of the liquid on a diaphragm.

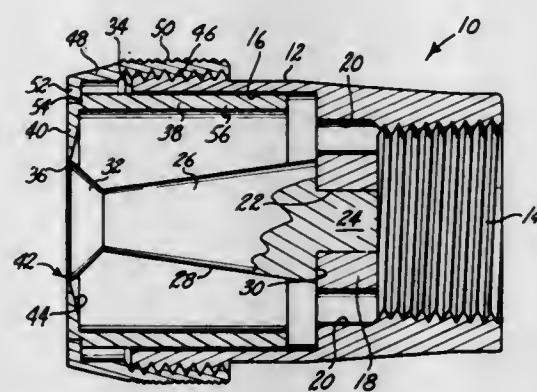
3,591,082

ADJUSTABLE SPRAY NOZZLE

Howard W. Brenner, P.O. Box 1484, Escondido, Calif.
 Filed May 12, 1969, Ser. No. 823,574
 Int. Cl. B05b 15/02

U.S. Cl. 239-117

7 Claims



An adjustable spray nozzle comprising a body which is connected at one end to a source of liquid under pressure. A cylindrical chamber in the body is open from the other end thereof, and the bottom of the chamber is defined by a transverse partition having water passageways provided therein. A conically tapered post rises from the center of the partition, and at its outer end is an outwardly flared frustocone. Slidably within the chamber is a sleeve having a radially inwardly projecting flange on its outer end, which defines a circular opening in the center of slightly smaller diameter than the frustocone. An adjustment collar is screwed onto the body and has a shoulder that engages the sleeve to limit outward movement of the latter under fluid pressure. The closer the sleeve flange is to the frustocone, the finer the spray.

3,591,083

DOMESTIC WATER MIXING AND DISTRIBUTION DEVICE

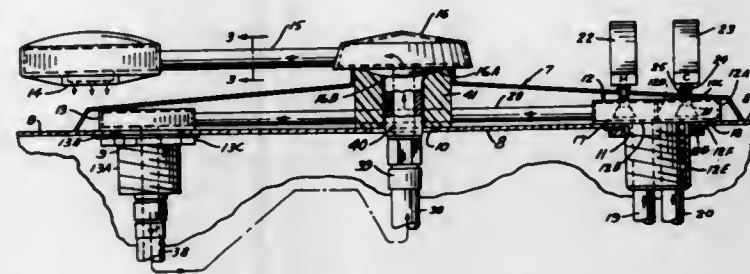
Mac S. O'Rear, 20558 Oakfield, Detroit, Mich.
 Filed Feb. 13, 1969, Ser. No. 798,958
 Int. Cl. B65h 75/00

U.S. Cl. 239-197

9 Claims

This application discloses a water mixing and distribution device for use on a domestic sink, washbowl, or the like. The

invention resides in the particular combination and arrangement of elements which provide for the mixing of hot and



cold water and the discharge of the mixed water through a portable discharge head.

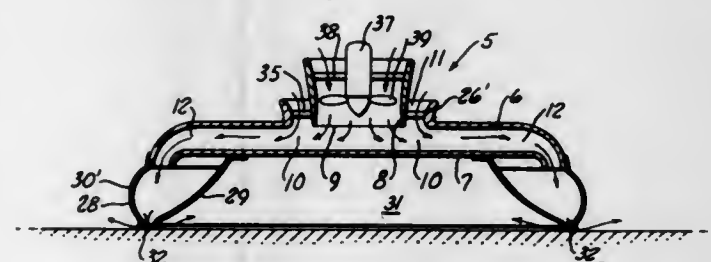
3,591,084

FLUID EJECTOR PARTICULARLY FOR CUSHION LEVITATED DEVICES

Bengt Johan Anders Ahren, Hallgatan, Sweden, assignor to SAAB Aktiebolag, Linköping, Sweden
 Filed Sept. 9, 1968, Ser. No. 758,491
 Claims priority, application Sweden, Sept. 11, 1967, 12475/67
 Int. Cl. B05b 3/10

U.S. Cl. 239-224

4 Claims



The nozzle from which primary fluid issues has its axis transverse to a pair of spaced apart wall members. It extends through one of the wall members, in which there are secondary fluid inlet means, and has its mouth spaced from the other wall member so that the latter divergingly deflects the incoming primary fluid.

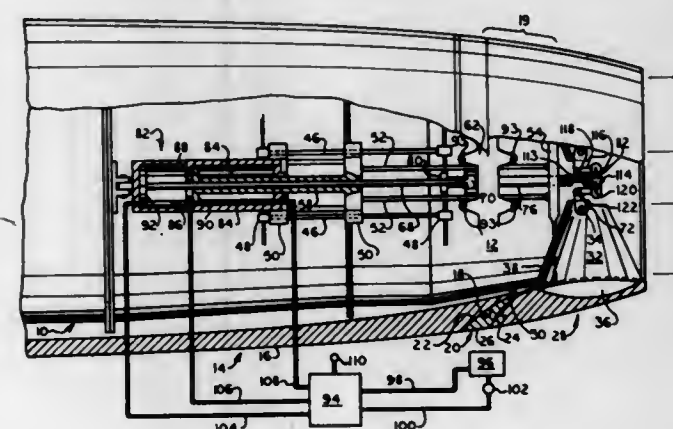
3,591,085

SOUND SUPPRESSING AND THRUST REVERSING APPARATUS

George E. Medawar, San Diego; George R. Urquhart, Bonita, and Leonard Holman, Imperial Beach, all of, Calif., assignors to Rohr Corporation, Chula Vista, San Diego, Calif.
 Filed July 2, 1969, Ser. No. 838,540
 Int. Cl. B64d 33/04

U.S. Cl. 239-265.13

10 Claims



Apparatus comprises shroud in streamline continuation of nacelle to surround and control exhaust gas stream from tail pipe. Includes ejector ring and reverser support ring nested

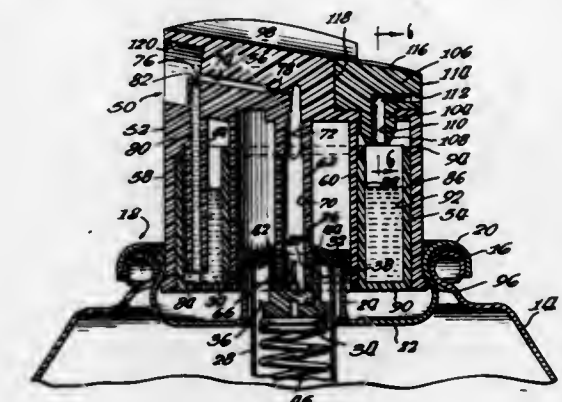
3,591,088

ATOMIZER SPRAYHEAD CONSTRUCTION

Edward H. Green, 711 Army Trail Road, Addison, Ill.
 Filed Dec. 31, 1968, Ser. No. 788,252
 Int. Cl. A62c 13/60

U.S. Cl. 239-304

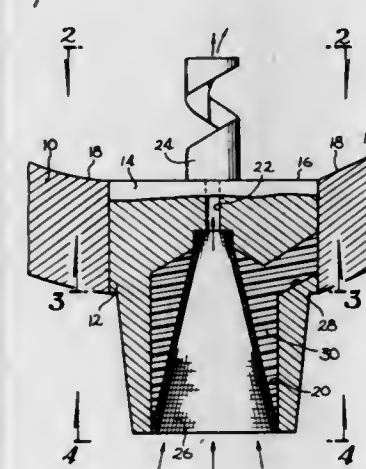
13 Claims



3,591,086
NOZZLE FOR INJECTION OF SLURRY FUELS
 Harry Levin, Woodland Hills, Calif., assignor to The Marquardt Corporation, Van Nuys, Calif.
 Filed May 31, 1968, Ser. No. 733,542
 Int. Cl. B05b 1/00

U.S. Cl. 239-265.15

7 Claims



A nozzle for the injection of slurry fuels into a combustion chamber wherein the interior wall of the nozzle is formed of a fine mesh metal screen which is surrounded by a wax or waxlike substance capable of melting at a predetermined temperature.

There is provided an atomizer sprayhead which is formed of two molded components, namely, a cap member and a cup member, the cap member being telescopically engaged over the cup member to define a sprayhead body having an internal, independent reservoir, said cap carrying a hollow depending stem arranged to engage the valve plunger of an aerosol valve assembly, the interior of said stem defining a first or primary expansion chamber, and said cap further carries a depending riser tube adapted to be disposed within said reservoir when the cap and cup telescopically are engaged. Horizontal conduit means are provided communicating between the primary expansion chamber and the discharge orifice, a portion of said means comprising a secondary expansion chamber, and the riser tube and said horizontal conduit means being so arranged so that the discharge jet of product from the latter is directed angularly upward relative to the outlet port of the riser tube to create an area of low pressure thereat, whereby to draw liquid from the reservoir, through the riser tube and out the outlet port into the flowing product stream.

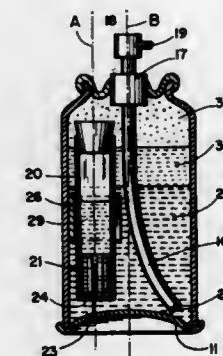
3,591,089

PORTABLE SPRAY MEANS FOR DUAL LIQUIDS
 Philip J. Cronan, Los Angeles, Calif., assignor to Rubin Mandel, Los Angeles, Calif., a part interest

Filed May 7, 1969, Ser. No. 822,547
 Int. Cl. A62c 31/30

U.S. Cl. 239-304

1 Claim

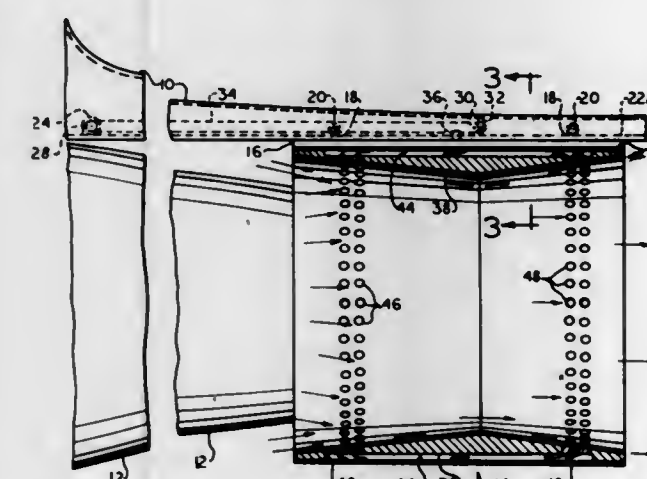


A spray can for resin paints under pressure incorporates a secondary container in its interior for holding a catalyst. A spray means including a spray valve is received on one end of the can and includes an elongated tube extending into the can. The secondary container includes inertia means in the form of a weight. The arrangement is such that shaking of the can causes the weight to shatter the secondary container thereby placing the catalyst and resin in communication with each other. Mixing of the ingredients can thus take place just prior to a spraying operation, the mixture passing up through the tube and out the spray means when the spray valve is opened.

3,591,087
APPARATUS FOR AUGMENTING THE THRUST OF AN AIRCRAFT JET ENGINE
 Remo Tontini, San Diego, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
 Filed May 8, 1969, Ser. No. 823,029
 Int. Cl. B64c 15/10

U.S. Cl. 239-265.17

4 Claims

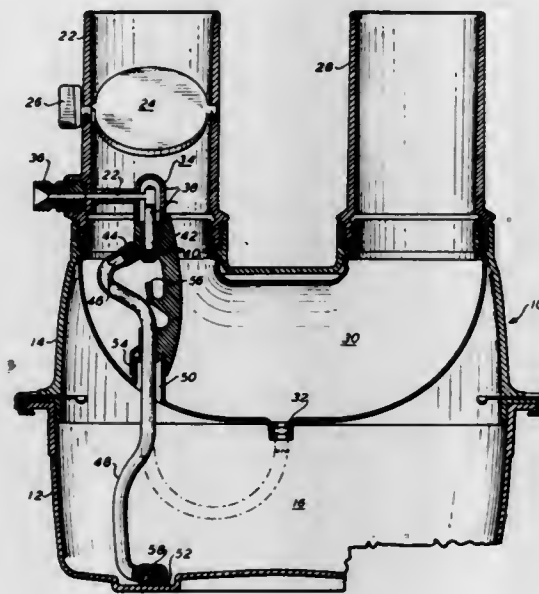


The jetstream flowing through a tubular thrust ejector is prevented from detaching from the inner surface thereof by admitting a portion of the boundary layer of said jetstream into holes which terminate within an area encircling the aft portion of said inner surface and which communicate with the forward portion of the ejector throat.

3,591,090 NEBULIZER

Douglas D. Carden, Barneveld, Wis., assignor to Air Reduction Company, New York, N.Y.
Filed Oct. 27, 1969, Ser. No. 869,518
Int. Cl. A61m 11/02
U.S. Cl. 239—305

7 Claims

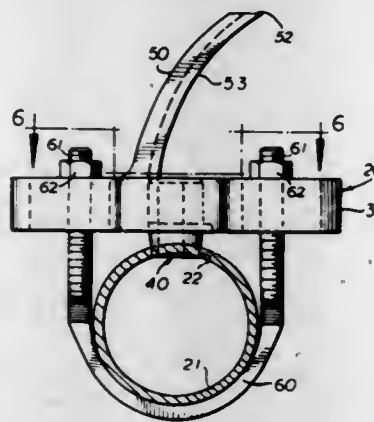


A mechanical nebulizer having a first reservoir for containing bulk use fluid for nebulization and a second reservoir for containing a medicament whereby the medicament may be selectively and independently supplied for nebulization and wherein circulation of fluid is provided during nebulization of either the bulk fluid or the medicament.

3,591,091 DEFLECTOR-TYPE SPRAY NOZZLE

oderick S. Galloway, Chalfont, and Albert B. Luecke, Jr., Cheltenham, both of Pa., assignors to FMC Corporation, San Jose, Calif.
Filed Jan. 28, 1969, Ser. No. 794,510
Int. Cl. B05b 1/26
U.S. Cl. 239—523

13 Claims



This invention relates to a deflector type spray nozzle for mounting on a pipe to obtain a flat trapezoidal shaped spray pattern. The spray nozzle is made entirely of a strong durable plastic resistant to corrosion and abrasion. It is equipped with a selflocating interchangeable bushing which may be easily changed to obtain different flow rates by means of a different size orifice and which fits in a simple straight hole in the pipe without auxiliary sealing means. A single size U-bolt and single size deflector assembly may be used for pipe sizes of 1 inch to 3 inches inclusive.

3,591,092 DISCHARGE TIP FOR FUEL INJECTION NOZZLE

Vernon D. Roosa, West Hartford, Conn.
Division of Ser. No. 703,488, Oct. 5, 1967, abandoned.
Division of Ser. No. 455,913, May 14, 1965, Pat. No. 3,350,963. This application Oct. 13, 1969, Ser. No. 865,828
Int. Cl. B05b 1/30

U.S. Cl. 239—601

2 Claims

A discharge tip for a fuel injection nozzle comprises a hollow body having a bore closed at one end and open at the other with the closed end being of reduced size relative to the open end and terminating in a partispherical tip exceeding a hemisphere connected with the remainder of the body by an annular necked down surface portion coaxial with the bore and intermediate the ends thereof and having a plurality of radially directed discharge passages in the partispherical portion of the tip with at least one of the orifices disposed in the portion of the partispherical tip outside the hemispherical portion which is concentric with the axis of the elongated bore.

3,591,093

ELECTROSTATIC UPGRADING OF POTASH ORES
Robert Berthon, Wittelsheim (Haut-Rhin), and Michel Bichara, Richwiller (Haut-Rhin), both of France, assignors to Mines De Potasse D. Alsace S. A., Mulhouse, France
Filed July 26, 1968, Ser. No. 747,837
Claims priority, application France, July 27, 1967, 115859
Int. Cl. B02c 19/12, 23/06

U.S. Cl. 241—15

17 Claims

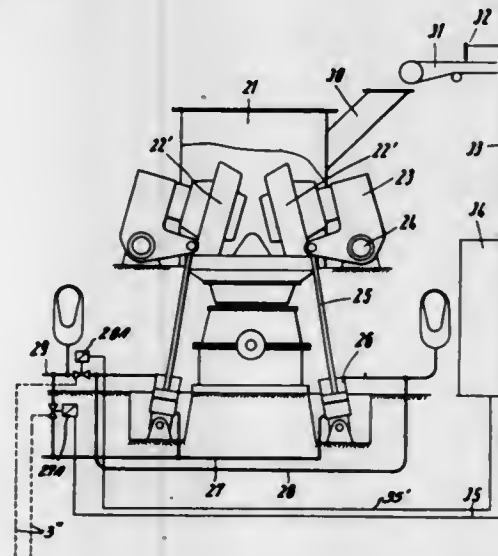
The insoluble components of potash ores are substantially removed by electrostatic separation, the ore being first conditioned with an aliphatic amine of 8—22 carbon atoms or salts thereof, e.g. laurylamine, said amine being also preferably mixed with a carboxylic acid of 8—22 carbon atoms.

3,591,094

CONTROL SYSTEM FOR ROLL GRINDERS
Peter Gauer, Kamper Weg 98, Dusseldorf, Eller, Germany
Filed Feb. 20, 1969, Ser. No. 801,032
Int. Cl. B02c 15/00, 25/00

U.S. Cl. 241—37

3 Claims



A control system for roll grinders of a milling apparatus which effects movement of the grinders away from and toward the grinding bed in accordance with sensed flow of material in order to minimize the power requirements of the mill driving means.

3,591,095

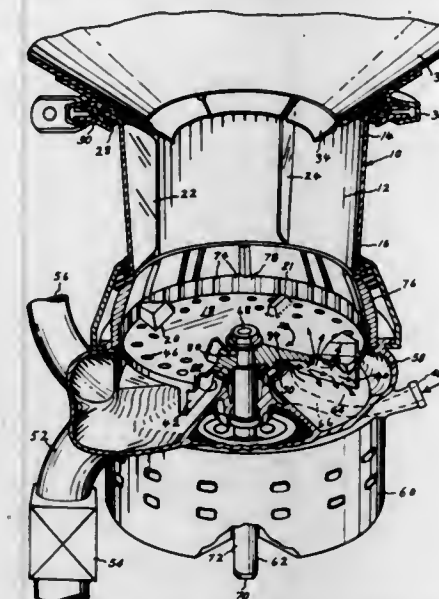
COMBINATION GARBAGE GRINDER AND PUMP
Albert Di Stefano, 3013 Northwales Road, Norristown, Pa.
Filed Nov. 25, 1968, Ser. No. 784,996
Int. Cl. B02c 18/40

U.S. Cl. 241—41

15 Claims

A combination garbage grinder and pump including an integral upper shredder plate and lower pump impeller which

rotates at the bottom of a liquid and waste receiving pit, the pit having a wider diameter at the top thereof than at the said shredder plate, the integral shredder plate and pump impeller



being capable of both grinding waste material for discharge recirculation to a drain or alternately of pumping liquids through a liquid discharge pipe.

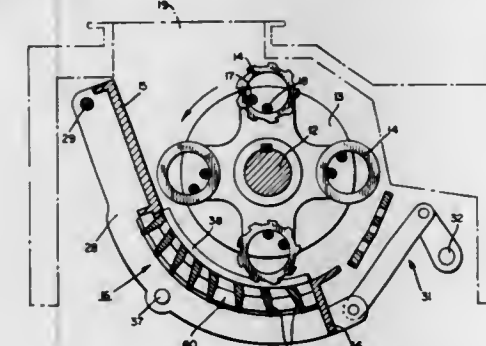
3,591,096

SCREEN BAR

Ralph R. DeFeo, Upper Darby, Pa., assignor to Pennsylvania Crusher Corporation, Broomall, Pa.
Filed Feb. 12, 1969, Ser. No. 798,605
Int. Cl. B02c 13/13, 13/284

U.S. Cl. 241—88

3 Claims



A screen bar cage for a rotary crusher is disclosed in which the screen bars are specially shaped to accurately dimensions by being formed of rolled steel cut to length. The front impact-receiving surface of each bar is a flat plane, inclined relative to the radial of the machine. The trailing surface has an upper portion, which is generally parallel with the front surface, and a lower portion which is convergent with the front surface of the same bar, forming with the front surface of the following bar a slot having an upper portion for determining the size of the fragmented material to be passed, and a lower divergent portion for discharging the material. Spacing lugs, at spaced intervals along the screen bar, extend integrally between the lower portion of the trailing surface of one bar and the front surface of the following bar. These integral clips form an arch support which distributes any radially outward or downward thrust which may be imposed on one bar, among the bars on either side thereof.

3,591,097

CONICAL ROLL MILL

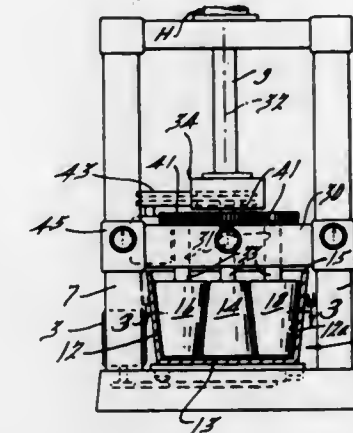
Thomas D. Ough, London, England, assignor to Acheson Industries, Inc., Port Huron, Mich.
Filed Feb. 24, 1969, Ser. No. 801,589
Claims priority, application Great Britain, Feb. 28, 1968, 9717/68
Int. Cl. B02c 2/00

U.S. Cl. 241—113

10 Claims

A conical roll mill apparatus comprised of three or more vertically or horizontally oriented rolls, with the rolls being

conically tapered such that the speed of relative movement between mating rolls or a mating roll and the interior surface of the container holding the roll mill is such that the speed will vary along the length of the line of mating contact, whereby said variable speed causes material being mixed or



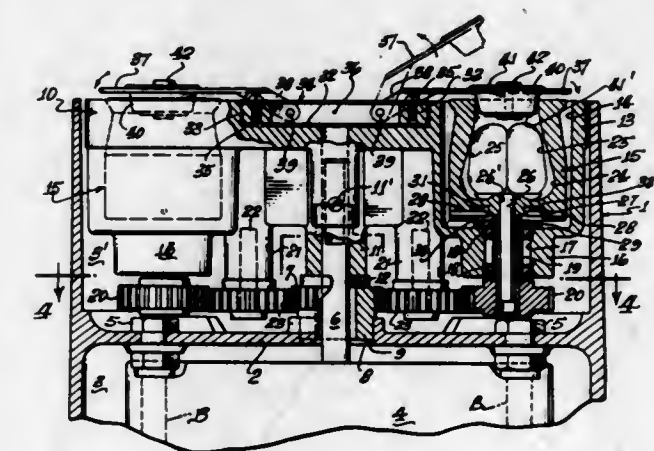
milled between the rolls not only to be caught in the nip contact area by the rolls but also causes a strong shearing effect on the material, and at least one of said rolls being movable axially in order to adjust the amount of clearance which occurs at the nip.

3,591,098

DENTAL AMALGAM PREPARING APPARATUS

Robert C. McShirley, 6535 San Fernando Road, Glendale, Calif.
Filed Feb. 11, 1969, Ser. No. 798,337
Int. Cl. B02c 17/08, 19/08
U.S. Cl. 241—137

5 Claims



Improved apparatus for preparing dental amalgam from pellets of compressed metal alloy powder and mercury including elements operative to pulverize the pellet in a container before the mercury is added into the same container and then is operative to both mix the mercury with the powder and then to effect a mulling action on the resulting amalgam so that the pellet of amalgam is ready for installation in the creation of a dental restoration. The illustrated embodiment includes duplicate containers so that while pulverizing action is being performed in one container, the powder resulting from a previously pulverized pellet is being combined with mercury in the performance of the mixing and mulling actions.

ERRATUM

For Class 242—055 see:
Patent No. 3,590,907

3,591,099

SOLID MATERIAL BEATING MEANS WITH PLURAL BLADES

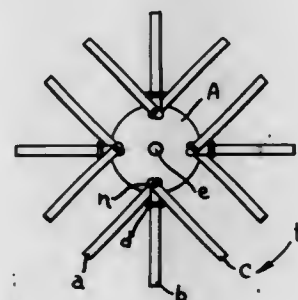
Thomas Harry Sadler, Middlesex, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Filed Aug. 14, 1968, Ser. No. 752,633

Int. Cl. B02c 13/16; 13/28

U.S. Cl. 241—194

9 Claims



A removable beater-blade for use in either a fiberizer or a willow, for releasing asbestos fibers from ore and for further fiberizing the asbestos fibers, the beater-blade including two or more blades mounted on a common pin near the peripheral edge of a rotatable disc with each of the individual blades extending in different directions such that a commonly mounted blades are staggered with each leading blade at a lower level than each following commonly mounted blade, and the leading edge of each blade is lower than the following edge whereby when the disc is rotated each pitched blade creates an air pressure above each blade and a vacuum turbulence beneath each blade as the disc-mounted blades revolve in a path substantially perpendicular to the path of movement (or falling) asbestos ore and/or fibrous material.

3,591,100

ENDLESS TAPE CASSETTE

Fukuzo Itoh, Yokohama-shi; Masaoki Sekine, Kawasaki-shi, and Kohsuke Arai, Tokyo, all of Japan, assignors to Tokyo Denki Kagaku Kogyo Co., Ltd., Chiyoda-Ku, Tokyo, Japan

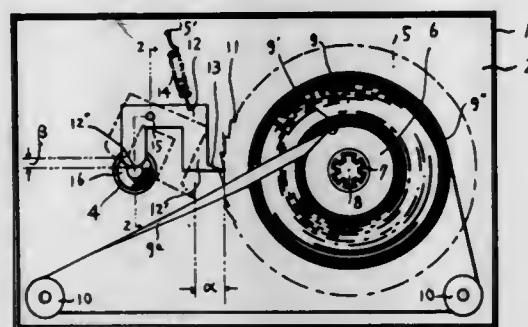
Filed Sept. 22, 1969, Ser. No. 859,666

Claims priority, application Japan, Sept. 26, 1968, 43/69073

Int. Cl. B65h 17/48

U.S. Cl. 242—55.19

3 Claims



A cassette having two axis holes to receive two spindles of a tape recorder. A rotating plate having a hub fits over the first spindle. The endless tape is wound around the hub to form an endless reel. A U-shaped checking lever having two legs is pivoted to the cassette casing at a point closer to one leg than the other. One leg has a pawl on its end for engaging cogs around the periphery of the rotating plate. The other leg has a tapered undersurface which cooperates with a tapered edge of the second spindle. A spring biases the lever to engage the pawl and cogs.

3,591,101

MACHINE FOR CUTTING THIN STRIPS

Georges L. Gallet, La Celle Saint Cloud, and Claude Guenel, Orsay, both of France, assignors to Compagnie Generale D'Electricite

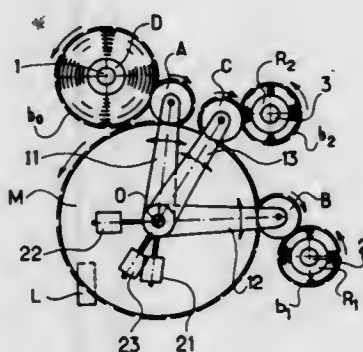
Filed Mar. 1, 1968, Ser. No. 709,631

Claims priority, application France, Mar. 3, 1967, 97438

Int. Cl. B65h 35/02

U.S. Cl. 242—56.2

7 Claims



The machine is equipped with balanced transfer mandrels which are dimensioned and positioned in such a way that a web to be cut into narrow strips is supported over its entire length and is subjected to a constant tension. Cutting blades are mounted in a blade-carrier which may be tilted to match the cutting angle to the type of web to be cut.

3,591,102

SELF-CATCHING SPOOL FOR TAPELIKE RECORD CARRIERS

Heinz Keiner, Oberndorf, Germany, assignor to Ernst Leitz, GmbH, Wetzlar, Germany

Filed July 8, 1969, Ser. No. 839,854

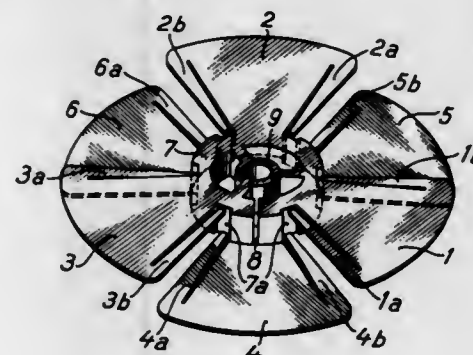
Claims priority, application Germany, July 15, 1968, P 17 72

869.7

Int. Cl. B65h 75/28

U.S. Cl. 242—74

1 Claim



A spool for tape-like record carriers which automatically grips the record carrier strip as it is inserted between the flanges of the spool.

3,591,103

REEL CONSTRUCTION

Erich Hafner, Doktor Kamp 11, Leopoldshöhe, Germany

Filed June 6, 1969, Ser. No. 831,108

Claims priority, application Germany, June 15, 1968, P 17 74

420.6

Int. Cl. B65h 75/14

U.S. Cl. 242—118.7

15 Claims

A reel for wire and analogous articles has a hub and a pair of flange members which project radially from the hub in the region of the opposite ends of the latter. Each flange member is of laminar construction and includes at least one first layer of metallic reinforcing material provided with a plurality of apertures, and at least one second layer of synthetic plastic material in surface-to-surface contact with one side of the

first layer and having synthetic plastic portions which extend through the apertures to the other side of the first layer and

3,591,106

STRIP THREADING MECHANISM

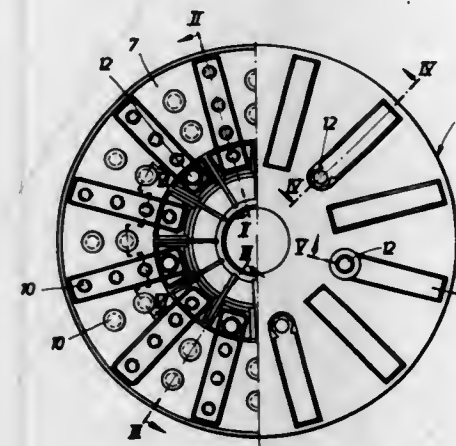
Elmer O. Wangerin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 27, 1969, Ser. No. 853,435

Int. Cl. G11b 15/66, 23/10

U.S. Cl. 242—210

6 Claims



embed marginal portions of the latter which surround the respective apertures.

3,591,104

RESILIENT CABLE DRUM

Erich Hafner, Doktor Kamp 11, Leopoldshöhe, Germany

Filed May 19, 1969, Ser. No. 828,095

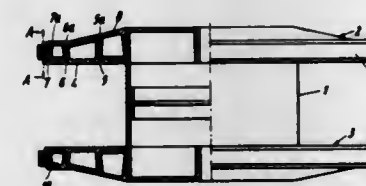
Claims priority, application Germany, May 21, 1968, P 17 74

308.7

Int. Cl. B65h 75/14

U.S. Cl. 242—118.7

12 Claims



A drum for the winding and storage of cable or wire comprising a core and a pair of flanges flanking the ends of the core. The marginal portion of each flange is surrounded by a resilient, nondeformable ring of metal or synthetic plastic which intercepts impact and shock forces applied to the edges of the flanges, thereby protecting the drum from damage.

3,591,105

SPOOL HOLDER FOR SEWING MACHINES

Silvano Perlino, Pavia, Italy, assignor to Necchi S.p.A., Pavia, Italy

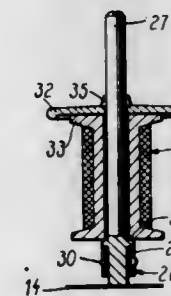
Filed July 14, 1969, Ser. No. 841,462

Claims priority, application Italy, July 29, 1968, 32413 A/68

Int. Cl. B65h 49/00

U.S. Cl. 242—129.7

7 Claims



A support means for sewing machine spools of the flanged and flangeless types and for use in machines wherein the thread is pulled axially off stationary spools.

3,591,107

FLY REEL

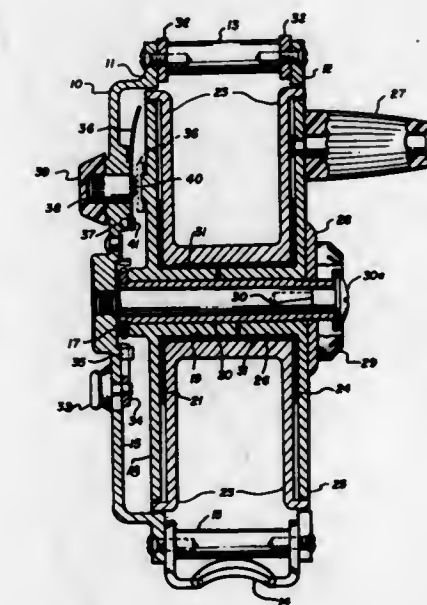
Roland W. Ferguson, Aurora, Colo., assignor to Wright & McGill Co., Denver, Colo.

Filed Feb. 11, 1969, Ser. No. 798,415

Int. Cl. A01k 89/02

U.S. Cl. 242—219

9 Claims



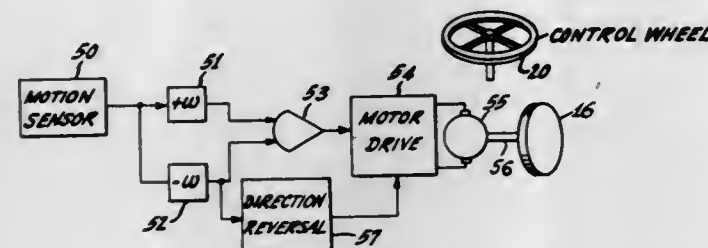
Single action fly reel arranged for spool regulation to include or omit drag. Reel assembly has means selectively operable to control the direction of reel wind so as to permit right- or left-hand operation and includes rigid frame and main shaft acting as bearing for two sideplates carrying interlocking portions of a split shaft with one sideplate also carrying a grip for winding the reel. A line spool is mounted between the sideplates around the split shaft and friction discs are disposed between the sideplates and line spool. Adjustable means are disclosed for applying pressure selectively to the sideplates, line spool and friction discs, thereby to create or eliminate drag.

3,591,108

CONTROL SYSTEM FOR SPINNING BODIES
Harold Perkel, Levittown, Pa., and William Herbert Comerford, Hightstown, N.J., assignors to RCA Corporation
Filed Jan. 27, 1967, Ser. No. 612,209
Int. Cl. B64g 1/00

U.S. Cl. 244-1

3 Claims



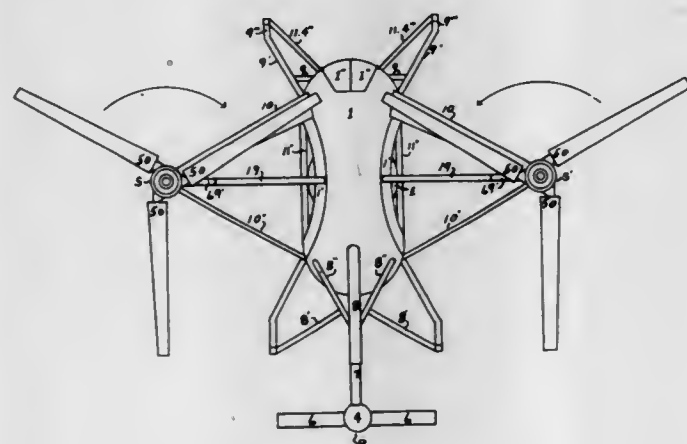
A control system for reducing undesirable motion in a spinning, orbiting satellite body is disclosed. A satellite having an angular momentum stabilizing system aboard is compensated in a manner to substantially reduce undesired motion about an axis, which may be the spin axis. A motion sensor is placed aboard the satellite to derive a signal proportional to the direction and magnitude of the undesired motion. This signal is used to rotate a flywheel, whose axis of rotation is perpendicular to the spin axis of the satellite. The flywheel is rotated either clockwise or counterclockwise depending on the signal from the motion sensor, causing the flywheel to produce an equal and opposite torque to the disturbing torque about the spacecraft's spin axis. This action damps out the undesired motion by counteracting the undesired torque.

3,591,109

ROTARY WING AIRCRAFT
Frank W. McLarty, 634 West 10th St., Apt. 8, Dallas, Tex.
Filed June 29, 1966, Ser. No. 562,939
Int. Cl. B64c 27/08

U.S. Cl. 244-17.23

12 Claims



This invention is a vertical-lift aircraft whose various features operating in cooperative conjunction with each other as illustrated in the drawings make the craft substantially fool-proof, so that any sensible owner-operator capable of driving an automobile safely can fly one of said aircraft with almost perfect safety, even though he or she may never have been off the ground previously.

3,591,110

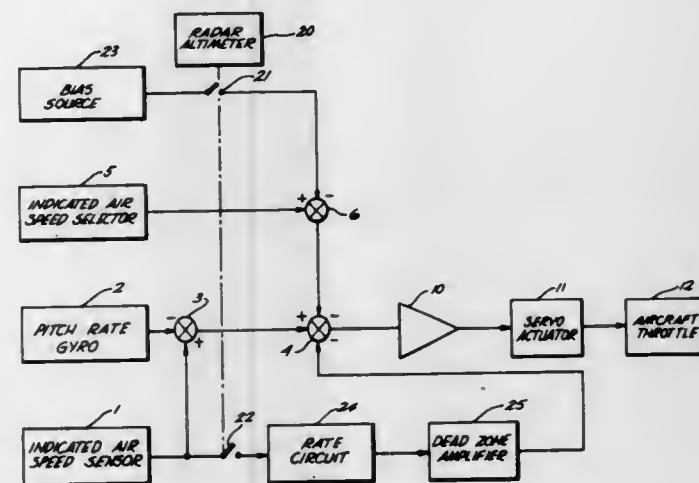
AUTOMATIC THROTTLE CONTROL SYSTEM FOR AN AIRCRAFT
Kenneth C. Dramer, Thousand Oaks, Calif., and Harold N. Tobie, Mercer Island, Wash., assignors to Lear Siegler, Inc.
Filed Apr. 21, 1969, Ser. No. 817,780
Int. Cl. B64c 13/18

U.S. Cl. 244-77 D

10 Claims

During a landing maneuver, a conventional automatic throttle control system for an aircraft actuates its throttle in

response to a first signal representative of the desired descent value of an aircraft parameter that influences proper throttle position during landing and to a second signal representative of the actual value of the parameter. As the aircraft approaches touchdown, the first signal is modified to represent a near stall value of the parameter lower than the desired



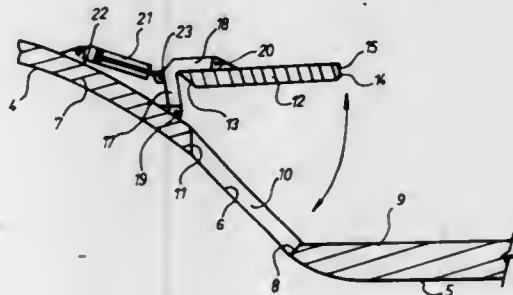
touchdown value, so the throttle normally retards to its minimum position. If conditions cause a drop in the actual value of the parameter below the near stall value, the control system advances the throttle to correct the discrepancy. The corrective action is augmented by a third signal, representing the rate of change of the second signal, when the third signal exceeds a threshold value.

3,591,111

AIRCRAFT LOADING DOOR
William G. Spence, 2372 Wilson Ave., N.D.G., Montreal, Quebec, Canada
Filed June 3, 1969, Ser. No. 829,909
Int. Cl. B64c 1/14

U.S. Cl. 244-137

4 Claims



An opening mechanism for an inclined aircraft door including an angular member pivoted to the aircraft fuselage and to the door inwardly of the door edge, so that power pivoting of the angular member causes pivoting opening movement of the door about an edge remote from said member until the door abuts the angular member and further pivoting of said member causes the latter and the door to move as a unit. The mechanism allows the door to fully clear the door opening and serves also to lock the door in closed position.

3,591,112

BOAT SEAT CLAMP
Edwin J. Garmhausen, Sidney, Ohio, assignor to Scott Port-A-Fold, Inc., Archibald, Ohio
Filed Dec. 3, 1969, Ser. No. 881,653
Int. Cl. A47f 5/00

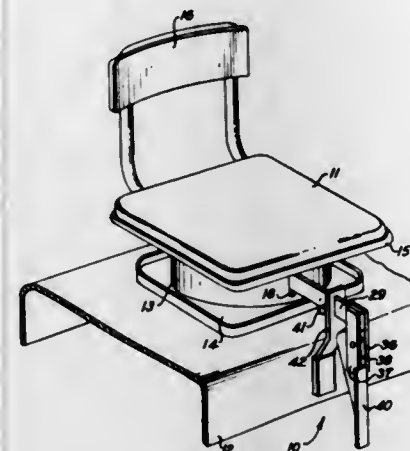
U.S. Cl. 248-226 B

1 Claim

A boat seat clamp for detachably securing a fishing chair to a bench-type boat seat by friction clamping to the boat seat. The clamp is provided with a horizontal bar which can be adjusted for length and is secured to the fishing chair. A

clamp member is slidably mounted on one end of the bar and locks to the bar by cam action under clamping pressure. A second clamp member is also mounted on the other end of

shaped to grip the stem of the tree. A ring through which the stem of the tree is inserted is shaped so that it can receive the



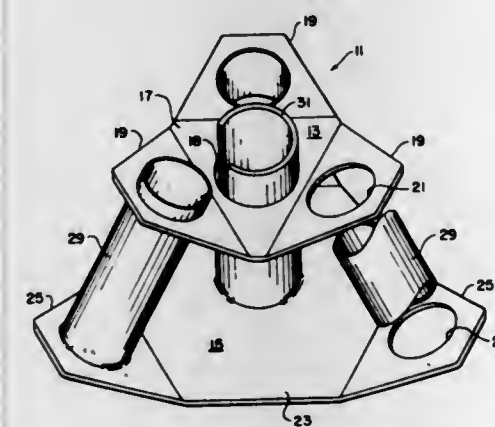
the bar in a position to be engaged by hand actuated eccentric which presses the second clamp member inwardly toward the first clamp member to detachably clamp the boat seat therebetween.

3,591,113

MAST SUPPORT
Hugh F. Foster, Jr., Brooklyn, N.Y., assignor to The United States of America as represented by the Secretary of the Army
Filed Jan. 13, 1970, Ser. No. 2,615
Int. Cl. H01q 1/12; E04h 12/22

U.S. Cl. 248-44

5 Claims



A means for supporting a mast that includes a pair of spaced, joined, parallel top and bottom plates with the top plate provided with an opening that accommodates a tube extending to the bottom plate in which a mast may be supported. Both plates have corresponding opposing tab portions having corresponding openings through which supporting legs can be inserted for support of the mast structure.

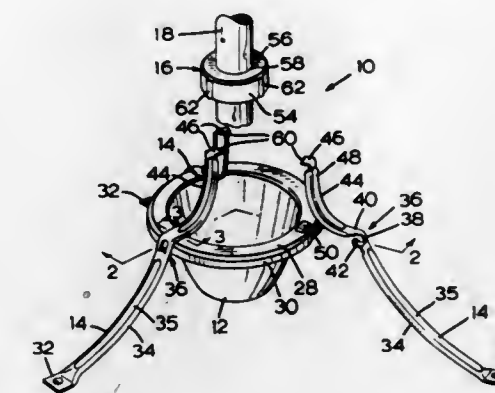
3,591,114

STAND FOR AN ARTIFICIAL CHRISTMAS TREE AND THE LIKE
Thomas Samuel Beatty, 51 Alamosa Drive, Willowdale, Ontario, Canada
Filed Feb. 24, 1970, Ser. No. 13,568
Claims priority, application Canada, Feb. 26, 1969, 043,977
Int. Cl. A47g 33/12

U.S. Cl. 248-48

5 Claims

A stand for artificial Christmas trees having a bowl for receiving and locating the lower edge of the stem of the tree. The upper edge of the bowl has a circumferential lip defined by a circular flange and a peripheral downwardly extending flange. Three identical legs are employed and they are adapted to hook onto skirt and flange near the midpoints of the legs. The upper ends of the legs are bent inwardly and are



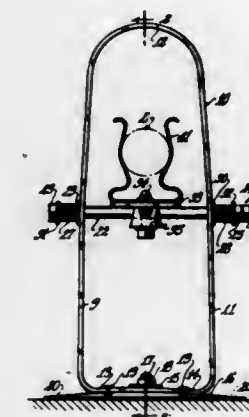
upper ends of the legs and urge the upper ends into contact with the stem of the tree thereby fixing the stem securely to the stand and automatically centering the stem in the stand.

3,591,115

PORTABLE FLASHLIGHT HOLDER
Glenn A. Hibbard, 1716 W. 165th Pl., Gardena, Calif.
Filed Jan. 12, 1970, Ser. No. 2,281
Int. Cl. A47g 29/00; F21l 15/08

U.S. Cl. 248-122

4 Claims



Portable holder for detachable retention of cylindrical flashlight, provides a pair of longitudinally separated spring jaws on a support platform which is medially secured to a rotatable shaft which is journaled between a pair of upstanding arms arising from a flat-bottom base. The transverse shaft has coaxial compression springs which abut the respective upright arms so as to hold the jaw assembly and flashlight at any set rotational position through a complete 360° possible rotation. The base plate may be centrally pivoted to the frame or alternately have a peripheral series of openings for attachment of the unit to a nail or hanger of a vertical wall. Otherwise the base stands on a more-or-less level surface or is carried by a top handhold which connects the upright arms.

3,591,116

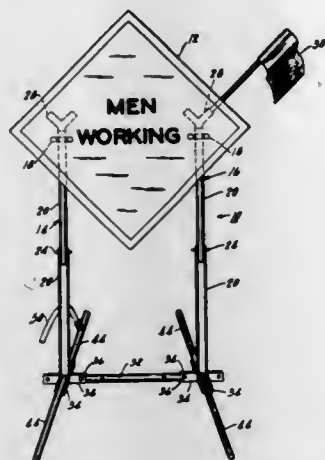
COLLAPSIBLE SIGN STAND
Clarence E. Dalum, 12915 Gremore Drive, Elm Grove, Wis.
Filed Nov. 28, 1969, Ser. No. 880,872
Int. Cl. F16m 1/38

U.S. Cl. 248-166

7 Claims

A collapsible stand for supporting signs and the like above the ground includes a pair of spaced upright posts for receiving the sign. A tie bar joins the posts and is hinged to the lower ends of the posts. A plurality of elongated feet hinged

to the lower ends of the posts lie normal to the tie bar. The shaft extends. A locking nut on the threaded shaft is adapted tie bar and feet abut the ground for retaining the stand in to squeeze spherically curved annular members carried on



position, while at the same time, maintaining the posts upright.

3,591,117

CLAMP FOR MOUNTING EQUIPMENT ON APERTURED SUPPORT PLATES

Emilio Lorenzo Mazzetti, Torino, Italy, assignor to Ghisalba s.p.a., Turin, Italy

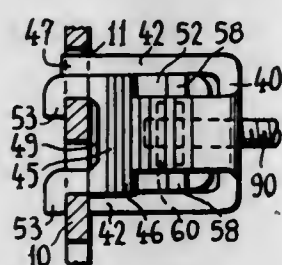
Filed Sept. 23, 1969, Ser. No. 860,185

Claims priority, application Italy, Dec. 17, 1968, 54322 A/68

Int. Cl. A47j 5/00; A47b 97/00

U.S. Cl. 248-224

5 Claims



A clamp adapted for connecting the fixing members of a device to an apertured support plate, this clamp comprising a coupling stirrup with feet engageable in the apertures of the support plate, and a connecting plate inserted with limited mobility within the coupling stirrup and provided with a threaded hole for the connection of a fixing member of the device to be supported, which passes through an elongated aperture of the coupling stirrup, thus allowing the supported device to be movable within certain limits on the support plate, so that all the fixing members thereof may be connected to the support plate by means of a corresponding plurality of clamps, even when the distances among the fixing members are different from the distances among the apertures of the support plate.

3,591,118

ANGULARLY ADJUSTABLE WIG BLOCK SUPPORT

Robert J. Gentile, Onandaga, and Arthur G. Martineau, Jr., Syracuse, both of N.Y., assignors to Gemini Products, Inc., Syracuse, N.Y.

Filed May 8, 1969, Ser. No. 823,117

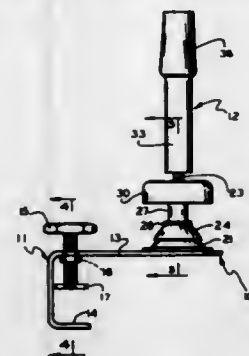
Int. Cl. A47i 5/12; F16c 11/06

U.S. Cl. 248-226

2 Claims

An improved block support for simulated heads, called blocks, on which wigs are mounted for styling. The support includes a vertically extending shaft adapted at its top for connection to the block and a base portion having a clamp for securing it to a table and a horizontally extending plate. The plate has spherically rounded upper and annular portions through which the reduced, threaded lower end of the

A skeleton supporting frame for a generally rectangular dispensing carton, containing a plurality of thin, interfolded plastic sheets and having a slot in a bottom wall thereof. The frame includes a rectangular base, with a lengthwise, elevated ledge, a pair of elevated side members, a top member, and a lengthwise support bar, between the base and



the shaft against the upper and lower plate annular portions which are spaced from the shaft to allow the shaft to tilt.

3,591,119

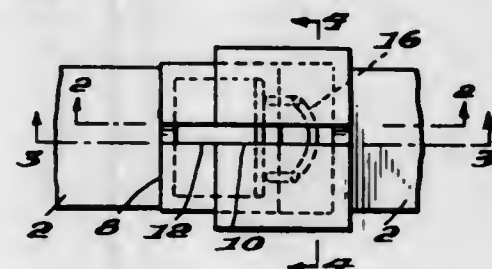
HOLDER FOR CUFF LINKS AND THE LIKE

Arthur D. Norrod, 7335 Howard Court, Falls Church, Va.

Filed July 1, 1970, Ser. No. 51,520

U.S. Cl. 248-309

5 Claims



An arrangement for holding cuff links of the type having a pivoted cross bar at one end is composed of an outer boxlike member opened at one side and an inner boxlike member slidable into the open side of the outer boxlike member. The two members have matching slots extending downwardly through the top and a portion of the transverse walls of each. A spring is provided for normally positioning the inner box member out of the outer box-member, so that a cuff link with the pivoted cross piece in transverse position can be inserted downwardly through the two slots by pushing the inner boxlike member into the outer boxlike member.

3,591,120

SKELETON SUPPORT FRAME FOR A CARTON

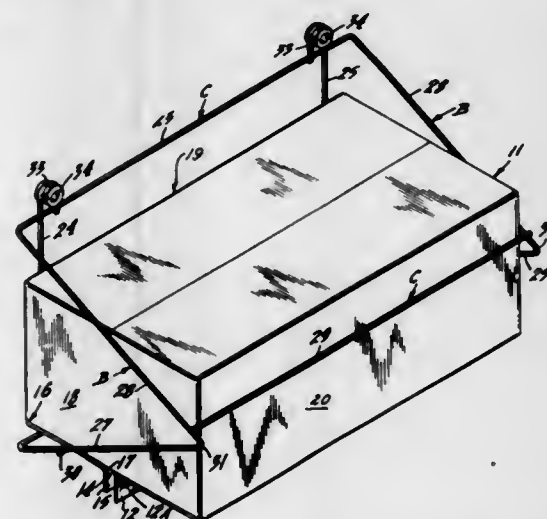
Ivan A. Fletzer, and Ronald Alois Hanseter, both of Neenah, Wis., assignors to American Can Company

Filed Oct. 3, 1969, Ser. No. 863,516

Int. Cl. A47k 1/08

U.S. Cl. 248-311

7 Claims



the top member and connected to the side members. The support bar is spaced from the ledge so that, as a lengthwise corner portion of the bottom of the carton is biased against the ledge, the bottom wall of the carton is supported by the bar above the base.

3,591,121

CARGO PALLET

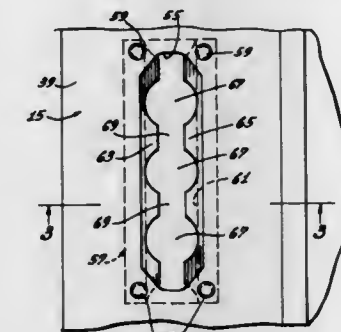
Peter P. Parris, Costa Mesa, Calif., assignor to Fridair Industries, Redondo Beach, Calif.

Filed Aug. 14, 1969, Ser. No. 849,989

Int. Cl. B65d 19/38

U.S. Cl. 248-346

14 Claims



A cargo pallet including a broad panel and an edge rail extending for a substantial distance around the periphery of the panel. The edge rail includes first and second spaced flanges interconnected by a web. The edge rail receives a marginal portion of the panel, and the peripheral surface of the panel is held in spaced relationship to the web of the edge rail. The cargo pallet uses narrower face sheets.

3,591,122

HYDROSHORING

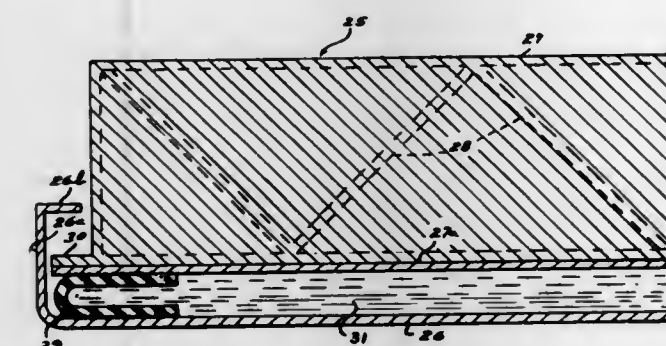
Stephen R. Mehaffie, 3876 Herford Trail, Dayton, Ohio

Filed Oct. 1, 1969, Ser. No. 862,693

Int. Cl. F16m 13/00

U.S. Cl. 248-350

5 Claims



A cargo aircraft pallet having a bottom pressure plate, a sealed compartment filled with hydraulic oil and encompassing the bottom plate, and a cargo-supporting platform floating on top, and thereby supported by the hydraulic oil. The floating platform is movable, under a cargo load, relative to the bottom plate to thereby form a pressure that is evenly transmitted throughout the hydraulic oil over the relatively wide area of the bottom plate to thereby substantially reduce the force applied to the floor of the aircraft.

3,591,123

FORMING METHOD AND APPARATUS

Andrew D. Edwards, Box 563, Mossyrock, Wash.

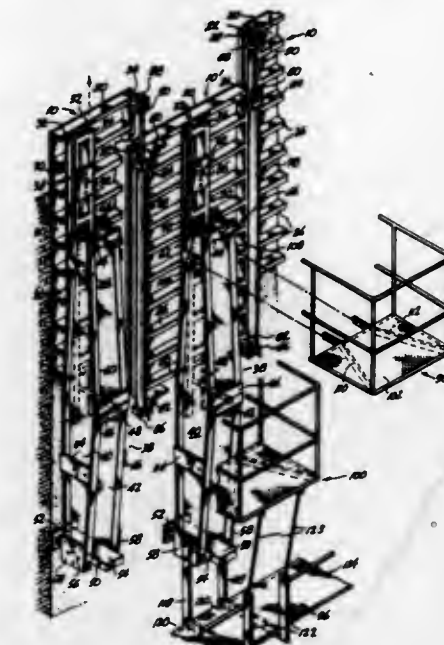
Filed Aug. 8, 1968, Ser. No. 751,192

Int. Cl. E01g 5/12; B66t 1/00

U.S. Cl. 249-10

9 Claims

Plural form wall panels are horizontally successively joined together by vertical slide joint means. Alternate panels are disconnected from hardened concrete, are raised vertically by hydraulic rams carried by the intermediate panels until



3,591,124

INTEGRAL PRESTRESSED STRUCTURAL CONCRETE COLUMN FORM

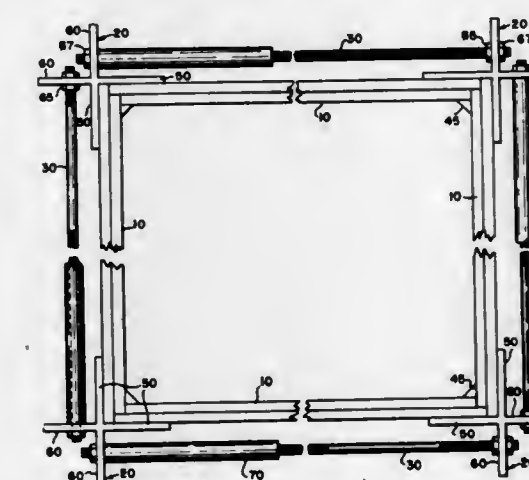
Andrew Robert Haslett, 6603 West Broad St. Road, Richmond, Va.

Filed Aug. 11, 1967, Ser. No. 660,017

Int. Cl. E04g 13/02

U.S. Cl. 249-48

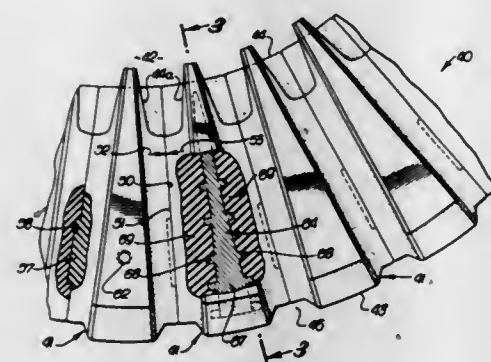
5 Claims



Apparatus for forming structural concrete members comprising a plurality of mold panels assembled in the desired shape of the structural concrete member and corner bars adapted to engage and hold the mold panels together along longitudinal lines of intersection. The corner bars are preferably rigid angles having lugs extending away from the structural member and being adjustably interconnected tie rods thus enabling the corner bars and panels to produce various size forms, and to be quickly and conveniently set, removed and reused. The principle advantages are derived from the novel corner bars and the manner in which the corner bars are secured together by the members so as to form a lightweight, easily assembled and disassembled structure, yet which is capable of handling heavy, rigorous jobs.

3,591,125
MULTIPLE-SECTION WELL BLOWOUT PREVENTER PACKER
 George E. Lewis, Arcadia, Calif., assignor to Hydril Company, Los Angeles, Calif.
 Filed Oct. 14, 1968, Ser. No. 767,193
 Int. Cl. E21b 33/06
 U.S. Cl. 251-1

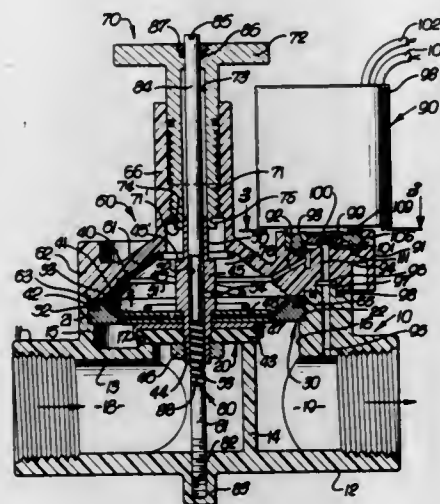
11 Claims



The disclosure concerns a well blowout preventer packer that includes multiple elastomer body sections formed to be arranged in side-by-side circular series relation for coaction to seal off a well in response to simultaneous constriction.

3,591,126
PLASTIC VALVE HOUSING CONSTRUCTION WITH ADJUSTABLE TIMING STEM
 Fred Hauser, 1544 Midvale Ave., Los Angeles, Calif.
 Continuation of application Ser. No. 617,949, Feb. 3, 1967, now abandoned. This application June 6, 1968, Ser. No. 739,936
 Int. Cl. F16k 31/385
 U.S. Cl. 251-30

13 Claims



This invention relates in general to water and other fluid controlling valves, particularly diaphragm-actuated-type water valves. More particularly, the present disclosure pertains to an improved plastic valve body construction adapted for use in diaphragm-actuated-type valves and an externally adjustable fluid flow control means for controlling the time required for opening and particularly for closing the valve to avoid momentarily great fluid pressures normally occurring in the associated conduits on fast closing of the valve. The relief of fluid pressure above the diaphragm to open the associated valve is accomplished by a solenoid-actuated valve mounted in a plastic housing which is easily assembled or disassembled to the plastic valve body and in an alternative exemplary embodiment, an air cushion or air pressure chamber is provided within the valve body to slow the closing of the valve means and cushion the buildup of fluid within the valve body during such closing of the valve.

3,591,127
BUTTERFLY VALVE STRUCTURE WITH COMBINED TRANSLATION AND ROTARY MOVEMENTS
 Julian Luger, Torrance, and Stanley E. Summers, Woodland Hills, both of, Calif., assignors to Ametek, Inc., New York, N.Y.
 Filed Sept. 30, 1968, Ser. No. 763,546
 Int. Cl. F16k 1/22, 1/24
 U.S. Cl. 251-56

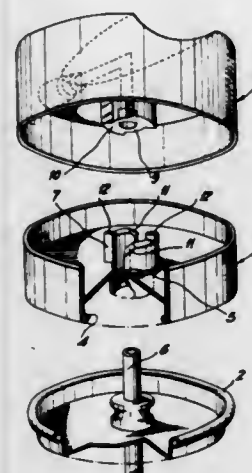
9 Claims



Valve structure with a combined poppet and butterfly action including a solid shaft connected to a sleeved valve closure. A web member is connected to opposed eccentric shaft bearings and disposed in an eccentric position to the shaft.

3,591,128
VALVE ASSEMBLY
 Jean Ramis, Yvelines, France, assignor to Etablissements Valois, Marly-Le-Roi, Yvelines, France
 Filed June 27, 1969, Ser. No. 837,199
 Claims priority, application France, July 8, 1968, 158,225
 Int. Cl. F16k 35/00; B65d 83/06
 U.S. Cl. 251-100

10 Claims



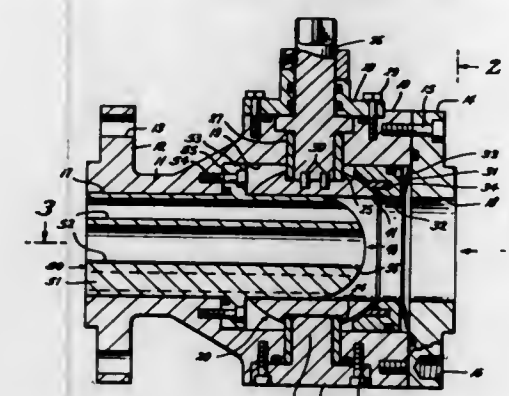
The accidental release of fluid from containers in which it is under gas pressure, e.g., aerosol canisters, may be prevented by making part of the valve assembly rotatable about the valve stem. In one rotary position the pushbutton may be depressed while in another rotary position abutments on the neck of the container and on the pushbutton confront one another and prevent such action.

3,591,129
BALL-TYPE VALVE
 Eldon E. Hulsey, P.O. Box 533, Conroe, Tex.
 Filed Jan. 27, 1969, Ser. No. 794,234
 Int. Cl. F16k 37/00
 U.S. Cl. 251-118

4 Claims

A valve for controlling fluid flow employing a ball-shaped closure member having a flow passage comprising an inlet

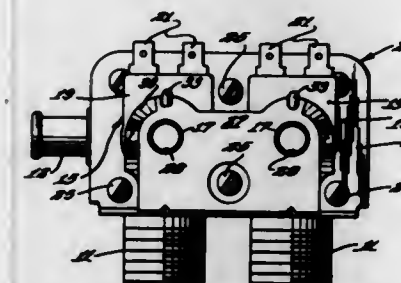
end portion circular in cross section merging into an outlet



end portion defined by a laterally extending slot of generally triangular shape.

3,591,130
SHUTOFF VALVE AND SOLENOID COIL MOUNTING BRACKET THEREFOR
 William R. McCarty, Skokie, Ill., assignor to Eaton Yale & Towne Inc.
 Filed June 1, 1969, Ser. No. 821,050
 Int. Cl. F16k 31/06
 U.S. Cl. 251-129

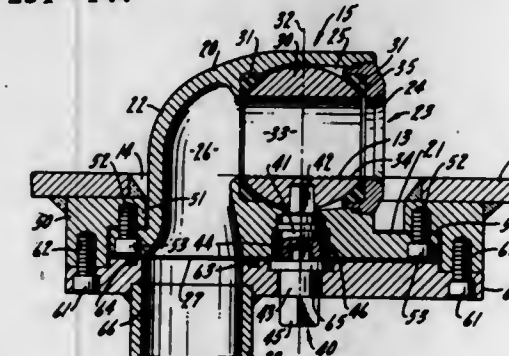
9 Claims



Snap-on metal frame for solenoid coils of solenoid-controlled mixing valve. The frame is generally C-shaped in form and its bottom leg is secured to the valve body and forms a cover for the valve body. Solenoid coils for the valves are mounted on the valve body for movement about the axes of the coils. Terminals from the coils extend from the coils and cover certain of the means securing the frame to the valve body, when the solenoid coils are in their operative positions. A top leg of the frame extends over the tops of the coils and has outwardly opening notches registering with lugs on the coils, for holding the terminals in their operative positions. During assembly of the valve, the coils and terminals are turned in the frame to afford access to the securing means, and the top leg of the frame engages the tops of the lugs on the coils. When the securing means have been tightened, the coils are then turned until the notches in the top leg snap into engagement with the lugs projecting upwardly from the coils.

3,591,131
RAILROAD TANK CAR BALL VALVE
 Edwin S. Carlson, Chicago, Ill., assignor to Union Tank Car Company
 Filed Aug. 1, 1966, Ser. No. 569,313
 Int. Cl. F16k 5/06
 U.S. Cl. 251-144

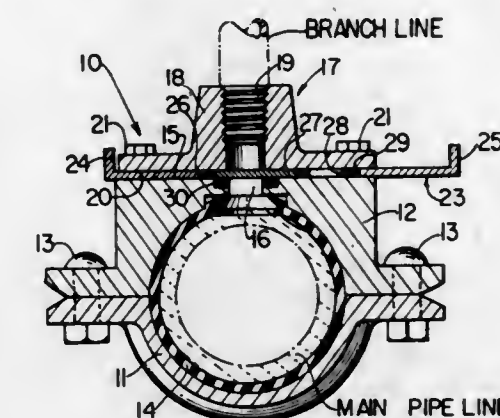
7 Claims



A railroad tank car has a ball valve operable from its underside mounted within the car tank in a manner that permits complete drainage.

3,591,132
COUPLING FITTING WITH SLIDING VALVE
 Philip Johnston, Jenkintown, and Peter J. Hurt, Doylestown, both of, Pa., assignors to Lehigh Fluid Power, Inc., Easton, Pa.
 Filed May 15, 1969, Ser. No. 824,787
 Int. Cl. F16k 3/02; F16l 41/00
 U.S. Cl. 251-146

11 Claims



The pipeline fitting has two halves assembled about a main pipeline with one of the halves having an opening therethrough communicating with an opening in the pipeline. An outlet piece also has an opening aligned with the fitting opening with the opposed faces of the outlet piece and apertured fitting being flat and defining an elongated chamber within which is slidably mounted a flat slide. The flat slide is provided with an elliptical insert surrounded by an O-ring with an aperture through the insert to provide communication between the outlet piece and fitting openings in one position of the slide. The aligned openings are within the elliptical shaped O-ring during all positions of the slide.

3,591,133
BUTTERFLY VALVE
 Michael E. Miles, Northborough, and James F. Donnelly, Worcester, both of, Mass., assignors to Jamesbury Corporation, Worcester, Mass.
 Filed Aug. 23, 1968, Ser. No. 754,925
 Int. Cl. F16k 13/02
 U.S. Cl. 251-173

2 Claims



An improved butterfly valve of the type wherein a disc mounted for rotation about a nondiametric axis and having a continuously convergent circumferential sealing surface which cooperates with a wall-mounted annular flexible seat is disclosed. The inwardly projecting nature of the flexible seat subjects it to highly erosive forces when fluid is throttled between it and the disc when the disc is opened to a throttling position, i.e. approximately 15° from the closed position or greater. To protect the seat from such erosive forces, the rigid wall of the fluid flow channel is projected inwardly on both sides of the seat to provide a far more erosion-resistant surface for throttling operation. These same inward projec-

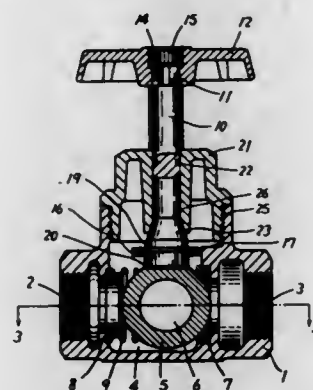
tions can also be employed to provide a scraping lip which will remove solids buildup from the sealing surface of the disc as it is rotated toward the seat. A manner of affixing the disc to the shaft without providing a leak path across the disc and whereby the forces imposed by fluid pressure upon the disc are transmitted directly to the shaft is also disclosed. This entails passing the shaft through a shaft bore in an integrally formed gudgeon in said disc and passing tapered pins parallel to the surfaces of the disc through the gudgeon and shaft in such a manner that a majority of, but not the entire circumference of, the tapered pin lies within the circumference of the shaft. Rotation of the disc beyond the desired one-quarter turn from the fully closed to the fully open position and displacement of the disc along the direction of the axis of the shaft are prevented by lugs extending into the fluid flow channel from the valve body.

3,591,134 BALL VALVE

Katsuji Fujiwara, 191 Neshitani, Hiraoka-cho, Kakogawa-shi, Hyogo ken, Japan
Claims priority, application Japan, July 14, 1968, July 18, 1968, Aug. 7, 1968, Aug. 9, 1968, Aug. 23, 1968, Aug. 30, 1968, Nov. 18, 1968, Jan. 14, 1969,
43/49486; 43/50804; 43/55914; 43/56848; 43/60604;
43/62615; 43/84297; 44/3652
Int. Cl. F16k 5/20

U.S. Cl. 251-175

6 Claims



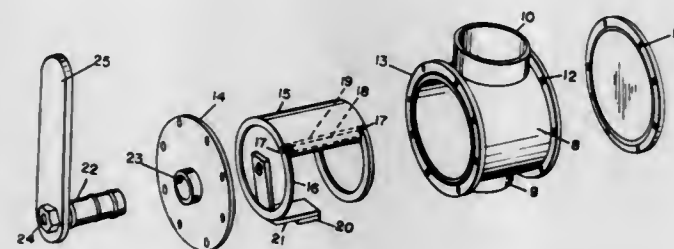
A ball valve having a valve body with inlet and outlet openings, a ball-shaped valve disposed within said body and having an opening extending therethrough, valve-operating means including a handle engaging the ball-shaped valve to rotate the ball from the open to closed positions. The ball-shaped valve which is freely movable within the housing has its opening aligned with the inlet and outlet openings when the valve is in the open position. When the valve is in the closed position, the opening in the ball-shaped body is substantially at 90° to the outlet port so that the pressure of the fluid from the inlet urges the ball-shaped valve against a cooperating seat at the outlet port.

3,591,135 FORM OF GATE VALVE

Oren E. Miller, 8126 North Hudson St., Portland, Oreg.
Filed Sept. 5, 1969, Ser. No. 855,683
Int. Cl. F16k 5/06

U.S. Cl. 251-180

4 Claims



This invention consists of a cylindrical body having a tubular inlet and outlet extending outward from the longitudinal center thereof, the aforesaid inlet and outlet being diametri-

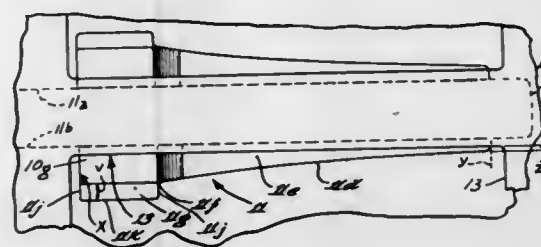
cally opposite to one another; and a gate in the form of a curved plate being located in the said cylindrical body the curved plate having a spring guide ring at each end thereof; and at right angle to the plate each guide ring being split or cut, thereby providing the rings with two ends and crossbar having one end connected to each ring. There are two crossbars in parallel spaced relation to one another, the ends of the crossbars being connected to the ends of the rings and at right angle to the rings and directly under the aforesaid curved plate; and an L-shaped lever, having an inverted U-shaped clip, integrally formed at one end, the clip being adapted to encompass in part a portion of the two crossbars. The L-shaped lever is connected to a valve shaft that extends through the center of an end plate of the aforesaid cylindrical body, the valve shaft having a hand lever secured to the outer end thereof, for the purpose of opening or closing the valve.

3,591,136 ROTARY VALVE WITH CURVED VALVE SLOT

Arthur E. Bishop, 5516 Westwood Lane, Birmingham, Mich.
Filed Feb. 26, 1969, Ser. No. 802,359
Int. Cl. F16k 5/04

U.S. Cl. 251-209

11 Claims



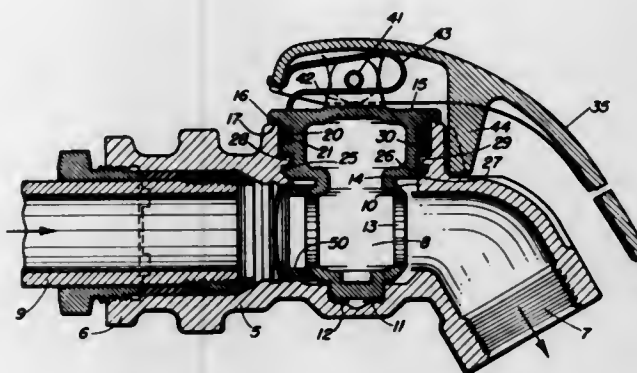
A valve core for cooperation with a hydraulic valve sleeve, wherein the core is provided with a plurality of longitudinally extending grooves constructed for cooperation with mating radially inwardly facing grooves in the valve sleeve, wherein the grooves are constructed by a rolling operation in a manner permitting almost limitless variations in exact valve-land contour. The invention deals with the valve core thus constructed and a preferred valve slot configuration, along with a novel method and apparatus for the construction thereof.

3,591,137 ANGLE COCKS

Henry R. Billeter, Deerfield, Ill., assignor to Sloan Valve Company, Chicago, Ill.
Filed June 4, 1969, Ser. No. 830,354
Int. Cl. F16k 35/12, 5/06, 5/100

U.S. Cl. 251-315

7 Claims



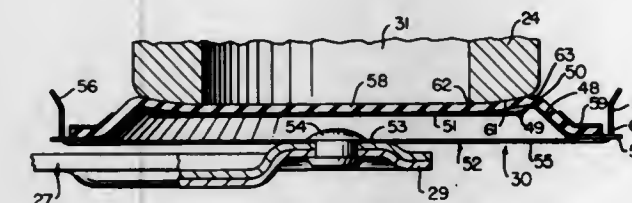
A railroad angle cock in which the O-ring seal in the bonnet is located above the bonnet locking arrangement which holds the valve member in the valve body. This prevents ice and dirt or corrosive car lading from seeping into the valve and interfering with the operation of the angle cock.

3,591,138 HEAT MOTOR SAFETY VALVE CONSTRUCTION AND PARTS THEREFOR

Denis G. Wolfe, Greensburg, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Division of Ser. No. 688,922, Dec. 7, 1967, Pat. No. 3,498,730. Filed Dec. 29, 1969, Ser. No. 871,097
Int. Cl. F16k 25/00

U.S. Cl. 251-333

6 Claims



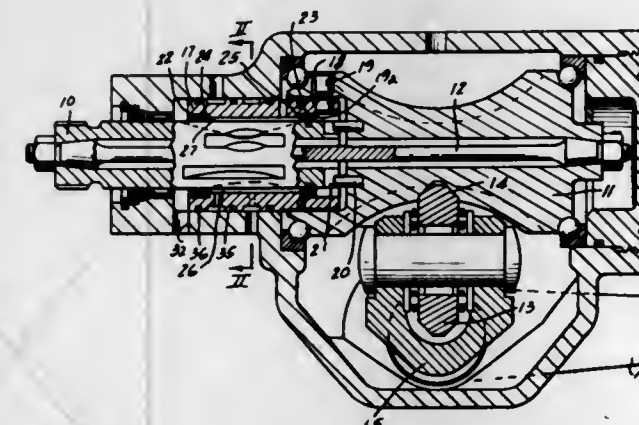
This disclosure relates to a heat-motor-operated valve means which is only adapted to open the valve means when the heat motor is actuated and a condition-responsive means is sensing a certain flame at a pilot burner means that will ignite fuel passing through the subsequently opened valve means to a main burner means, the valve member of the valve means being carried on one end of a bimetallic lever means that carries the heat motor thereon and against which the condition-responsive means is engageable when sensing the certain flame.

3,591,139 METHOD AND APPARATUS FOR MAKING VALVE SLEEVES

Arthur E. Bishop, 5516 Westwood Lane, Birmingham, Mich.
Filed Mar. 20, 1968, Ser. No. 714,509
Int. Cl. F16k 27/00

U.S. Cl. 251-367

2 Claims



A sleeve for hydraulic flow control wherein a plurality of longitudinally extending, peripherally spaced grooves are provided in the bore of the sleeve, such that the grooves terminate axially internally of the sleeve, without providing a plurality of sleeve components. The invention relates specifically to the one-piece valve thus constructed, and the novel method and apparatus for manufacturing it.

3,591,140 CHAIN TOOL

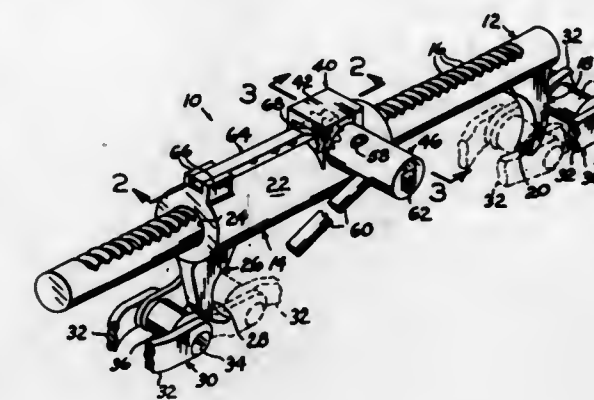
John C. McCoy, Box 561, Ruidoso, N. Mex.
Filed Feb. 6, 1969, Ser. No. 797,205
Int. Cl. B66f 3/08

U.S. Cl. 254-66

1 Claim

A chain holding and tightening tool comprising a rack having a chain-engaging hook at one end and a sleeve slidably

surrounding the rack and provided with a hook for engaging an oppositely disposed end portion of the chain. Ratchet



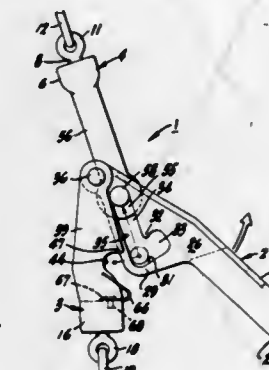
means, supported by the sleeve in engagement with the rack, moves the chain engaging hooks toward each other.

3,591,141 OVERCENTER LOAD BINDER

Ralph A. Ratcliff, 614 Mountain View Ave. P.O. Box 543, Belmont, Calif.
Filed July 14, 1969, Ser. No. 841,326
Int. Cl. B66f 3/00

U.S. Cl. 254-78

16 Claims



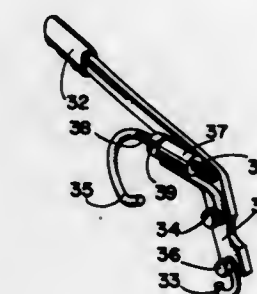
An overcenter-type load binder, having improved self-locking safety characteristics, defined by an operating lever having a clevis configuration at one end, a pivoted yoke mounted at such end, and a movable shank mounted inwardly of such end. Generally L-shaped slots are formed in the clevis arms of the lever and the shank is provided with projecting pins which extend through and beyond the confines of the slots for engagement in self-locking recesses provided in the yoke. Interengagement of the pins and recesses during movement of the lever toward a load unbinding position prevents "flying" of the lever during such unbinding.

3,591,142 TOOLS FOR SPLIT PIPE COLLARS

Frank Lynn Hatcher, 147 Rhame Terrace, Santa Paula, Calif.
Filed July 9, 1968, Ser. No. 743,557
Int. Cl. B66f 3/00

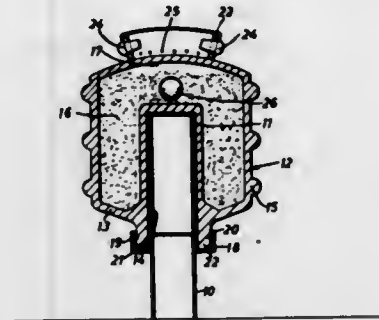
U.S. Cl. 254-79

1 Claim



Tools are provided for changing the effective circumference of a split pipe defining a collar for connecting the

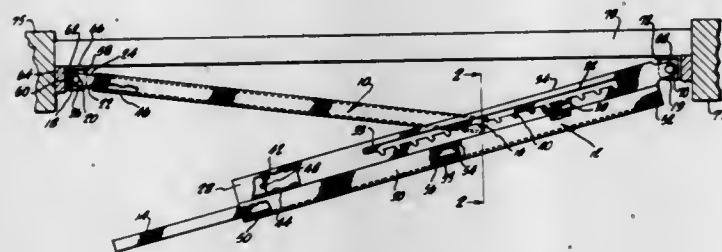
ends of pipe sections. Each tool includes a lever arm terminating at one end in a handle and at its other end in a first hook means arranged to engage a flange secured adjacent to one edge of the split portion of the pipe collar. A shaft structure in turn is pivoted at one end at a pivot point intermediate the ends of the lever arm and terminates at its other end in a second hook means arranged to engage a flange secured to the other longitudinal edge defining the split in the pipe collar. The arrangement is such that swinging of the lever arm about the pivot point serves to vary the spacing between the first and second hook means and thus vary the effective circumference defined by the split pipe collar. The collar can thus be tightened about the ends of pipe sections to be secured together or loosened with respect to these sections to facilitate removal of the pipe sections. The pivot point and hook means are so designed that an overcentering action can take place so that the tool will effectively lock itself to its swung position.



damping material, whereby the latter can expand when the covering is exposed to an impact.

3,591,143
DOOR OPENER
William A. Boller, 1300 Milan Ave., South Pasadena, Calif.
Filed Mar. 21, 1969, Ser. No. 809,206
Int. Cl. B66f 3/00
U.S. Cl. 254-119

3 Claims



A door opener utilizes the force developed by leverage on the jamb or frame of a door proximate its lockset to slip the door's latch out of its catch to enable the door to be pushed open. The door opener has a lever arm which is load coupled to a fulcrum arm and an extension arm for the application of the opening force. The extension arm is extensible from the lever arm to develop a mechanical advantage. The fulcrum arm's load coupling to the lever arm is at any of a number of longitudinal positions along the lever arm to accommodate different door widths while optimizing the mechanical advantage available with the device. Load transmitting members are eccentrically mounted at the ends of the lever arm and fulcrum arm to provide bearing for the transmission of a door opening load to the door jambs and adjustment for door width.

An alternate embodiment provides a door opener with a pair of load transmitting members to bear against opposite door jambs coupled together through a gear sector and a rack. Rotation of a handle secured to the gear sector produces movement of the load transmitting members against the door jambs for freeing the door's latch from its catch.

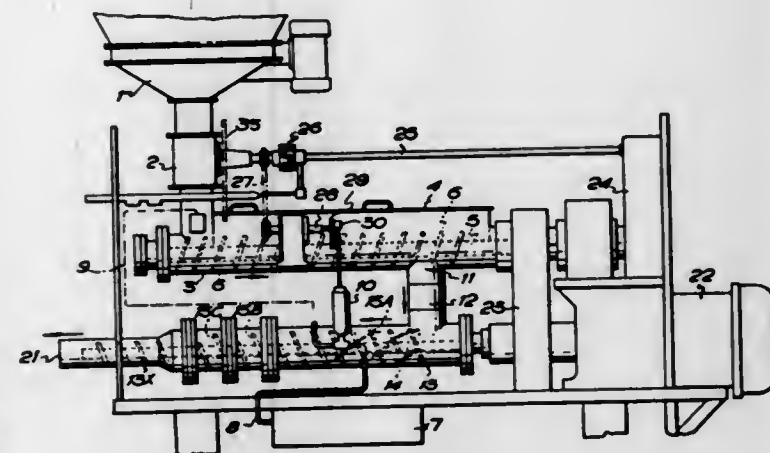
3,591,144
SHOCK-ABSORBING COVERINGS
Stig Bertil Iving, Limhamnsvagen 18A, 217 59, Malmo, Sweden
Filed Feb. 9, 1970, Ser. No. 9,522
Claims priority, application Sweden, Feb. 10, 1970, 1749/69
Int. Cl. E01f 15/00

U.S. Cl. 256-13.1
A covering for objects that are exposed to impacts, such as road and bridge parapets, guiding curbs, motorcar bumpers, central reserve guard rails for expressways etc. The covering comprises a jacket of resilient material with a hollow space

3,591,145
METHOD FOR CONTINUOUSLY MIXING POWDERS AND OILS
Donald Ainsworth, and Trevor Blewett, both of Morley, England, assignors to Vallance & Co. (Morley) Limited, Morley, England
Continuation-in-part of application Ser. No. 743,209, July 8, 1968, now Patent No. 3,536,300. This application Mar. 24, 1970, Ser. No. 22,187
Int. Cl. B01f 7/08

U.S. Cl. 259-6

3 Claims

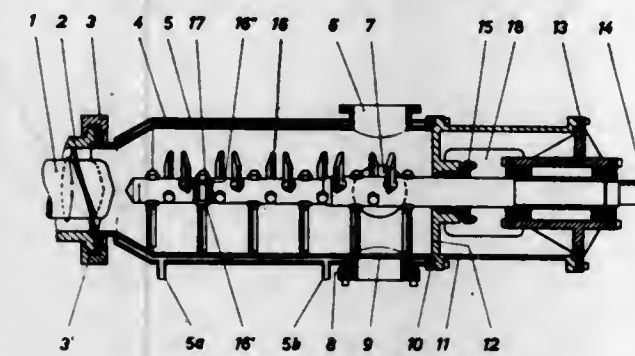


Apparatus for the continuous production of putty from the powdered and liquid constituents thereof wherein the constituents are fed continuously in measured proportions to a preliminary mixing trough in which a rotary screw device agitates and mixes the constituents and conveys them along the trough into an extrusion chamber in which a second rotary screw device further agitates the mix and forces it serially through at least two series of restricted orifices in a plurality of multiorificed plates spaced transversely along the extrusion chamber and thence through a delivery outlet as a continuous flow, said second rotary screw device preferably cooperating with one or more of said extrusion plates and with longitudinally extending projections and recess of the inner wall of said extrusion chamber to exert also a shearing action on the mix.

3,591,146
DEVICE FOR ATTACHMENT TO MIXING AND KNEADING MACHINES
Fritz Sutter, Pratteln, Switzerland, assignor to Buss Aktien-gesellschaft, Basel, Switzerland
Filed June 19, 1968, Ser. No. 738,322
Claims priority, application Switzerland, June 22, 1967, 9123/67
Int. Cl. B01f 7/04, 15/00
U.S. Cl. 259-10
An attachment device for a mixing and kneading machine having a rotating wormshaft comprises a casing which is

adapted to be attached coaxially on the casing of the mixing and kneading machine and a separate and independently driven rotatable shaft with radially arranged blades therein and a first bearing. The attachment device casing is divided

the center portion of the circular walls where a spherical body is fixedly arranged and in whose hollow interior extends a needle-valve controlled fuel admitting tube, while fuel outlet apertures in the sphere discharge the fuel into the

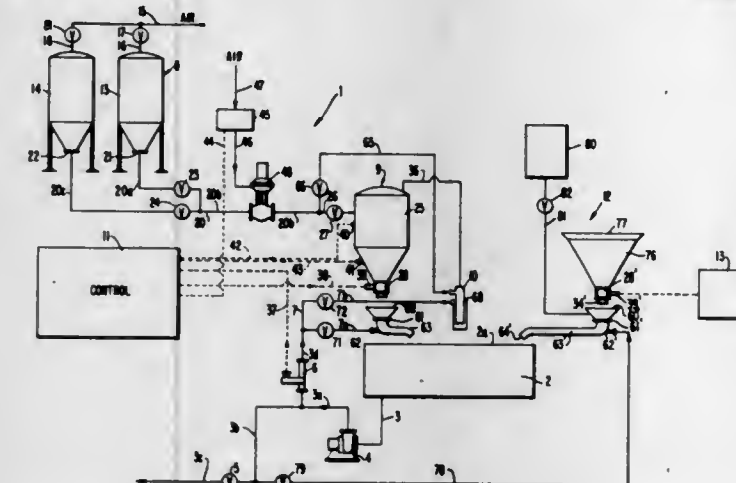


into two parts, the first being provided with a heating or cooling jacket and an outlet for the emergence of the mixture and the second including the first bearing and a second bearing for the shaft and means for adjusting the blades.

3,591,147
AUTOMATED METHOD AND APPARATUS FOR MIXING MUD FOR USE IN WELL OPERATIONS
Terry O. Anderson, and Darryl W. Rogers, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.
Filed Oct. 30, 1968, Ser. No. 771,954
Int. Cl. B28c 7/04

U.S. Cl. 259-154

22 Claims



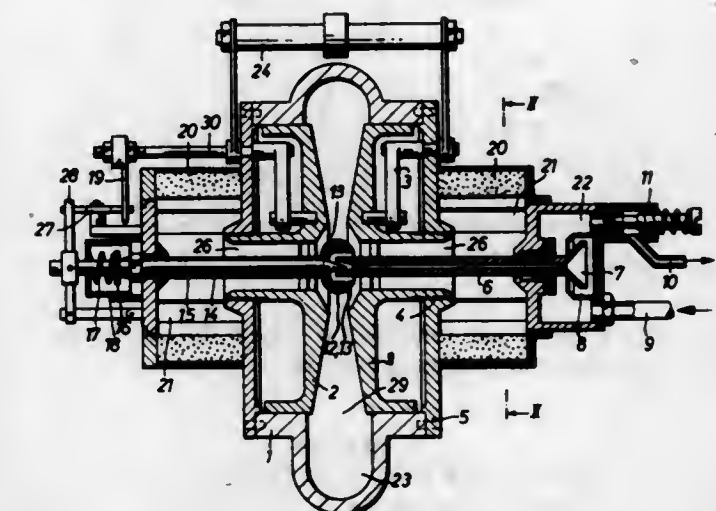
Method and apparatus for mixing mud for use in well operations, including independently operable high and low capacity systems for supplying mud solids to a mixing tank. A radioactive, density measuring control system is employed which controls the rate of solids supply, with the same calibration setting being maintained for high and low rates of addition of solids material to the mud. A pneumatic conveying system is employed to convey the solids through the system. Vane-type feeders and mud shrouds are employed to minimize the dust level during the mud mixing operation.

3,591,148
CARBURETOR
Hugo Schmitz, Neubeckumerstrasse 102, 472 Beckum, Germany
Filed Dec. 18, 1969, Ser. No. 859,125
Claims priority, application Germany, Sept. 28, 1968, June 21, 1969, P 17 76 156.7; P 19 31 642.8
Int. Cl. F02m 9/10

U.S. Cl. 261-29

15 Claims

A carburetor for motor vehicle internal combustion engines in which an annular atomizing chamber is formed between two axially aligned circular walls which are axially slidable relatively to each other to vary the size of the atomizing chamber so that no individual throttle valve for the fuel mixture is required. The air for atomizing the fuel is conducted into the annular atomizing chamber by two axially aligned tubular conduits leading from opposite sides through

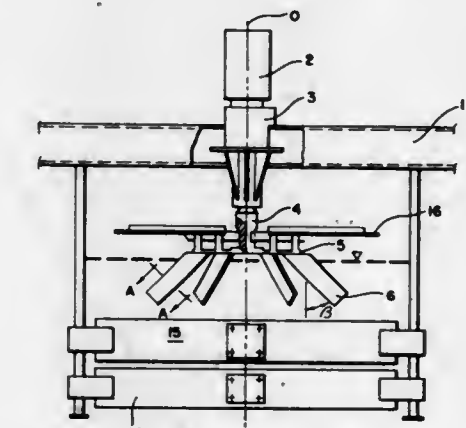


airstream which is caused to flow from the tubular conduits into the annular atomizing chamber through a short and narrow and adjustable passage formed between the surface of the sphere and the adjustable circular walls.

3,591,149
AERATION APPARATUS
Herbert Auler, Michelbacher Hutte, Germany, assignor to Passavant Werke, Michelbacher Hutte, Germany
Filed Jan. 16, 1969, Ser. No. 791,557
Int. Cl. B01f 7/18

U.S. Cl. 261-91

24 Claims



Apparatus for introducing a gas into a liquid by rotating about a vertical shaft a set of long, narrow blades, which extend downwardly and outwardly into the liquid in a radial direction, and which blades are inclined relative to a vertical radial plane passing through the blades. Air is drawn into the liquid on the rear side of the blades and liquid is caused to flow upwardly across the blades.

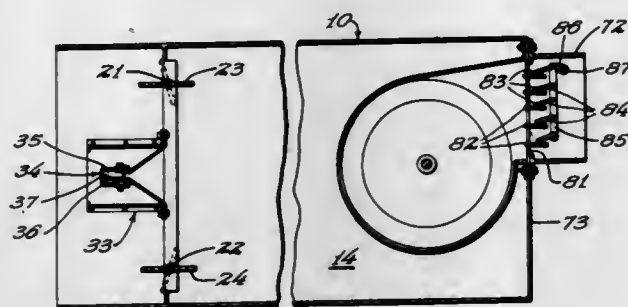
3,591,150
GAS FURNACE
Richard Weatherston, St. Paul, Minn., assignor to Weather-Rite, Inc., Ramsey, Minn.
Filed Jan. 15, 1969, Ser. No. 791,883
Int. Cl. F23i 9/04; F24h 3/04

U.S. Cl. 263-19A

15 Claims

A gas furnace capable of maintaining a constant pressure differential across a burner unit irrespective of changes in the flow of air through the furnace by the use of a controlled bypass damper adjacent the burner unit. Additional features includes controlling the volume of air at the discharge end of the furnace, thus, affording improved fan efficiency, a capa-

bility to circulate air through the furnace without heating together with additional insulation packing, are stuffed into when no heat is required, and a circuit designed to protect the hollow part of the retainer for capture therein to securely



the furnace from air circulation when the incoming air is below a predetermined temperature.

3,591,151

PREDRYER FOR CARPET RANGES

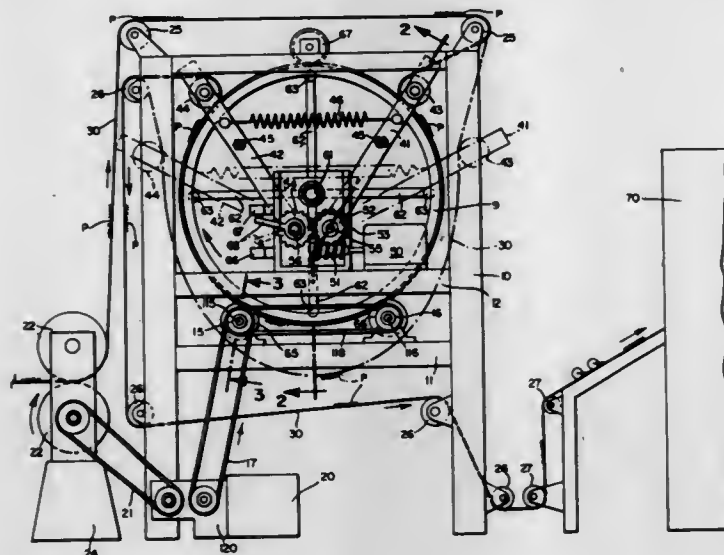
Herman J. Kerner, Albemarle, N.C., assignor to Collins & Aikman Corporation, New York, N.Y.

Filed Nov. 12, 1969, Ser. No. 876,003

Int. Cl. F27b 7/08, 7/20

U.S. Cl. 263-34

8 Claims



In a carpet range, a surface-contact drum-type predryer, which may be gas fired, has retractable guide rolls mounted for movement toward and away from the heated drum surface. In operating position, the retractable rolls maintain the carpet in contact with the heated surface of the drum. When the carpet range is shut down, the retractable rolls move to their retracted position and maintain the carpet out of contact with the heated drum surface. Automatic control means are provided, responsive to energization of the main drive means, for causing movement of the retractable rolls toward the heated drum surface, and responsive to the deenergization of the main drive means for automatically moving the guide rolls away from the drum surface. The predryer may also be used for other webs.

3,591,152

FURNACE INSULATION SUPPORT SYSTEM

Bonnie E. Mills, Jr., North Augusta, S.C., assignor to The Babcock & Wilcox Company, New York, N.Y.

Filed Aug. 6, 1969, Ser. No. 847,856

Int. Cl. F23m 5/00

U.S. Cl. 263-46

7 Claims

A furnace lining anchoring and support system in which flexible ceramic fiber insulating blankets, exposed to the furnace atmosphere, are anchored in place by a plurality of elongated hollow retainers positioned about the furnace interior and behind the blankets. The retainers each have a longitudinal slot through which portions of the blankets,

anchor the blankets and thermally shield the retainers from furnace radiant heat.

3,591,153

INTERLOCKING CHECKER BRICKS AND CHECKER SHOES FOR A BLAST FURNACE STOVE

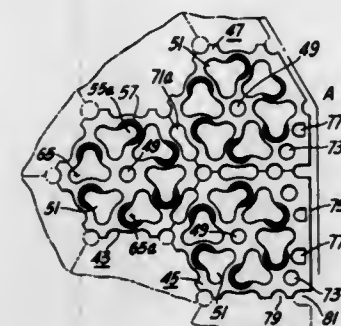
Russell A. Powell, and Henry Z. Schofield, both of Pittsburgh, Pa., assignors to Koppers Company, Inc.

Filed Jan. 19, 1970, Ser. No. 3,768

Int. Cl. F23i 15/02

U.S. Cl. 263-51

13 Claims



Interlocking checker bricks and checker shoes for a blast furnace stove include special refractory bricks and special metallic shoes that coact with each other and with the structure of the stove to form a unitary checker mass within the stove.

3,591,154

FLAME HARDENER

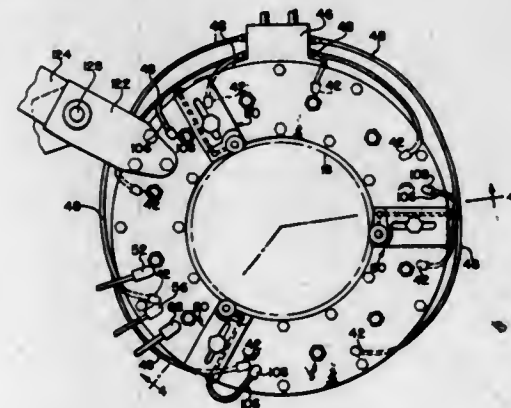
Ingwald L. Ramberg; John L. Benn, and Fritz Schreder, all of King County, Wash., assignors to Ingwald L. Ramberg, Seattle, Wash.

Filed Mar. 12, 1969, Ser. No. 806,660

Int. Cl. C21d 1/66

U.S. Cl. 266-4

3 Claims



A torch-ring-type flame hardener is provided in a plurality of annular plates which are cooperatively milled such that

inner unobstructed annular gas and quench water outlets are provided when the plates are assembled. The flame hardener may be mounted to encircle a cylindrical object and to guidingly seat on the object as the object is axially rotated.

3,591,155

ROTARY FURNACE FOR DIFFICULT TO REDUCE OXIDES

Jean Bouchet, Clery-Saint-Andre, France, assignor to Societe Metallurgique D'Imphy, Paris, France

Division of Ser. No. 454,079, May 7, 1965, abandoned.

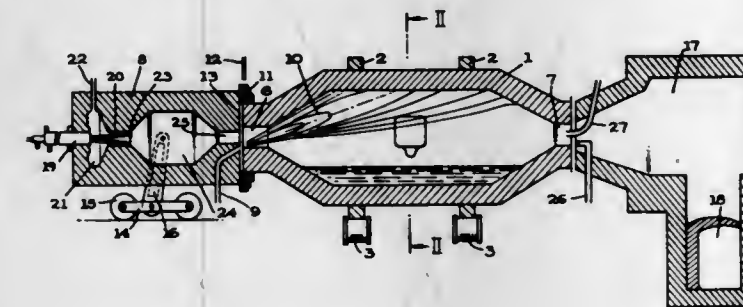
Filed June 3, 1969, Ser. No. 843,265

Claims priority, application France, July 16, 1964, July 21, 1964, Feb. 25, 1965, 981,930, 982,484, 6,961

Int. Cl. C21b 1/106

U.S. Cl. 266-11

7 Claims



A horizontal rotary furnace open at each end is used for reduction of metallic oxides. The fumes are removed from one end of the furnace. A converter has a natural gas feed chamber receiving a feed of natural gas; a gas dissociation chamber opening into the feed chamber through a venturi; a burner in the feed chamber directs its flame into the venturi; an opening from the dissociation chamber into the furnace; and a jet of pure oxygen in the opening directed upwardly to direct the flame of the dissociated gas upwardly within the furnace above the reducing zone in the furnace.

3,591,156

FLAME CUTTING MACHINE

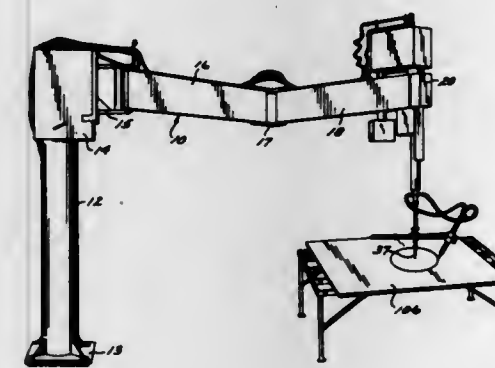
Alfred C. England, 4170 Jaunta Way, Long Beach, Calif.

Filed Dec. 11, 1968, Ser. No. 782,986

Int. Cl. B23k 7/02

U.S. Cl. 266-23

10 Claims



The flame cutting machine illustration in the drawing is suitable for cutting along straight or curved lines or circles. It includes three assemblies which are mounted upon an articulated frame. A first assembly includes a torch and a pair of concentrically arranged gas conduits for supplying cutting gas to the torch. The conduits rotate on a common axis and are provided with swivel inlet fittings for gas on that same axis. These elements are mounted within a housing and a drive means is included for rotating them within the housing. The housing is mounted for movement relative to the frame in the direction of the common axis of the conduits and it is moved relatively to the frame by a motor drive drivescrew and follower nut assembly.

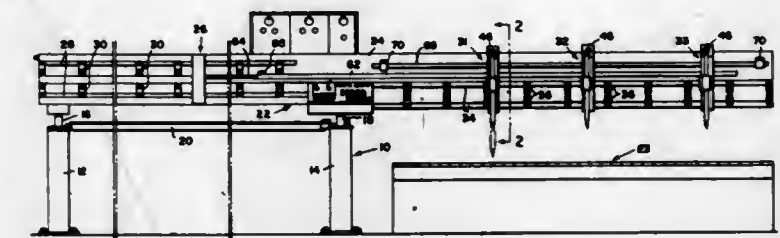
3,591,157
SHAPE CUTTING MACHINE
John E. Culp, Jr., Allentown, and Howard E. Schwartz, Emmaus, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Feb. 5, 1969, Ser. No. 796,844

Int. Cl. B23k 7/02

U.S. Cl. 266-23 R

10 Claims



A multiple torch-shape cutting machine adapted to be responsive to a tape program control for automatically setting the centerline distance between the torches on the machine. Means are provided for positioning the torches relative to one another by engaging or disengaging the individual torch support with a moveable arm adapted to be moved by the program control.

3,591,158

SHAFT FURNACE

Heinz-Deiter Pantke, Essen-Frintrop; Ulrich Pohl, Oberhausen-Osterfeld, and Hermann Trecker, Kirchbellen, all of Germany, assignors to Huttenwerk Oberhausen AG, Oberhausen, Germany

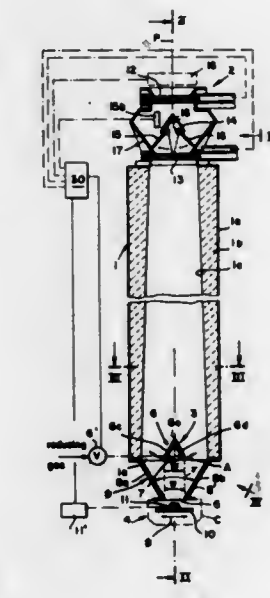
Filed June 17, 1969, Ser. No. 834,065

Claims priority, application Germany, July 10, 1968, P 17 58 638.8

Int. Cl. C21b 7/00

U.S. Cl. 266-25

7 Claims



A shaft furnace for the gas reduction of metallurgical ores which provides a gas-distributing body centrally of the furnace chamber at the bottom of the furnace column, a support plate below a downwardly converging funnel, the outlet of which has a width corresponding to the gas-distributing element, members for shifting the charge along the support table out of the furnace, and a furnace-charging arrangement having a pair of sliding-plate gas gates or locks between which an intermediate charge-receiving arrangement is provided to restrict the free-fall height of the charge. The gas-distributing element is a roof- or coping-shaped body which is open downwardly and is supplied with reducing gas from one or both ends.

3,591,159 APPARATUS FOR PRODUCING STEEL FROM PIG IRON IN CONTINUOUS PROCESS

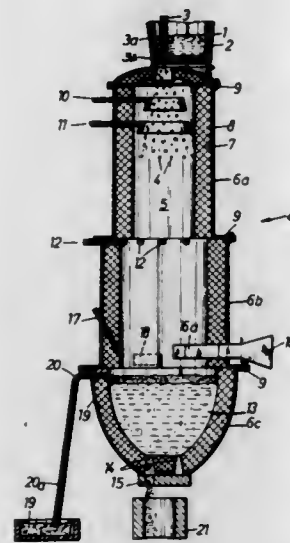
Theodor Messing, Mulheim, and Werner Coupette, Wattenscheid-Eppendorf, both of, Germany, assignors to Standard-Messing Gesellschaft für Chemietechnik mit beschränkter Haftung & Co., Duisburg, Germany
Filed June 14, 1968, Ser. No. 737,196

Claims priority, application Germany, June 19, 1967,
P 15 33 949.8

Int. Cl. C21c 7/10

U.S. Cl. 266—34

8 Claims



A method of and apparatus for the continuous production of steel from pig iron according to which in a continuous operation pig iron is introduced into evacuated gas extraction chamber means divided up into fine droplets which latter are subjected to the action of oxygen.

3,591,160 BLAST DEVICE FOR STEEL CONVERTER

Pierre Leroy, St. Germain En Laye, and Emile Sprunck, Moyeuve Grande, both of, France, assignors to Compagnie Des Ateliers Et Forges De La Loire, St. Chamond, Firminy, St Etienne, Jacob Holtzer, Paris, France

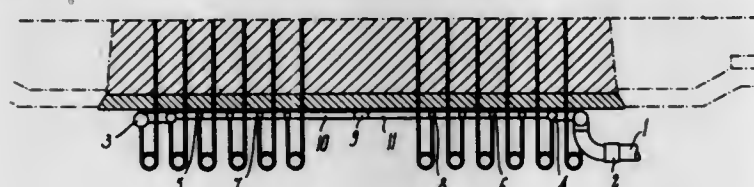
Filed June 24, 1968, Ser. No. 739,553

Claims priority, application France, July 5, 1967, June 17, 1968, 113,157; 155,193

Int. Cl. C21b 7/16; C21c 5/48

U.S. Cl. 266—41

5 Claims



Device for supplying blast gas to the blowing orifices of the bottom of a steelwork converter, which comprises a plurality of header-forming tubes disposed either as concentric tubes or in any other suitable manner, each header being adapted to supply blast gas to a number of bottom orifices, for example a row thereof, with self-stopping means for easily putting each tuyere out of service in case of abnormally rapid wear thereof. Small diameter pipes, formed to have flexibility to facilitate assembly and disassembly are used for the connection of the supply header tubes to the bottom orifices.

3,591,161 SPRING SPACER

William A. Scheublein, Jr., Ballwin, and Louis P. Fister, St. Louis, both of, Mo., assignors to Moog Industries, Inc., St. Louis, Mo.

Filed Apr. 25, 1969, Ser. No. 819,132

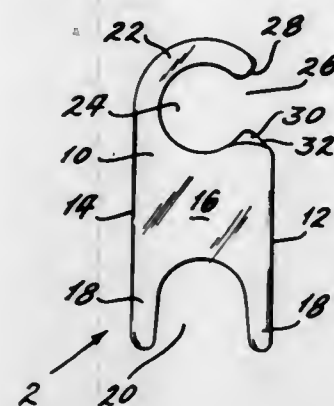
Int. Cl. F16f 1/12

U.S. Cl. 267—61

3 Claims

A spacer for expanding coil springs has a body provided with grooves at each end. One of the grooves freely accepts a

convolution of the spring, while the other groove has a finger curved over it for capturing an adjacent spring convolution therein so that the spacer follows the movement of the adjacent convolution. Entrance to the second groove is ob-



tained through a reduced slot located between the body and the end of the finger. When a convolution is forced against the body and finger at the slot, the finger spreads and permits the convolution to enter the slot.

3,591,162 RAISED SPRING DISC

Friedrich Bauer, Vienna, Austria, assignor to Hoerbiger Ventilwerke Aktiengesellschaft

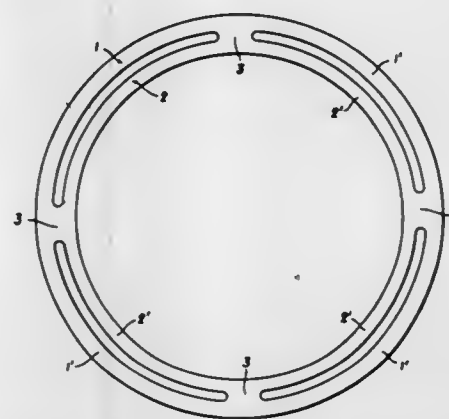
Filed July 1, 1969, Ser. No. 838,241

Claims priority, application Austria, July 12, 1968, 10 A 6746/68

Int. Cl. F16f 1/34

U.S. Cl. 267—161

4 Claims



A raised spring disc intended for compressor valves having at least two concentric rings connected together by radial webs subdividing the rings into several ring sections. All or part of the ring sections are bent out of the plane of the disc to form waves.

3,591,163 MOUNTING

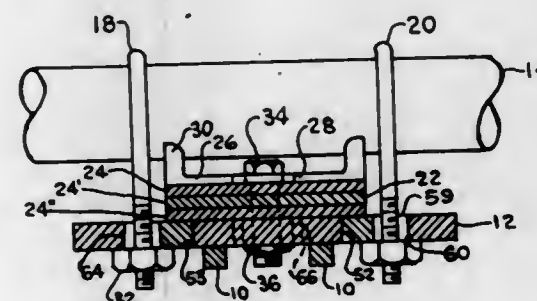
Richard D. Anderson, 866 South Charles Street, Elgin, Ill.

Filed Nov. 6, 1969, Ser. No. 874,631

Int. Cl. B60g 11/02

U.S. Cl. 267—52

5 Claims



A mounting construction illustrated as used on a vehicle traction bar includes a rigid plate for mounting articles in

3,591,166 OSCILLATING CLOTH FOLDER HAVING MOVABLE CLOTH HANGER

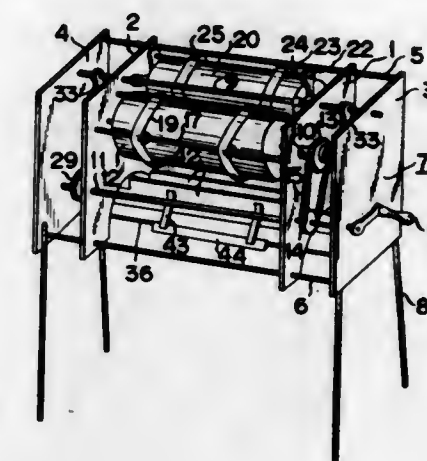
Takeshi Ebisu, 39 Murasakino Sekiryu-cho Kita-ku, Kyoto-shi, Japan

Filed Oct. 17, 1968, Ser. No. 768,340

Claims priority, application Japan, Oct. 26, 1967, 42/68,953
Int. Cl. B65h 45/20

U.S. Cl. 270—79

12 Claims



This invention relates to a cloth folding machine comprising a means for feeding beltlike sheets of cloth downward, a guide means for horizontally oscillating the cloth by interlocking with the cloth feeding means, a cloth holding means for pressing the cloth to a hanging means thereof, whereby the rolled beltlike sheet of cloth is uncoiled to be again folded in an alternate direction and the resultant foldings are suspended alternately on the right and left sides of the cloth hanging means.

3,591,164 HIGH-HYSTERESIS SHOCK ABSORBER

Glen M. Jamieson, Blair Athol, South Australia, Australia, assignor to The Commonwealth of Australia, Parkes, Australia

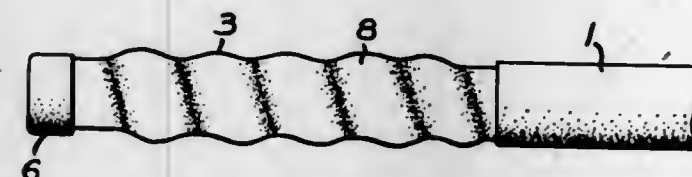
Filed Apr. 29, 1968, Ser. No. 725,042

Claims priority, application Australia, May 1, 1967, 21084/67

Int. Cl. F16f 1/44

U.S. Cl. 267—140

6 Claims



A shock absorber comprising an elastomeric tube disposed over a movable member in such a manner that frictional engagement of the elastomeric tube with the member on which it is disposed, together with inherent resistance of the elastomeric tube results in a damping action on the movable member.

3,591,165 METHOD AND APPARATUS FOR HANDLING SHEET MATERIAL, SIGNATURES AND THE LIKE

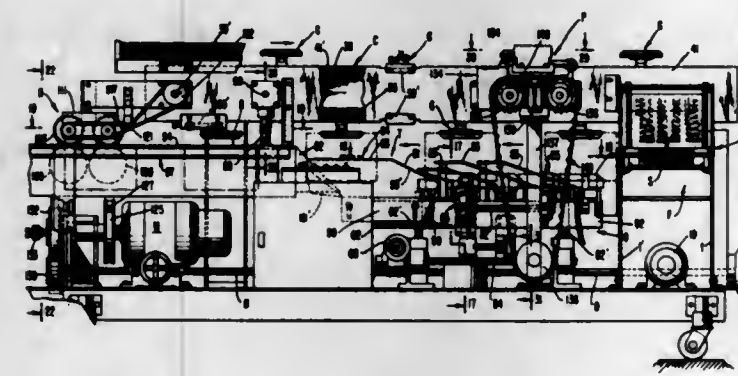
John O. McCahon, West Simsbury, Conn., and William J. Byrne, Pearl River, N.Y., assignors to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Feb. 20, 1968, Ser. No. 706,926

Int. Cl. B65h 39/02

U.S. Cl. 270—54

46 Claims



Apparatus for feeding signatures from a stack thereof in gathered predetermined sequence to a book-sewing machine or the like, comprising means for transferring signatures one at a time from a feed hopper by rotary grippers and feed rollers to linearly traveling grippers, suction and lap-engaging means for opening signatures suspended from the traveling grippers, and means for rotating the suspended, opened signatures through 180° and depositing the same on a pusher-type saddle conveyor for movement thereby through fold-conditioning means and for delivery to the sewing saddle of a book sewer or the like, including operational programming means for the feeding and sewing apparatuses and means for detecting improper functioning thereof.

3,591,167 SHEET FEEDING APPARATUS

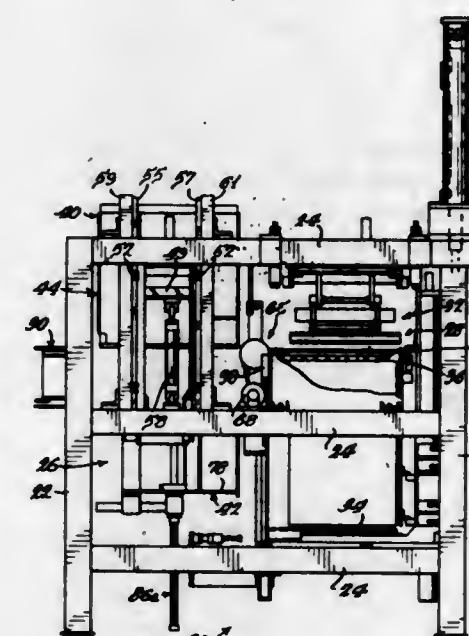
Stanley R. Norbutas, Glenview, Ill., assignor to Signode Corporation

Filed Feb. 27, 1969, Ser. No. 802,928

Int. Cl. B65h 5/02, 5/08

U.S. Cl. 271—9

27 Claims



Apparatus usable in connection with brick stacking and strapping apparatus for placing course-separating sheets, such as paper, upon a course of bricks, and for placing course-supporting sheets, such as veneer upon a course of bricks. The feeder includes a hopper means for storing a stack of separating sheets and a stack of supporting sheets, with a first mechanism being provided for shifting a separating sheet from the hopper means toward a course of bricks, and with a second mechanism being provided for shifting a

supporting sheet toward a course of bricks. A single transfer means is provided for moving the shifted sheets from the hopper means to a brick stacking station, and the hopper means is mounted for movement adjacent the transfer means to position sheet outlet openings in the hopper means in discharging relationship with respect to the transfer means.

3,591,168

APPARATUS FOR LABELING BOTTLES AND SIMILAR ARTICLES

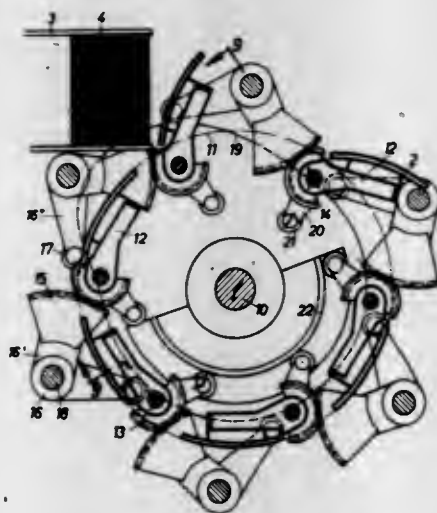
Rudolf Zedrow, Dusseldorf, Germany, assignor to Jagenberg-Werke AG, Dusseldorf, Germany
Filed May 31, 1968, Ser. No. 733,376

Claims priority, application Germany, July 17, 1967, J 29 010 VIIb/81b

Int. Cl. B65h 3/06; B65c 9/08

U.S. Cl. 271-36

3 Claims



Apparatus for labeling bottles and similar articles including a revolving carrier having a plurality of label withdrawing segments arranged in a circular series and mounted for controlled swinging movement into and out of a path of uniform rotation at a label withdrawal station adjacent a stationary label magazine to successively withdraw the end label from a stack of labels in the magazine by a rolloff action and carry such labels toward a label applying station.

3,591,169

SHEET TRANSFER DEVICE FOR A PRINTING PRESS

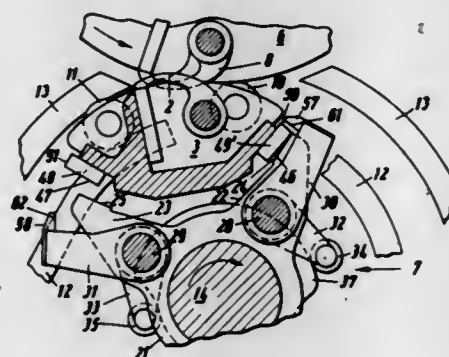
Friedrich Preuss, Offenbach am Main, Germany, assignor to Roland Offsetmaschinenfabrik Faber & Schleicher A G, Offenbach am Main, Germany
Filed Feb. 20, 1969, Ser. No. 800,879

Claims priority, application Germany, Feb. 28, 1968, P 16 11 376.1

Int. Cl. B65h 9/12

U.S. Cl. 271-50

4 Claims



A device for delivering sheets to a printing unit of a printing press, transfers sheets to a transfer drum of the press by means of a gripper carrier movably mounted on an endless

chain conveyor. The carrier is accurately locked in its transfer position with reference to the drum by a leading clamp and a trailing clamp. Such accurate positioning of the carrier is effected by activating the leading clamp prior to the carrier reaching its transfer position thereby limiting further movement of the carrier. The accurate positioning of the carrier is further assured by the engagement of mating surfaces on the carrier and the drum.

3,591,170

ERROR-INDICATING DEVICES

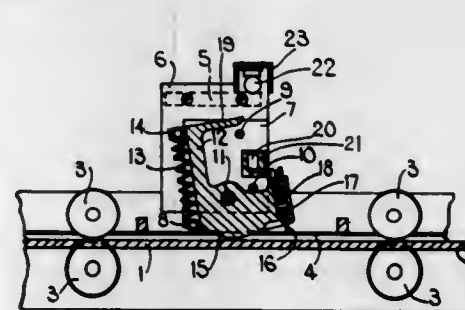
Kenneth William Doughty, Stanford, Biggleswade, and Cyril Winstanley, St. Albans, both of England, assignors to International Computers Limited, London, England
Filed Mar. 12, 1969, Ser. No. 806,569

Claims priority, application Great Britain, Mar. 22, 1968, 13,953/68

Int. Cl. B65h 7/06

U.S. Cl. 271-57

3 Claims



A device is disclosed for detecting the presence of overlapping documents in a document feed. The device includes a member rotatable about a pivot and having a surface which, in the unoperated position, is spaced from the feed bed by a distance of approximately 1 1/4 times the thickness of the documents being fed. The surface is formed so that on rotation of the member from its unoperated position the spacing between the surface and the feed bed remains constant or slightly decreases. Documents in overlapped relationship will therefore rotate the member which in turn may interrupt a light beam and stop the document feed. The member may also carry a marking device to mark the overlapped document for subsequent identification.

3,591,171

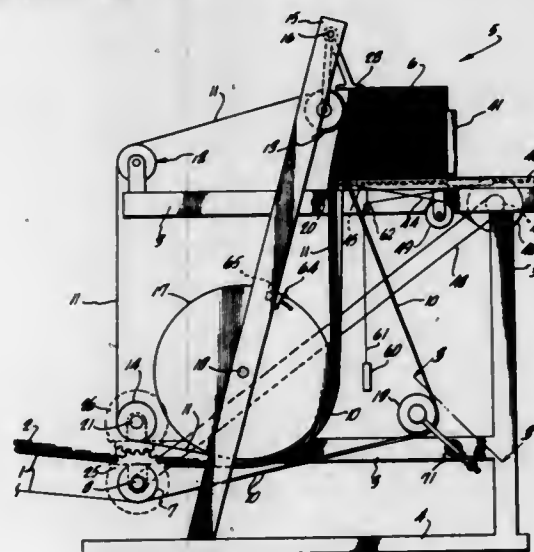
SIGNATURE STACKING MACHINE

Edmund T. H. Schmidt, Woodland Hills, Calif., assignor to Timer Mirror Company, Los Angeles, Calif.
Filed Oct. 28, 1968, Ser. No. 770,987

Int. Cl. B65h 29/14

U.S. Cl. 271-68

16 Claims



A receiver is adapted to support an aligned stack of signatures. First and second adjacent conveyors are adapted to

transport between them a stream of signatures moving edgewise such that the stream approaches one end of the stack in a direction transverse to its length. A stop is disposed along the backside of the stack transverse to the stream. The conveyors are bowed in cross section toward the stack at a point short of the front side of the stack so the signatures are stiffened before they reach the stack. The conveyors are partially wrapped around a direction changing rotatable drum the radius of which is the same order of magnitude or larger than the length of a signature. The outer conveyor wrapped around the drum is an endless belt arrangement mounted on three rotatable supports. The two supports between which the belt arrangement is wrapped around the drum are translationally fixed and the remaining support is movable transverse to its axis of rotation to permit the length of belt between the first two supports to change responsive to changes in the thickness of the sheets. One of the conveyors extends across the end of the stack and stops short of the backside of the stack so the second conveyor gradually moves out of contact with each sheet in turn as it moves into alignment in the stack. The receiver is a horizontal platform on which the stack lies in horizontal alignment. Two elongated independently movable rotatable vertical members are located at the other end of the stack from the conveyors. These members are loaded such that they are urged against the other end of the stack. The signatures are periodically marked in synchronism with the movement of the conveyors to produce along the length of the stack an indication of the number of sheets in the stack.

3,591,172

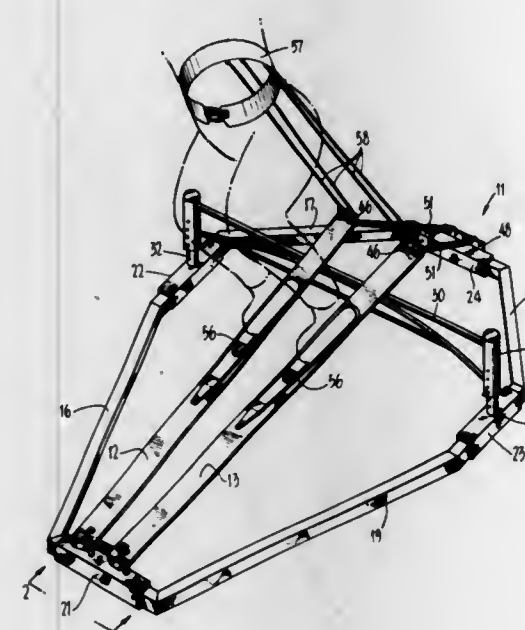
SPRING BIASED SKI EXERCISE MOUNTED ON ADJUSTABLE INCLINED SLOPE

Franz Hude, R. Kattinigstr. Villach 9500, Karnten, Austria
Filed Oct. 3, 1968, Ser. No. 764,828

Int. Cl. A63b 21/00, 23/02, 69/18

U.S. Cl. 272-57

10 Claims



A snow ski exercising and training apparatus including a base upon which is mounted a pair of elongated ski simulating members, the forward ends of which are pivotally secured to the base so that the ski members can be pivotally moved transversely of the base about axes at their forward ends. Adjacent their rear ends, the skis are supported by a transversely extending slide bar for the transverse movement. A spring couples the skis together adjacent the forward ends to urge the same rotatably outward with respect to one another about their longitudinal axes, and tension springs couple each of the ski members to the base to provide resilient resistance to the transverse movement. A waistband is provided for the user and tension springs are used for attaching the waistband to the rearwardly ends of the ski members.

3,591,173

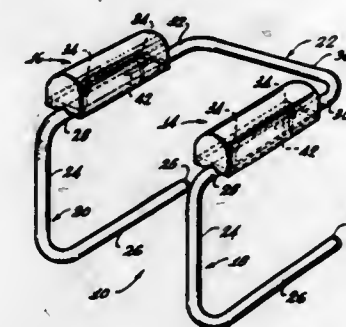
HEAD STAND SUPPORT

Ell Joseph Cossman, 12502 Millbank St., Studio City, Calif.
Filed Jan. 12, 1970, Ser. No. 2,007

Int. Cl. A63b 23/02

U.S. Cl. 272-60

9 Claims



An exercise stand constructed from three C-shaped tubular members and readily disassembled for storage and shipping. Two of the members form sides and support a pair of shoulder pads and the third couples and spaces the two side members, the three members being keyed against relative rotation and held together by bolts carried by the shoulder pads.

3,591,174

FRICTIONAL RESISTANCE TYPE EXERCISING DEVICE

Ira J. Silberman, Opelika; Ralph Edwin Wilgus, Jr., Auburn, Ala.; and George M. Hopkins, Atlanta, Ga., assignors to Diversified Products Corporation, Opelika, Ala.
Filed Dec. 20, 1968, Ser. No. 785,870

Int. Cl. A63b 21/00

U.S. Cl. 272-79

6 Claims



An exercising device including a housing, a shaft positioned within the housing and having one end attached thereto, and a rope disposed in frictional engagement about the shaft. The rope enters into and exits from the housing through the sides thereof adjacent one end of the housing so that the rope may be pulled against the resistance produced by the frictional engagement of the rope with the shaft. A plastic dial member is rotatably fixed to the other end of the shaft and releasably engages the housing so that the rotational position of the shaft with respect to the housing may be adjusted to thereby vary the amount of frictional engagement of the rope with the shaft.

3,591,175

GAME

Marvin I. Glass, and Jeffrey D. Breslow, both of Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Jan. 29, 1969, Ser. No. 794,912

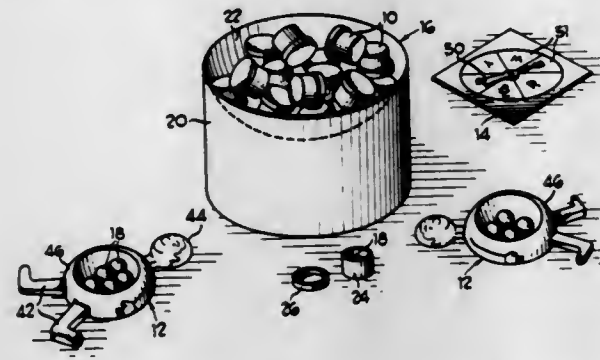
Int. Cl. A63f 9/00

U.S. Cl. 273-1 R

6 Claims

Game apparatus for a race-type chance game comprising a large number of containers, each enclosing a simulated

colored pill and having a cap for normally closing the container and concealing the pill color. The closed containers



are randomly disposed in a central bowl and the players compete to find all of the pills of a given color by sequentially opening and closing the containers.

3,591,176

POOL-GOLF GAME APPARATUS

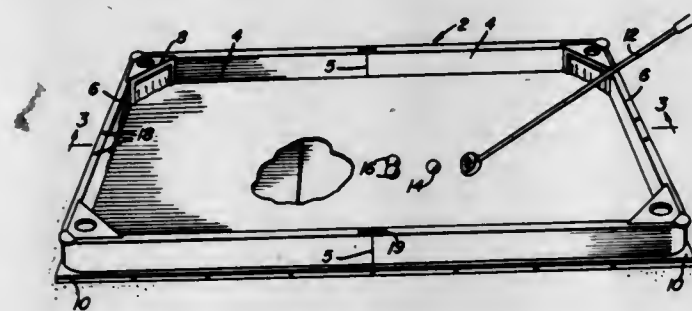
Leon A. Roth, 1895 Southwest 3rd Ave., Miami, Fla.

Filed Oct. 29, 1968, Ser. No. 771,422

Int. Cl. A63g 31/00; A63d 15/00, 15/06

U.S. Cl. 273-6

9 Claims



A game apparatus including a rectangular barrier frame, sections of which are easily disassembled for allowing the frame to be folded when the game is not in use. The four corners of the barrier frame when assembled include removable target pockets. Playing balls are placed within the interior area of the barrier frame and a club in the form of a golf putter is employed to strike the playing balls in a preselected direction with the object being to propel the playing balls into the target pockets. A folding mat or pad may be used as a playing base surface.

3,591,177

BOWLING BALL INCLUDING ADJUSTABLE BALANCING WEIGHT

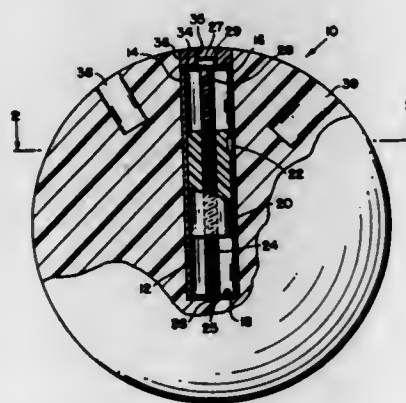
Samuel Joseph Skuse, 1382 Culver Road, Rochester, N.Y.

Filed July 17, 1969, Ser. No. 842,559

Int. Cl. A63b 43/04, 65/06

U.S. Cl. 273-63

9 Claims



A cylindrical weight made of plastic material is axially adjustable in a blind bore that extends radially into a bowling

ball substantially centrally of the portion of the ball into which the fingerholes are to be drilled. The outer end of the bore is closed by a plastic plug. A screw is threaded through the weight and journaled at opposite ends in the bore. To adjust the weight, a screwdriver may be inserted through a hole in the plug to rotate the screw.

3,591,178

LACROSSE RACQUET WITH PLASTIC GUARD PANEL

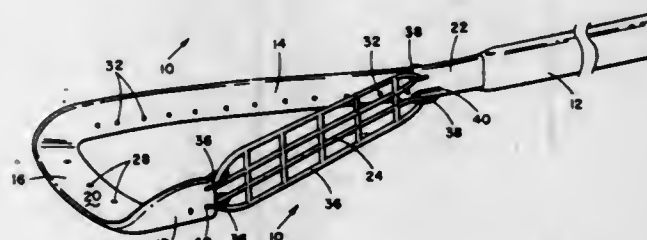
Franklin Milligan, 116 Kent St., Whitby, Ontario, and Daniel R. Kocho, 40 Willcroft St., Oshawa, Ontario, both of, Canada

Filed Oct. 1, 1968, Ser. No. 764,117

Int. Cl. A63b 65/12

U.S. Cl. 273-96

2 Claims



A lacrosse racquet is formed with a unipartite and generally planar guard panel usefully formed as a moulded lattice structure from a suitable plastics material for interconnecting the toe and spine portions of the racquet frame. Such a guard panel avoids the problems due to sagging and bowing of woven guard structures and facilitates stringing. By forming the principal frame as a unitary moulded structure from a suitable plastic material, the lip portion of the racquet can be made much thinner than was previously possible thereby facilitating "scooping" the ball off the ground by the player.

3,591,179

COMBINATION WHIP TOP AND SKILL DEVICE

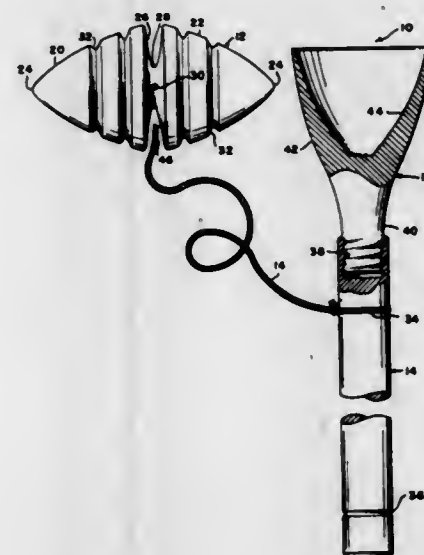
Kalman Pentek, 121 Grand St., Garfield, N.J.

Filed Aug. 21, 1969, Ser. No. 851,792

Int. Cl. A63b 65/12

U.S. Cl. 273-97 R

4 Claims



A combination whip top and skill device comprising an oval-shaped top, a cup including a whipping handle and a lash secured to the handle. The lash can be used for spinning the top and then whipping the top in the conventional manner of using a whipping top. The top can also be secured to the lash whereby the top can be used as a skill device by attempting to flip the top on the end of the lash and catching the top on its end in the cup.

3,591,180

RING BALL GAME

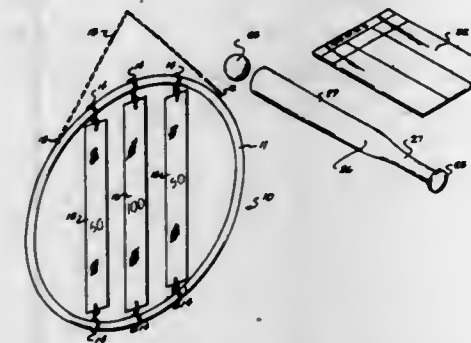
Joseph I. Lafon, Sr., 2225 N. Raymond Lane, Altadena, Calif.

Filed Mar. 25, 1969, Ser. No. 810,296

Int. Cl. A63b 65/12

U.S. Cl. 273-101

3 Claims



A game consisting of a target comprising a ring having one or more target strips releasably secured thereacross, a ball projector having a handle and a hollow head containing a ball, the ball being projected toward the target by a swinging motion of the handle to strike and disengage a target strip.

3,591,181

COLORED SPEED TOP GAME DEVICE

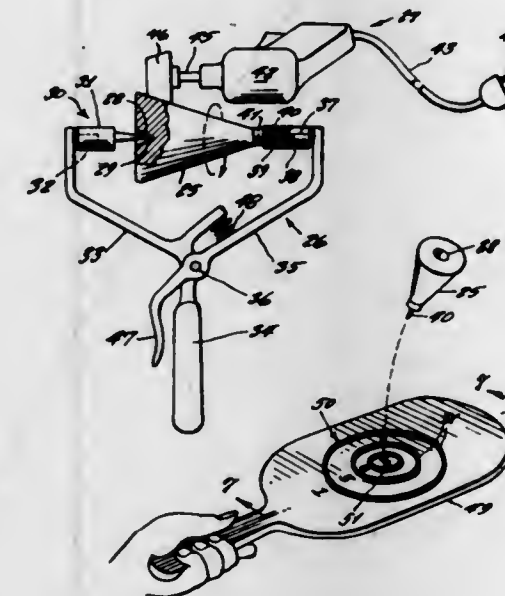
Lawrence W. Stewart, N87 W15714 Kenwood Blvd., Menomonee Falls, Wis.

Filed July 25, 1969, Ser. No. 844,974

Int. Cl. A63b 1/00

U.S. Cl. 273-101

1 Claim



A toy top which is made to spin by a string or other means, the top being rotatable about a downwardly extending spindle and the top being made in any of various colors so as to be attractive in appearance while in motion. The top is combined with a holder in which the top is held rotatably free for rotating the top to a high speed and a paddle having a bullseye imprinted upon its upper side. The paddle is used as a surface on which to catch the top.

3,591,182

GOLF GAME AND METHOD OF PLAY

William R. Grubler, R.D. #4, Box 154, Wheeling, W. Va.

Filed Apr. 26, 1968, Ser. No. 724,441

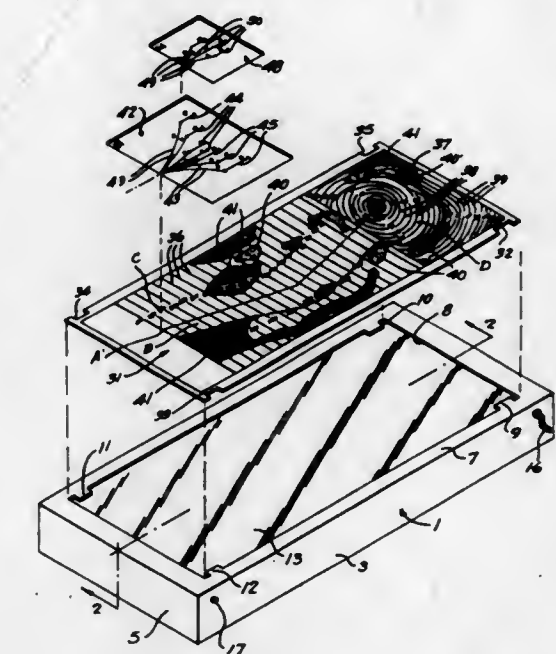
Int. Cl. A63t 7/06

U.S. Cl. 273-134

2 Claims

The present game simulates the playing of a game of golf whereby the players select a translucent sheet representing the tee, fairway, rough and green for the first hole course and mount the same on a base capable of directing light through said sheet as desired. Thereafter each player selects a shot card in turn and places the same on said sheet at the tee, in-

dicates his elected club, lights the base and from his shot card marks the indicated lay of the ball on said sheet, moves his shot card to the indicated lay of the ball, selects a new club, lights the base and marks the new lay of the ball on the sheet and repeats until the ball is indicated as in the hole on



the green. The remaining players in their turn follow the same procedure until all have holed out whereupon they select a new translucent sheet for the second hole, repeat as for the first hole and select further sheets in turn for the remaining holes and play the same in a similar manner.

3,591,183

LAMINATED GOLF CLUB HEAD

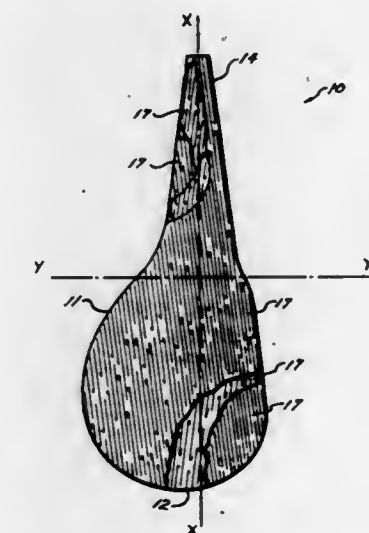
James W. Ford, Nashville, Tenn., assignor to True Temper Corporation, Cleveland, Ohio

Filed May 29, 1969, Ser. No. 829,037

Int. Cl. A63b 53/04

U.S. Cl. 273-167

5 Claims



A golf club head is constructed of wood laminations bonded together and bent to form the angle between striking portion and hosel. The grain of each lamination is disposed at an angle of approximately 74° with respect to the centerline of the hosel as seen from the front of the golf club, and the grain of each lamination is angled oppositely with respect to the grain of the next adjacent lamination. The grain of certain of the laminations are disposed substantially parallel with one lateral side of the hosel; the grain of the adjacent laminations are disposed substantially parallel with the opposite lateral side of the hosel.

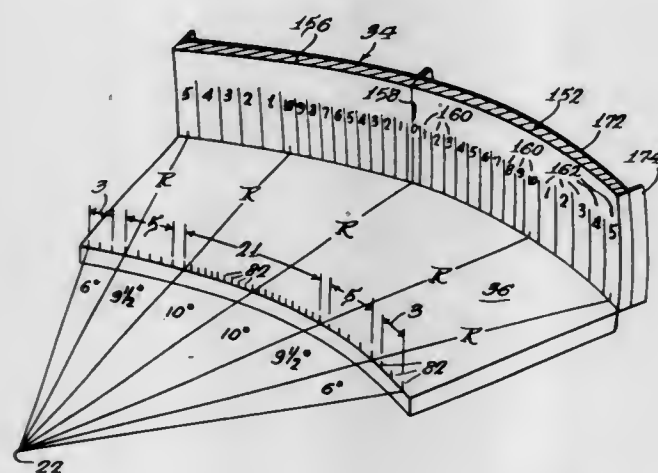
3,591,184

SPHERICAL SHELL AND SPIN DETECTOR

Robert M. Conklin, Muskegon, and Robert I. Anderson, Spring Lake, both of, Mich., assignors to Brunswick Corporation

Filed Apr. 30, 1969, Ser. No. 820,558
Int. Cl. A63b 69/36, 67/02

U.S. Cl. 273-176 FA



An indoor golf game including a spherical target which is arranged so that all points thereon are equidistant from the tee point. Golf balls rebound from the target at a low velocity, and are returned to the tee area by an inclined runway and a ball elevator system including a motor driven wheel which engages the ball at the tee area. Electrical switches arranged in an arcuate row relative the tee point are actuated by balls rolling down the runway and cooperate with sensors in the target and at the tee point to provide information relating to the theoretical free flight trajectory of the ball, which is projected on a scene of a golf course by a computer controlled golf ball spot projector. The target is formed of interchangeable components to enhance the overall life thereof and the sensors therein are in the form of spaced conductive rubber strips extending horizontally and vertically.

3,591,185

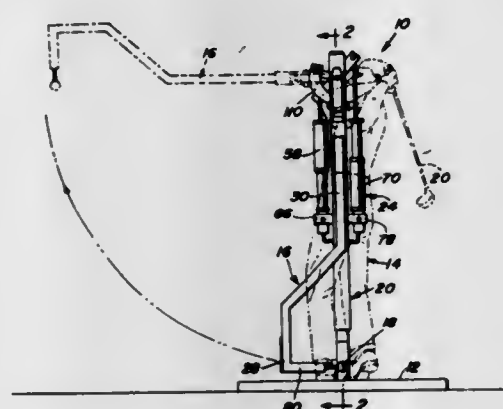
GOLF SWING TRAINING DEVICE

Adolf R. Murat, 43600 East Florida Avenue, Hemet, Calif.

Filed Aug. 13, 1969, Ser. No. 849,795
Int. Cl. A63b 69/36

U.S. Cl. 273-185

15 Claims



A golf training device in which an impact receiving golf ball element is mounted at the lower end of a pendulum accelerated from a stationary vertical position through an arcuate path of movement by the swing of a golfer's club. Proper movement of the golfer's club following initial impact is monitored by a switch mechanism to energize solenoid devices applying driving force to the pendulum in order to balance its static weight and avoid loading of the golfer's club

during the practice swing. Indicators may be provided to detect excessive movement of the pendulum laterally of an arcuate path.

3,591,186

ULTRAMINIATURIZED TAPE RECORDER

Sanjiro Murata, Kamiosaki, Shinagawa-ku, Tokyo-to, Japan

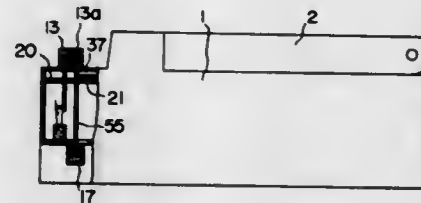
Filed May 15, 1967, Ser. No. 638,408

Claims priority, application Japan, June 15, 1966, 41/38246

Int. Cl. G11b 5/48

U.S. Cl. 274-4

1 Claim



An ultraminiaturized tape recorder of double panel type having a case comprising front and rear (or upper and lower) compartments partitioned by a dividing means wherein, in one compartment a recess is provided for a tape cartridge with a recording button on that side. In the opposite compartment, a speaker is provided arranged to emit sound in a direction away from the first compartment, and a reproducing button is provided on the side opposite the recording button, thereby eliminating erroneous operation of the recording and reproducing buttons and permitting increased speaker size for a given overall recorder size. Means are provided whereby all of the components of the recorder are actuated on pushing the recording button, whereas all of the components with the exception of the erasing head are actuated on pushing the reproducing button.

3,591,187

ENDLESS TAPE CARTRIDGE PLAYER UTILIZING PLURALITY OF ENDLESS TAPE CARTRIDGES

Itsuki Ban, 829, Higashi-Ozumimachi, Nerima-ku, Tokyo-to, Japan

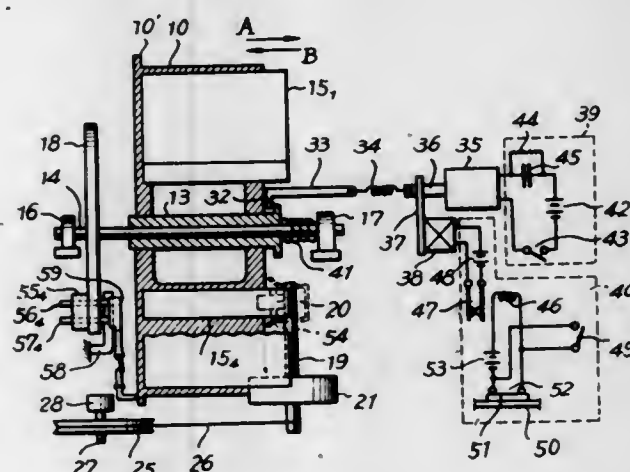
Filed June 7, 1968, Ser. No. 735,298

Claims priority, application Japan, June 9, 1967, 42/36534

Int. Cl. B65h 19/00; G11b 15/66; G03b 21/04

U.S. Cl. 274-4

10 Claims



An endless tape cartridge player utilizing a plurality of endless tape cartridges wherein a plurality of endless tape cartridges are received within a housing, the housing is rotated about a central shaft and caused to terminate its rotation to select a desired endless tape cartridge, and further the housing is moved along with the central shaft to bring the leading edge of the cartridge to be selected into a position

opposite a tape reproduction arrangement which comprises a capstan and a magnetic head.

3,591,188

SLIDE RING SEAL FOR ROTATING SHAFTS

Joachim H. Eisner, Kaiserslautern, Upper Palatinate, Germany, assignor to Eisenwerke G.m.b.H., Kaiserslautern/Pfalz, Germany

Filed Aug. 22, 1969, Ser. No. 852,259

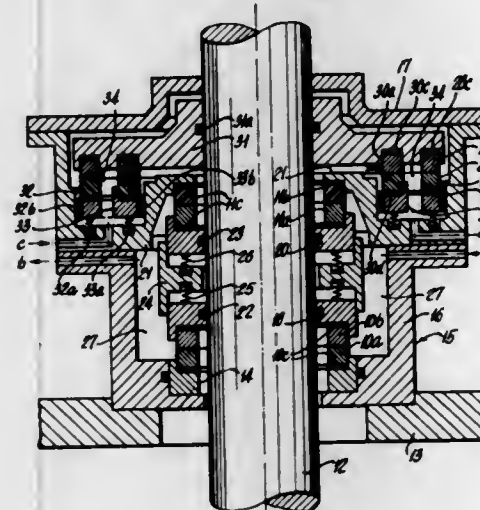
Claims priority, application Germany, Aug. 30, 1968, P 17 75

593.0

Int. Cl. F16j 9/00, 15/38

U.S. Cl. 277-9

10 Claims



A shaft passing through a wall of a pump or the like device containing a fluid under pressure is sealed by means of two slide ring sealing units each comprised of two pairs of spring-loaded stationary and rotating sealing rings forming closed sealing chambers together with the adjoining walls of the units. The first or main sealing unit adjoining the device with its pairs of sealing rings axially spaced along the shaft is followed by the second standby units with its pairs of concentric sealing rings spaced radially and encompassing at least in part one of the pairs of rings of the first sealing unit. Sealing fluid under pressure is applied from a common source to both sealing chambers via conduit and valve means enabling a ready takeover of the standby unit upon failure of the main sealing unit.

3,591,189

HIGH TEMPERATURE SEAL

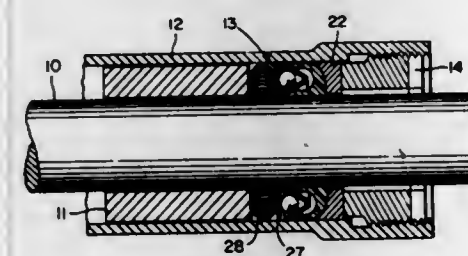
James N. Tootle, and Glenn S. Beidler, both of Kalamazoo, Mich., assignors to Pneumo Dynamics Corporation, Cleveland, Ohio

Filed Mar. 7, 1969, Ser. No. 805,249

Int. Cl. F16j 15/32

U.S. Cl. 277-117

5 Claims



A double lip rod seal in which one lip is curved and tapered, while the other is generally cylindrical, so that the former can experience directed thermal expansion and contraction relative to the surface sealingly engaged by same due to difference in the coefficients of thermal expansion thereof, the lips being spread apart by wedge loading means.

3,591,190

CLINCH SEALS

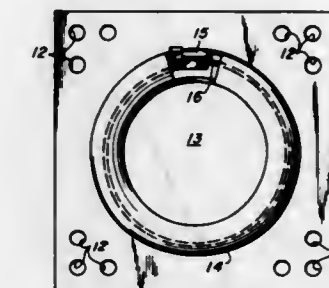
Fred Winay, 829 Amherst Road, Linden, N.J., and Peter F. Kalksma, 583 Dover Street, Paramus, N.J.

Filed May 23, 1969, Ser. No. 828,451

Int. Cl. F16j 9/06; F16j 19/00

U.S. Cl. 277-147

5 Claims



A clinch seal concrete structure provided with an access hole for a conduit, wherein the access hole is defined by a fluid impervious, elastic sheet imbedded in the concrete structure around the access hole; the sheet provided with a hole; a tubular border surrounding the hole in the sheet, and a contractable strap in the tubular border, whereby the hole in the sheet may be contracted to clinch a conduit inserted therein in sealing engagement.

3,591,191

PIPE HAVING A SEALING RING OF A THERMOSET EMULSION

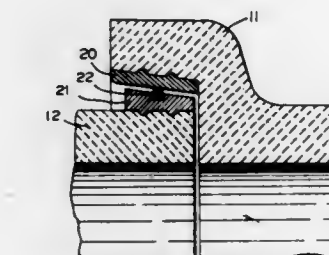
Richard A. Coderre, St. Louis Park, and Robert H. Leitheiser, Jordan, both of, Minn., assignors to Ashland Oil Inc., Houston, Tex.

Filed Apr. 29, 1968, Ser. No. 724,994

Int. Cl. F16j 15/00

U.S. Cl. 277-207

10 Claims



A pipe having attached to at least one end thereof a joint-forming annular ring of a thermoset emulsion. The ring has a configuration to mate with another pipe whose end has a configuration to couple with the ring to form in the presence of a gasket a complete, tight-fitting pipe joint. The thermoset emulsion is a water-in-oil emulsion comprising:

1. water as the discontinuous phase,
2. a polymerizable mixture as the continuous phase, comprising: (a) an unsaturated polyester such as one produced by use of an alpha, beta-ethylenically unsaturated polycarboxylic acid, and a copolymerizable solvent such as styrene.

3,591,192

PROTECTIVE GAITERS FOR MECHANICAL EQUIPMENT

David N. Sharp, Dunstable, and Peter Gordon Jenkins, Ponteland, both of, England, assignors to George Angus & Company Limited, Newcastle Upon Tyne, England

Filed June 2, 1969, Ser. No. 829,536

Claims priority, application Great Britain, June 13, 1968,

28241/68

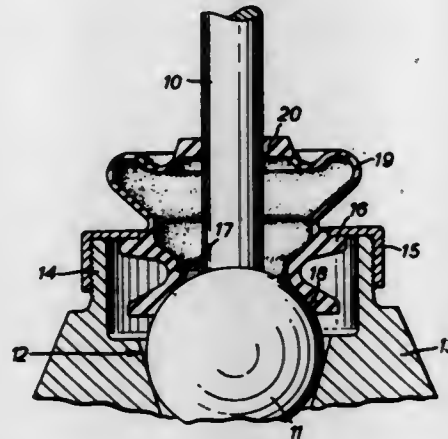
Int. Cl. F16j 15/32

U.S. Cl. 277-212 FB

3 Claims

A protective gaiter for a ball-mounted lever is made of an elastomer, for example polyurethane, and is adapted also to

act as a spring resiliently pressing the ball on to its seat. The gaiter has at one end a part-spherical surface to engage the



ball and has a spring-forming corrugation between that end and a flange for fixing the gaiter in position.

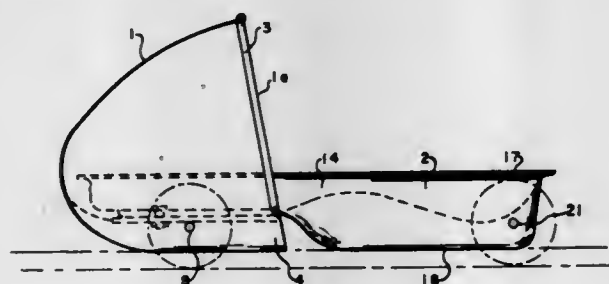
3,591,193

MOLDED ARTICULATED SLED

David L. Mitchell, Jr., Riverview Road, Glenwillard, Pa.
Filed Nov. 14, 1969, Ser. No. 876,680
Int. Cl. B62b 13/04

U.S. Cl. 280-16

3 Claims



A molded articulated sled having a semihemispherical front and elongated rear section with mated bearing surfaces pivotally connected together. The rear section extending into the front section and having a shape conforming generally to the shape of the front; both of the sections having longitudinal runners adapted to receive coaster wheels and axles.

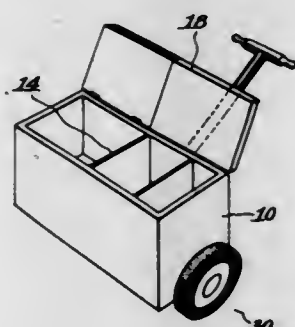
3,591,194

ICE CHEST CART

Philip Vega, 18-51 Schieffelin Place, Bronx, N.Y.
Filed Nov. 8, 1968, Ser. No. 774,372
Int. Cl. B62b 1/02

U.S. Cl. 280-47.26

3 Claims



An ice chest cart on wheels which can be carried to picnics, beaches and the like and moved therealong as required. The cart has a plurality of compartments and has means for providing selective entry to some compartments while holding others closed.

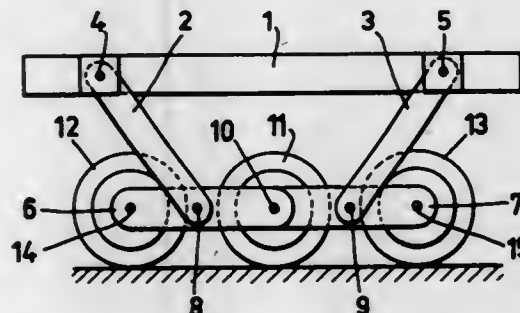
3,591,195
**WHEEL ASSEMBLY FOR VEHICLES PARTICULARLY
INTENDED FOR COMBINED ROAD AND CROSS-
COUNTRY TRANSPORTS**

Bengt Erland Ilon, Bromma, Sweden, assignor to A. Johnson
& Co. H. A. B., Stockholm, Sweden
Filed Apr. 18, 1969, Ser. No. 817,434
Claims priority, application Sweden, Apr. 22, 1968,
5351/68

Int. Cl. B60g 23/00

U.S. Cl. 280-81 R

8 Claims



A vehicle wheel assembly for use in pairs on combined road and cross-country transport vehicles includes two links each articulated with a common frame and a balancing arm pivotally carried by each of the links. The balancing arms are hingedly connected with one another and support three wheels having mutually parallel axles, the central wheel of which is mounted coaxially with the hinged connection and between the fulcrum common to the balancing arms and the links.

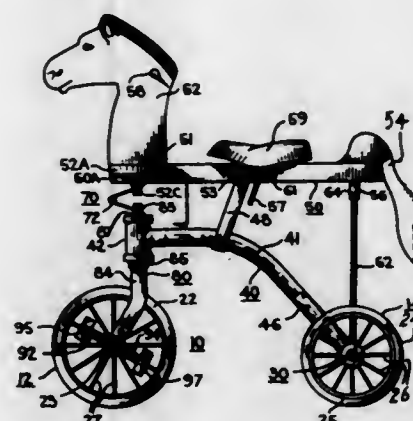
3,591,196

VELOCIPEDE WITH ROCKING SEAT

Henry J. Ott, Old William Penn Hwy., Murrysville, Pa.
Filed Nov. 22, 1968, Ser. No. 778,127
Int. Cl. A63g 17/00

U.S. Cl. 280-1.195

6 Claims



A velocipede of the tricycle type is disclosed including means for imparting a rocking motion to the seat on which the rider is disposed as the velocipede is propelled by the rider.

3,591,197

AXLE SUSPENSION ASSEMBLY

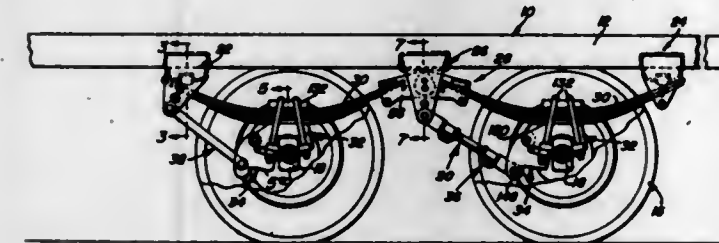
Richard L. Haley, 2523 North Jefferson Extension, New Castle, Pa.
Filed June 16, 1969, Ser. No. 833,325
Int. Cl. B60g 5/02

U.S. Cl. 280-104.5

5 Claims

A suspension assembly for tandem axles including an equalizer beam pivot axis defining assembly including (1) a rubber bushed pivot shaft of noncircular configuration and designed to be maintained under compression, rather than being placed under shear stress, by vertical loading as well as during oscillation of the beam, (2) spring hanger and mounting brackets designed for ease in installation on vehicle

frames and axles with maximum strength, (3) substantially stationarily spaced spring bearing surfaces and (4) improved



spring-to-axle mounting serving to reduce the length of the static mounted spring midportions.

3,591,198

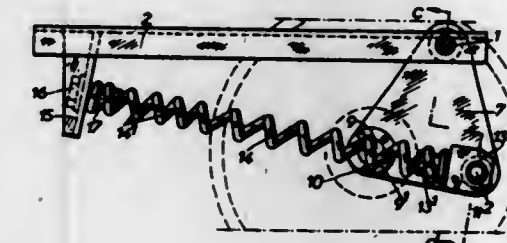
**RESILIENT SUSPENSION FOR INDEPENDENTLY
SPRUNG WHEELS**

Gerard Brando, 8 rue Edgard Quinet, Saint Etienne, Loire, France
Filed July 24, 1968, Ser. No. 747,264
Claims priority, application France, July 26, 1967, May 7,
1968, 9,794,68/107

Int. Cl. B60g 3/14

U.S. Cl. 280-124

11 Claims



A mechanical, independent, resilient suspension for any kind of vehicle in which a transverse axle rigid with the longitudinal bearers of the vehicle chassis supports at opposite projecting journal portions, an articulated link plate of triangular form the rear end of which externally supports a wheel-supporting stub axle, whereas the front end is connected to one end of the compression coil spring the other end of which is secured to the corresponding longitudinal bearer.

3,591,199

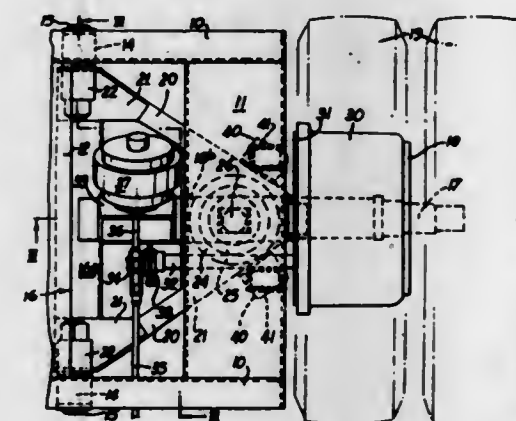
TRAILER VEHICLES

William T. Bowden, Marple, England, assignor to Peak Trailers Limited
Filed Aug. 19, 1969, Ser. No. 851,220
Claims priority, application Great Britain, Aug. 21, 1968,
39952/68

Int. Cl. B60g 9/02

U.S. Cl. 280-124

7 Claims



A self-contained suspension system for a trailer vehicle whose front end is adapted for swivellable mounting upon a

tractor vehicle, such system comprising an underframe for attachment to the trailer chassis with its major dimension transverse thereto, two wheel-carrying arms with stub axles fixed in corresponding ends thereof and their other ends provided with braced T-heads which are pivoted to said underframe about parallel axes at opposite sides of its midpoint, and coil springs interposed between the outer ends of said arms and adjacent parts of said underframe so that the wheels carried by said arms are sprung independently one of the other.

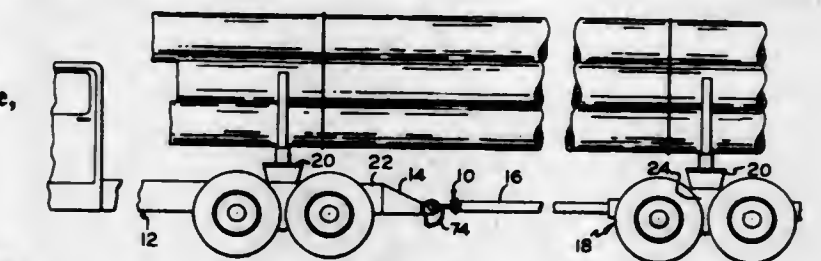
3,591,200

COMPENSATOR HEAD FOR LOGGING TRAILERS

Frederick F. Van Raden, Hillsboro, Oreg., assignor to Peerless Trailer and Truck Service, Inc., Tualatin, Oreg.
Filed Apr. 25, 1969, Ser. No. 819,138
Int. Cl. B62d 53/00

U.S. Cl. 280-142

3 Claims



A compensator for achieving longitudinal adjustments in the coupling between a logging truck and the reach of a logging trailer, having a housing attached to the reach and an eye-carrying member reciprocable within an opening in said housing for attachment to the truck. A latch is mounted on the housing retractably to obstruct movement of the reciprocable member within the opening in the housing. A latch-receiving slot is disposed on the reciprocable member intermediate its fully extended and fully retracted positions. The reciprocable member is of constant diameter on both sides of the latch-receiving slot. A cam rod transversely disposed within said housing selectively urges the latch against the constant diameter portion of the reciprocable member, whereby movement of the latter with respect to the housing causes the latch to snap into the latch-receiving portion. The coupling may thus achieve both longitudinal extension and contraction from an initial position determined by the engagement of the latch within the latch-receiving portion of the reciprocable member.

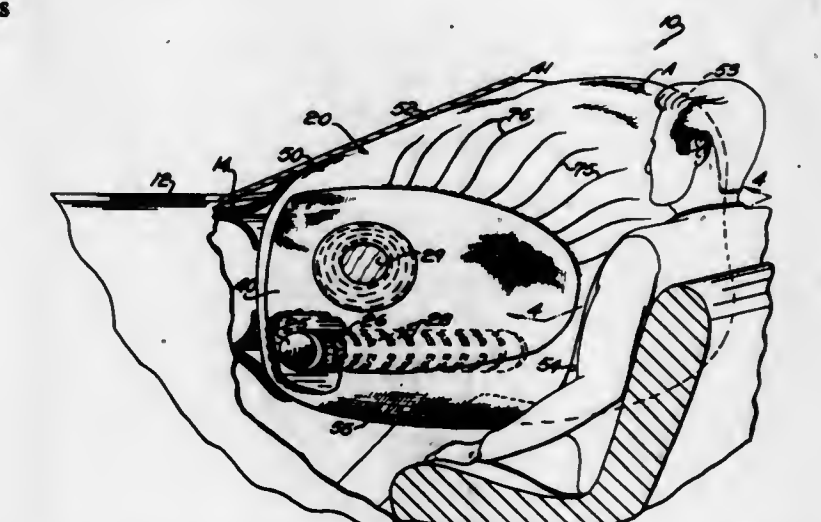
3,591,201

VEHICLE SAFETY APPARATUS

Darrell S. Brawn, Livonia, and Bogdan Lisowsky, Detroit, both of Mich., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Apr. 9, 1969, Ser. No. 814,639
Int. Cl. B60r 21/00

U.S. Cl. 280-150

15 Claims



A vehicle safety apparatus includes a confinement which has a collapsed inoperative condition and an expanded

operative condition. The confinement is expanded by directing fluid therein, and when expanded has a substantially uniform pressure throughout. The confinement has a first portion engageable with the head of the occupant and a second portion engageable with the torso of the occupant to apply a restraining force to these respective portions of the occupant during the occurrence of an accident. Means are provided for minimizing the membrane stress in the first portion of the confinement so as to minimize bending of the occupant's head backward relative to his torso.

3,591,202

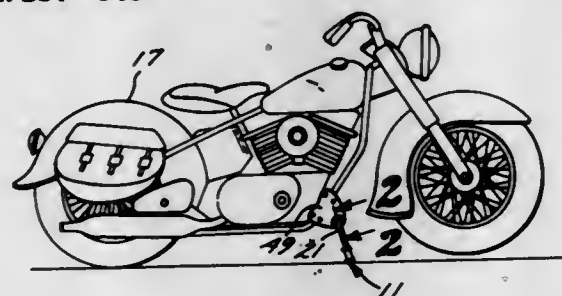
MOTORCYCLE RIDEOFF STAND

Harold H. Larsen, Long Beach, and Robert E. Oehring, Norwalk, both of, Calif., assignors to Bates Industries, Inc., Long Beach, Calif.

Filed Aug. 4, 1969, Ser. No. 847,039
Int. Cl. B62h 1/02

U.S. Cl. 280-303

4 Claims



A motorcycle stand having an elongated support sleeve for fixed securement to a motorcycle frame. A pair of ground engaging legs are pivotally carried within the opposite open ends of the sleeve and receive stop pins which slidably travel within arcuate slots in the support sleeve. The pins hold the parts together while allowing the legs to move in the sleeve between their retracted and their ground engaging positions. The legs are each pinned to a central coupling within the sleeve for common pivotal movement. A pair of torsion springs are located within the sleeve, disposed about the legs, and are each secured at one end to an associated leg. The other ends of the springs are anchored to elements secured to and projecting through the sleeve so that the springs are operative to bias the legs rearwardly and upwardly to retracted position once the motorcycle is driven forwardly and off the stand.

3,591,203

HYDRAULIC AUTOMATIC STEERING ARRANGEMENT FOR PULLED VEHICLES

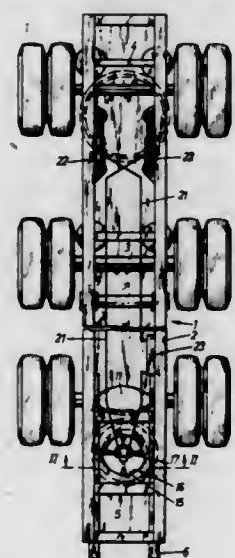
Helmut Steiner, Wiehl, Germany, assignor to Bergische Achsenfabrik Fr. Kotz & Sohne, Wiehl Chierhammer, Germany

Filed May 1, 1969, Ser. No. 821,036
Claims priority, application Germany, May 2, 1968, P 17 55 368.3

Int. Cl. B62d 13/02

U.S. Cl. 280-426

12 Claims



A steering system for steerable rear wheels of a trailer vehicle in which receiving fluid motors are connected to the

said rear wheels to cause turning thereof while a sending piston cylinder arrangement is connected in circuit with the fluid motors. The piston is engaged by a cam to move the piston in the cylinder to displace fluid to and from the fluid motors and one of the cylinder and cam is fixed to the trailer frame while the other thereof is fixed to a member pivoted to the trailer frame which is adapted for connection to a towing vehicle so as to turn with the towing vehicle.

3,591,204

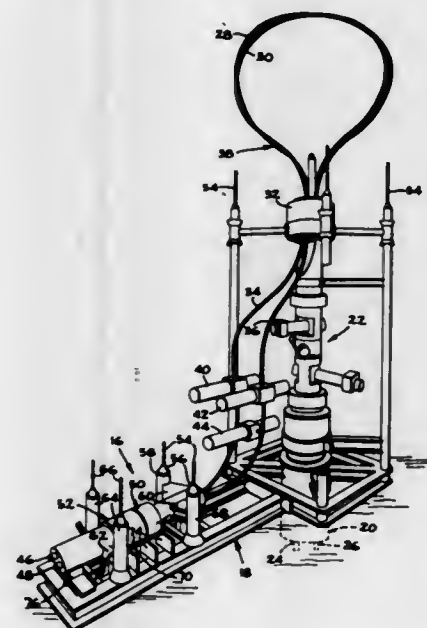
UNDERWATER FLOW LINE CONNECTOR SYSTEM

Kelly V. Shippey, Houston, Tex., assignor to FMC Corporation, San Jose, Calif.

Filed May 7, 1968, Ser. No. 727,190
Int. Cl. F16l 39/00, 3/08

U.S. Cl. 285-26

10 Claims



A remotely controllable, hydraulic-powered connector system for coupling and uncoupling a fluid flow line at an underwater or other remote location, particularly at the site of an underwater wellhead, including a mechanism for releasably latching the connector in place to a foundation structure at the coupling site, and a system for indicating whether or not the apparatus is in a fully coupled or uncoupled condition.

3,591,205

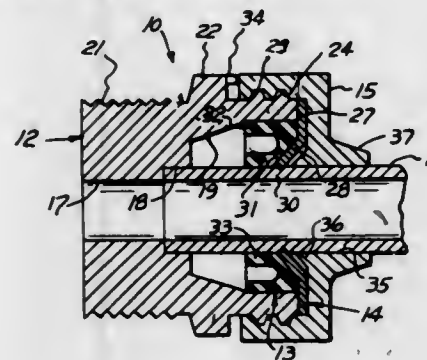
TUBE COUPLING

Jacob J. Hamburg, 2003 West Eight Mile Road, Detroit, Mich.

Filed Dec. 17, 1969, Ser. No. 885,689
Int. Cl. F16l 17/02

U.S. Cl. 285-81

4 Claims



A slip-in-type tube coupling formed of a body having a central bore whose forward end is enlarged, a centrally apertured cap fastened upon the forward end of the body, a springy grab ring having an outer flat edge portion squeezed against the body forward end by the cap, and an inner frustoconical-shaped tube-gripping portion. A U-shaped resilient sealing ring with a corresponding frustoconically shaped base receives the gripping portion in face-to-face con-

tact, with its outer leg sealing against the wall of the enlarged portion of the bore and its inner leg sealing against the tube.

3,591,206

ROTARY WATER DISTRIBUTOR FOR ROTATABLE SPRAY ASSEMBLY

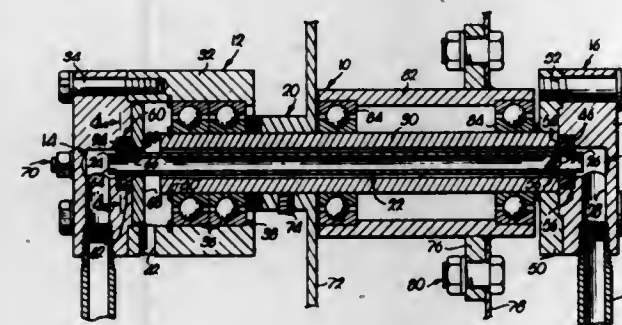
Paul S. Giovagnoli, 4200 Birmingham Road, Kansas City, Mo., and Richard F. Smith, Prairie Village, Kans., assignors to said Giovagnoli

Continuation of application Ser. No. 616,829, Feb. 17, 1967, now abandoned. This application Apr. 1, 1969, Ser. No. 812,460

Int. Cl. F16l 17/00, 27/00

U.S. Cl. 285-98

4 Claims



A rotary fluid distributor having a base and a head rotatable on the base. A tubular conduit extends along the axis of rotation of the head and intercommunicates respective passageways in the head and the base so that fluid may be conducted between the base and the head during rotation of the latter. A packing member at each end of the conduit mounts the conduit on the head and the base respectively and is disposed for preventing leakage of fluid from the zone of communication between the respective end of the conduit and the proximal passageway. The packing members are arranged to permit floating movement of the conduit relative to the head and the base to preclude uneven wear of the packing in the event that the head tends to move laterally with respect to the base. Two species of the distributor are disclosed. In the first, the head is rotated mechanically and in the second the head is rotated by the reaction to the streams of fluid leaving the head.

3,591,207

LEAK-TIGHT SEAL BETWEEN MATING PORTIONS OF ASSEMBLED HOLLOW CASTINGS

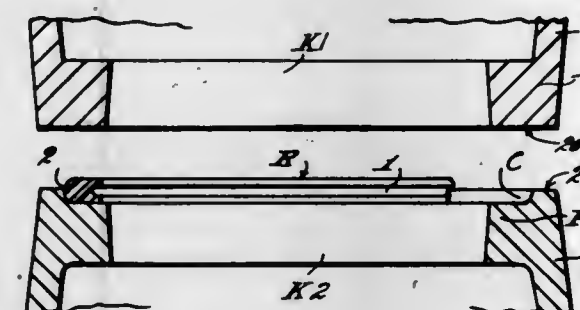
Leonard A. Fisher, Granby, Conn., assignor to The H. B. Smith Company, Incorporated, Westfield, Mass.

Filed July 31, 1969, Ser. No. 846,468

Int. Cl. F16l 17/00

U.S. Cl. 285-111

4 Claims



A leak-tight seal between two cast iron parts (for example, cast iron boiler sections) such that machining of the metal parts is not required, and wherein resilient gaskets are substituted for the usual metal push nipples. One of the parts has a rabbet opening at its inner periphery. The rabbet is adapted to completely contain the gasket when the two parts are drawn together. The gasket is characterized in that it has outer and inner peripheral grooves.

3,591,208

PRESSURE FITTING FOR PLASTIC TUBING

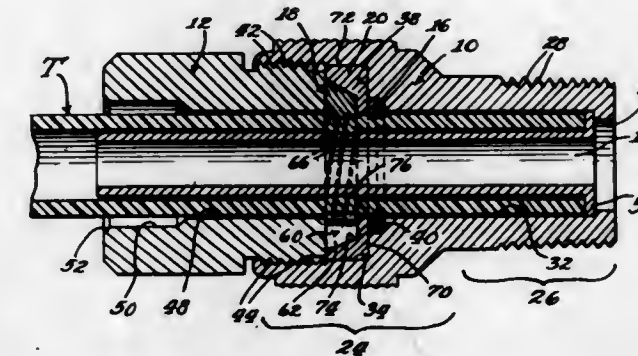
Ronald W. Nicolaus, Peoria, Ill., assignor to Eclipse Fuel Engineering Co., Rockford, Ill.

Filed May 2, 1969, Ser. No. 821,316

Int. Cl. F16l 33/18

U.S. Cl. 285-250

4 Claims



A pressure fitting for connecting a metal pipe to a length of plastic tubing, the fitting being in the form of an adapter wherein the pressure of a nut, which is screwed into a fitting body, shrinks a split retaining ring tightly upon the plastic tubing to prevent tube pullout, and also compresses a sealing ring between the fitting body and the tubing.

3,591,209

DEVICE FOR CONNECTING SHEET ELEMENTS AT RIGHT ANGLES TO EACH OTHER

Wilhelm Knechtel, Rodhelm-Bieber, Germany, assignor to ECE-Elektrostatik und Chemische Entwicklungsgesellschaft mbH, Glessen, Germany

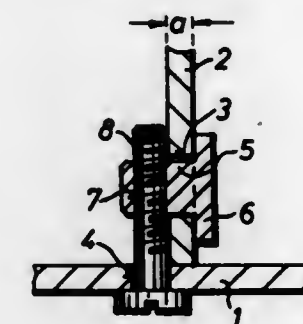
Filed Apr. 27, 1970, Ser. No. 32,174

Claims priority, application Germany, Apr. 26, 1969, P 19 21 490.5

Int. Cl. F16b 5/00

U.S. Cl. 287-20.92

6 Claims



A pin having a transverse threaded bore therethrough passes through an opening in a sheet element and a screw passing through an opening in a second sheet element at right angles to the first element is threadedly received within the pin bore. The threaded bore is spaced from the head of the pin a distance corresponding to the thickness of the sheet element through which the pin passes so that the entire length of the screw is positioned against a face of the pin-carrying sheet element.

3,591,210

DOUBLE-ENDED RING FASTENER AND JOINT THEREWITH

Ricahrd E. Heise, Miami, Fla., assignor to Automated Building Components, Miami, Fla.

Continuation-in-part of application Ser. No. 755,673, Aug. 27, 1968, now Patent No. 3,485,518. This application Aug. 27, 1969, Ser. No. 853,414

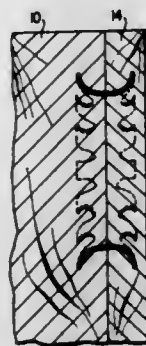
Int. Cl. F16b 5/00, 15/00

U.S. Cl. 287-20.92

17 Claims

The double-ended fastener comprises an elongated sheet metal body having a plurality of longitudinally spaced teeth extending in opposite lateral directions in the plane of the

body. The fastener is formed into a ringlet with each tooth being planar, the ringlet being thereby polygonally shaped. The tips of the teeth are bent outwardly of the planes thereof, and upon imbedment cause the teeth to clinch out-



wardly to form a secure joint. The fastener is disposed between a stud and sheet paneling. The paneling is pressed toward the stud to imbed the teeth of the fastener into the stud and paneling thereby securing one to the other.

3,591,211

SUPPORT BAR CLAMP

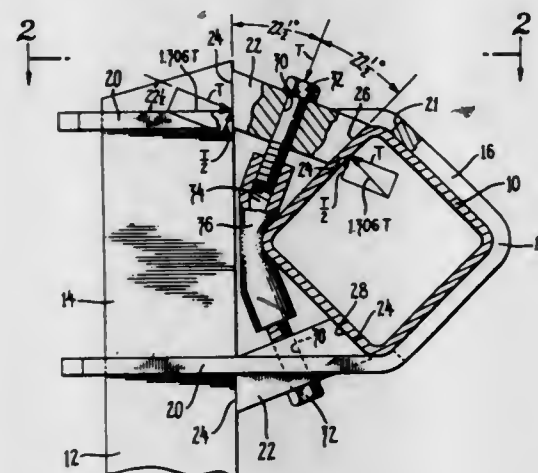
Clarence B. Richey, Royal Oak, Mich., assignor to Massey-Ferguson Inc., Detroit, Mich.

Filed Aug. 28, 1969, Ser. No. 853,859

Int. Cl. F16b 7/00

U.S. Cl. 287-54

5 Claims



A square section support bar is provided with a clamp for clamping another bar to it in perpendicular relation. The clamp comprises a generally U-shaped strap embracing one-half the periphery of the support bar and having a pair of aligned slots in its legs for receiving the other bar. A pair of wedges are interposed between the bars and are apertured at an oblique angle to the other bar to receive bolts which interconnect with a threaded member between the bars. Tightening the bolts forces the bars apart. Since the force is applied at an angle to the shank, the lateral tension force is greater than the bolt tension force. This enables use of a smaller more compact clamp.

3,591,212

CONSTRUCTION FOR DOVETAIL JOINT

Jeff S. Rhyne, 537 East Lafayette Street, Marianna, Fla.

Division of Ser. No. 608,545, Jan. 11, 1967, Pat. No.

3,442,311. Filed Feb. 26, 1969, Ser. No. 802,520

1969, Ser. No. 802,520

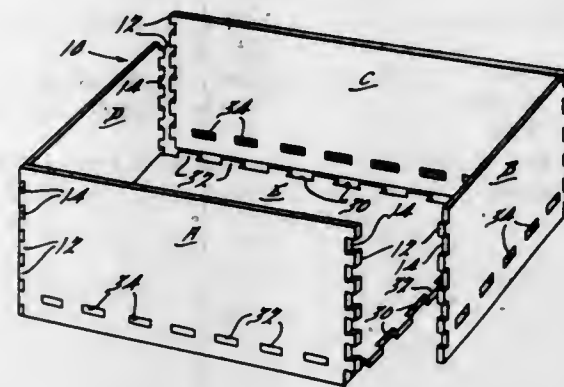
Int. Cl. F16b 7/00

U.S. Cl. 287-20.92 D

4 Claims

An interlocking structure for forming a right-angle joint between two panel members wherein an edge of each member is stamped to form alternate dovetail tenons and mortises along that edge, whereafter the panel members are pressed together at right angles to force the tenons on the one member into the mortises on the other member. As the

tenons enter the mortises, the material of each is deformable to allow the small edge dimension of the mortises to pass the large leading portion of the tenons and allow the tenons to



seat fully within the mortises. Accordingly, the deformed material of the mortises expands to form a structure adapted to grasp the root of the tenons and form a joint interlocking in both directions of relative movement.

3,591,213

CONNECTING MEMBER

Jack Turner, Nathershaw, Oldham Lancashire, England, assignor to Kenneth Broadbent, Lydgate, Oldham, England, a part interest

Filed June 28, 1967, Ser. No. 649,678

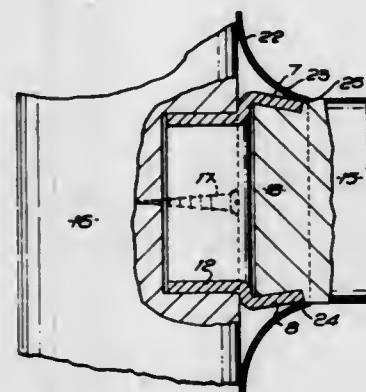
Claims priority, application Great Britain, Aug. 8, 1966,

30,698/66

Int. Cl. E04g 3/08; E06c 7/50; F16b 9/00

U.S. Cl. 287-20.94

2 Claims



A connecting member for connecting together two flat structural elements, for example a tread and a stringer of an open staircase, with an edge of one structural element abutting the face of the other, the member comprising a channel section metal member to receive an edge of one of the structural elements and two spigots projecting from the base of the channel away from the channel to engage in the other structural element.

3,591,214

CONNECTION SYSTEM FOR STEEL BEAMS

Harry M. Gallay, 4649 Saxon Drive, New Smyrna Beach, Fla.

Filed Jan. 21, 1970, Ser. No. 4,570

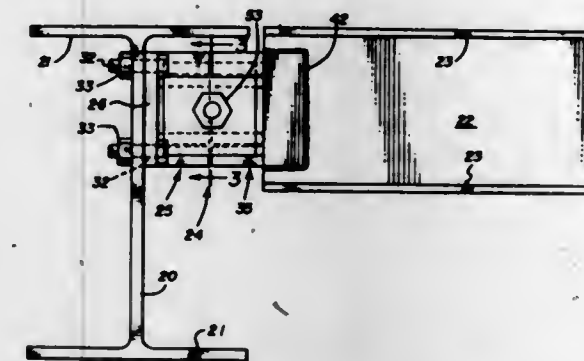
Int. Cl. F16b 7/00

U.S. Cl. 287-189.36

6 Claims

A connection system for steel beams comprising a pair of fittings, one designed to be fastened to a support beam or column, and the other to a framing beam, each fitting provided with a plurality of parallel grooves on each of its sides extending parallel to and normal to the axis of the framing beam, the grooves of the two sides being staggered relatively to each other, each fitting having a notch in that face which abuts the other fitting, the notches matching to form a hole extending through the abutting fittings, a male and a female tongue plate provided with tongues which enter the grooves of the two fittings when axially aligned with each other, and a fastener which preferably is a stud integral with the male ton-

gue plate extending through the hole formed by the matching notches in the abutting fittings and through a hole in the female tongue plate, and a nut on the free end of the stud for drawing the plates together and connecting the tongue plates and fittings together, to thereby connect the beams to which



the fittings have been fastened. The same system can be achieved by providing the tongues on the fittings fastened to the support and framing beams respectively, and the grooves on the male and female plates which connect the fittings together.

3,591,215

PLASTIC ROPE CONNECTOR

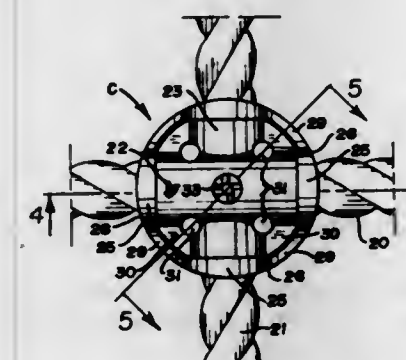
Richard H. Frost; John Maguire, and Jonathan E. Sharp, all of Littleton, Colo., assignors to Rose Manufacturing Company, Kansas City, Mo.

Filed Aug. 6, 1969, Ser. No. 847,884

Int. Cl. F16b 7/04

U.S. Cl. 287-77

6 Claims



This invention concerns a plastic, buttonlike connector for securing a pair of crossed ropes together and also, a method and mold for forming the connector upon a pair of crossed ropes by injection molding operations. The method of injection molding of a plastic connector about a pair of crossed ropes involves steps of holding the rope in position within a mold cavity while a plastic is being injected into the mold cavity. The construction of the mold cavity includes features to so restrain the ropes and also includes passageways to permit a pair of ropes to extend from the cavity, but with the passageways being closed by the ropes to prevent loss of plastic during the injection operation.

3,591,216

BEARING FASTENER AND ASSEMBLY

George R. Onufer, Bloomfield Hills, Mich., assignor to Russell, Burdall & Ward Bolt and Nut Co., Port Chester, N.Y.

Filed Feb. 26, 1969, Ser. No. 802,448

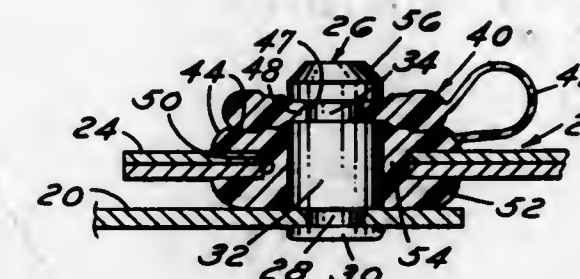
Int. Cl. F16b 17/00

U.S. Cl. 287-93

8 Claims

A bearing fastener having an annular bearing portion including an annular cylindrical bearing sleeve portion and an integral radially outwardly extending annular head portion, an annular locking ring portion, and a resilient connecting portion integral with the head portion and the locking ring portion. In the bearing assembly, the bearing sleeve portion is

received over a cylindrical bearing portion of a stud connecting two relatively movable members. The annular locking



ring portion is received in an annular groove or notch in the stud to secure the bearing portion on the stud.

3,591,217

KNOTTING DEVICE

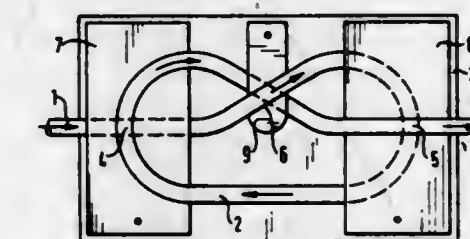
Roland Melzer, Schweim, Germany, assignor to Messrs. R. Melzer OHG

Filed Aug. 21, 1969, Ser. No. 851,887

Int. Cl. B65h 69/04

U.S. Cl. 289-2

11 Claims



A method and a device for knotting one or multiple yarns, threads or the like in which the yarn end to be knotted is forced to move along a looped path by means of pneumatic forces. The yarn is thereafter liberated from the path defining channel thereby maintaining the loop so that a pulling force exerted upon the free yarn end will tighten the knot provided by the loop.

3,591,218

SECURITY BOLT

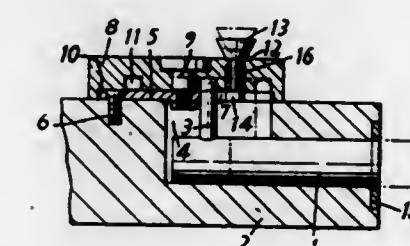
Cyril James Gowland, 2 Holly Tree Lane, Nr. Aylesbury, Buckinghamshire Cuddington, England

Filed Nov. 29, 1968, Ser. No. 779,678

Int. Cl. E05c 1/10

U.S. Cl. 292-140

3 Claims

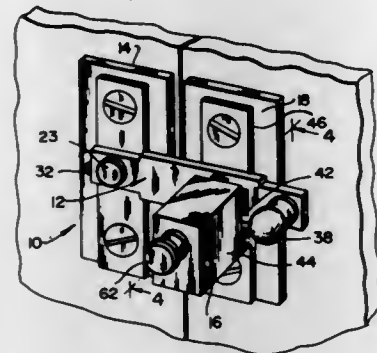


A security bolt for doors and windows has a bolt element longitudinally slidable in a housing between projecting and withdrawn positions, a guide element mounted on the bolt and projecting normally to the axis of movement of the bolt element, a guide member having a slot positioned parallel to the axis of movement of the bolt element and through which slot the guide element protrudes, and a knob rotatably mounted on the guide member and having in its face adjacent to the guide member a scroll groove in which the free end of the guide element engages, such that upon rotation of the knob the bolt element is caused to slide longitudinally.

3,591,219 SAFETY DOOR LOCK

Michael Graziosi, 383 Second St., Jersey City, N.J.
Filed July 18, 1969, Ser. No. 843,143
Int. Cl. E05c 3/04
U.S. Cl. 292-207

2 Claims

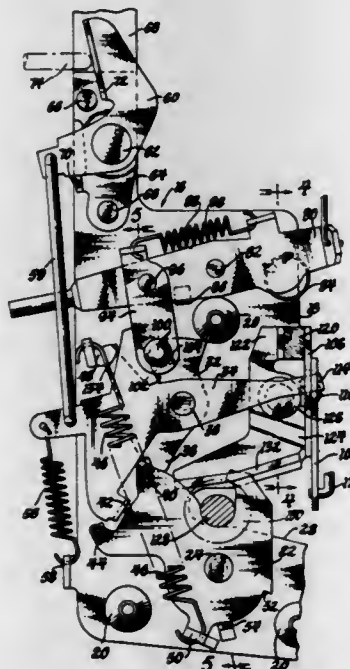


A tamperproof safety lock for securing a doorway is provided. The latch is pivotally mounted at one end to a plate which is secured to the inside surface of the door adjacent to the edge. A second plate is mounted on the door molding in alignment with the first plate. The distance between the two plates when the door is closed is such that the latch may pivot to bridge the gap between the two plates. The second plate includes a grooved latch stop. The groove within the latch stop is of a thickness greater than the thickness of the latch and receives the latch when it is pivoted to the locked position. The latch includes an opening adjacent the free end thereof in alignment with the latch stop. A portion of the latch stop is bored and receives a spring biased locking bolt which may be manually operated to extend into the groove and through the opening in the latch. The bolt thus prevents the latch from being rotated to the "open" position.

3,591,220 CLOSURE LATCH

Bela Sandor, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 9, 1969, Ser. No. 840,400
Int. Cl. E05c 3/36
U.S. Cl. 292-216

4 Claims



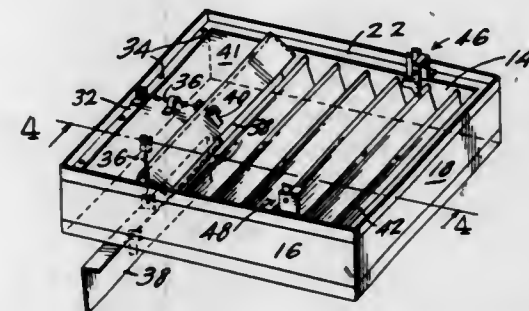
A detent and detent release lever of a door lock are coaxially pivoted and provided with spaced opposed edge portions. A pin of an intermittent member supported on a locking lever is movable between the opposed edge portions to couple the levers or is movable out of engagement with one edge portion to uncouple the levers when the locking lever is respectively moved between unlocked and locked

positions. The detent release lever is coupled to inside and outside operating means to release the detent when the levers are coupled. If the levers are uncoupled when the bolt is in unlatched position, they will remain uncoupled when the bolt is in unlatched position, they will remain uncoupled when the bolt moves to latched position to thereby provide a set and slam feature.

3,591,221 FIRE DAMPER LATCH

Raymond L. Alley, Toledo, Ohio, assignor to The American Warming & Ventilating, Inc., Toledo, Ohio
Filed Apr. 25, 1969, Ser. No. 819,243
Int. Cl. E05c 9/00, 3/04
U.S. Cl. 292-230

7 Claims

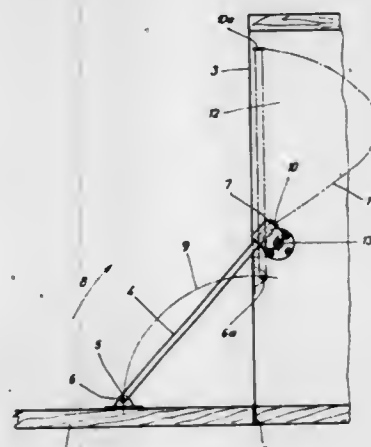


A latch is designed for a fire damper, the blades of which are integrally formed from an imperforate sheet. With a fire damper of this type, when the integral blade sections are held in a retracted, open position by a fusible link, they are in a stressed condition. Consequently, when the fusible link is parted, the blade sections will move quickly across the frame and close the damper without the use of auxiliary springs or other closure devices. The latch for the fire damper engages in intermediate blade section thereof when the damper is closed and thereby holds the blade sections securely in the closed position. The latch is relatively easy to manufacture and low in cost, yet is dependable and positive-acting in operation.

3,591,222 SUPPORT OR HOLDER FOR A COVER OR LID OF FURNITURE

Christian Schaber, Lossburg, and Gunter Schmid, Dietersweller, both of, Germany, assignors to Messrs. Franz Heitlich KG, Alpirsbach, Germany
Filed Aug. 26, 1969, Ser. No. 853,119
Claims priority, application Germany, Aug. 30, 1968, G6753556
Int. Cl. E05c 17/04; G65d 43/24
U.S. Cl. 292-262

10 Claims



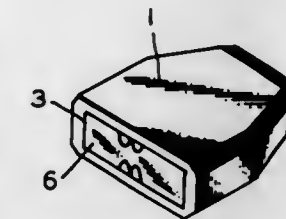
A cover or lid hinged on a piece of furniture about a horizontal axis in supported in horizontal position by a bar pivoted at one end to the lid, the other end of the bar passing through an opening in a guide pivoted to the furniture about a horizontal axis. The through cavity of the guide tapers out-

wardly in both directions from intermediate points of the telescoped nonrotatably onto a hex formed on the body so inner walls thereof.

3,591,223 SINGLE-USE SEAL LOCK

Eduardo de Lima Castro Neto, Estrada do Timbo, 63 Rio de Janeiro, Brazil
Filed Oct. 1, 1968, Ser. No. 764,109
Claims priority, application Brazil, Oct. 3, 1967, 193,500
Int. Cl. B65d 27/30, 67/02
U.S. Cl. 292-320

4 Claims

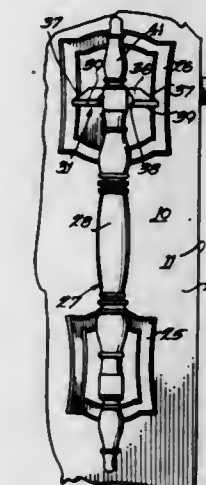


A seal lock designed for a single use having a socket member and a plug insertable in said socket. The plug is provided with flexible arms which will coact with ledges in the socket portion to prevent removal of the plug when once inserted. The socket is provided with apertures for wires or threads and also the plug is provided with furrows for carrying such wires and threads.

3,591,224 DIVIDED THUMBPIECE LATCH

Robert K. Unter, Rockford, Ill., assignor to Keystone Consolidated Industries, Inc., Peoria, Ill.
Filed Sept. 26, 1969, Ser. No. 861,349
Int. Cl. E05b 3/00; E05c 1/12
U.S. Cl. 292-336.3

2 Claims



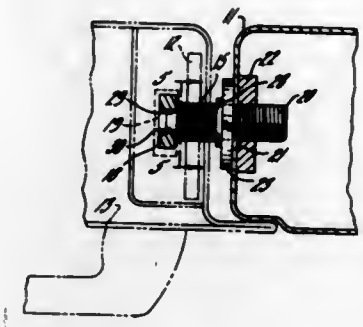
A handle and latch assembly for a door having a thumbpiece actuating a retractable latchbolt from engagement with a strike. A generally upright handle is mounted on the door with the thumbpiece having a single actuating shank behind the upper end of the handle and a divided or bifurcated thumb-engaging portion extending around and outwardly of the upright handle with the bifurcation allowing movement of the thumbpiece relative to the handle.

3,591,225 STRIKER FOR USE WITH A VEHICLE LATCH

Lawrence P. Hagemeyer, Rockford, Ill., assignor to Atwood Vacuum Machine Company, Rockford, Ill.
Filed Feb. 24, 1970, Ser. No. 13,694
Int. Cl. E05b 15/02
U.S. Cl. 292-340

6 Claims

A washer formed separately of the striker body is

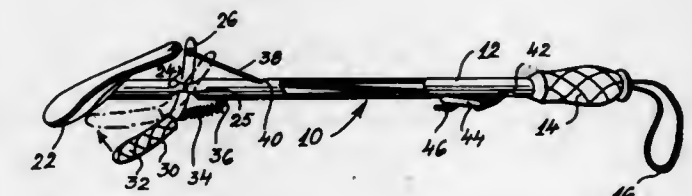


that the striker may be threaded into the doorpost of the vehicle by turning the washer with a driving socket.

3,591,226 GRIPPING DEVICE FOR HANDICAPPED PERSON

Hobson J. Elmore, Jr., 2772 Oakland Terrace, Decatur, Ga., and William F. Elmore, 214 Ridgeway Drive, Gulfport, Miss.
Filed May 19, 1969, Ser. No. 825,758
Int. Cl. A47f 13/06
U.S. Cl. 294-19

3 Claims

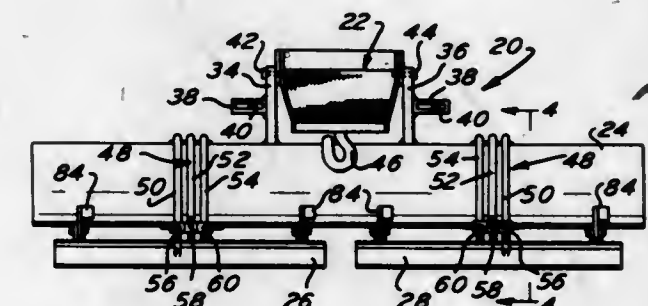


This gripping device has an elongated tube with a handle at one end and a shoehorn at the other end. A pivotable arm is located near the shoehorn and is operated by a cable which extends through the tube and terminates at the handle. The arm cooperates with the shoehorn in gripping a shoe. The arm can be spring biased to open or closed position with respect to the shoehorn. When in closed position the arm and shoehorn can grip an article therebetween.

3,591,227 ARCuate VACUUM LIFTER

Jacob J. Creskoff, Wynnwood, Pa., assignor to Vacuum Concrete Corporation of America, Philadelphia, Pa.
Filed Feb. 20, 1968, Ser. No. 706,980
Int. Cl. A47b 47/00; B66c 1/02
U.S. Cl. 294-65

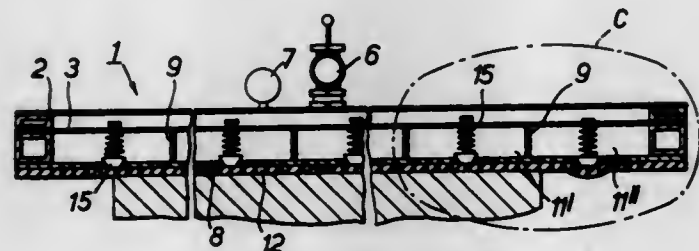
5 Claims



A vacuum lifter which comprises an elongated frame having an arcuate concave surface and a deformable resilient gasket secured to the concave surface about the periphery thereof. A plurality of longitudinally extending deformable resilient gaskets are provided which extend along the lifter and are secured to the concave surface between the ends of the peripheral gasket and parallel to the sides of the peripheral gasket. The gaskets thereby form a plurality of longitudinally extending open chambers. Each of the chambers includes individual means which define a port for con-

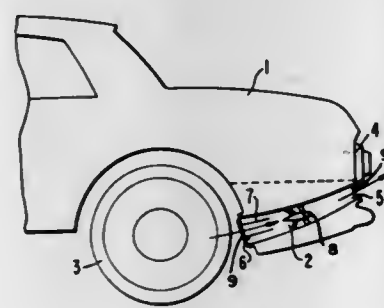
necting the chambers to a source of reduced pressure. Means are also provided for selectively connecting either all of the ports to a source of reduced pressure or only a port of a central one of the chambers to a source of reduced pressure so that a large range of diameters of cylinders may be lifted to said vacuum lifter.

3,591,228
SUCTION PADS
David John Tudor Webb, Building Research Station, Garston, Watford, Hertfordshire, England
Filed June 17, 1968, Ser. No. 737,781
Int. Cl. A47b 97/00; B66c 1/02
U.S. Cl. 294-65 3 Claims



There is described a suction pad presenting a lifting surface whose effective area can be altered to suit the size and shape of article to be lifted.

3,591,229
INSTALLATION FOR REDUCING THE SOILING OF REAR LIGHTS OR THE LIKE AT MOTOR VEHICLE BODIES
Karl Willfert, Gerlingen-Waldstadt, and Hans Gotz, Magstadt, Württemberg, both of, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed July 11, 1968, Ser. No. 744,067
Claims priority, application Germany, July 14, 1967, D 53598
Int. Cl. B62d 35/00
U.S. Cl. 296-1 9 Claims

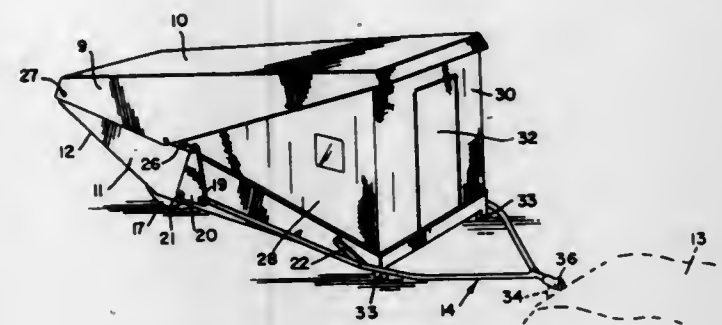


An installation for reducing the soiling of rear lights or the like in motor vehicle bodies which is characterized by an air guide system that discharges within the area of the rear lights and preferably commences at such places of the body, at which a dynamic air pressure occurs during the drive.

3,591,230
EXPANDABLE TRAILER
George F. Cramer, Artist Drive, Nashville, Ind.
Filed Mar. 12, 1969, Ser. No. 806,450
Int. Cl. B60p 3/38

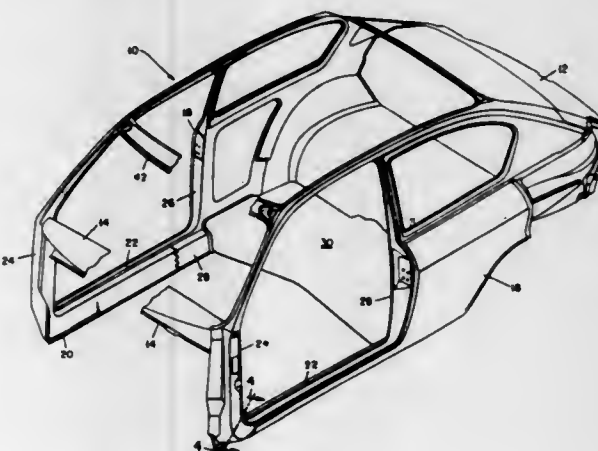
U.S. Cl. 296-23 7 Claims
A trailer having linkage members connected to its drawbar for tilting the trailer bed when its wheels are held stationary and the drawbar is moved. The invention is embodied in an expandable camper trailer having a roof portion hinged to the trailer bed at the rearward end thereof. In this camper trailer embodiment the drawbar is connected to a forklike extension which has sections disposed adjacent the sides of the trailer bed, and which operates on a plurality of linkages

to force the trailer roof upward and the bed downward, at their forward ends. Opening of the camper trailer is effected when a pulling force is applied to the drawbar, while blocking the wheels against movement. In another embodiment the trailer is tilted downward at its rearward end to



facilitate the loading of cattle or heavy equipment on the trailer. In this embodiment the drawbar is formed of telescoping sections and is moved rearwardly, while the wheels are held stationary, thereby causing a linkage attached thereto to push the forward end of the trailer upwardly.

3,591,231
FABRICATED UNISIDE FOR A UNITIZED BODY
Henry W. Wessells, Paoli, and Walter S. Eggert, Jr., Huntingdon Valley, both of, Pa., assignors to The Budd Company, Philadelphia, Pa.
Filed July 16, 1969, Ser. No. 842,279
Int. Cl. B62d 25/02
U.S. Cl. 296-28 R 3 Claims

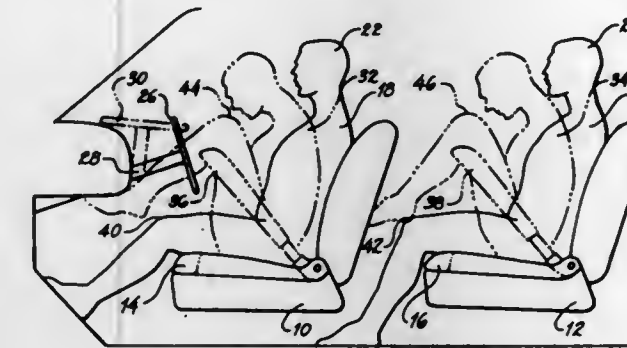


A fabricated uniside unit for a unitized body structure utilizing small economical stampings doubled in high-stress areas for greater strength and forming frustum-reinforced beam sections at extremely stressed areas. Portions of the uniside units form side sill structure while other portions act as shear panels for supporting load applied to the body structure.

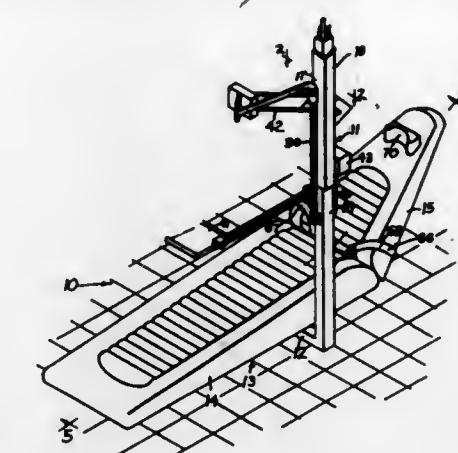
3,591,232
AUTOMATIC VEHICLE OCCUPANT RESTRAINT
Lewis B. Simon, 1801 Joanne Way, Oxnard, Calif.
Filed Apr. 1, 1969, Ser. No. 812,472
Int. Cl. B60r 21/10

U.S. Cl. 297-216 9 Claims
An occupant-restraining member embodied into a vehicle seat constructed so as to automatically enfold and restrain the occupant in the event of a sudden vehicle deceleration.

In operation the restraining member is abruptly raised so as to contact the underside of the occupant's upper legs and

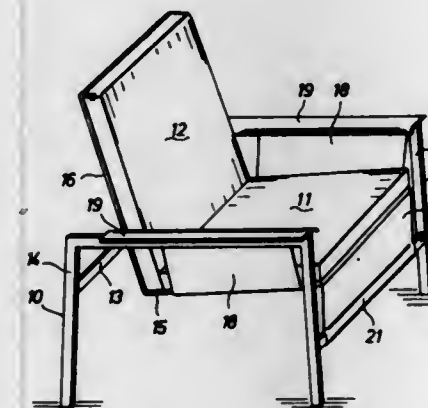


fold the occupant's upper legs and body between it and the seat back.



The chair can also be moved horizontally parallel with the major axis of the chair.

3,591,233
ARTICLE OF FURNITURE
Christian H. Turcksin, 69a Bachstrasse, Detmold, Lippe, Germany
Filed Jan. 8, 1969, Ser. No. 789,832
Claims priority, application Austria, June 17, 1968, A5794/68
Int. Cl. A47c 3/025
U.S. Cl. 297-276 11 Claims

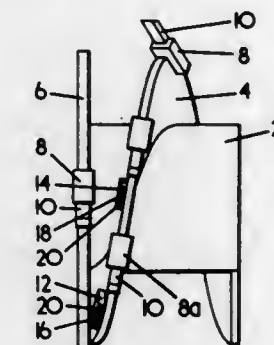


An article of furniture, such as a chair, comprising: a base frame formed from at least two spaced-apart side sections interconnected by at least one cross-strut; at least one back and seat unit universally displaceable between said side sections by the suspension of said back and seat unit between said side sections by means of at least one elastic sheet secured at at least one end to at least one side section and being in supporting engagement with said back and seat unit and optionally provided with an elastic retaining strip securable at one end to said back seat unit and at its other end to a cross-strut in the front region of said base frame so as to limit the rising movement of the front of said back and seat unit when loaded.

3,591,234
DENTIST CHAIR
John J. Condon, S. 1927 Post, Spokane, Wash.
Filed June 2, 1969, Ser. No. 829,245
Int. Cl. A47c 1/02

U.S. Cl. 297-346 6 Claims
A dentist chair is described that is suspended from the ceiling on a telescoping post having a horizontally extending arm for supporting the chair above a floor without any obstruc-

3,591,235
CUTTERS FOR MINERAL-MINING MACHINES
George T. Addison, Burton-on-Trent, England, assignor to Coal Industry Patents Limited, London, England
Filed Feb. 24, 1970, Ser. No. 13,654
Claims priority, application Great Britain, Mar. 4, 1969, 11447/69
Int. Cl. E21c 35/08, 25/08
U.S. Cl. 299-1 14 Claims

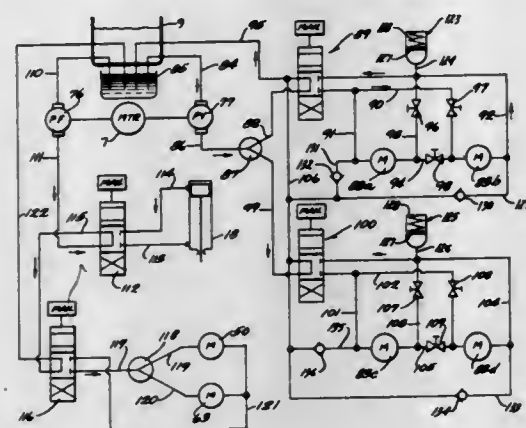


A cutterhead for a mineral-mining machine, particularly a shearer-loader, comprises a rotary cutter equipped with fixed cutter tools distributed around the head. Adjacent to the periphery of the head but spaced from one another are mounted a source and a detector of electromagnetic radiation, the detector deriving an output signal dependent upon the amount of radiation detected by backscatter from the strata adjacent to the cutter and gives a measure as to the thickness of coal remaining after cutting. Means are also provided on the cutter for relating the output signal from the detector to the angular position of the source or detector about the axis of rotation of the cutter so that when the signal is fed from the detector to responsive control means for steering the machine positioned on the machine body, the cutting horizon of the cutter is controlled in relation to a coal/stone interface at a boundary of the seam.

3,591,236
ICE RESURFACING MACHINE
Kenneth R. Jones, Mequon, Wis., assignor to Tennant Company, Minneapolis, Minn.
Continuation-in-part of application Ser. No. 624,080, Mar. 17, 1967, now Patent No. 3,475,056. This application Oct. 24, 1969, Ser. No. 869,247
Int. Cl. E01c 23/12; E01h 5/12

U.S. Cl. 299-24 17 Claims
A self-propelled vehicle adapted to move over the surface of an ice rink and remove a layer of ice and subsequently spread a film of water over the shaved ice surface. The vehicle includes an ice-removing unit located at the rear of the

vehicle and mounted such that the unit is pushed, rather than pulled, over the ice surface. The ice-removing unit comprises a cutting blade to shave the ice, and a rotating brush sweeps the ice and conveys the shavings forwardly to a transverse



auger conveyor which delivers the shavings to an elevator that functions to convey the shavings to a tank on the vehicle. A hydraulic drive system is employed which enables an infinitely gradual application of torque to be applied to retain frictional engagement between the wheels and the ice.

3,591,237

MOP HEAD MAKING MACHINE WITH AUTOMATIC CYCLING CONTROL

Gerald G. Swenson, Atlanta, Ga., assignor to American Associated Companies, Atlanta, Ga.

Filed Nov. 21, 1968, Ser. No. 777,641
Int. Cl. A46d 9/00

U.S. Cl. 300—16

2 Claims



The sequence of operations for making a mop head are automatically cycled by the use of pressure-responsive valves and switches in a hydraulically actuated circuit. The pressure-responsive switches and valves assure that the individual operations are uniform from cycle-to-cycle and accommodate for variations in size, etc. which may be encountered from one mop head to another, thus assuring uniformity in the products.

3,591,238

MULTI-DIAMETER PIPELINE ARRANGEMENT FOR FACILITATING RESUSPENSION OF SETTLED SLURRY SOLIDS

Paul E. Titus, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Feb. 26, 1969, Ser. No. 802,613
Int. Cl. B65g 53/30, 53/52

U.S. Cl. 302—14

4 Claims



Method and apparatus for facilitating resuspension of a slurry material solid phase in a shut-down slurry pipeline

upon restart. The internal diameter is progressively increased in the direction of slurry flow in those portions of the pipeline where plug formation by settled slurry solids during pipeline shutdown is likely to occur.

3,591,239

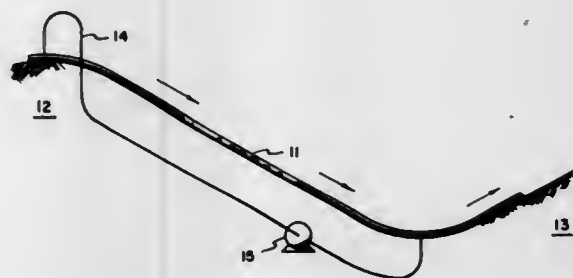
RECYCLING ARRANGEMENT FOR RETARDING PLUG FORMATION IN A SHUTDOWN SLURRY PIPELINE

Paul E. Titus, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Feb. 26, 1969, Ser. No. 802,617
Int. Cl. B65g 53/30

U.S. Cl. 302—14

5 Claims



Method and apparatus for retarding plug formation in a shutdown slurry pipeline. Means is provided whereby slurry liquid phase within upper elevations of the shutdown line is recycled into lower portions of the line where slumping and compacting of the solid phase may occur.

3,591,240

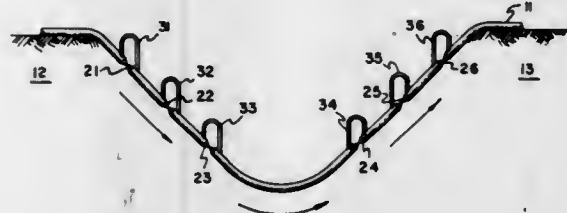
VALVED BYPASS ARRANGEMENT FOR PREVENTING PIPELINE SLUMPING

Errol V. Seymour, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Mar. 21, 1969, Ser. No. 809,316
Int. Cl. B65g 53/04

U.S. Cl. 302—14

9 Claims



Method and apparatus for preventing downhill slumping in a shut-down slurry pipeline. Automatic shutoff valves are placed along the sloping portions of the pipe and at each valve location an alternate slurry path is provided, said path offering resistance to the slurry flow sufficient to prevent movement of the slurry when the only driving force is gravity. The alternate slurry path has sufficient storage capacity to accommodate and retain slurry material therein against downward movement in the pipeline, said slurry material having been introduced into the path upon pipeline shutdown.

3,591,241

HELICAL DRIVE

Dills V. Allen, 208 Euclid Ave., Arlington Heights, Ill.

Filed July 8, 1968, Ser. No. 743,213

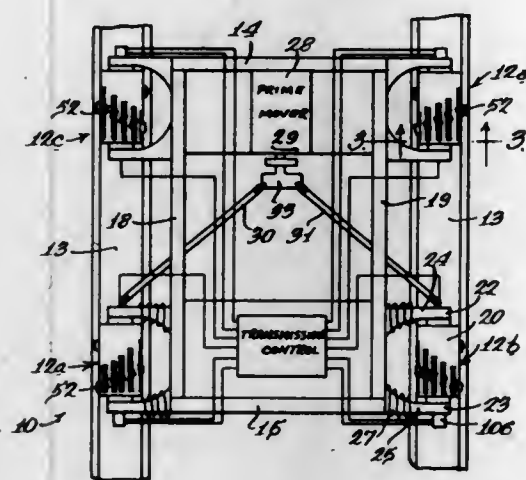
Int. Cl. B61f 11/00

U.S. Cl. 305—8

19 Claims

A vehicular drive in which the ground-engaging devices take the form of a plurality of roadway-engaging rollers ar-

ranged in a helical path around an axis parallel to the direction of movement of the vehicle, with control means for



shifting the position of the rollers into any desired helical path to effect an infinitely variable transmission ratio.

3,591,242

TRACK FOR TRACKLAYING VEHICLES

Hans Borner, Homburg (Saar), Germany, assignor to Gerlach-Werke GmbH, Homburg (Saar), Germany

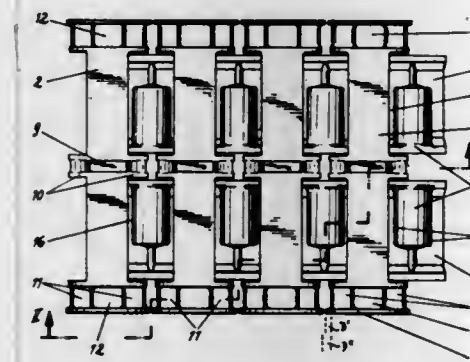
Filed Mar. 14, 1969, Ser. No. 807,389

Claims priority, application Germany, Mar. 16, 1968, P 16 80 325.1

Int. Cl. B62d 55/20

U.S. Cl. 305—36

12 Claims



A track for tracklaying vehicles has a plurality of track links adjacent ones of which define with one another gaps which extend transversely of the travel of the track. Each track link has a ground-contacting surface and a wheel-contacting surface which both extend transversely of the travel of the track and which both are bounded by lateral edges. The lateral edges of the wheel-contacting surface are inwardly offset with reference to those of the ground-contacting surface. Connecting means pivotally connects the links for pivotal movement about pivot axis extending in direction transversely of the travel of the track and which are inwardly offset with reference to the lateral edges of the ground-contacting surfaces. A plurality of bridging members are respectively located in the gaps between adjacent links and are pivotally connected to the latter. The bridging members each have a wheel-contacting face bridging the gap between the respective wheel-contacting surfaces of the associated adjacent links and in effect constituting extensions of these wheel-contacting surfaces.

3,591,243

BEARING ELEMENTS

Wilhelmus Franciscus Knippenberg, and Gerrit Verspui, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

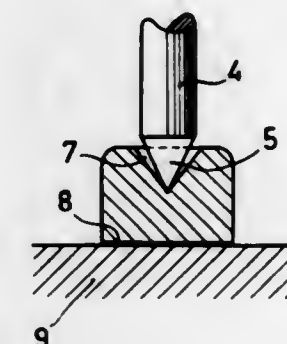
Filed Apr. 14, 1969, Ser. No. 815,657

Claims priority, application Netherlands, Apr. 18, 1968, 6805443

Int. Cl. F16c 1/24

U.S. Cl. 308—241

11 Claims



A bearing formed of a base having a bearing surface consisting of coherent pyrolytic silicon carbide which is either soldered or cemented to the base or formed on the base.

3,591,244

PACKING UNIT FOR DISHES

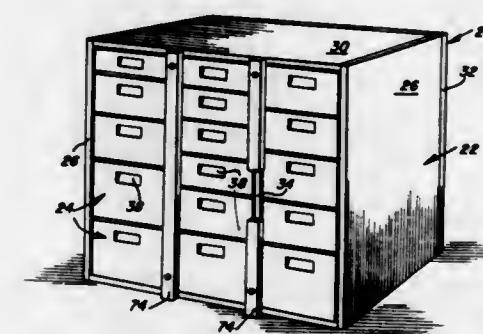
Lawrence Hancock, Jr., 2025 Snyder Ave., Colorado Springs, Colo.

Filed Nov. 27, 1968, Ser. No. 779,366

Int. Cl. E05b 65/46; A47b 88/00

U.S. Cl. 312—216

10 Claims



A device to facilitate the moving of dishes or kitchenware that provides a number of drawers therein to receive dishes. The drawers are lined in a resilient shock-absorbing material to cushion the dishes, cups, bowls and glasses placed therein from contact therebetween. The drawers are secured into the device when filled, so that the filled device can be moved as an ordinary piece of furniture.

3,591,245

ERECTABLE AND COLLAPSIBLE DRAWER RECEIVING CABINET

George Allen, Strong, Pa., assignor to Cardinal Container Corp., Carmel, Pa.

Filed Sept. 29, 1969, Ser. No. 861,625

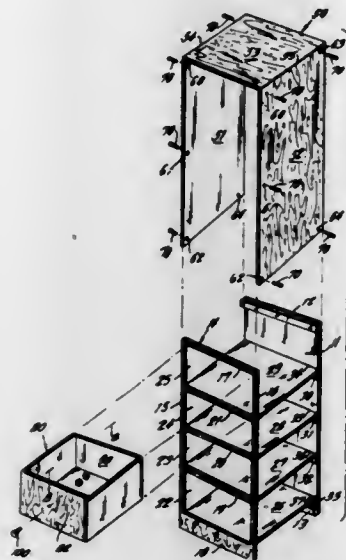
Int. Cl. A47b 43/00, 47/00

U.S. Cl. 312—258

3 Claims

An erectable and collapsible drawer cabinet having a front frame defining a plurality of drawer receiving openings, a rear wall, horizontal partitions hingedly connected to the rear wall and to the front frame, each partition extending to the lower portion of the drawer receiving opening; the front frame, rear wall and hinged partitions being extendible from collapsed form in which the rear wall is adjacent the front

frame to a position where the partitions are normal to the rear wall and front frame; and a finishing piece comprising shelf-support strips carried by the wall. The forward portion of the second hinge leaf is generally L-shaped and includes an intermediate portion which lies against the front of the



two sidewalls and a top wall and secured to the sides of the rear wall and front frame to rigidify the erected chest.

3,591,246

VERTICALLY ADJUSTABLE LOADING DECK FOR TRANSPORT CONTAINERS

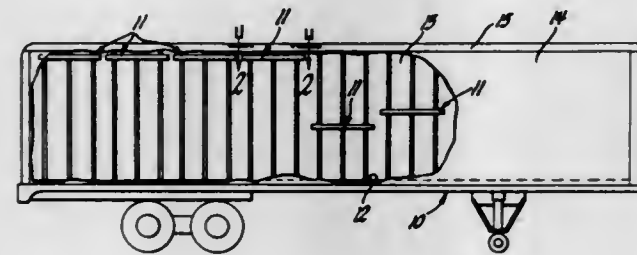
Thomas F. Adams, 28334 Ridgebrook Road, Farmington Township, Oakland County, Mich.

Filed Sept. 9, 1968, Ser. No. 758,247

Int. Cl. A47b 57/06

U.S. Cl. 312-306

28 Claims



A vertically adjustable loading deck for use in closed cargo transport containers such as a truck, a truck trailer, or a railroad car and the like, or in stationary storage containers, and which is adapted to be adjusted to a selected loading position spaced downward from the roof of a closed cargo container and secured in place to provide a second loading platform spaced upwardly from the usual container fixed loading deck, and which is movable in a quick and easy manner by a single operator.

3,591,247

CABINET HINGE

Hammond A. Berry, Spring Lake, and Michael J. Duly, Muskegon, both of Mich., assignors to E. H. Sheldon & Company, Muskegon, Mich.

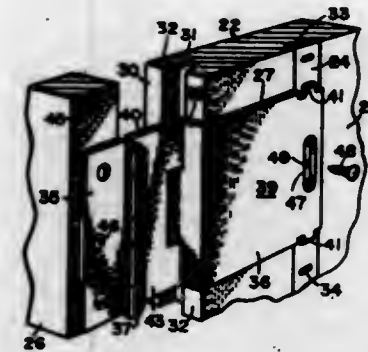
Filed Dec. 23, 1968, Ser. No. 785,985

Int. Cl. A47b 96/00

U.S. Cl. 312-324

6 Claims

A cabinet hinge for quickly and removably attaching a door to a cabinet without defacing or marring the cabinet. The hinge includes a first hinge leaf attached to the door and a second hinge leaf attached to the wall of the cabinet. The second leaf includes a generally planar rearward portion which lies against the side of the cabinet wall and provides a pair of attaching tabs which are inserted into perforated



cabinet wall. The front of the wall is provided with a vertically extending slot, and a rearwardly extending projection on the forward portion is received by the slot.

3,591,248

UNIFORM LIGHT TRANSMITTING, INFRARED ABSORBING AND REFLECTING MATERIALS AND ARTICLES

Gerard Meunier, Jumet; Lucien Leger, Montigny-le-Tilleul, and Jose Lelong, Glvry, all of Belgium, assignors to Glaverbel S. A., Watermael-Boitsfort, Belgium

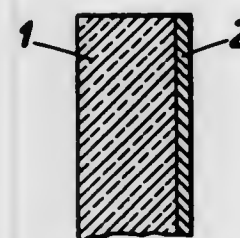
Filed Oct. 7, 1969, Ser. No. 866,104

Claims priority, application Luxembourg, Mar. 23, 1965, Oct. 21, 1965, Nov. 11, 1965, 48,240;49,672;49,816

Int. Cl. G02b 5/20

U.S. Cl. 350-1

26 Claims



A light-transmitting article composed of a layer of transparent material having radiant heat-absorbing properties and arranged to be exposed to a principal source of heat radiation, and a protective layer of transparent material disposed adjacent that surface of the first-mentioned layer which is to face the principal source of heat radiation and capable of at least temporarily reflecting at least a portion of the radiant heat from such source which the first-mentioned layer is capable of absorbing so as to protect the article from damage due to excessive heat absorption.

3,591,249

OPTICAL SCANNING DISPOSITION

Ernest Wildhaber, 124 Summit Drive, Rochester, N.Y.

Filed Jan. 24, 1969, Ser. No. 793,851

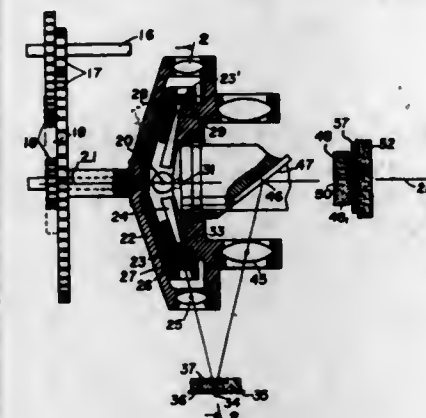
Int. Cl. G02b 17/00

U.S. Cl. 350-6

8 Claims

This optical scanning disposition for scanning different characters, that are uniformly spaced in a line, lights the entire area of a single character simultaneously and displaces the lighted area along a line in a way that avoids simultaneous illumination of two adjacent characters. A lighted character is then compared with all the characters used.

Scanning is done either stepwise, the lighted area stopping for an instant at each character; or sufficient space is provided between adjacent characters that the lighted area does not reach two characters simultaneously as it moves uniformly along said line.



vided between adjacent characters that the lighted area does not reach two characters simultaneously as it moves uniformly along said line.

3,591,250

MECHANICAL IMAGE MOTION STABILIZER WITH ROTATION RATE COMPARISON SYSTEM

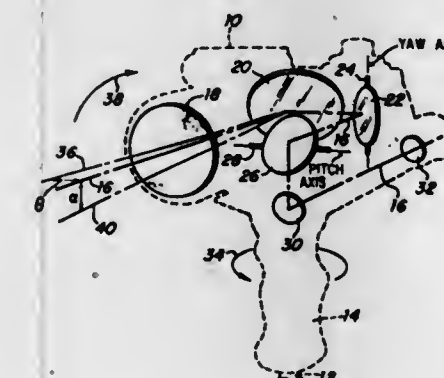
Herbert William Feinstein, Lexington, and Edward Paul Morse, Norwood, both of Mass., assignors to Stek Corporation, Lexington, Mass.

Filed Apr. 8, 1968, Ser. No. 719,658

Int. Cl. G02b 23/00

U.S. Cl. 350-16

6 Claims



Apparatus is disclosed for stabilizing image motion in optical instruments due to instrument motions normal to the line of sight by driving reflection means in the optical path of the instrument to compensate for image motion normal to the line of sight in response to rotations of the instrument about axes normal to the line of sight.

3,591,251

DIAPHRAGM EQUIPMENT IN OPTICAL INSTRUMENTS

Peter Blankenburg, Dresden, Germany, assignor to VEB Carl Zeiss Jena, Jena, Gera, Germany

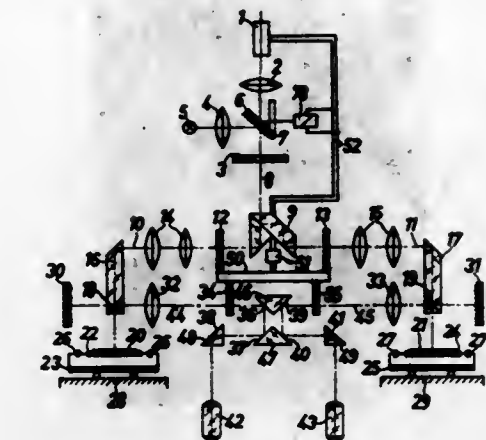
Filed Apr. 30, 1969, Ser. No. 820,679

Int. Cl. G02b 27/22

U.S. Cl. 350-17

1 Claim

An optical instrument, particularly for stereoscopic point marking, comprises an optical system for directing the point-marking radiation from at least one radiation source to at least two objects which it is desired to mark with homologous points, and an optical system for the stereoscopic observation of the objects and the adjustment of the homologous points. Both systems have optical elements in common, at least near the objects. A diaphragm system which can be interposed in the stereoscopic observation ray-path prevents marking



3,591,252

LARGE ARRAY SYNTHESIZING

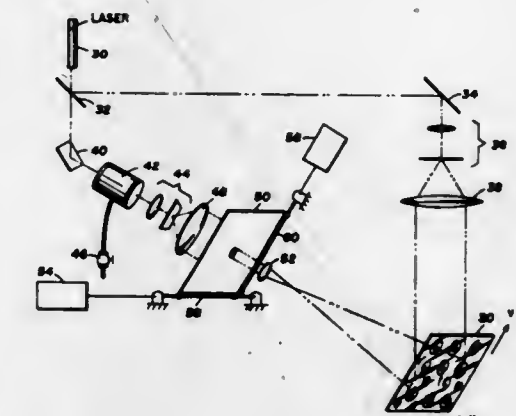
Sun Lu, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 21, 1968, Ser. No. 769,103

Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

7 Claims



An array of similar images may be synthesized by holographic reconstruction techniques. To produce a large array of similar images, a hologram is constructed that contains the spatial frequency spectrum of the desired array. This frequency spectrum may be generated by usual holographic procedures wherein an object wave and a reference wave are made to interfere on an energy sensitive surface. Since the information contained on the hologram represents an array of points which synthesizes the spatial frequency spectrum, the hologram must be produced by sequentially exposing the energy sensitive surface to a series of interference patterns. To control the amplitude and phase distribution of each point representing the spatial frequency spectrum, both the exposure time and phase displacement between the interfering beams are uniquely determined from a mathematical model of the spatial frequency spectrum.

3,591,253

REAR PROJECTION SCREEN

James J. De Palma, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 2, 1969, Ser. No. 838,716

Int. Cl. G03b 21/60

U.S. Cl. 350-126

10 Claims

A rear projection screen comprising a sheet of polymeric material, the sheet being of sufficient thickness to be self-supporting and having improved optical characteristics. More

specifically, the sheet of material is preferably made from the polyolefins, for example, polyethylene or polypropylene, that



has been prepared in such a way so as to have a generally crystalline structure.

3,591,254

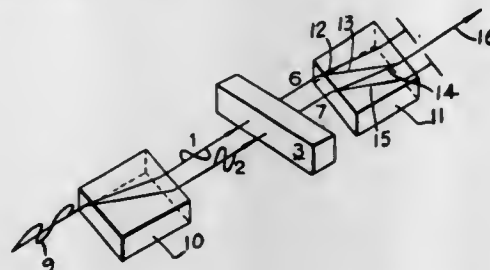
APPARATUS FOR PRODUCING A PLANE POLARIZED BEAM WITH A ROTATING PLANE OF POLARIZATION
Arthur Browne, Horley, Surrey, and John Siegfried Palmer, Betchworth, both of, England, assignors to U. S. Philips Corporation

Filed Mar. 17, 1969, Ser. No. 807,882

Claims priority, application Great Britain, Mar. 18, 1968, Int. Cl. G02f 1/24

U.S. Cl. 350-149

7 Claims



A plane polarized beam with a rotating angle of polarization is produced by splitting a beam into two phase coherent plane polarized beams with orthogonal direction of polarization. The split beams are amplitude modulated with envelopes in phase quadrature and recombined.

3,591,255

FIBER OPTIC BUNDLE ELECTRO-OPTICAL IMAGE CONVERTER

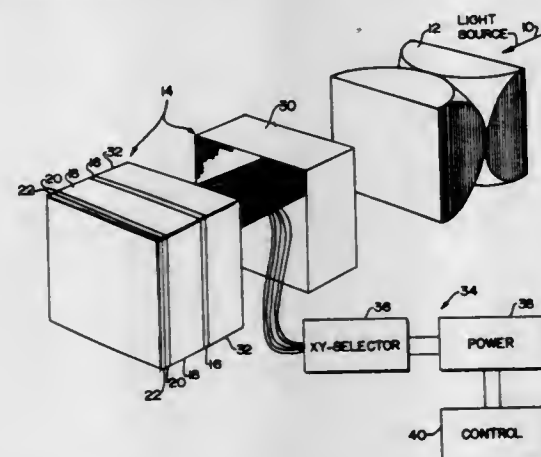
Richard S. Ploss, Danvers, Mass., assignor to Baird-Atomic, Inc., Cambridge, Mass.

Filed Dec. 17, 1968, Ser. No. 784,322

Int. Cl. G02f 1/26

U.S. Cl. 350-150

4 Claims



An optical image is presented in terms of visible light directed through contiguous light pipes to a Pockels effect plate disposed between a polarizer and an analyzer. Each of

the light pipes is coated with a conducting metal so that each point on the Pockels effect plate can be controlled by a potential that is locally applied in such a way as to control transmissivity. In consequence, image information is applied to the assemblage by controlling the transmissivities of the various points independently.

3,591,256

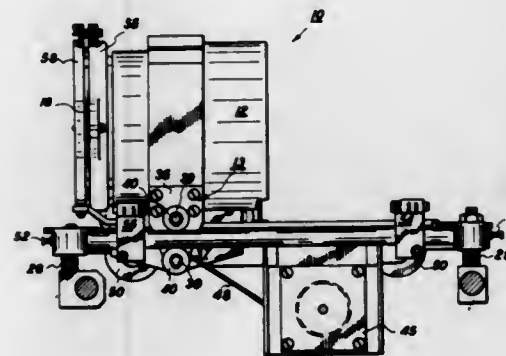
VARIABLE MAGNIFICATION LENS SYSTEM
August Hoyer, Penfield; Karl E. Liechty, Pittsford, and Richard T. Ziehm, Webster, all of, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Apr. 15, 1968, Ser. No. 721,333

Int. Cl. G02b 15/10

U.S. Cl. 350-183

6 Claims



Lens system including a first lens supported by a movable carriage for displacement along the system optical path to vary the size of the image projected by the first lens, a second lens rotatably supported on the carriage, link means for moving the second lens into the optical path on displacement of the carriage and the first lens to restore first lens focus, stopping means engageably with the lens carriage to limit carriage movement; and normally operative drive means for displacing the carriage, the stopping means and normally operative drive means cooperating to prevent unwarranted movement of the first and second lenses.

3,591,257

OBJECTIVE HAVING LONG BACK FOCAL DISTANCE WITH REGARD TO ITS FOCAL LENGTH

Walter Mandler; Garry Edwards, and Erich Wagner, all of Midland, Ontario, Canada, assignors to Ernst Leitz GmbH, Wetzlar, Germany

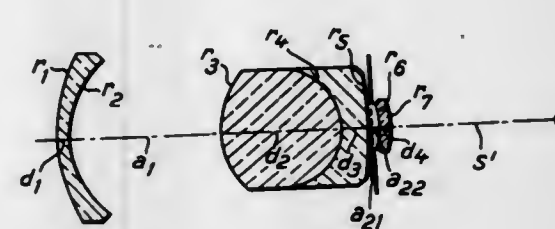
Filed July 13, 1969, Ser. No. 833,063

Claims priority, application Germany, June 15, 1968, P 17 72 665.7

Int. Cl. G02b 9/62

U.S. Cl. 350-215

6 Claims



A photographic objective having a relatively long back focal distance with regard to its focal length and also having a great relative opening comprising in combination in front of the diaphragm a negative lens group comprising at least one component lens and spaced therefrom a preferably cemented positive lens element which comprises at least two component lenses having opposite refractive power. Behind the diaphragm a negative lens group is disposed which comprises at least one component lens.

3,591,258

OPTICAL ELEMENT MOUNT

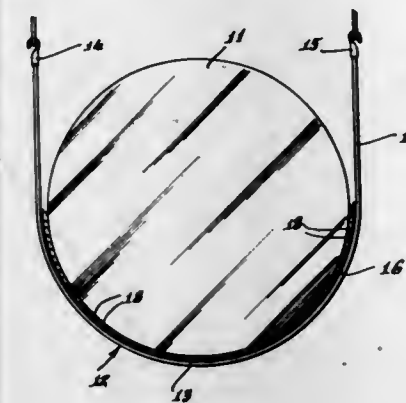
Morley S. Lipsett, Norwalk, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Oct. 11, 1968, Ser. No. 766,710

Int. Cl. G02b 7/02

U.S. Cl. 350-257

4 Claims



Shear stresses between an optical element and its supporting mount are substantially eliminated by providing a mount in which a plurality of springlike elements extending upward from the supporting structure form a seat for the optical element and prevent surface contact between the optical element and the supporting structure.

3,591,259

RADIATION ATTENUATOR FOR CALIBRATION

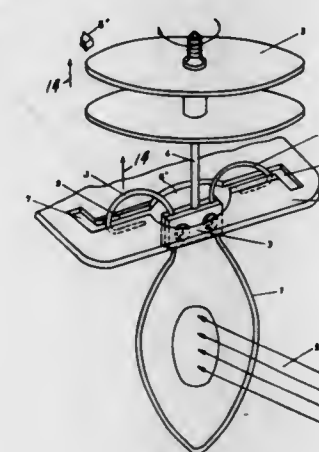
Werner Schaefer, Kelkheim; Hubert Wenzel, Frankfurt am Main, and Kurt Moldenbauer, Ober-Erlenbach, all of, Germany, assignors to Hartmann & Braun Aktiengesellschaft, Frankfurt am Main, Germany

Filed Oct. 24, 1968, Ser. No. 770,271

Int. Cl. G02f 1/30

U.S. Cl. 350-266

9 Claims



An attenuator for adjustment of photometers wherein interceptors are caused to periodically traverse a bundle of rays and beams at relatively high speed. Means are provided for constraining the interceptor means to move and be held in nonintercepting position when the traverse movement is discontinued.

3,591,260

CONSTANT TIME RESPONSE SCANNER

Daniel C. Harrington, Fridley, and Robert L. Lillestrand, Edina, both of, Minn., assignors to Control Data Corporation, Minneapolis, Minn.

Filed June 26, 1968, Ser. No. 740,377

Int. Cl. G02f 1/30

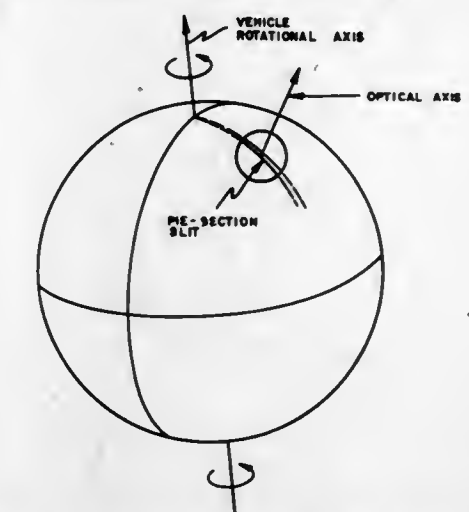
U.S. Cl. 350-274

14 Claims

The invention relates to an optical scanning system with a rotating disc having slits fabricated so that the signal produced during scanning has a constant time response. More particularly, the widths of the slits are governed by the general formula:

where w = slit width
 Φ = distance of a point along the slit from the axis of rotation

θ = the angle of a point along the slit from a horizontal axis



Pie-section slits, Archimedes spirals, logarithmic spirals, involutes, constant width slits and others can be constructed to satisfy this general formula.

3,591,261

GLASS WINDOW STRUCTURE PROVIDING REDUCTION OF INTERFERENCE FRINGES

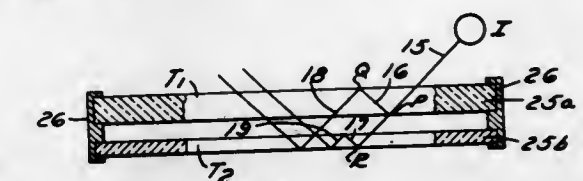
James E. Harvey, Dearborn Heights; Max J. Irland, Dearborn, and Victor L. Lindberg, Northville, all of, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 30, 1968, Ser. No. 756,437

Int. Cl. G02b 27/00

U.S. Cl. 350-319

3 Claims



A glass window structure which eliminates Jamin interference fringes includes a frame for supporting a pair of glass brackets in spaced relationship. A first glass bracket is supported in the frame and this bracket is cut from a glass ribbon manufactured in a process wherein molten glass is flowed out upon a molten bath and processed thereon so that the glass ribbon is of substantially uniform thickness. A second glass bracket is also supported in the frame and this second bracket is cut from a glass ribbon manufactured in the same manner as the first bracket. The second bracket is of slightly different thickness than the first glass bracket, and the difference in thickness eliminates the Jamin fringes. Other window structures which eliminate the Jamin fringes are structures in which (1) at least one of the glass brackets has a tapering thickness from one side to the other side, (2) both brackets have similar tapering thicknesses with the thicker edges of the two brackets not being positioned on the same side of the frame, or (3) both brackets have different tapering thicknesses with the thicker edges being positioned in any manner.

3,591,262

OPTICAL APPARATUS FOR REGULATING THE COMBINATION AND SEPARATION OF REFLECTED LUMINOUS BEAMS

Paul Frederic Marie Gamba, 140, rue Maznod, Lyon, 2e (Rhône), France

Filed Jan. 30, 1969, Ser. No. 795,200

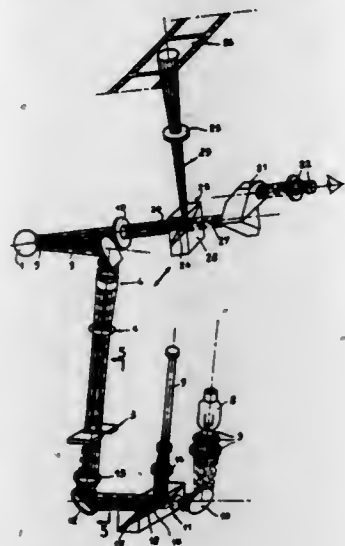
Claims priority, application France, Mar. 13, 1968, 49,761 Int. Cl. A61b 3/10

U.S. Cl. 351-14

10 Claims

An optical system for combining or dividing two light beams for constant illumination of an image for observation and for instantaneous illumination for its photographic

recording, excludes a reflecting member at the intersection of the beams. The system is of particular value in an ocular biomicroscope to combine beams from a flashing light source with that from a constant light source to provide a flat beam projected into the eye forming an image of a slit. The system also separates the beam from the image into two beams of appropriate intensities for viewing and recording respectively. The reflecting member for combining beams is a rectangular prism with a narrow, rectangular, inner totally reflect-



ing inclined surface engaging only a part of the nonreflected beam. The reflecting surface for separating two beams is of elliptical shape. A partially reflecting surface in the prism can be moved into position replacing the totally reflecting surface and engaging the whole beam. The composite beam is a central flat beam from the flashing source and a beam separated into two lateral beams from the constant source, fused accurately in the slit image by the objective. A collecting lens is interposed between the reflecting surface and the slit.

3,591,263 PROTECTIVE GLASSES

Kurt Esterson, Rabenstr. 4a, 844, Straubing, Germany
Continuation of application Ser. No. 577,859, Sept. 8, 1966, now abandoned. This application Jan. 8, 1970, Ser. No. 3,562

Claims priority, application Germany, Oct. 1, 1965, E30189
Int. Cl. G02c 7/10
U.S. Cl. 351-44 3 Claims



Protective glasses for reducing glare and providing enhanced vision under unfavorable conditions, the improvement consisting of making the two lenses of different colors, one of orange to reddish and the other of yellow tint.

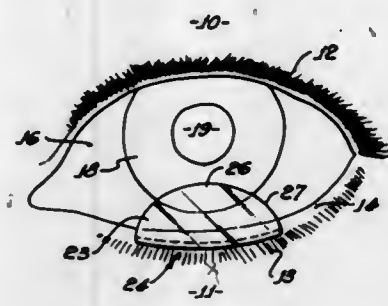
3,591,264 READING LENSES ADHESIVELY ATTACHED TO LOWER EYELIDS

Robert L. Forrest, 10911 Hunting Horn Drive, Santa Ana, Calif., and Rush T. Hilborn, 433 Via Lido Soud, Newport Beach, Calif.

Filed May 16, 1969, Ser. No. 825,341
Int. Cl. G02c 7/02, 7/04

U.S. Cl. 351-159 3 Claims
The disclosure relates to lenses adapted to be used for reading and similar close-vision purposes by individuals hav-

ing defective vision, namely, presbyopia or other refractive error. The lenses are sufficiently small that when they are mounted on the lower eyelids, out of contact with the corneas, the wearer may look over the tops of the lenses at



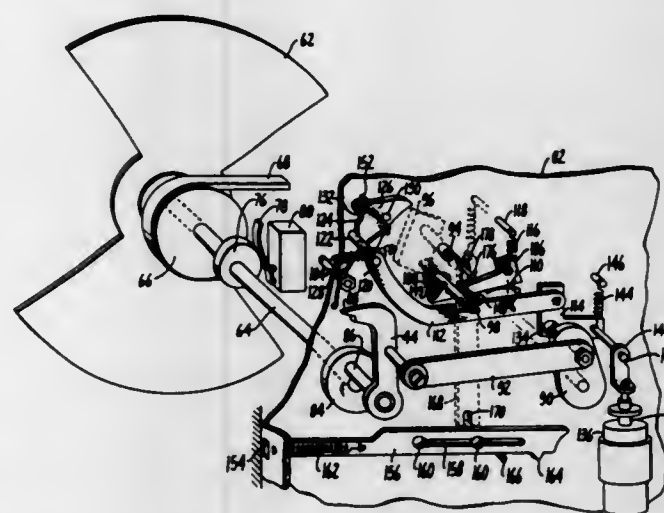
distant objects: The lenses are combined with mounting means adapted to effect adhesive mounting of the lower lens portions onto the upper margins of the lower eyelids. The disclosure further relates to a method of mounting such lenses before the eyes of persons having defective vision.

3,591,265 AUDIO-VISUAL PROJECTION DEVICE

Frank B. Shropshire, 1623 Josselyn Canyon Road, Monterey, Calif.

Filed Apr. 18, 1968, Ser. No. 722,316
Int. Cl. G03b 31/00

U.S. Cl. 352-17 4 Claims



Apparatus for projecting film frames in customary rapid motion picture sequence or a single film frame for a protracted period without the viewers discerning the difference. A film advancing claw operates in synchronization with a continuously running shutter but is moved in and out of engagement with the film in response to signal producing pulses preferably located on a magnetic tape which serves also as the soundtrack on a parallel track, for the film. During scenes not involving motion the claw is disengaged from the film and the same film frame is repeatedly projected. Continued rotation of the shutter maintains the same level of illumination, cooling and the illusion that a "moving" picture is being viewed.

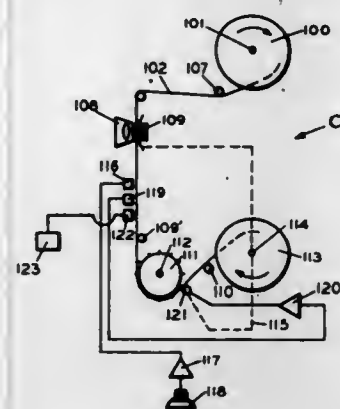
3,591,266 AUTOMATICALLY SYNCHRONIZED VISUAL AND SOUND RECORDING AND PRESENTATION SYSTEM

Walter A. Ried, Crestwood, Mo., assignor to John W. Higginbotham, St. Louis, Mo., a part interest

Filed Oct. 8, 1969, Ser. No. 864,633
Int. Cl. G03b 31/32

U.S. Cl. 352-27 13 Claims
A system for recording sound on a synchronous time basis with respect to a visual image and automatically reproducing the sound and the visual image on a synchronous time basis. In one embodiment of the invention, a camera employs a

magnetic drum which is operatively connected to the shutter mechanism of the camera. The drum serves as a mechanical delay mechanism for temporarily retaining the sound until the film has advanced to a point where the sound can be recorded on a film tract in synchronous time relationship to exposure of visual images on a film. After the message has been recorded on the film, an erase mechanism removes the message so that an unrecorded portion of the drum is moved



into a position for receipt of a new sound message. A projector capable of presenting the film sound and visual image on a synchronous time basis also employs a magnetic drum as a mechanical delay mechanism. Another embodiment of the invention provides a magnetic belt system which replaces the drum as a mechanical delay mechanism. In addition, a third embodiment where the film itself serves as a delay mechanism is also provided.

3,591,267 SOUND HEAD POSITIONING DEVICE FOR SMALL-SIZED CINEPROJECTOR

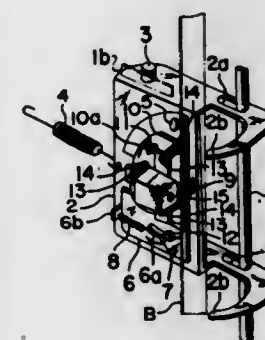
Tokusaburo Kakuchi, and Hideaki Akiyama, both of Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed July 15, 1969, Ser. No. 841,797

Claims priority, application Japan, July 15, 1968, 43/49766

Int. Cl. G03b 31/02

U.S. Cl. 352-29 4 Claims



A sound head positioning device having a baseplate on which a sound head is mounted and being biased into a first position by a spring. A film cartridge is inserted to abut and rotate the baseplate to a second position from where the baseplate is slidable to move the sound head into contact with the film. Lateral and vertical adjustments for the sound head are provided.

3,591,268 METHOD AND APPARATUS FOR OPTICALLY RECORDING COLOR PICTURE INFORMATION

Deals Manktelow Neale, Ilford, England, assignor to Columbia Broadcasting System, Inc., New York, N.Y.

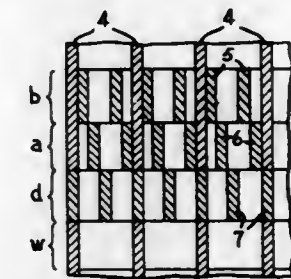
Filed Apr. 12, 1968, Ser. No. 720,824

Claims priority, application Great Britain, Apr. 17, 1967, 17540/67

Int. Cl. H04n 1/46

U.S. Cl. 352-45 18 Claims
A method and apparatus for recording as a video signal color picture information for reproduction by television

scanning techniques, in which a photographic film is exposed with an image of an original scene in one frame area of the film, and in another frame area with the same image as modified by a banded color filter and objective lens. The latter image passes through a cylindrically lenticular screen close to and in front of the image plane of the objective lens to form bands of colored light in a repeating pattern inter-



rupted by unilluminated bands of one color. Exposure of the film by the banded color pattern results in a record approximating a record of a carrier signal which is modulated in amplitude and phase according to the color saturation and hue of the original scene. The unilluminated bands form on the film a record of a pilot carrier signal at one-half the frequency of the color carrier signal.

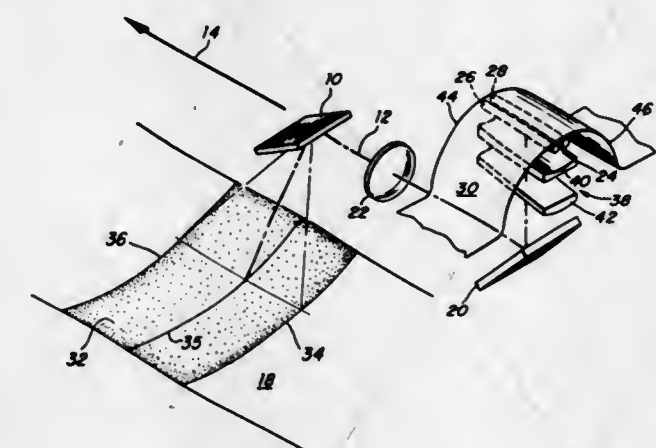
3,591,269 CONICAL SCAN PANORAMIC CAMERA

John T. Watson, Wellesley Hills, and Kenneth Robinson, Needham, both of Mass., assignors to Itek Corporation, Lexington, Mass.

Filed July 30, 1968, Ser. No. 748,674

Int. Cl. G03b 37/00

U.S. Cl. 352-69 9 Claims



A panoramic camera for obtaining an oblique scan of a photographed area, such an oblique scan being useful when a stereo view of the area is desired. The panoramic camera obliquely scans the photographed area with a conical pattern by rotating the optical scanner about a scan axis parallel to the photographed area. Front to back lateral distortion of the photographed image is compensated for by directing the image through a lens system having a constant image magnification gradient between the forward and rear edges of the film.

3,591,270 MOVIE CAMERA

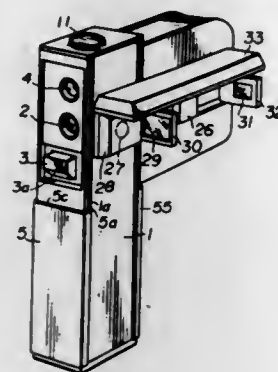
Takehiko Takahashi, Tokyo, Japan, assignor to Sankyo Kogaku Kogyo Kabushiki Kaisha, Nagano-ken, Japan

Filed May 15, 1969, Ser. No. 824,969

Int. Cl. G03b 17/26, 17/04

U.S. Cl. 352-72 4 Claims
A movie camera having a vertically elongated camera body formed in its rear wall with an opening for inserting a film cassette, so that no film housing or film cassette housing is formed in the camera body. The movie camera also has a finder supporter pivotally mounted on one side of the camera

body and supporting a coupling mechanism for operatively connecting a film takeup shaft of the film cassette inserted in



the opening in the camera body to shutter means and film-advance means built in the camera body, whereby the film takeup shaft can be operated.

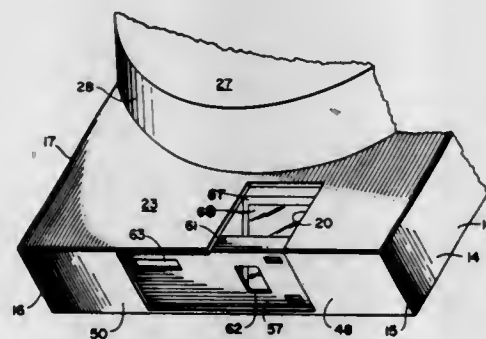
3,591,271 FILM CARTRIDGE

Frank B. Shropshire, 1623 Josselyn Canyon Road, Monterey, Calif.

Filed Apr. 18, 1968, Ser. No. 722,443
Int. Cl. G03b 23/02

U.S. Cl. 352-78

3 Claims



A film cartridge having a continuous spirally wound loose loop of exposed and printed film ready for projection, enclosed in a case having one flat side at right angles to the plane of projection which will guide and fit into a projector with precision and with no other adjustment. The cartridge is so structured that when placed within the projector the claw mechanism of the projector will engage the conventional perforations of the film to advance the same one frame at a time, either at motion picture speed or at a controlled single frame advancement. Each cartridge has a part of the projecting system, i.e., a self-contained mirror integral with and movable with the film platen, by which the projection light is gathered and directed through the film and into the optical system. The operation includes the unwinding of the film loop from the outside of the spiral loop for projection and simultaneously rewinding the film on the inside of the loop without any pull or drag on the film.

3,591,272 MOTION PICTURE PROJECTOR HAVING CAM APPARATUS ENABLING STOP FRAME PROJECTION

Carter K. Reh, Santa Ana, Calif., assignor to Technicolor, Inc., Hollywood, Calif.

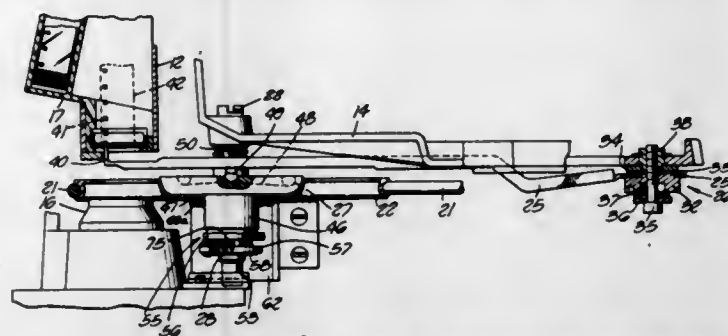
Filed May 23, 1969, Ser. No. 827,341
Int. Cl. G03b 21/38, 1/22

U.S. Cl. 352-169

12 Claims

A motion picture projector including a conventional optical system and an improved claw mechanism for moving and projecting film frames. The claw mechanism is operated in a substantially conventional manner from a motor to periodically

cally engage perforations in the film to the advance the same. A selectively operable cam mechanism is associated with the



claw mechanism to cause the claw to disengage from the film to provide stop frame projection.

3,591,273 INTERLOCK DEVICE FOR MULTIPLE SPEED MOTION PICTURE CAMERA UTILIZING EXTERIOR POWER SOURCE

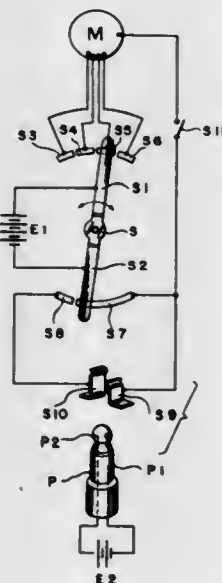
Hiroshi Hirata, and Yoshihisa Hayashi, both of Sakai-shi, Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Feb. 20, 1969, Ser. No. 801,076

Claims priority, application Japan, Feb. 26, 1968, 43/12078
Int. Cl. G03b 19/18

U.S. Cl. 352-180

4 Claims



An interlock device for a multiple speed electrically operated motion picture camera of the type which requires an external power source for operation at its highest speed. The speed change switch includes a linkage which senses the presence of the plug of the external power source in the receptacle provided thereof and prevents the setting of the switch at the highest speed when the external power source is not connected.

3,591,274 PROJECTION OF COLOR-CODED B AND W TRANSPARENCIES

Philip Joseph Donald, Woodbury, N.J., assignor to RCA Corporation

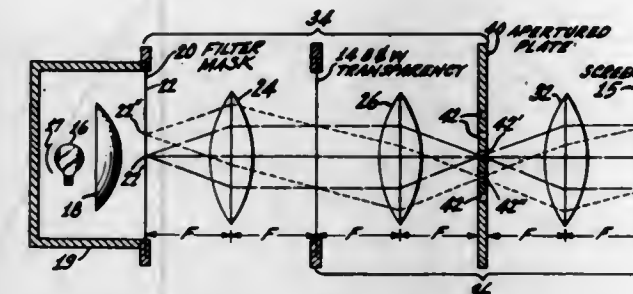
Filed May 27, 1969, Ser. No. 828,261
Int. Cl. G03b 21/14

U.S. Cl. 353-20

5 Claims

A system including a light source and lens means for projecting a color image from a black and white transparency on which the image is diffraction-grating coded in different directions for respective different colors. In addition to the lens means, the system includes between the light source and the utilization plane, in the order named, a filter mask, a color-coded, black and white transparency and an apertured plate. The lens means is constructed to image the filter mask at the apertured plate, and to image the transparency at the utilization plane. The filter mask includes many colored filter strips, the filter strips being related, dimensioned and

oriented with reference to the apertured plate, so that the light passing through each of the plurality of apertures con-



tributes to the brightness of the color image at the utilization plane.

3,591,275 SLIDE PROJECTOR

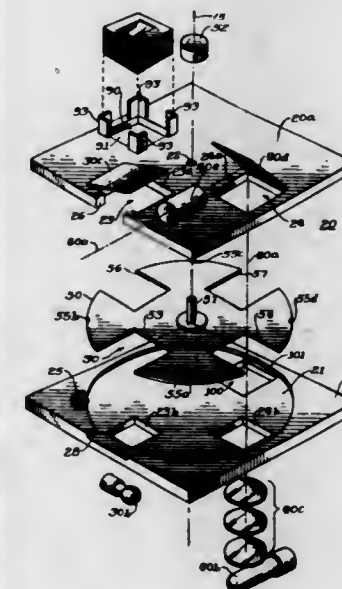
Frank C. Badalich, and George F. Krtous, both of Chicago, Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed June 10, 1968, Ser. No. 735,730

Int. Cl. G03b 21/00, 23/00

U.S. Cl. 353-21

8 Claims



A slide projector having a previewing feature and having provision for sequentially moving each slide from a previewing stage directly into a projection stage. A slide received into the projector is first previewed, reoriented if necessary, returned to the projector at the preview station, and then transported within the projector to the projection station. After projection, the slide is removed from the projector at a removal station.

3,591,276 METHOD AND APPARATUS FOR OFFSET XEROGRAPHIC REPRODUCTION

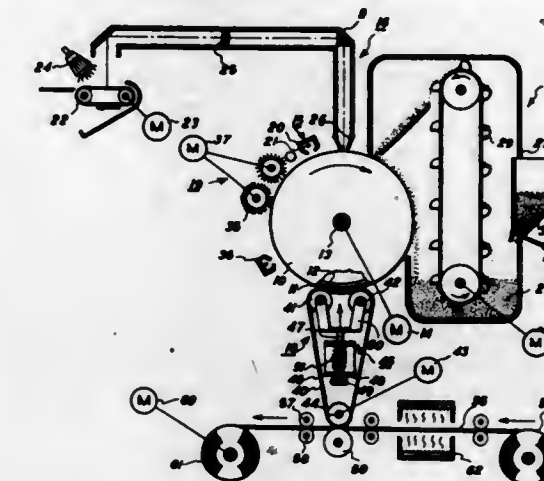
John F. Byrne, Worthington, Ohio, assignor to Xerox Corporation, Rochester, N.Y.

Filed Nov. 30, 1967, Ser. No. 686,930
Int. Cl. G03g 15/00, 13/14

U.S. Cl. 355-3

14 Claims

A method and apparatus for transferring a developed xerographic powder image from a photoconductive surface to a final support material such as paper by contacting the powder image with elastomeric material under pressure to encapture the developed powder image due to the deformation of the elastomeric member and then transferring the powder image from the elastomeric member onto a paper support material by heat and pressure. In one example of the invention the elastomeric member is in the form of a belt while in another example of the invention the elastomeric



plied simultaneously at the contacting surfaces transferring the powder image from the elastomeric member onto the paper support material.

3,591,277 XEROGRAPHIC REPRODUCING APPARATUS

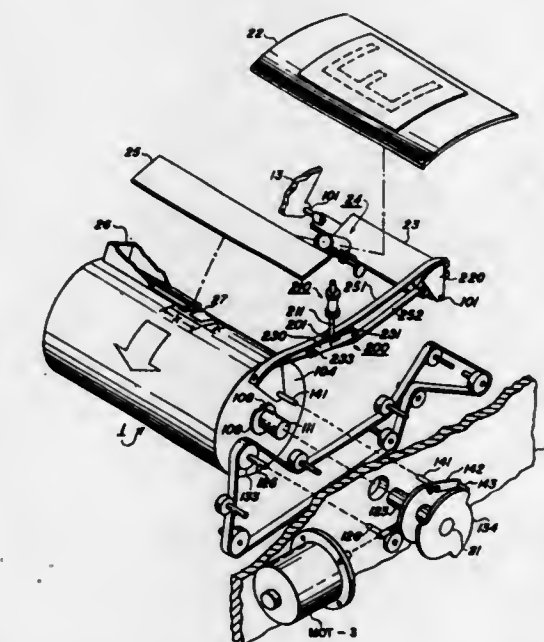
John F. Gardner, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Nov. 14, 1967, Ser. No. 682,848

Int. Cl. G03g 15/04

U.S. Cl. 355-8

9 Claims



An automatic xerography machine for producing various size copies of an original document which document remains stationary during the process. The machine is characterized by an optical scanning system which can be made to move at various speeds relative to a moving, image receiving surface. A control which operatively couples a scanning mirror and the imaging surface is selectively adjustable in order to vary the relative speed of the mirror and the image receiving surface.

3,591,278 DEVICE FOR SUPPLYING AN ACTIVE DEVELOPING AGENT INTO A DEVELOPING TANK

Walter Limberger, Hamburg-Poppenbottel, Germany, assignor to Firma Lumoprint Zindler KG, Hamburg, Germany

Filed Nov. 15, 1968, Ser. No. 776,063

Claims priority, application Germany, Nov. 17, 1967, P 15 97 704.5

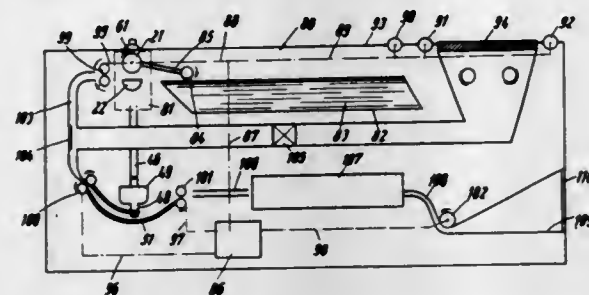
Int. Cl. G03g 9/04

U.S. Cl. 355-10

13 Claims

An improved device for supplying an active developing agent to the developing tank of an electrophotographic copy-

ing apparatus as a function of the passage of a sheet through the copier, wherein the improvement comprises a mechanism, adjustable at different speeds by means of the



3,591,281
SHEET-HANDLING APPARATUS FOR PHOTOCOPIERS
Walter P. Kruhlnski, Norwalk, and Robert C. DuBois, Fairfield, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed Dec. 23, 1968, Ser. No. 786,245
Int. Cl. G03b 27/70

U.S. Cl. 355-49

14 Claims

actuating drive of the apparatus and as a function of a copying process, and actuating an actuator for effecting the addition of an additional active agent to the developer.

3,591,279

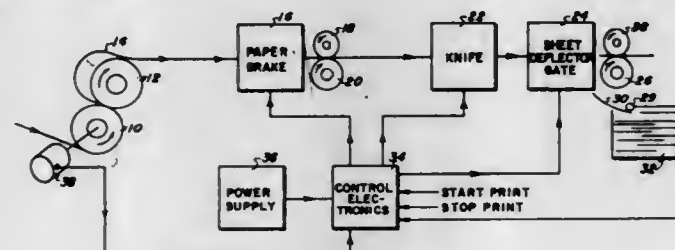
CUT AND DEFLECT WEB DRIVE APPARATUS

John F. Gardner, Penfield, N.Y., and Michael B. Parry, St. Peter, England, assignors to Xerox Corporation, Rochester, N.Y.

Filed June 22, 1969, Ser. No. 829,623
Int. Cl. G03b 29/00

U.S. Cl. 355-29

6 Claims



A cut and deflect paper system for allowing printed documents to be exited from the system while scrap paper ahead of, intermediate, or behind said printed documents are cut and deflected into a scrap or waste area within the system. In a continuous web document-printing system, under control of a control electronics, a brake halts the paper movement through the system and a knife cuts the paper into predetermined lengths of normal document sizes. A deflector system in the paper path following the cutter allows printed documents to pass out of the system while it deflects scrap sheets into said scrap area in the system.

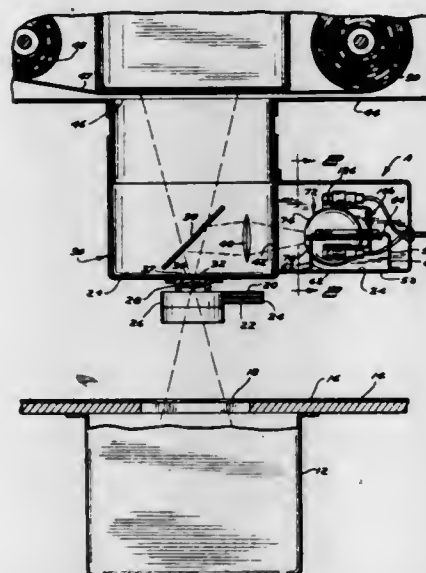
3,591,280
LIGHT SENSOR

Geoffrey M. Rhodes, Minneapolis, Minn., assignor to Pako Corporation, Minneapolis, Minn.

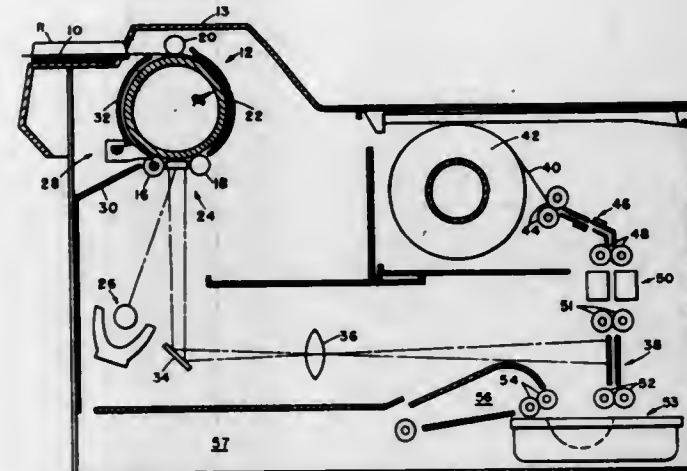
Filed Jan. 10, 1969, Ser. No. 790,215
Int. Cl. G03b 27/74

U.S. Cl. 355-38

14 Claims



A light-sensing device having a light-integrating chamber, the chamber having a light entrance aperture and light outlet



The disclosed sheet-handling apparatus includes a free-floating cylinder supported on and driven into rotation about its axis by a pair of spaced rollers. A third driven roller above the cylinder is biased downwardly against the cylinder surface to maintain the cylinder positionably supported by the two lower rollers. A document sheet moving with the cylinder surface passes through an exposure station pursuant to copy making. A gate selectively positioned adjacent the cylinder is effective to divert the document sheet away from the cylinder after a predetermined number of copies have been made.

3,591,282

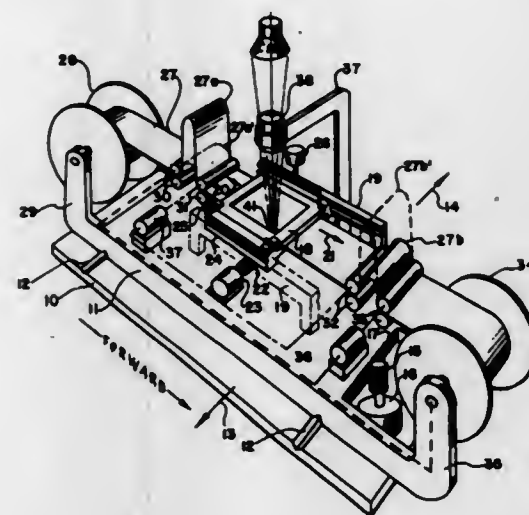
FILM-POSITIONING SYSTEM

Walter Renold, North Hollywood, Calif., assignor to Image Sciences, Inc.

Filed Nov. 17, 1969, Ser. No. 877,376
Int. Cl. G03b 27/44

U.S. Cl. 355-54

10 Claims



A film-positioning system is provided for enabling rapid sequential exposure or readout of film framelets making up a microfiche film frame. Successive framelets are exposed or read out in standard industry step and repeat sequence by moving the microfiche film frame relative to a fixed lens in

successive incremental steps without having to move major portions of the apparatus. This is accomplished in part by providing first and second storage loops adjacent to opposite ends of the exposure area to accommodate the movement of the film in exposing or reading out a row of framelets. Other bulky apparatus such as the payout and takeup microfiche film reels need not be incrementally moved when exposing rows but only when shifting to a new row all to the end that exposure of microfiche film framelets or, alternatively, location of a single framelet for readout can more rapidly be effected than possible with equipment provided heretofore.

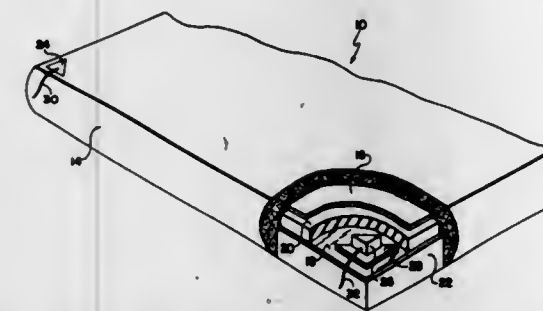
3,591,283
NOVEL PROCESSES

Joel M. Peisach, Hudson, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 11, 1968, Ser. No. 783,090
Int. Cl. G03b 27/54

U.S. Cl. 355-67

12 Claims



Systems employing electrophotoluminescent panels to obtain reproductions of originals, which systems include the steps of exciting a layer of an electrophotoluminescent material optically and with an applied electric field to cause said material to emit visible light; eliminating said optical excitation while maintaining said electric field, whereby said material continues to emit visible light; and placing the subject matter to be reproduced in juxtaposition with said layer of material for a predetermined period of time sufficient to permit a significant imagewise differential in decay of luminescence of said material to form in said layer a positive reproduction of said subject matter, and, optionally may further include the steps of removing the electric field for a short period of time and then reapplying it whereby to obtain an image reversal wherein the positive image on the panel is converted into a negative image; and systems employing the same to obtain a photographic reproduction on a photosensitive element.

3,591,284

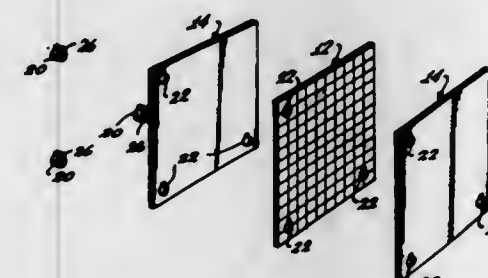
PRINTED CIRCUIT LAYOUT MEANS

Solomon Liebman, 6633 Woodman Ave., Van Nuys, Calif.

Filed May 27, 1968, Ser. No. 732,187
Int. Cl. G03b 27/62

U.S. Cl. 355-75

7 Claims



A printed circuit layout assembly is provided including a grid sheet and transparent circuit layout sheets to be placed in face to face contact with opposite sides of the grid sheet so as to permit layout on each layout sheet of a printed circuit diagram defining circuit conductors located in predetermined relation to grid lines on the grid sheet and hence in predeter-

mined relation to circuit conductors of the diagram on the other layout sheet. The sheets are located and retained in registered relation by locating members positioned within aligned preformed locating holes in the sheets and having reference marks to be photographed with the completed circuit diagrams for providing a photographic image or record of each diagram containing reference mark images whose spacing may be measured to determine or check the scale of the photographic circuit image.

3,591,285

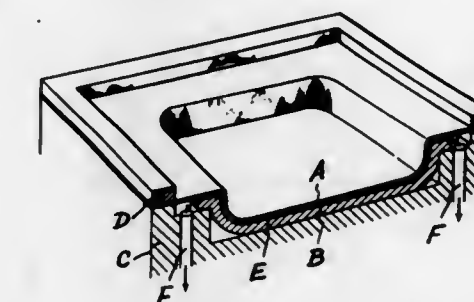
METHOD AND APPARATUS FOR PHOTO PRINTING ON CURVED SURFACE ARTICLE

Shige Hakogi, Kawasaki-shi, Japan, assignor to Nihon Kyukumen Insatsuki Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 11, 1968, Ser. No. 759,137
Claims priority, application Japan, Sept. 13, 1967, 42/58786
Int. Cl. G03b 27/20

U.S. Cl. 355-91

6 Claims



A method and apparatus for photo printing on the curved surface of an article, wherein a pliable and transparent negative has a peripheral flange portion supported by a holding member which cooperates with a receiving member supporting the article to be printed, such that the flange portion of the negative is clamped between the holding member and receiving member in airtight relation and an enclosed space is formed between the negative and the curved surface of the article to be printed. Thereafter, the air from the enclosed space is evacuated via a tube supported in the receiving member and in communication with said enclosed space, while atmospheric air is applied to the outer surface of the negative via the holding member. As a consequence, the negative is caused by closely contact the curved surface of the article, after which the holding member is removed and replaced by a light source which exposes the outer surface of the negative to produce photo printing on the curved surface of the article, which is closely contacted by the negative.

3,591,286

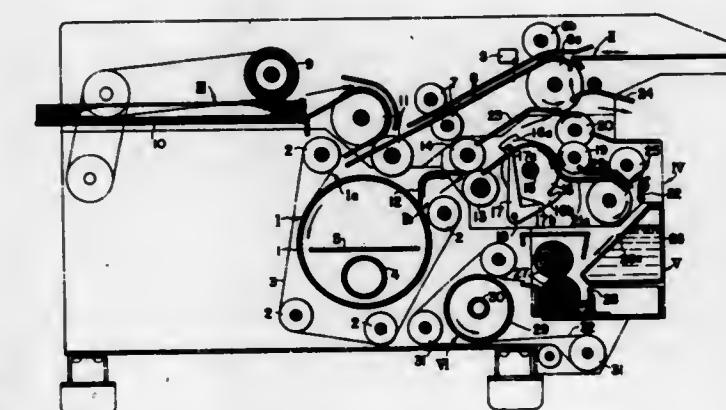
PHOTOGRAPHIC COPYING MACHINE

Nobuyuki Yanagawa, Tokyo, Japan, assignor to Rabushiki Kaisha Ricoh, Tokyo, Japan

Filed Jan. 31, 1968, Ser. No. 702,096
Claims priority, application Japan, Feb. 7, 1967, 42/10195
Int. Cl. G03b 27/30

U.S. Cl. 355-106

1 Claim



An original document is fed rearwardly into an inlet slot near the top of a copying machine, where it is lapped with a

printing paper sheet fed toward the front of the machine from a stock, and the lapped papers are fed downwardly, around an exposure drum centrally located in the machine, and upwardly into a separator, from which the original emerges in the front of the machine below the inlet slot. The printing paper sheet is fed downward and rearward through a developing section, when it passes around a drying roller and is fed forward out of the machine at the bottom of the front face thereof.

3,591,287

ABSORPTION SPECTROPHOTOMETRY

Rodney George Hannis, Reading, England, assignor to United Kingdom Atomic Energy Authority, London, England

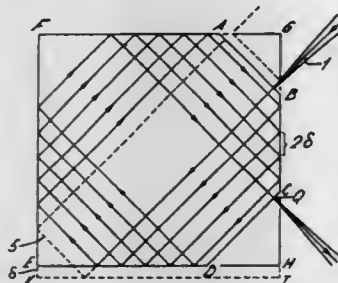
Filed June 9, 1969, Ser. No. 831,469

Claims priority, application Great Britain, June 20, 1968, 29578/68

Int. Cl. G01n 21/34; G01j 3/00; G01n 21/16

U.S. Cl. 356-51

9 Claims



Optical apparatus for use with an infrared spectrophotometer for attenuated total reflectance measurements of solid samples and, in particular, microgramme size samples includes an optical prism, bounded by plane and/or curved lateral faces, for internally reflecting a focused beam of infrared radiation incident substantially normal to a lateral face of the prism, the lateral faces of the prism being relatively disposed such that the beam is reflected by successive total internal reflections and describes a plurality of noncoincident cyclic tracks within the prism before being incident at a lateral face at an angle less than the critical angle and emerging from the prism, sample for absorptometric analysis being applied to at least one reflecting face. The effective path length of the penetrant beam in the sample is substantially increased by generating the cyclic tracks whence the number of reflections per unit reflective face area is multiplied.

3,591,288

TORQUE-ISOLATING MOUNTING STRUCTURE

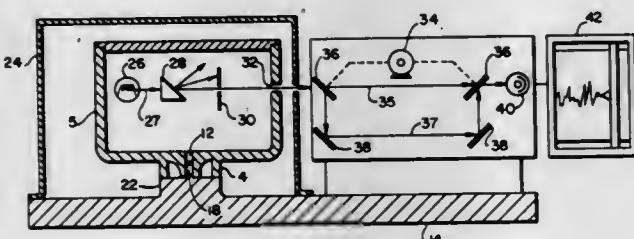
Roy W. Aday, Jr., La Habra, and Maoyeh Lu, Fullerton, both of, Calif., assignors to Beckman Instruments, Inc.

Filed June 24, 1969, Ser. No. 836,064

Int. Cl. G01j 3/02; F16m 11/00

U.S. Cl. 356-74

2 Claims



There is disclosed a torque-isolating mounting structure consisting of a pedestal joining member interconnecting and supporting a kinematic optical assembly upon a base member.

3,591,289

ATOMIC ABSORPTION SAMPLE CELL

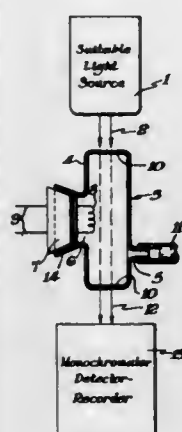
Helen M. Donega, North Adams, and Thomas E. Burgess, Williamstown, both of, Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed Sept. 24, 1968, Ser. No. 761,975

Int. Cl. G01j 3/30

U.S. Cl. 356-85

8 Claims



The determination of minute amounts of specific constituents in a specimen is accomplished through atomic absorption analysis in a beam of radiated atomic spectral light. The specimen is in vaporized condition in a controlled atmosphere of a closed region and the beam is passed through the vapor so that selective absorption of the resonance lines of the beam takes place. The specific absorption is then suitably detected and measured.

3,591,290

UROLOGICAL APPARATUS AND METHOD

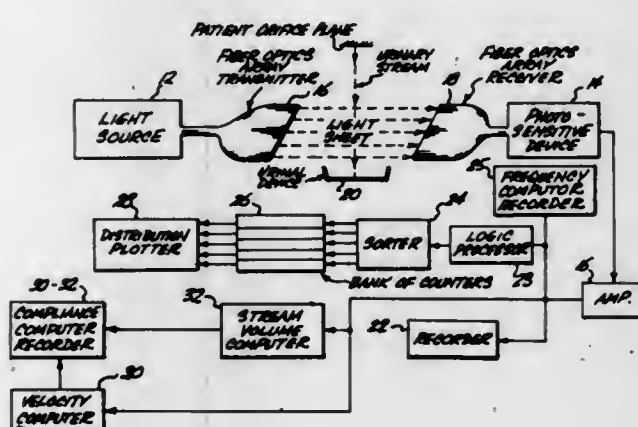
Norman R. Zinner, Seattle, Wash.; Rogers C. Ritter, Charlottesville, Va., and Donald W. Baker, Bothell, Wash., assignors to The Battelle Development Corporation, Columbus, Ohio

Filed Apr. 4, 1969, Ser. No. 813,591

Int. Cl. G01n 15/02; A61b 5/10

U.S. Cl. 356-102

28 Claims



A method and apparatus to analyze urological difficulties by utilizing interaction of variations in the urine stream and a light beam or other field effect to derive electrical signals, e.g. impulses representative of individual drops comprising the stream, analysis of which individually and in groups or patterns provides diagnostic information.

3,591,291

METHOD AND APPARATUS FOR SENSING REFLECTED LIGHT AND DIFFUSED LIGHT FROM A SURFACE TO INDICATE THE ROUGHNESS OF SAID SURFACE

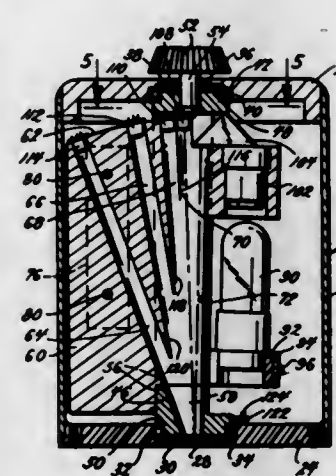
Milton Greer, Ypsilanti; Irvin W. Kay, Ann Arbor, and Kenneth R. Morris, Ann Arbor, all of, Mich., assignors to Conductron Corporation, St. Charles, Mo.

Filed May 26, 1969, Ser. No. 827,599

Int. Cl. G01b 11/30; G01n 21/48, 21/16

U.S. Cl. 356-120

3 Claims



The roughness of a relatively smooth surface is measured by directing a collimated beam of light against that surface, by disposing one light-sensitive element at the angle of reflection, by spacing further light-sensitive elements away from the angle of reflection, and by comparing the signal developed by that one light-sensitive element with the signals developed by those further light-sensitive elements.

3,591,292

OPTICAL CONTROL DEVICE

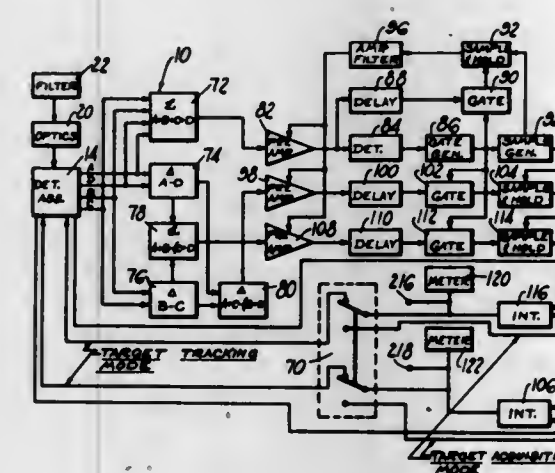
Wilfred C. Feuchter, Mishawaka, Ind.; Burton L. Lockwood, Mishawaka, Ind.; Clement P. Means, Ann Arbor, Mich.; Marvin Weiss, Ann Arbor, Mich.; Jerome Firer, deceased, late of South Bend, Ind., and Burton L. Lockwood, administrator, Mishawaka, Ind., assignors to The Bendix Corporation

Filed June 3, 1968, Ser. No. 740,424

Int. Cl. G01b 11/26

U.S. Cl. 356-141

19 Claims



An optical control device responsive to a localized source of light by means of a quadrant array detector means being mounted on an electromagnetic flexure means for controlling the position of said detector means relative to said localized source of light so as to proportion said source of localized light equally in each of said detector quadrants. The device further has electronic closed-loop means responsive to said quadrant array detector means intermediate said quadrant array detector means and said electromagnetic flexure means.

3,591,293

APPARATUS FOR DETERMINING THE THICKNESS OF A TRANSPARENT MATERIAL BY MEASURING THE TIME INTERVAL BETWEEN IMPINGEMENT OF FRONT AND BACK SURFACE REFLECTIONS ON A DETECTOR

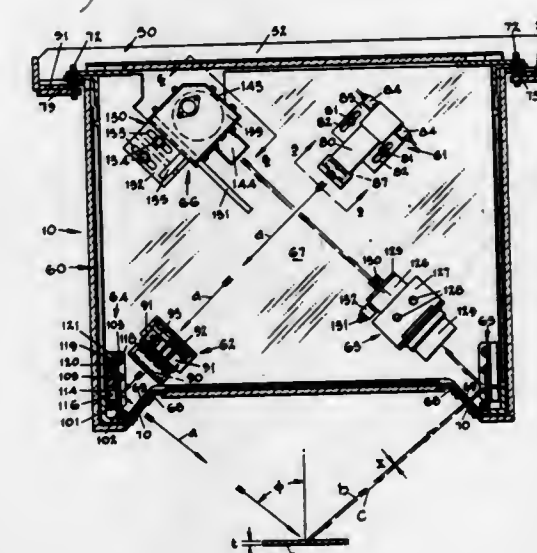
Robert E. Makby, Jr., Perrysburg, and Walter D. McComb, Oregon, both of, Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio

Continuation of application Ser. No. 458,995, May 26, 1965, now abandoned. This application Mar. 19, 1970, Ser. No. 19,543

Int. Cl. G01b 11/02

U.S. Cl. 356-161

11 Claims



Monitoring physical characteristics such as thickness, index of refraction, width, and position of a moving transparent member having spaced optical surfaces by projecting a restricted beam of light at an angle incident to produce spaced, reflected beams from the optical surfaces, focusing the spaced reflected beams at a point spaced from the member, and successively activating means electrically responsive to the spaced reflected beams to produce corresponding electric signals whose separation in time is indicative of the physical characteristic.

3,591,294

FIBER MEASUREMENT

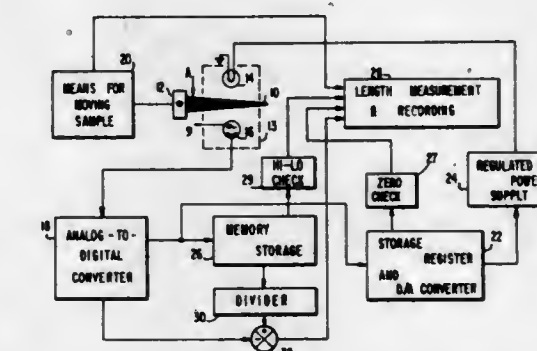
Hugh G. Neil, Knoxville, Tenn., assignor to The University of Tennessee Research Corporation, Knoxville, Tenn.

Filed Jan. 31, 1969, Ser. No. 795,521

Int. Cl. G01b 11/04

U.S. Cl. 356-167

26 Claims



A fiber measurement system for making span length measurements on staple fiber samples. A random sample of parallelized staple fibers is gripped in a sample holder, the grip line being randomly located along the lengths of the fibers. The span length, defined as the distance of protrusion from this random grip line of a predetermined fractional part of the fibers in the sample, is determined by scanning the sample with a sensor such as a light source and detector. A

reference measurement is taken with the scan line of the sensor positioned relatively near the grip line so as to be representative of the total number of fibers in the sample. The output of the sensor is a nonlinear function of the number of fibers at the scan line and is linearized by a nonlinear analog-to-digital converter. As the sample is scanned, the output of the analog-to-digital converter is compared to a predetermined fractional part of the reference measurement. During scanning, the relative motion between the sensor and the sample is accumulated. When the comparison indicates that the predetermined fractional part of the sample is at the scan line, the accumulated relative motion is recorded thereby providing the span length of that predetermined fractional part of the sample. In addition to actually measuring the span length, the system provides for setting and checking the accuracy of the light source plus checking to make sure that the fiber sample is within predetermined size limits.

3,591,295

EXPOSURE SELECTOR FOR A PRINTER

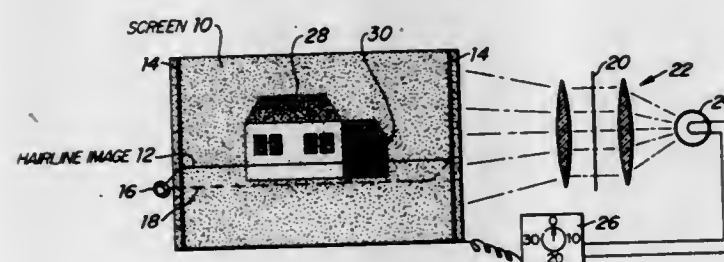
Arthur Bransdorfer, Huntington Station, N.Y., assignor to Itek Corporation, Lexington, Mass.

Filed Feb. 5, 1969, Ser. No. 796,675

Int. Cl. G01n 21/06, 21/22; G01j 1/10

U.S. Cl. 356-202

2 Claims



Apparatus for selecting the correct exposure time for each particular negative in a reader-printer. A hairline image which is movable is provided on the viewing screen of the reader-printer, and an image of the negative to be printed is projected on the viewing screen by a projector, the intensity of which is controlled by a variable resistor. When the image of the negative is viewed on the screen, the hairline is moved so that part of it crosses the darkest area of the projected image. The projector's light is then dimmed until the operator is unable to distinguish the hairline from the surrounding background of the dark portion of the projected image. The reading of the variable resistor at that point is calibrated to give the correct exposure time for the negative being printed.

3,591,296

APPARATUS FOR MEASURING SLOPPING AND SPITTING CONDITIONS OF STEEL-MAKING FURNACE
Kenzo Kunioka; Takasji Tada; Ryoichiro Imal, and Seigo Ando, all of Kawasaki-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha

Filed Apr. 12, 1968, Ser. No. 721,565

Claims priority, application Japan, Apr. 13, 1967, 42/23317

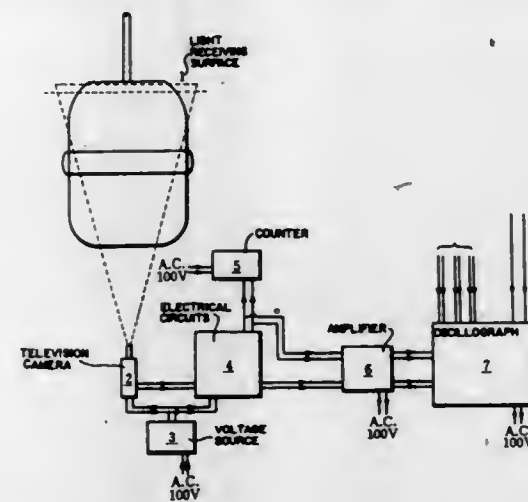
Int. Cl. G01j 1/46; C21b 7/00

U.S. Cl. 356-215

2 Claims

During operation of a steel-making furnace, the amount of slopping and spitting is measured by an electrooptical means and the electrical value produced therefrom is integrated and

counted to determine a desired standardized operating pattern. This assures improved tapping yield and uniformity



of constituent; the resulting product has uniform characteristics.

3,591,297

PHOTOMETRIC INSTRUMENT

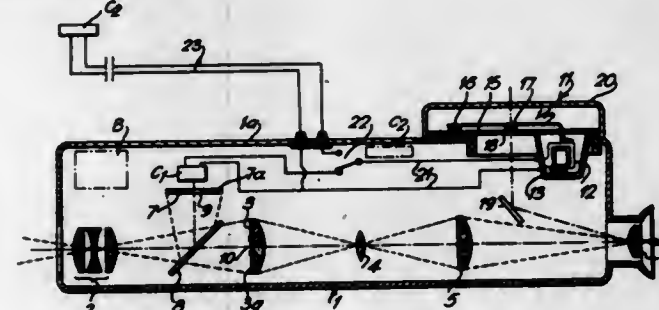
Bo Anders Vilhelm Hagner, 11 Orrvagen, Nasbypark, Sweden
Filed Nov. 6, 1968, Ser. No. 773,735

Claims priority, application Great Britain, Nov. 10, 1967, 51204/67

Int. Cl. G01j 1/42

U.S. Cl. 356-219

4 Claims



A photometric instrument having two photoelectric cells coupled to a common moving coil meter, one of said cells being arranged within a casing to measure, in conjunction with an optical viewing system, a small viewing angle, and the other of said cells being adapted to be used externally of said casing to measure illumination and eventual luminance within a large viewing angle. The pointer of said coil meter is common to two reading scales one of which can be viewed through the optical view system and the other of which can be viewed from a position external of said casing.

3,591,298

LIPSTICK DISPENSER AND APPLICATOR

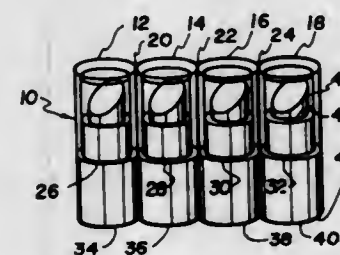
Martin Green, 243 Franklin Turnpike, Mahwah, N.J.

Filed Aug. 29, 1969, Ser. No. 854,112

Int. Cl. A45d 40/06

U.S. Cl. 401-7

7 Claims



A lipstick dispenser and applicator having a plurality of integral cylindrical transparent covers placed in juxtaposition for receiving singularly a plurality of unattached cylindrical hollow bases. Each base is open-ended, securing at one open end lipstick of a predetermined color or shade and at the

other open end conveniently receiving the pinky finger as a means of supporting the lipstick holder base in its control and application of the lipstick. Furthermore, it includes a separate cover for use as a giveaway of one of the unattached lipstick holders and in addition, it includes a finger ring adapter that is inserted on the pinky finger for support of the lipstick holder.

3,591,299

PAINT TRAY AND COMPANION APPLICATOR

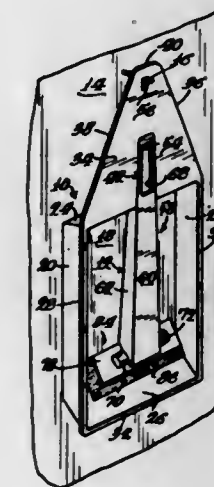
John A. Pharris, Milwaukee, Wis., assignor to E Z Paints Corporation

Filed Dec. 11, 1968, Ser. No. 782,971

Int. Cl. A46b 11/00

U.S. Cl. 401-118

9 Claims



A paint tray and applicator combination, the applicator having a handle and a transversely oriented pad at one end of the handle, the other end of the handle being longitudinally slotted; and the tray having a paint holding portion defined by a bottom, three generally upright walls and one upwardly inclined wall, with a tray handle extending outwardly from the upright wall generally opposite the inclined wall, the tray handle being recessed to nestably receive the applicator handle and having an upstanding pin to impale the slot in the applicator handle.

3,591,300

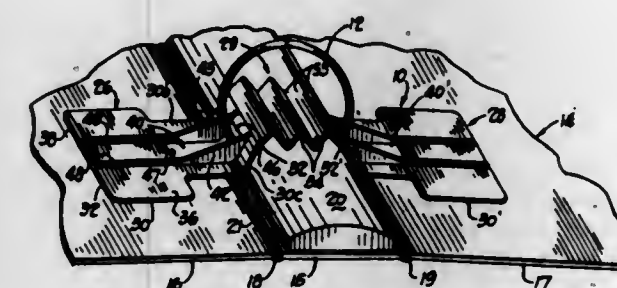
UNIVERSAL SHEET LIFTER

Lewis R. Beyer, 1255 West River Road, Valley City, Ohio
Filed Aug. 15, 1968, Ser. No. 752,861

Int. Cl. B42f 13/16

U.S. Cl. 402-80 A

2 Claims



A sheet lifting device for looseleaf ring binders with any number of rings or ring spacing. The lifter has two parts each with a single aperture for receiving a binder ring and flexibly interconnected across the ring to maintain an alignment while permitting pivoting with covers of the binder. Inclined surfaces on the two parts engage portions of sheets carried by the rings and move the sheets about the ring when the binder covers are closed.

888 O.G.-8

3,591,301

DRILLING DEVICE, PARTICULARLY FOR GUN AND ANNULAR DRILLING

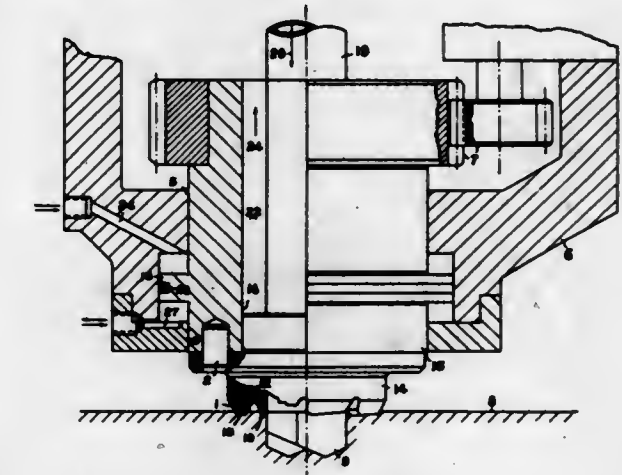
Alfred Kaser, Austraase 15, Rieden, Nussbaumen, Switzerland
Filed June 10, 1968, Ser. No. 735,775

Claims priority, application Switzerland, June 16, 1967, 8705/67

Int. Cl. B23b 47/00, 47/28

U.S. Cl. 408-56

2 Claims



A drilling device features a drill bushing for guiding the drill to prevent lateral movement of the drill during the initial drilling stage. A fluid-actuated piston to which the bushing is secured serves to apply a force to the latter to anchor it firmly on the surface of the workpiece, and the lower end face of the bushing in contact with the workpiece is provided with an integral sealing ring to prevent escape of any of the fluid used for drill cooling, lubricating and flushing. The lower end face of the bushing is provided with a milling cutter to cut a groove into the workpiece until contact is made with the sealing ring, and the piston-bushing structure is driven in rotation by means of a gear drive.

3,591,302

ROTARY TOOL FOR METAL REMOVAL

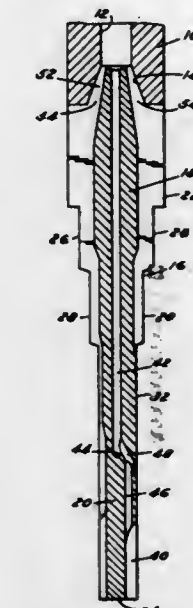
Donald C. Andreasson, Troy, Mich., assignor to Detroit Reamer & Tool Company, Troy, Mich.

Filed May 8, 1969, Ser. No. 823,028

Int. Cl. B23d 77/00; B23b 51/06

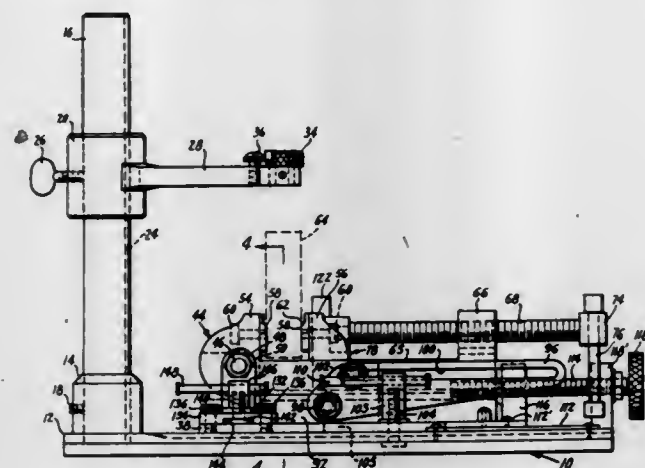
U.S. Cl. 408-59

3 Claims



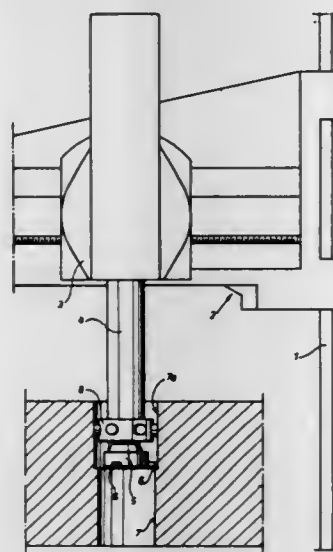
A rotary, one-piece, multiple-diameter, liquid-cooled tool insert for attachment to a rotary driving shank provided with external and internal coolant passages to provide adequate lubrication and coolant liquid to the various diameters including a remote tip, this being furnished with coolant through an internal passage leading to external land grooves at the tip end to supplement coolant flow also supplied through external flutes.

3,591,303
APPARATUS FOR POSITIONING PIANO HAMMERS FOR DRILLING
 Fred T. Conway, P.O. Box 701, Pacific Grove, Calif.
 Filed Apr. 2, 1969, Ser. No. 812,704
 Int. Cl. B23b 47/28
 U.S. Cl. 408—108



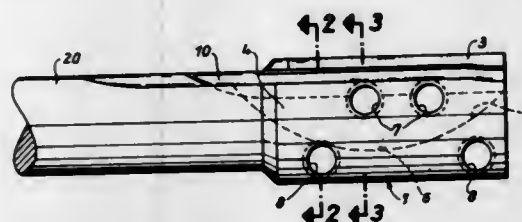
A viselike clamp is adapted to grip the head of a piano hammer and is provided with supporting means so that the hammerhead may be arranged at any desired angle with respect to a stationary drill-supporting means so that the head may be drilled to provide an opening to receive the end of the stem which supports the piano hammer.

3,591,304
DEVICE FOR STIFFENING AND DEADENING VIBRATIONS OF MACHINE-TOOL PARTS
 Maso Galbarini, Pavia, and Francesco Cotta Ramusino, Milan, both of, Italy, assignors to Innocenti Societa Generale per L'Industria Metallurgica E Meccanica, Milan, Italy
 Filed Sept. 11, 1969, Ser. No. 857,092
 Claims priority, application Italy, Sept. 21, 1968, 53,220/68
 Int. Cl. B23b 29/03
 U.S. Cl. 408—143 10 Claims



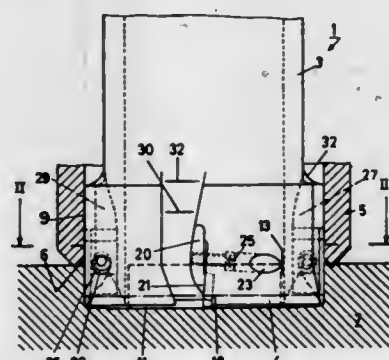
A tool-carrying part of a machine tool is supported to prevent lateral displacement and vibration of the part in operation by a number of support elements which are displaceable radially in unison under the action of fluid pressure to engage a supporting surface of, for example, a workpiece bore. The support elements do not exert a resultant lateral force on the machine tool part, and moreover any lateral displacement or vibration of said part at a speed in excess of a predetermined speed is effectively damped by the reaction of the support elements.

3,591,305
REAMER WITH REPLACEABLE CUTTING BLADE
 Johann Alchhorn, Aalen; Erich Rietzier, Sigmaringen, and Dieter Kress, Aalen, all of, Germany, assignors to Mapal Dr. Kress K.G., Aalen, Germany
 Filed Apr. 7, 1969, Ser. No. 814,139
 Claims priority, application Germany, Apr. 10, 1968, P 17 52 151.6
 Int. Cl. B23d 77/00
 U.S. Cl. 408—161 10 Claims



The cutter head of a reamer has a groove shaped for receiving a cutting blade which partly separates an integral jaw portion from the remainder of the cutting head. A clamping screw permits the jaw portion to be tightened on the cutting blade whose mobility is increased by a slot in a plane intersecting the groove at an obtuse angle. Further slots may be provided for distributing the pressure of the jaw portion on the blade in a desired manner.

3,591,306
CORE BORER
 Alfred Kaser, Rieden, Nussbaumen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland
 Filed Jan. 2, 1969, Ser. No. 788,445
 Claims priority, application Switzerland, Jan. 12, 1968, 525/68
 Int. Cl. B23b 51/04
 U.S. Cl. 408—204 2 Claims

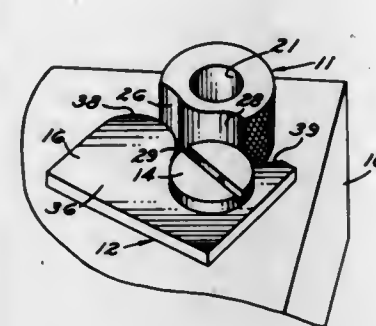


A core drill structure comprises a hollow shaft to which an annular drill head is secured, the drill head including a plurality of equispaced recesses for receiving plates provided with alternatively usable cutting edges for drilling an annular hole. The cutting edges of the plates are respectively staggered in a radial direction so that each cutting edge works only a portion of the width of the annular cut, and these cutting edges are also disposed respectively in different planes normal to the drill axis in order to also establish an axial staggering of the cutting edges of adjacent plates.

3,591,307
DRILL JIG BUSHING LOCKING PLATE
 Arthur L. Barnard, Royal Oak, Mich., assignor to Ex-Cell-O Corporation, Detroit, Mich.
 Filed June 3, 1969, Ser. No. 829,962
 Int. Cl. B23b 49/02
 U.S. Cl. 408—241 8 Claims

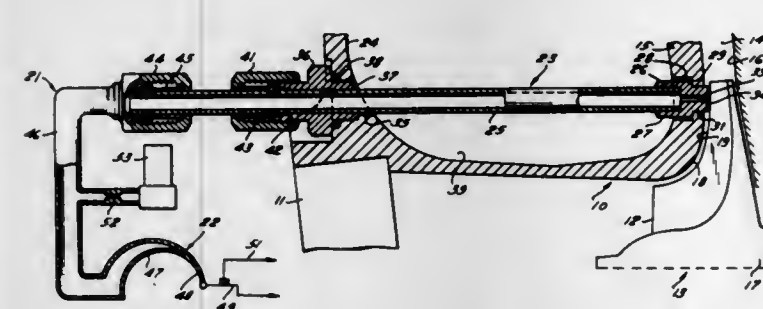
This disclosure relates to a locking plate which can be utilized with a slip replaceable drill jig bushing and turn it into a

fixed replaceable drill jig bushing by placing a lock plate unwanted particles and fibers in the fluid. A magnet is embedded in the body to render the mixing body and filter com-



around the lock screw to act in conjunction with a bayonet-type release system of the slip replaceable drill jig bushing.

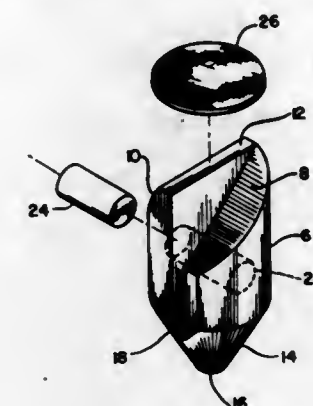
3,591,308
ROTOR GUARD FOR CENTRIFUGAL COMPRESSOR
 Ernest W. Blattner, Franklin, Pa., and Arnold M. Heltmann, Swampscott, Mass., assignors to Chicago Pneumatic Tool Company, New York, N.Y.
 Filed June 4, 1969, Ser. No. 830,291
 Int. Cl. F01b 25/00
 U.S. Cl. 415—9 6 Claims



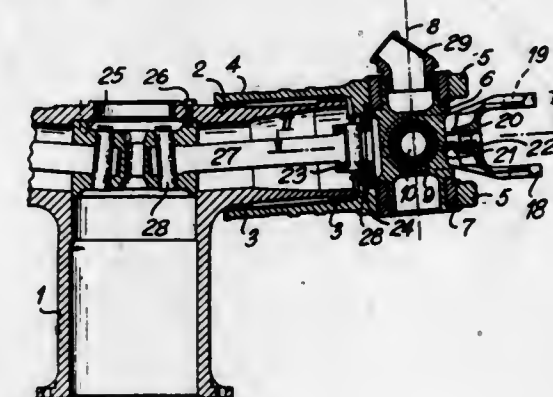
A safety device to protect a rotor impeller in a centrifugal compressor from damage that might otherwise occur when the impeller, because of some fault, engages an opposed wall of its chamber. The device includes a hollow tubular body supported in the walls of the compressor. It has one end connected with a pressure switch arranged in a power control electrical circuit, and has an opposite abradable thin end projecting into the impeller chamber. The device is pressurized with fluid and, when its thin end is caused to be abraded away by the impeller, the pressure fluid will be dumped, causing actuation of the switch and consequent discontinuance of power to the compressor. The pressure fluid for the device may be supplied from the compressor system or from an external source. In condenser steam turbines, the tubular body of the device may be connected with a vacuum element and arranged so that when the thin end is abraded away the tubular body will become pressurized by the process fluid to cause actuation of the pressure switch.

3,591,309
MIXER AND FILTER COMBINATION FOR DISCRETE SIMPLE CONTAINERS
 Robert A. Ray, Fullerton, and August Hell, Whittier, both of, Calif., assignors to Beckman Instruments, Inc.
 Filed June 30, 1969, Ser. No. 837,695
 Int. Cl. B01f 7/00
 U.S. Cl. 416—3 5 Claims

A body member is disclosed which has a shape compatible with a discrete sample container and at least one ramp surface for the purpose of propelling and thereby mixing a fluid in a container as the body is rotated. A filter is attached to one end of the body member for the purpose of intercepting



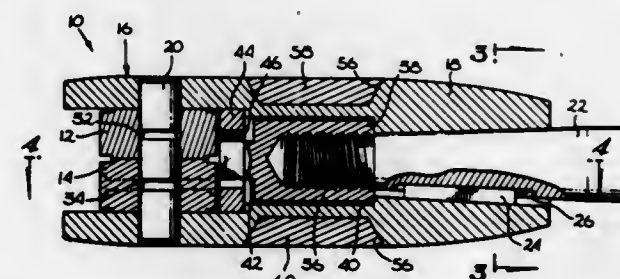
3,591,310
ARTICULATED HUB FOR HELICOPTER ROTOR
 Rene Louis Mouille, Aix-en-Provence, France, assignor to Sud-Aviation Societe Nationale de Constructions Aeronautiques, Paris, France
 Filed June 30, 1969, Ser. No. 837,539
 Claims priority, application France, July 4, 1968, 157831
 Int. Cl. B64c 27/38 2 Claims



The present invention relates to a hollow, unit-construction mast-hub assembly having cylindrical arms at its top for supporting as many helicopter rotor blades through the medium of sleeves associated to said arms and pivotally mounted thereon, a flapping and lead-lag hinge device being interposed between each of said sleeves and a blade attachment clevis.

3,591,311
PROPELLER ASSEMBLY
 Frank W. Butler, 10354 Vanalden St., Northridge, Calif.
 Filed Aug. 18, 1969, Ser. No. 850,776
 Int. Cl. B63h 1/24 1 Claim

U.S. Cl. 416—142



A boat propeller having a pair of foldable propelling blades which are connected to the engine drive shaft through a dual-nut assembly comprising a first nut about the drive shaft and a locking nut about the first nut. The foldable propelling

blades are connected to the drive shaft through a bolt which is slidable within a drive shaft sleeve.

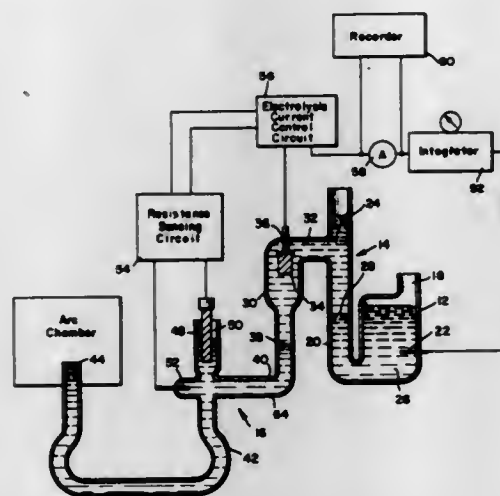
3,591,312

LIQUID MERCURY FLOW CONTROL AND MEASURING SYSTEM

Wilfried O. Eckhardt, Malibu, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Nov. 30, 1967, Ser. No. 687,004
Int. Cl. G01f 23/00

U.S. Cl. 417-48

15 Claims



The supply and discharge portions of liquid mercury are separated in their discharge conduit by an electrolyte. Mercury is electrolyzed through the electrolyte from the supply to the discharge. The electrolyzing action defines the amount of mercury delivered to the discharge. Control of the amount of electrolysis current, and thus the amount of mercury delivered from the supply to the discharge portions of this system is controlled by the mercury level in the discharge portion of the system. If a fixed pressure is required at the discharge point of the discharge portion of the system, a fixed head is maintained above the discharge point. If a fixed level of mercury is required at the discharge level, this is also controlled by the level of the mercury in the discharge portion of the system.

3,591,313

PRESSURE WAVE MACHINE

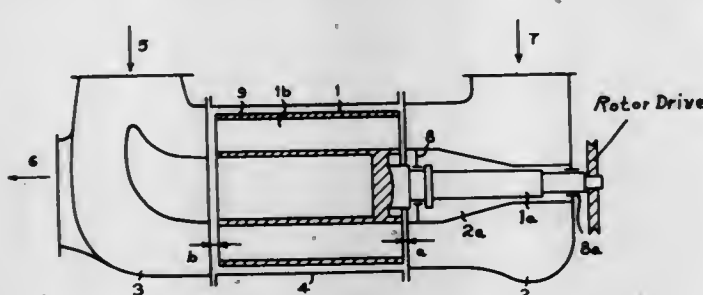
Alfred Wunsch, Wettingen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed June 4, 1969, Ser. No. 830,459

Claims priority, application Switzerland, June 20, 1968, 9203/68

Int. Cl. F04b 37/02

U.S. Cl. 417-64

6 Claims



A pressure wave machine includes a celled rotor through which a hot gaseous medium and air are passed to establish an exchange of energy. The housing structure for the machine includes a central part surrounding the rotor and side parts located adjacent the opposite ends of the rotor which serve for the introduction of the hot gaseous medium and air respectively into the cells. In order to maintain an at least approximately constant length of the rotor and central part of the housing structure, and an at least approximately

constant clearance gap between the ends of the rotor and the adjacent side parts of the housing structure under all operating conditions and regardless of the temperature of the hot gaseous medium, the rotor and central part of the housing structure are made from a metallic material having a very low means coefficient of thermal expansion. Suitable metallic materials are nickel-iron alloys and nickel-iron-cobalt alloys. The surface of the rotor may also be coated with a material, such as an enamel, having a poor heat conductivity characteristic to retard its heat absorption.

3,591,314

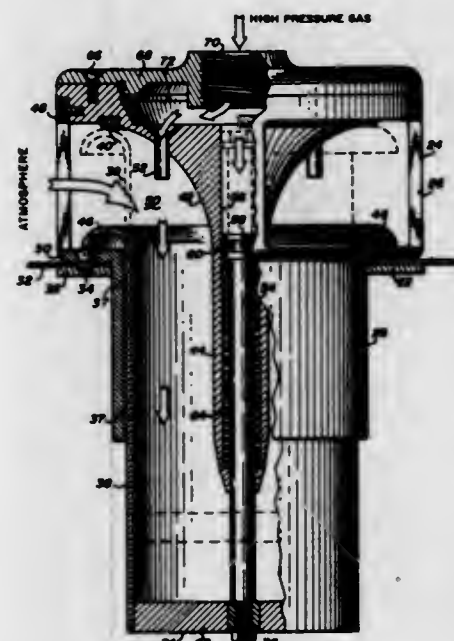
ASPIRATOR APPARATUS FOR BAG-INFLATION SYSTEM

Ronald H. Day, Mill Valley, Calif., assignor to Industrial Covers Inc., San Francisco, Calif. and Sargent Industries, Inc., Los Angeles, Calif.
Filed Feb. 28, 1969, Ser. No. 803,178

Int. Cl. F04f 5/16, 5/48

U.S. Cl. 417-179

15 Claims



An improved aspirator device for bag-inflation systems and the like which is rotationally symmetrical about the axis of the device and includes an annular atmospheric flow path concentric with one or more rings of aspirating jets to provide a high-efficiency aspirating function. The aspirator includes a single operation closure component which acts to open the atmospheric flow path upon actuation of the device and close the atmospheric flow path when a predetermined pressure has been built up within the inflated device.

3,591,315

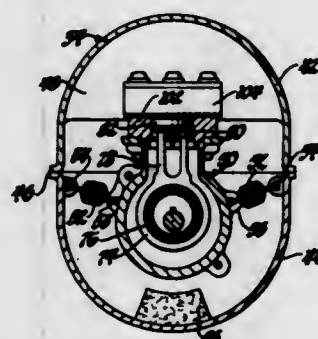
RECIPROCAL COMPRESSOR AND ACCUMULATOR FOR AUTOMATIC VEHICLE LEVELING SYSTEM

James E. Whelan, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 26, 1969, Ser. No. 880,072

Int. Cl. F04b 39/00, 35/04

U.S. Cl. 417-363

4 Claims



A reciprocal compressor and accumulator assembly for an automatic vehicle leveling system including auxiliary lift units

receiving pressurized fluid from the accumulator when the vehicle is loaded and being pumped down by the compressor when the vehicle is unloaded to maintain a constant vehicle suspension height. The compressor is of a low displacement variety and is driven by a high-speed permanent magnet motor at approximately 3,000 r.p.m. whereby combined with the fact that the compressor receives supercharged air from the auxiliary lift units, the pumpdown time is significantly reduced and the electrical drain on the vehicle battery is held to a minimum. The compressor assembly is suspended on coil springs within the accumulator preventing motor and compressor vibrations from being transmitted through the accumulator to the vehicle and consequently the accumulator may be mounted directly to the vehicle chassis.

3,591,316

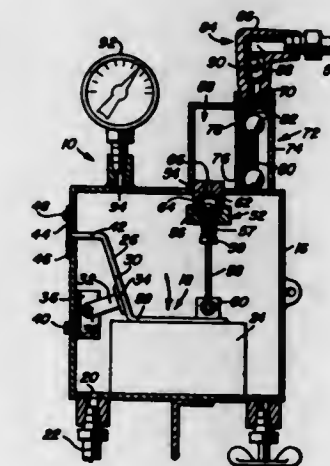
AUTOMATIC CENTRIFUGAL PUMP PRIMER

Robert J. Piccirilli, 4918 Anntana Ave., Baltimore, Md.
Filed Feb. 26, 1969, Ser. No. 802,410

Int. Cl. F04b 17/00, 35/00, 21/00

U.S. Cl. 417-364

1 Claim



A valve assembly connected in series between a source of vacuum pressure and the intake port of a centrifugal pump. The valve assembly includes a float chamber and float therein for monitoring the passage of fluid through the pump. When the pump ceases to operate upon fluid and requires priming, the float in the float chamber causes communication between the inlet port of the pump and the source of vacuum pressure thereby effecting priming. The present invention further includes an inlet hole in the float chamber which is selectively opened to terminate vacuum in said chamber and allowing air to enter, causing any fluid buildup to be removed by centrifugal pump vacuum, restoring the chamber to ready-prime position automatically. Further, redundant check valve means are provided for insuring the prevention of fluid flow from the float chamber to the vacuum source.

3,591,317

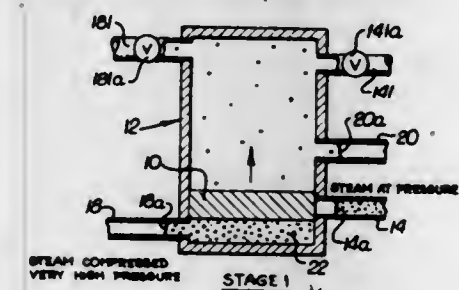
METHOD AND APPARATUS FOR PRESSURIZING STEAM

Glenn D. James, 1200 Encino Ave., Arcadia, Calif.
Filed July 19, 1968, Ser. No. 746,094

Int. Cl. F04b 35/00

U.S. Cl. 417-392

12 Claims



Steam is taken at a generated pressure e.g. from a desalinization system and is altered in pressure for particular

purposes e.g. to feed steam powered turbines at a single step or in multiple stages for example dividing a quantity of steam at an intermediate pressure into higher and lower pressure portions.

3,591,318

ROTARY PISTON PUMP

Horst Knapp, Neutraubling, Germany, assignor to Knapp Mikrohydraulik G.m.b.H., Neutraubling, Germany
Filed Oct. 28, 1969, Ser. No. 870,023

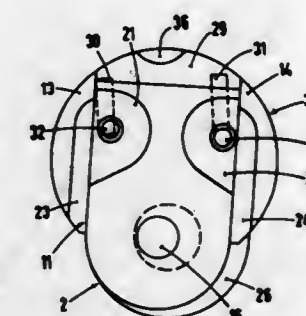
Claims priority, application Germany, Oct. 31, 1968

P 18 06 185.3

Int. Cl. F04b 19/02

U.S. Cl. 417-465

13 Claims



A pump having a biarcuate chamber closed by plane parallel walls, an eccentrically driven piston located in the chamber, a guide arranged between each side of the piston and a cylindrical surface of the chamber in order to translate the rotary drive to the piston into a reciprocal motion. Supply and delivery ducts arranged to open into the chamber from one of the plane parallel walls and associated recesses provided in the piston and the guides, whereby liquid to be pumped is supplied to and from a pump chamber through the selected opening and closing of slots provided in the other plane parallel wall so that each duct is placed in communication with the pump chamber by way of the associated recess in the piston.

3,591,319

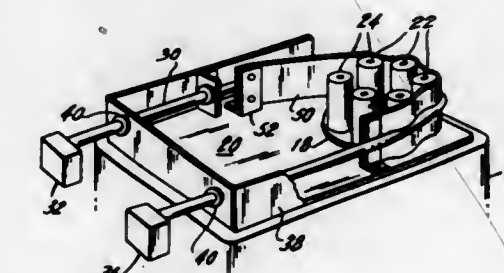
FLOW CONDUIT PROTECTIVE MEMBER FOR PERISTALTIC PUMP

Theodore Shlisky, Bayside, N.Y., assignor to Scientific Industries, Inc., Hempstead, N.Y.
Filed Mar. 17, 1969, Ser. No. 807,892

Int. Cl. F04b 43/03, 43/12

U.S. Cl. 417-477

2 Claims



In a peristaltic pump comprising at least one flexible conduit through which fluid is pumped by occluding the conduit at one location and then moving the occlusion downstream along the conduit, and comprising at least one occlusion means for occluding the conduit and for being moved downstream over the conduit, a conduit protective member positioned between the occluding means and the conduit so that as the occluding means moves over the conduit, it rubs the conduit protective member, and not the conduit; the protective member being sufficiently flexible so as not to interfere with the occlusion of the conduit and being formed of material having a low coefficient of friction so as to reduce rubbing between contacting elements.

3,591,320 PRESSURIZED ROLLER MEANS IN A FLUID PRESSURE DEVICE

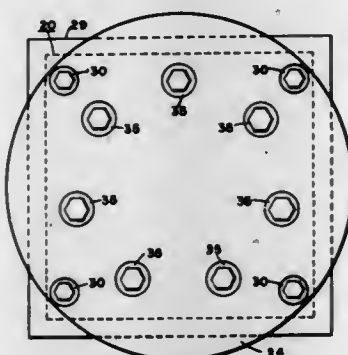
George V. Woodling, 22077 West Lake Road, Rocky River,
Ohio

Filed Apr. 8, 1969, Ser. No. 814,300

Int. Cl. F01c 3/00

U.S. Cl. 418-61

17 Claims



The pressurized roller means is featured in a stator-rotor mechanism having stator and rotor means, the latter of which having a rotational movement about its own axis and an orbital movement about the axis of the stator means. The stator means includes a plurality of cylindrical roller means journaled respectively in a plurality of open journal pockets. A minor cylindrical portion of the respective roller means is exposed through the open pockets. The exposed, minor cylindrical portions constitute internal teeth for the stator means. Upon relative movement between the stator means and the rotor means, the rotor means is disposed to contact the exposed, minor cylindrical portions, whereby they may rotate and thus convert what would otherwise be a sliding contact into a roller contact. A major cylindrical portion of the roller means is held in the respective pockets by a confronting wall which circumferentially embraces a major portion of the pockets. A substantially fluidtight clearance space is provided between the confronting wall and a major portion of the roller means. Pressurized fluid is conducted to this clearance space for fluidically supporting the roller means in the pockets.

3,591,321 VALVING IN COMBINATION WITH FLUID PRESSURE OPERATING MEANS

George V. Woodling, 22077 West Lake Road, Rocky River,
Ohio

Continuation of application Ser. No. 765,107, Oct. 4, 1968,
now abandoned. This application Dec. 23, 1969, Ser. No.

887,614

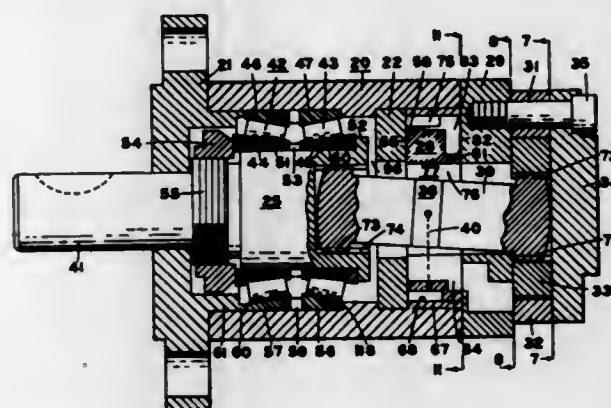
Int. Cl. F01c 1/08

U.S. Cl. 418-61

11 Claims

Stationary and rotary valve means are provided in combination with fluid pressure operation means, in which the stationary valve has a stationary valve face and a plurality of fluid openings communicating with the fluid pressure operation means. The rotary valve is hollow and has a rotary valve face sealingly engaging the stationary valve face. Externally of the hollow rotary valve is a first fluid chamber or gallery and internally of the hollow rotary valve is a second fluid chamber or gallery. First and second alternate series of commutating fluid conduction means respectively extend from

the first and second fluid chambers through the rotary valve face with each series commutating with and being one less in number than said plurality of fluid openings. A series of lands are circumferentially and respectively disposed between said first and second series. Said lands and said first and second



series each have substantially the same circumferential width and are spaced at substantially uniform circumferential intervals relative to each other around the rotary valve face and are respectively positioned in substantially direct opposed diametrical locations relative to each other.

3,591,322 SAFETY RECYCLING SYSTEM FOR A HEATER

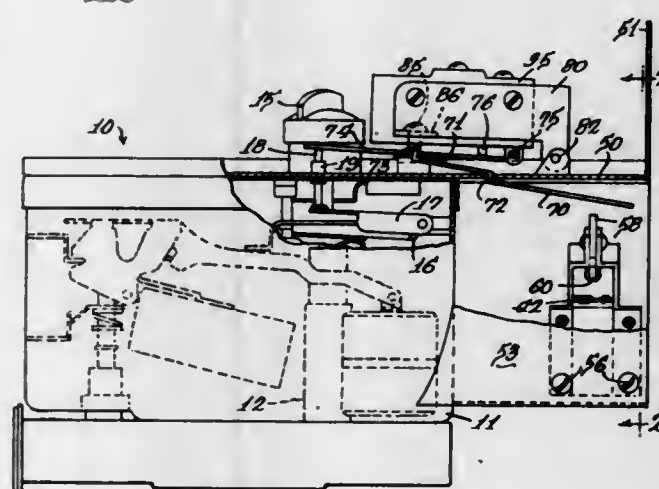
Ray Derringer, Port Edwards, and Robert G. Moss, Wisconsin Rapids, both of, Wis., assignors to Preway Inc.

Filed Mar. 10, 1969, Ser. No. 805,471

Int. Cl. F23n 5/24

U.S. Cl. 431-78

4 Claims



A safety recycling system for a fuel-burning heater having an electric ignition circuit and a variable-rate fuel supply controlling valve comprising a safety circuit with a normally energized solenoid which is responsive either to a power failure or to an excessive operating temperature to close the fuel supply valve and open the ignition circuit and further responsive to presence of power and a proper operating temperature to permit reopening of the valve to the previously set rate and close said ignition circuit for refiring of the heater.

CHEMICAL

3,591,323

NEW HAIR DYEING SOLUTION

Gregoire Kalopissis, Paris, and Andree Bugaut, Boulogne-sur-Seine, France, assignors to L'Oreal, Paris, France

No Drawing. Filed Feb. 7, 1966, Ser. No. 525,291

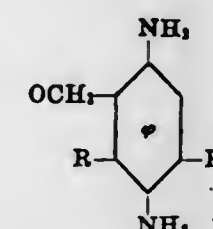
Claims priority, application France, May 6, 1965, 16,140

Int. Cl. A61k 7/12

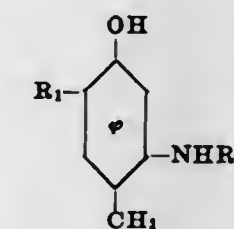
U.S. Cl. 8-11

17 Claims

A composition for dyeing keratinic fibers comprising effective amounts of aromatic paradiamine of the formula



in which R and R' each represent a substance selected from the group consisting of hydrogen and methyl, but R' must be methyl when R is methyl, and meta-amino-phenol which serves as a coupling substance of the formula



in which R₁ represents a substance selected from the group consisting of chlorine and hydrogen and R₂ represents a substance selected from the group consisting of hydrogen, carbamylmethyl and diethyl carbamylmethyl, but R₁ must be chlorine when R₂ is hydrogen, and the method of dyeing hair with this composition.

3,591,324

DYEING POLYAMIDES WITH MONOAZO DYES CONTAINING ACID GROUPS

Johannes Dehnert, Ludwigshafen, Walter Grosch, Mannheim, and Gergard Gnad, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft Ludwigshafen (Rhine), Rhineland-Pfalz, Germany

No Drawing. Continuation-in-part of application Ser. No. 703,273, Feb. 6, 1968. This application Nov. 21, 1969, Ser. No. 878,939

Claims priority, application Germany, Feb. 14, 1967, P 16 44 056.5

Int. Cl. D06p 1/02

U.S. Cl. 8-41

5 Claims

Process for dyeing and/or printing synthetic polyamides with dyes containing sulfonic acid groups and derived from 3-aminophthalimides, or 4-aminophthalimides, and 2-amino-8-hydroxynaphthalene-6-sulfonic acid.

3,591,325

PRODUCTS AND PROCESS FOR REMOVING ORGANIC PIGMENTS AND DYES FROM DYED AND PRINTED NATURAL AND SYN- THETIC TEXTILE MATERIALS

Ira Sapers, Maplewood, N.J., assignor to Arkansas Company, Inc., Newark, N.J.

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,413

Int. Cl. D06l 3/00

U.S. Cl. 8-102

10 Claims

A process for removing organic dyes and pigments, such as phthalocyanine, vat and azo pigments which are normally used with various binding agents, and also including fiber reactive dyes, any of which have been used to impart color or brightness to natural or synthetic textile materials, consisting of treating such textile materials in an aqueous medium containing sodium or potassium hydroxide, a reducing agent such as sodium hydrosulfite, and a stripping assist selected from the group including ethoxylated aliphatic or araliphatic long chain amines containing 12-20 carbon atoms in the aliphatic part, quaternized with an aromatic alkylating agent providing benzyl, halo-benzyl, xyllyl, or xyllylhalide groups in the quaternary moiety, and the novel stripping assistants obtained in this way.

3,591,326

CONTINUOUS SCOURING PROCESS

Arne Johnels, Boras, Sweden, assignor to I.W.S. Nominee Company Limited, London, England

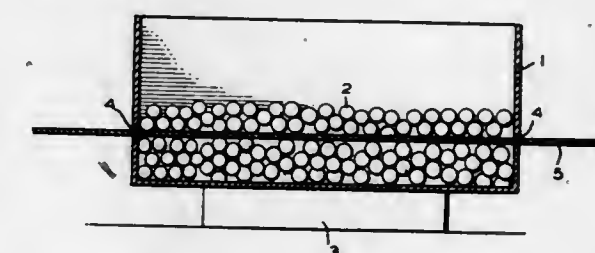
Filed Oct. 28, 1968, Ser. No. 771,021

Claims priority, application Great Britain, Oct. 26, 1967, 48,812/67

Int. Cl. D01c 3/00

U.S. Cl. 8-139

4 Claims



Textile fabrics more especially of wool are scoured by wetting with solutions of surface active agents and passing them through a bed of vibrating metal or glass balls. The fabric may be wetted either by impregnation before passage through the bed of balls or the bed itself may be immersed in a bath of the solution.

3,591,327

PROCESS FOR DYEING AROMATIC POLYAMIDE FIBERS

Shogo Matsuda, Toyonaka-shi, and Takeo Oshima, Ibaraki-shi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed June 8, 1967, Ser. No. 644,472

Claims priority, application Japan, June 11, 1966, 41/37,314

Int. Cl. D06p 5/00

U.S. Cl. 8-166

11 Claims

Aromatic polyamide fibers which are hardly dyeable with commercial dyes such as acid dyes, metal complex

dyes, direct dyes and the like can readily be dyed with such dyes to give a deep colored dyed product by treating the fibers in a bath containing as an accelerator one or more of alkylbenzene and alkylnaphthalene where at least one hydrogen atom of the alkyl moiety is substituted with halogen, or derivatives thereof in which the aromatic ring of said compounds is substituted by an alkyl group or a halogen atom. The accelerator may be applied before or during dyeing. The amount of accelerator used in the treating bath is 3 to 30 g./liter.

3,591,328

METHOD OF AND MEANS FOR CONTROLLING MOLD SPORES IN AIR-HANDLING SYSTEMS
Bela J. Szappanos, 2480 W. Maple Road 48011, and Robert M. Eckerman, 942 Arden Lane 48009, both of Birmingham, Mich.

No Drawing. Continuation of abandoned application Ser. No. 466,829, June 24, 1965. This application Aug. 22, 1969, Ser. No. 871,723

Int. Cl. A61l 9/00; F24f 3/16; B44d 1/08

U.S. Cl. 21-58

9 Claims
A method of treating the air contacted and adjacent surfaces of air propelling devices of air conditioning and air treating equipment by applying thereto an admixture of a fungicide and an air drier solvent and having film-reinforcing ingredients therein to coat the surfaces and to dry thereon to form a fungus growth inhibiting coating thereon. The admixture is introduced into the air inlet of air conditioning or treating equipment while the air propelling mechanism is functioning.

3,591,329

APPARATUS FOR PRESERVING HYDROPHILIC GELS, MORE PARTICULARLY OCULAR CONTACT LENSES

Richard Chromček, Jiří Vodňanský, and Jiří Manyš, Prague, Czechoslovakia, assignors to Československá akademie věd, Prague, Czechoslovakia

No Drawing. Filed Mar. 13, 1968, Ser. No. 712,609

Claims priority, application Czechoslovakia, Mar. 15, 1967, 1,883/67

Int. Cl. A61l 3/00

U.S. Cl. 21-61

5 Claims
Apparatus for the storage of a swellable hydrophilic polymeric gel body such as a contact lens or other implant comprises a liquid container divided into at least two parts by a porous wall and having a physiologic liquid contained therein, one of said container parts being adapted to hold said gel body immersed in said liquid, a cation resin exchange material impregnated with a surface active metallic silver, said material being located in the other of the container parts and being soluble by said liquid to release surface silver ions over a period of time to thereafter, freely flow through said porous wall into contact with said gel body.

3,591,330

USE OF PHOSPHORAMIDES AS CORROSION INHIBITORS

Derek Redmore, Ballwin, Mo., assignor to Petrolite Corporation, Wilmington, Del.

No Drawing. Original application Nov. 25, 1966, Ser. No. 596,798, now Patent No. 3,524,908, dated Aug. 18, 1970. Divided and this application Oct. 20, 1969, Ser. No. 867,943

Int. Cl. C23f 11/16

U.S. Cl. 21-2.5

5 Claims
The use of phosphoramides, such as those prepared from esters of phosphorous acid and ammonia or amines, in inhibiting corrosion. These are particularly illustrated by phosphoramides, prepared by reacting dialkyl phosphites with polyamines, which are particularly useful in petroleum systems such as in oil wells or in oil-brine mixtures.

3,591,331 PROCESS FOR PRODUCING AMMONIUM METATUNGSTATE

Vincent Chiola, Towanda, Phyllis R. Dodds, Wyoc, and Fred W. Liedtke and Clarence D. Vanderpool, Towanda, Pa., assignors to Sylvania Electric Products Inc.

Filed June 30, 1969, Ser. No. 837,613

Int. Cl. C22b 59/00; C01g 41/00

U.S. Cl. 23-22

9 Claims
A process for producing ammonium metatungstate from ammonium tungstate without an appreciable formation of ammonium paratungstate is disclosed. The process comprises contacting an aqueous ammonium tungstate solution having a pH of at least about 9 with an organic extractant solution comprising di-2-ethylhexyl phosphoric acid, and a water-insoluble hydrocarbon solvent, said components being in specified ratios to extract ammonium ions from the aqueous solution, separating the resultant aqueous solution from the organic solution, heating said aqueous solution to a temperature of at least about 60° C. for at least about 1 hour and recovering an essentially pure ammonium metatungstate.

3,591,332

PROCESS FOR RECOVERY OF SULFUR FROM GYPSUM

D'Arcy R. George and James M. Riley, Salt Lake City, Utah, assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,730

Int. Cl. C01d 7/00; C01b 7/16, 11/24

U.S. Cl. 23-64

1 Claim
Sulfur is produced from gypsum by (1) roasting the gypsum with carbon or a reducing gas to form CaS; (2) reacting the CaS with H₂S and water to produce a solution of Ca(HS)₂; (3) converting the Ca(HS)₂ to NaHS by ion exchange; (4) carbonating the NaHS solution to form H₂S and NaHCO₃; (5) decomposing H₂S and NaHCO₃ to produce sulfur and Na₂CO₃, respectively.

3,591,333

METHOD OF CHLORINATING TITANIUM-BEARING MATERIALS

Gordon A. Carlson and Robert F. Mitchell, New Martinsville, W. Va., assignors to PPG Industries, Inc.

No Drawing. Continuation of application Ser. No. 688,677, Dec. 7, 1967. This application Apr. 30, 1970, Ser. No. 31,836

Int. Cl. C01g 23/02

U.S. Cl. 23-87

18 Claims
Titanium-bearing materials are chlorinated with a chlorinating agent in a fluidized bed in the presence of a carbonaceous reductant. The regulation of reaction temperatures by removal of excess heat of reaction is discussed, and a method for increasing the amount of heat generated by the reaction is proposed.

3,591,334

METHOD FOR PREPARING ALKALI METAL PHOSPHATE COMPOSITIONS

Robert B. Hudson, St. Louis, and Charles C. Sisler, Des Peres, Mo., assignors to Monsanto Company, St. Louis, Mo.

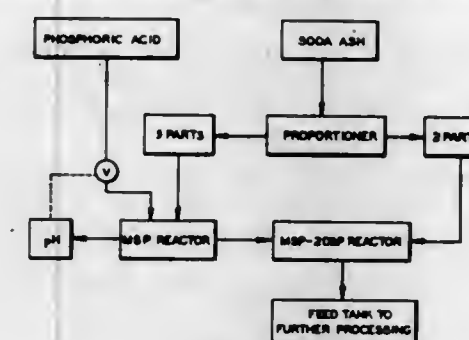
Continuation of application Ser. No. 365,426, May 6, 1964. This application Jan. 9, 1969, Ser. No. 791,209

Int. Cl. C01b 25/30

U.S. Cl. 23-107

11 Claims
A method is described for preparing a chemical composition by the reaction of a plurality of reactants having molar ratios in the composition which are difficult to determine by controlled procedures by accurately proportioning at least one of the reactants into a plurality of

predetermined fractions, reacting at least one of the fractions with another reactant to form an intermediate product.



uct under accurately controlled conditions and reacting the intermediate product with the remaining reactants.

3,591,335

METHOD OF PREPARING AMMONIUM THIOSULFATE FROM AMINE THIOSULFATES

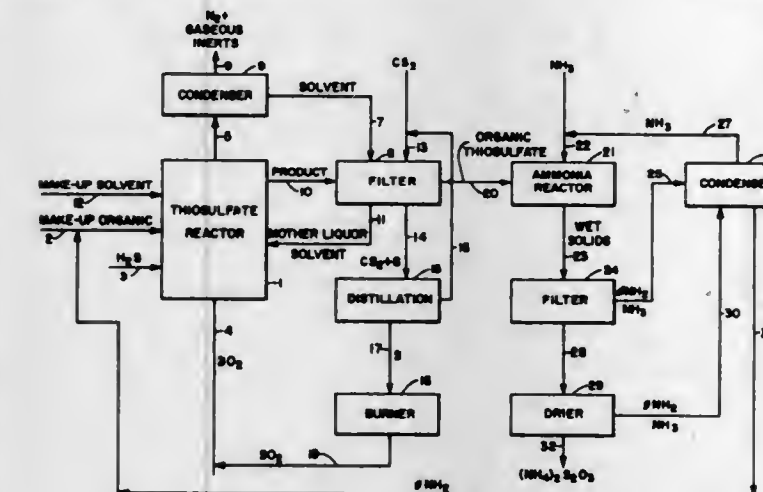
Ralph Leroy Grimsley and Richard L. Every, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Original application Feb. 27, 1967, Ser. No. 618,707, now Patent No. 3,483,267, dated Dec. 9, 1969. Divided and this application Aug. 5, 1969, Ser. No. 847,652

Int. Cl. C01b 17/64

U.S. Cl. 23-115

7 Claims



A primary amine is reacted with hydrogen sulfide and sulfur dioxide in the presence of a solvent to form the amine thiosulfate and sulfur which precipitates in the solvent. The thiosulfate can be freed of sulfur by dissolving the sulfur in a sulfur solvent such as carbon disulfide or by dissolving the thiosulfate in hot water. The amine thiosulfate, with or without removal of sulfur, is reacted with ammonia to form the ammonium thiosulfate and regenerate the amine. The ammonium thiosulfate is recovered by filtration and the regenerated amine cycled back to the first reaction zone.

3,591,336

MINIMIZING CARBON IN PHOSPHORUS RECOVERY

Walter C. Saeman, Hamden, Conn., assignor to Olin Corporation

No Drawing. Continuation-in-part of application Ser. No. 727,115, Mar. 18, 1968, which is a continuation-in-part of application Ser. No. 398,306, Sept. 22, 1964. This application Sept. 22, 1969, Ser. No. 860,006

The portion of the term of the patent subsequent to Nov. 18, 1986, has been disclaimed

Int. Cl. C01b 25/12

U.S. Cl. 23-165

9 Claims
Phosphorus values in the form of P₂O₅ are recovered from phosphate ores reacted with carbon, silica and oxygen-containing gas in a rotary furnace having a vitreous lining held in place centrifugally.

3,591,337

METHOD OF MANUFACTURING SILICON NITRIDE

Roland John Lumby, Northfield, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

No Drawing. Filed Mar. 13, 1968, Ser. No. 712,622

Claims priority, application Great Britain, Apr. 10, 1967, 16,284/67

Int. Cl. C01b 21/06; B01j 17/20

U.S. Cl. 23-191

4 Claims
Silicon nitride is manufactured by mixing finely divided silicon with finely divided silicon nitride and then heating the resultant mixture in a non-oxidizing atmosphere containing nitrogen. The normal way of making silicon nitride is to use finely divided silicon alone, but it is found that the addition of some silicon nitride leads to a reduction in operating time which is considerably greater than the reduction which would be expected because some of the mixture is already constituted by silicon nitride.

3,591,338

PREPARATION OF METAL NITRIDES

William O. Roberts, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 5, 1968, Ser. No. 734,521

Int. Cl. C01b 21/06

U.S. Cl. 23-191

4 Claims
The process for preparing nitrides of Group IV-B and Group V-B metals by reacting the metal halide with ammonia to form the metal amidohalide followed by decomposition in ammonia or nitrogen at up to 400° C. to form the metal nitrogen halide and decomposition in ammonia or nitrogen at 900 to 1200° C. to form the metal nitride, is improved by carrying out the decomposition steps in the presence of from 0.1 to 1 part by volume of hydrogen per part by volume of nitrogen or ammonia.

3,591,339

METHOD FOR PREPARING BINARY SALINE OR IONIC HYDRIDES

Jaroslav Vít, Vladimír Procházka, and Bohuslav Casenský, Prague, Jiří Macháček, Krumvíř, and Josef Vlk, Prague, Czechoslovakia, assignors to Československá akademie věd, Prague, Czechoslovakia

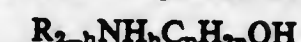
No Drawing. Filed May 15, 1967, Ser. No. 638,576

Claims priority, application Czechoslovakia, May 17, 1966, 3,299/66

Int. Cl. C01b 6/04

U.S. Cl. 23-204

14 Claims
A process comprising reacting hydrogen and a metal Me in the presence of compounds of the general formula Me'Q^r wherein Q is an alkoxyl, aroxyl or aralkoxyl selected from the group consisting of substituents derived from etheralcohols obtainable by the alkylation of one hydroxyl group in diols and in polyglycols, and substituents derived from etheralcohols obtainable by alkylation of two hydroxyl groups in triols and substituents derived from aminoalcohols of the general formula



wherein R is an alkyl, h is 0, 1, or 2, and n is an integer between 1 and 15; and Me is an alkali metal, an alkaline earth metal, B, Al or Si; and r is the valence of Me.

3,591,340

METHOD FOR PREPARING HIGH PURITY CRYSTALLINE SEMICONDUCTIVE MATERIALS IN BULK

Thomas S. Plaskett, Ossining, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

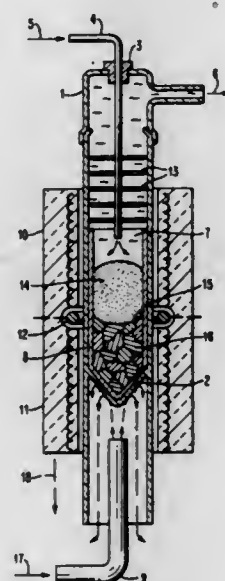
Filed July 11, 1968, Ser. No. 744,107

Int. Cl. C01b 27/00, 31/36; C01g 9/08

U.S. Cl. 23-204

10 Claims
Groups III-A-V-A and II-B-VI-A compounds and alloys thereof are prepared, for example, by flowing a

gaseous Group V compound into a bath of a molten Group III-A element having a temperature profile established thereabout. A container containing a molten metal or a mixture of said metals is placed in a vertical furnace, about which a steep temperature gradient is established along its length. A gaseous compound of a Group V-A element or a mixture of gaseous Group V-A compounds and an inert gas is permitted to flow into the molten Group III-A metal. A temperature gradient along the length of the crucible causes the Group V-A element to react with the molten Group III-A metal and the reaction product therefrom dissolves in the molten metal. The



lower surface of the crucible is cooled by a cool air blast which establishes convection currents within the molten metal so that as the solubilized Group III-A-V-A compound moves downwardly in the crucible it mixes with the molten Group III-A compound, is cooled and crystallizes out of the molten metal as a highly pure crystalline ingot of the specific III-A-V-A composition. It has also been found that pure silicon carbide can be prepared in a similar manner. For example, a mixture of methane and an inert gas is permitted to flow into molten silicon which is similarly subjected to a temperature gradient. The materials formed by the process of this invention are found to be of very high purity.

3,591,341

STANNATE STABILIZER COMPOSITIONS CONTAINING A PYROPHOSPHATE AND ORTHOPHOSPHORIC ACID, THEIR PREPARATION, AND HYDROGEN PEROXIDE SOLUTIONS STABILIZED THEREWITH

Victor J. Reilly, Memphis, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 24, 1968, Ser. No. 747,113

Int. Cl. B01j 1/16; C01b 15/02

U.S. Cl. 23-207.5

13 Claims

Aqueous stannate stabilizer compositions containing a stannate, a pyrophosphate and orthophosphoric acid in an amount sufficient to adjust the pH of the composition to 9-11, a method for their preparation, and hydrogen peroxide solutions stabilized therewith. The stabilizer compositions are especially useful for stabilizing hydrogen peroxide solutions containing at least 30% H_2O_2 to provide stable products which remain exceptionally stable when diluted to strengths of 2-10% H_2O_2 without further addition of any stabilizer.

3,591,342 APPARATUS FOR THE PREPARATION OF NITRIC ACID

Jean-Marie Lerolle, Paris, and Serge Hardouin, Lyon, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Paris, France, and Pintsch Bamag Aktiengesellschaft, Berlin, Germany

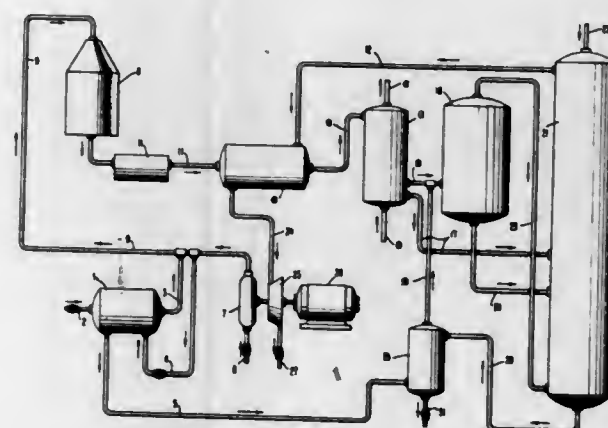
Original application Sept. 9, 1965, Ser. No. 486,058, now Patent No. 3,502,433, dated Mar. 24, 1970. Divided and this application Apr. 30, 1969, Ser. No. 820,569

Claims priority, application France, Sept. 10, 1964, 987,707

Int. Cl. C01b 21/28, 21/32

U.S. Cl. 23-262

4 Claims



The oxidation of ammonia produces products which are cooled by the gaseous effluent of an absorption-oxidation tower, are suddenly chilled below the dew point, producing weak HNO_3 and NO , the NO is oxidized to NO_2 and medium HNO_3 , the NO_2 is put into the base of the column, the medium HNO_3 is put into the column thereabove, and the weak HNO_3 is put into it at a higher level. The effluent used in cooling the products of ammonia oxidation drive a compressor which produces hot air to heat the ammonia, mixes with the concentrated HNO_3 from the tower to sweep out unabsorbed gases and coloring matter, and is injected into the oxidation of NO gas. The acid is over 70% HNO_3 . The process uses all water formed by its reactions in the acid, adds only enough water to attain the selected concentration, discharges no water, operates at medium pressure of 3.5 to 4.5 atm. abs. The apparatus is novel.

3,591,343

EMERGENCY OXYGEN APPARATUS

Miles J. McGoff, Warrendale, John W. Mausteller, Evans City, and John C. King, Mars, Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed Oct. 29, 1968, Ser. No. 771,578

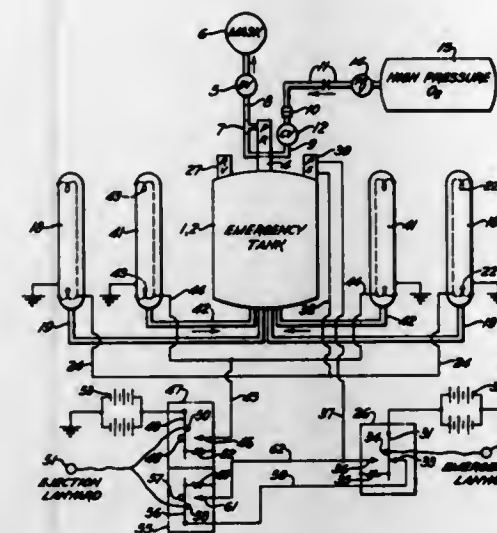
Int. Cl. B01j 7/00; C01b 13/08

U.S. Cl. 23-281

11 Claims

Connected with the outlet of an oxygen storage tank is a pressure reducer valve that has an outlet for connection with the demand valve of a breathing mask. For charging the tank with oxygen from a primary oxygen supply system, there is a conduit provided with a check valve permitting flow only toward the tank. An oxygen producing candle is in a receptacle connected by a conduit with the tank, and manually operable means is pro-

vided for igniting the candle to generate additional oxygen for the tank. Another candle receptacle also is connected



with the tank, and there are means for igniting it followed by automatic ignition of the other candle.

3,591,344

DEVICE FOR CONTINUOUS POLYCONDENSATION

Günter Schnock, Bobingen, and Peter Schelzler, Königsbrunn, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany

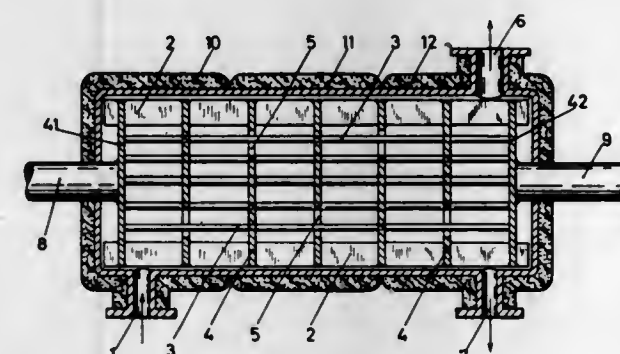
Filed July 5, 1968, Ser. No. 742,613

Claims priority, application Germany, July 26, 1967, F 53,068

Int. Cl. B01d 1/22

U.S. Cl. 23-285

7 Claims



The invention provides a device for the continuous polycondensation of melts comprising a heatable, vacuum-tight, cylindrical or conical, horizontal or almost horizontal reactor with inlet at one end and outlet at the other end for the melt and outlet for the vapour and inside of the reactor a stirrer the shape of which is adapted to the shape of the reactor and the continuous or discontinuous axis of rotation of which is congruent with the axis of the reactor. The stirrer is subdivided by plurality of disks in vertical position with respect to its axis, which disks are provided with perforations staggered from disk to disk. Parallel to the axis of the stirrer a plurality of peripherally arranged groove- or ribbon-shaped drag elements are provided which are parallel to the axis of the stirrer and rod-shaped elements are fixed outside of the range of immersion of the stirrer into the melt, which

elements preferably depart from the two outer disks. When the stirrer rotates the drag elements continuously convey the melt from the bottom of the reactor on to the rod-shaped elements inside of the stirrer where it is uniformly distributed in a thin layer and from where it returns into the sump of the reactor.

3,591,345

GAS QUENCH DEVICE FOR MIXED-PHASE REACTORS

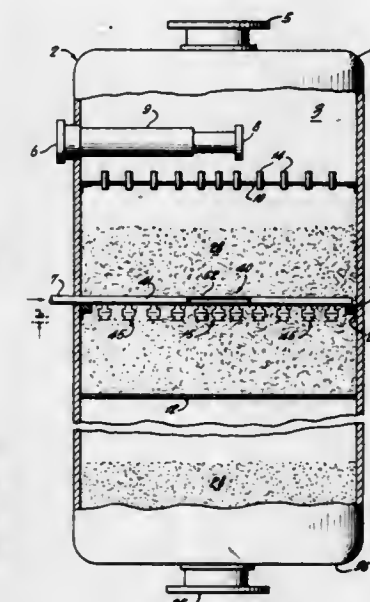
Jack M. Hochman, Boonton, and Robert M. Koros, Westfield, N.J., assignors to Esso Research and Engineering Company

Filed Nov. 13, 1968, Ser. No. 775,456

Int. Cl. B01j 9/04

U.S. Cl. 23-288

1 Claim



Apparatus for introducing quench gas to packed-bed reactors, which apparatus is supported within the packed-bed itself. The apparatus comprises a piping arrangement supported within the bed and provided with a number of holes so sized such that the quench gas leaves the apparatus in a uniform manner. Suitable baffle means are provided in communication with each hole to both prevent direct high velocity impingement of the quench gas on the bed and to achieve higher pressure drops so that larger holes may be used, thereby reducing the possibility of plugging. In a preferred embodiment means are also provided for insuring uniformity of bed temperature by the elimination of localized hot spots.

3,591,346

METHOD OF MANUFACTURING CRYSTALS AND CRYSTALS MANUFACTURED BY SUCH METHODS

Rudolf Wilhelm Julius Kluckow, Ellendorf, and Heinz Scholz, Aachen, Germany, assignors to U.S. Phillips Corporation, New York, N.Y.

Continuation of abandoned application Ser. No. 530,970, Mar. 1, 1966. This application Aug. 6, 1968, Ser. No. 754,130

Claims priority, application Netherlands, Mar. 3, 1965, 6502654

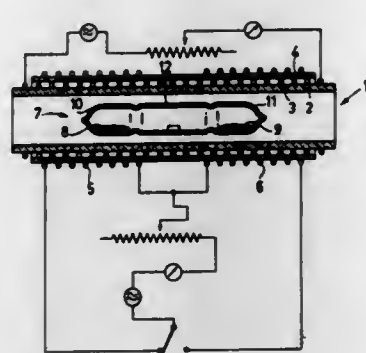
Int. Cl. B01d 7/00

U.S. Cl. 23-294

10 Claims

Large crystals are formed from a fluid containing crystal forming material by periodically depositing crystalline material from the fluid and transferring part of the deposited material back into the fluid and away from the area of deposition, the amount of crystal material deposited in the deposition part of the cycle being greater than the

amount of crystal material transferred to the fluid during each period. By this means the growth of large crystals is established on the surface a liquid film of the material to be grown, and continuously growing the body from the



increased at the expense of the growth and formation of small crystals.

3,591,347

ENCAPSULATING A SEED CRYSTAL FOR PRODUCING MONOCRYSTALS

Josef Grabmaier, Unterhaching, and Barbara Christa Watson, Munich, Germany, assignors to Siemens Aktiengesellschaft

Filed Aug. 14, 1968, Ser. No. 752,651

Claims priority, application Germany, Aug. 16, 1967, S 111,369

Int. Cl. B01j 17/18

U.S. Cl. 23—301

6 Claims



Described is a method of producing monocrystals from semiconducting compounds which dissociate at the melting point, preferably gallium arsenide monocrystals. The semiconductor material molten in a crucible is completely encapsulated by a thin layer of boron oxide (B_2O_3). The crystal is pulled in accordance with the Czochralski method from the semiconductor melt, with the aid of a seed crystal. The seed crystal according to the invention, to prevent the evaporation of the more volatile component of the semiconducting compound therefrom, is encased, prior to being installed into the pulling device, with a thin film of B_2O_3 .

3,591,348

METHOD OF GROWING CRYSTALLINE MATERIALS

Harold E. La Belle, Jr., Quincy, Mass., assignor to Tyco Laboratories, Inc., Waltham, Mass.

Filed Jan. 24, 1968, Ser. No. 700,126

Int. Cl. B01j 17/18

U.S. Cl. 23—301

17 Claims

Method of growing crystalline materials in the form of elongate bodies of predetermined constant cross-section. The method involves provision of a shaping member having a surface with a gross configuration conforming to the desired cross-sectional shape of the body to be grown,

liquid film while simultaneously feeding additional material to said surface to replenish said film.

3,591,349

HIGH CARBON TOOL STEELS BY POWDER METALLURGY

John Stanwood Benjamin, Suffern, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 709,700, Mar. 1, 1968. This application Aug. 27, 1969, Ser. No. 853,326

Int. Cl. C22c 39/54

U.S. Cl. 29—182.7

7 Claims

This application relates to the powder metallurgy of wrought, high carbon tool steels and also to a powder metallurgy method for producing said steels characterized metallographically by a uniform distribution of finely divided carbides in both the longitudinal and transverse directions.

3,591,350

NOVEL PLATING PROCESS

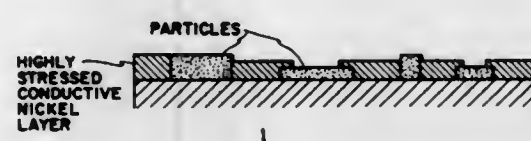
Jesse E. Stareck, Birmingham, and Philip J. Smith, Jr., Royal Oak, Mich., assignors to M & T Chemicals Inc., New York, N.Y.

Filed June 17, 1968, Ser. No. 737,767

Int. Cl. B44d 1/18, 1/02

U.S. Cl. 29—191.2

12 Claims



In accordance with certain of its aspects, the process of this invention for preparing a nickel plate receptive to a decorative chromium metal deposit, characterized by the presence of microporous areas and microcracked areas over substantially the entire surface of said chromium metal plate, comprises affixing to a basis material bearing a conductive metal surface a stratum of particles having a particle size of about 0.05–15 microns and a density on said conductive metal surface of about 100–5,000,000 particles/cm.²; and depositing in said stratum of particles a nickel layer having a high tensile stress of at least about 8,400 kg./cm.² and an effective thickness less than the maximum thickness of said stratum of particles thereby forming a matrix wherein said particles are retained affixed to said surface in fixed position in said nickel layer, and at least some of said particles intercept the surface of said nickel layer.

3,591,351

RETICULATED STRUCTURE AND METHOD OF MANUFACTURE

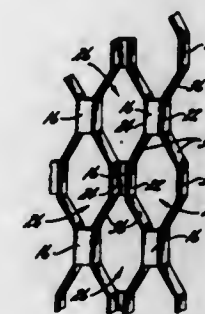
Frederick E. Ullman, Winnetka, Ill., assignor to Inland Steel Company, Chicago, Ill.

Filed Nov. 30, 1967, Ser. No. 687,031

Int. Cl. E04b 1/18; B21d 13/10, 31/04

U.S. Cl. 29—193.5

33 Claims



A reticulated structure made from sheet material, methods of manufacture thereof, and precut sheet material useful in forming the same, the structure being characterized by a plurality of side portions and bridge portions forming rows of spaced, interrupted polygonal-shaped apertures, the bridge portions being substantially parallel to and in the plane of the top and bottom surfaces defined by the reticulated structure side portions and connecting adjacent sides forming the apertures and/or flaps appended to some of the sides of the apertures providing increased surface areas in the planes defined by the outer surfaces of the reticulated structure.

3,591,352

PROCESSES FOR SELECTIVELY PLATING ONE COMPONENT OF MULTI-COMPONENT PLASTIC ARTICLES AND ARTICLES PRODUCED THEREBY

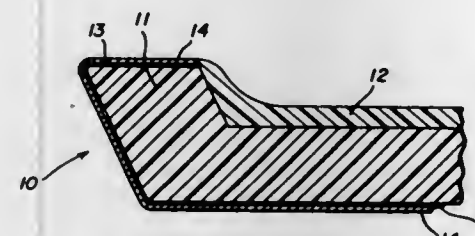
Peter D. Kennedy, Evanston, and Harold M. Goldstein, Chicago, Ill., assignors to Nibot Corporation, Chicago, Ill.

Filed Dec. 4, 1968, Ser. No. 780,984

Int. Cl. C23b 5/48, 5/60; B44d 1/18

U.S. Cl. 29—195

41 Claims



There are disclosed herein processes for producing multi-component plastic workpieces in which at least a first component thereof has a plated metal coating thereon, and workpieces produced by such processes. These processes generally comprise providing a strike solution, providing a multi-component workpiece including a first component formed of a first plastic material on which a metal is deposited upon application of the strike solution thereto and at least a second component formed of a second plastic material on which no metal is deposited upon application of the strike solution thereto, applying the strike solution to the workpiece to deposit a metal strike

on the first component without depositing a metal strike on the second component, and plating a layer of plating metal over the metal strike to provide a plated metal coating on the first component while no metal is plated on the second component.

3,591,353

BIMETALLIC ELEMENTS HAVING HEAT-EXPANSION CHARACTERISTIC

Robert L. Snyder, Rochester, N.Y., assignor to American Standard Inc., New York, N.Y.

No Drawing. Filed Feb. 8, 1968, Ser. No. 703,861

Int. Cl. G01k 5/66

U.S. Cl. 29—195.5

4 Claims

A thermosensitive element comprising a first layer and a second layer of a non-cubic metal having a high degree of crystallographic orientation in which the directions of crystallographic orientation are at right angles to each other.

3,591,354

RUST INHIBITING DISTILLATE PETROLEUM HYDROCARBON FUEL COMPOSITIONS

Roland A. Bouffard, Union, N.J., assignor to Esso Research and Engineering Company

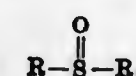
No Drawing. Filed Dec. 27, 1967, Ser. No. 693,741

Int. Cl. C10i 1/24

U.S. Cl. 44—70

6 Claims

Distillate petroleum hydrocarbon fuels such as motor gasoline, aviation gasoline, kerosene, and fuel oils are improved as to their rust inhibiting and rust preventing characteristics by incorporating therein effective but small amounts of at least one organic sulfoxide having the formula:



wherein Rs a radical selected from the group consisting of $-\text{C}_n\text{H}_{2n}\text{COOH}$; $-\text{C}_n\text{H}_{2n}\text{OH}$; $-\text{C}_n\text{H}_{2n}\text{OC}_n\text{H}_{2n+1}$;

$-\text{C}_n\text{H}_{2n}\text{COC}_n\text{H}_{2n+1}$; $-\text{C}_n\text{H}_{2n}\text{OCC}_n\text{H}_{2n+1}$;

$-\text{C}_n\text{H}_{2n}\text{COOC}_n\text{H}_{2n+1}$;

$-\text{C}_n\text{H}_{2n}\text{OOCCH}(\text{CH}_2\text{COOH})\text{C}_n\text{H}_{2n-1}$;

$-\text{C}_n\text{H}_{2n}\text{OOCH}(\text{CH}_2\text{COOC}_n\text{H}_{2n-1})\text{C}_n\text{H}_{2n-1}$;

and R_1 is a radical selected from the group consisting of $-\text{C}_n\text{H}_{2n+1}$; $-\text{C}_n\text{H}_{2n}\text{C}_6\text{H}_5$; $-\text{C}_n\text{H}_{2n}\text{C}_6\text{H}_4\text{C}_n\text{H}_{2n+1}$; and any of the radicals listed for R, n being a whole number. At least one of R and R_1 has a total of from 10 to 250 carbon atoms. The amounts of the sulfoxides employed range between about 0.1 and about 100 pounds per thousand barrels (42 gallons per barrel) of fuel.

3,591,355

INDUSTRIAL GAS

Ertman Leonard Kessler, Plymouth, Mich., assignor to I.G. Corporation, Detroit, Mich.

No Drawing. Filed July 29, 1968, Ser. No. 748,235

Int. Cl. C10i 3/00

U.S. Cl. 48—197

6 Claims

A two-phase, liquid and gas, additive for industrial gases such as propane comprising gaseous pentanes and butanes and liquid methanol which are used for cutting, welding and the like and which entrains the propane and gaseous portion of the additive in the liquid portion of the additive and which thereby purifies and catalyzes the gaseous mixture to provide overall a two-phase industrial gas having an effective heat of combustion of about 3200 B.t.u.'s and which greatly reduces air pollutants by yielding more complete combustion of the constituents.

3,591,356

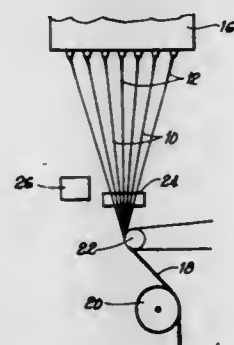
PROCESS FOR THE PRODUCTION OF A GAS CONTAINING GASEOUS HYDROCARBONS
 Brian Hoyle Thompson and Binay Bhushan Majumdar, Solihull, England, assignors to The Gas Council, London, England
 No Drawing. Filed July 22, 1968, Ser. No. 769,461
 Int. Cl. C10g 13/00, 13/30

U.S. Cl. 48-213 9 Claims
 A process for the production of a gas containing gaseous hydrocarbons by the hydrogenation of non-distillate hydrocarbon oils. The oil is first preheated in the liquid phase, and then introduced through an atomiser into a gas recycle hydrogenator in which the oil reacts under pressure with, and is continuously entrained into circulation with, a supply of hydrogenating gas. A gas containing gaseous hydrocarbons is formed by reaction of the oil and the hydrogen, and is continuously withdrawn from the hydrogenator. The process is primarily for the hydrogenation of nondistillate oils, such as crude petroleum and particularly light crude petroleum.

3,591,357

METHOD FOR TREATING AND IMPREGNATING GLASS FIBER BUNDLES FOR REINFORCEMENT OF ELASTOMERIC MATERIALS
 Nicholas S. Janetos, East Providence, and Alfred Marzocchi and David E. Leary, Cumberland, R.I., assignors to Owens-Corning Fiberglas Corporation
 Continuation-in-part of abandoned application Ser. No. 655,944, July 25, 1967. This application Aug. 13, 1969, Ser. No. 849,676

The portion of the term of the patent subsequent to Jan. 28, 1986, has been disclaimed
 Int. Cl. C03c 25/02; B32b 17/04
 U.S. Cl. 65-3 22 Claims

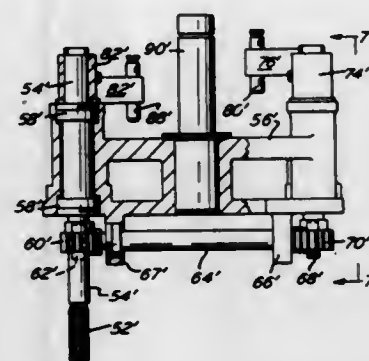


This invention resides in the preparation of bundles, i.e. strands, yarns, cords and fabrics, formed of a plurality of reinforcing glass fibers in which the glass fiber bundle embodies an amount of elastomeric compatible treating material sufficient to permit repeated flexing without the fibers being able to cut through the coating protecting the fibers from destruction by mutual abrasion and sufficient to enhance the interbonded relationship between the treated bundles of reinforcing glass fibers and a continuous phase elastomeric material with which the glass fibers are combined in the manufacture of a glass fiber reinforced elastomeric product, such as glass fiber reinforced rubber tires, rubber belts and the like. The concepts of this invention reside in the coating of the individual glass fibers in connection with the glass fiber forming operation to provide a coating on the individual glass fibers sufficient to protect the fibers from destruction during flexure of the bundles that is subsequently formed of the coated glass fibers but insufficient to prevent processing the glass fibers and the bundles formed thereof into strands, yarns, cords or fabrics, then impregnating the bundle subsequently formed to complement the coating and incorporate the total impregnant adequate for the utilization of the glass fiber bundle as a reinforcement in elastomeric products.

3,591,358

GLASSWARE MOLD OPENING AND CLOSING MECHANISM WITH UNIFIED DRIVE MEANS
 Robert S. Maul and Albert C. Kinsey, Jr., Millville, N.J., assignors to Maul Bros., Inc., Millville, N.J.
 Filed Apr. 22, 1969, Ser. No. 818,319
 Int. Cl. C03b 9/00

U.S. Cl. 65-360 3 Claims

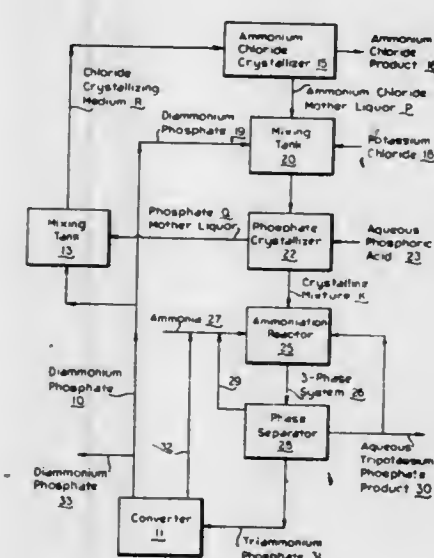


The opening and closing of molds in a glassware forming machine, such as an I.S. machine, is attained with greater pressure using a simpler linkage than that used heretofore. The mold holder arms on the blank or blow station are connected to a pair of shafts of which only one is directly connected to a motor. The other shaft is drivably connected to said one shaft so that both shafts may oscillate in opposite directions in unison.

3,591,359

CYCLIC PROCESS FOR PRODUCING TRIPOTASSIUM PHOSPHATE AND AMMONIUM CHLORIDE
 Leland J. Beckman, Pasco County, Fla., assignor to Allied Chemical Corporation, New York, N.Y.
 Filed Oct. 15, 1968, Ser. No. 767,759
 Int. Cl. C05b 7/00; W1c 1/16; C01b 25/28

U.S. Cl. 71-34 9 Claims

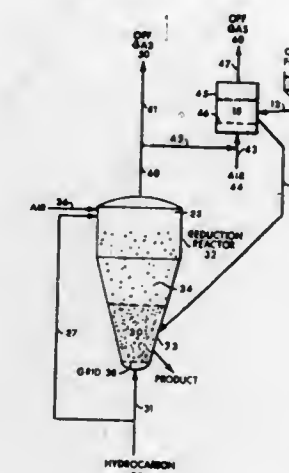


Crystalline ammonium chloride is separated from mother liquor having base/acid ratio in range 1.25-1.5 and NH_4^+/K^+ mole ratio in range 80/20-72/28. The base/acid ratio of the chloride mother liquor is adjusted to 1.0 to permit crystallization and separation of mono (ammonium-potassium)phosphate, which is converted to aqueous tripotassium phosphate and solid diammonium phosphate. The latter is added to the phosphate mother liquor to adjust the base/acid ratio to 1.25-1.5, thereby

3,591,363

RADIANT HEATED IRON ORE REDUCTION PROCESS
 Donald L. Campbell, Short Hills, N.J., assignor to Esso Research and Engineering Company
 Filed Dec. 28, 1967, Ser. No. 694,126
 Int. Cl. C22b 5/14

U.S. Cl. 75-26 13 Claims



Highly metallized reduced iron ore is prepared in a continuous single-stage fluid bed process using hydrocarbon reductant. Radiant heat is supplied to the process by combusting above the bed the gases liberated in the process.

3,591,364

REDUCING GAS GENERATION
 Blake Reynolds, Riverside, and Clifford G. Ludeman, Darien, Conn., assignors to Texaco Development Corporation, New York, N.Y.
 No Drawing. Filed Sept. 19, 1967, Ser. No. 668,962
 Int. Cl. C21b 5/00, 5/06, 13/00

U.S. Cl. 75-42 7 Claims
 Process for the production of an improved reducing gas comprising essentially $\text{H}_2 + \text{CO}$ and having a minimum "reducing ratio" $(\text{H}_2 + \text{CO})/(\text{H}_2\text{O} + \text{CO}_2)$ of 15. The reducing gas is generated in a separate unpacked noncatalytic reaction zone by the partial oxidation of a liquid hydrocarbonaceous fuel, substantially in the absence of supplemental H_2O . The temperature in the reaction zone is moderated by a gas mixture having a "reducing ratio" greater than about 1, for example: a portion of cooled reducing gas from the reaction zone; or a portion of the off-gas from an integrated process zone such as an ore reduction zone; or a mixture of both of these gases. In addition to the metallurgical applications, the gas mixtures, as produced by the process of this invention, may be used directly as a fuel gas or as feedstock in processes for the synthesis of methanol, hydrocarbons, or oxygenated organic chemicals.

3,591,365

HEAT RESISTING CORROSION RESISTING IRON CHROMIUM ALLOY

Ryoji Ohmachi, Nishinomiyashi, Japan, assignor to Santoku Kinzoku Kogyo Kabushiki Kaisha, Higashi-Nada-ku, Kobe, Japan
 No Drawing. Filed Jan. 16, 1969, Ser. No. 792,240
 Int. Cl. C22c 37/10, 39/02

U.S. Cl. 75-124 2 Claims
 A heat resisting corrosion resisting alloy of Fe, Cr, Al, and Y, characterized by further constituents thereof, Gd and/or Dy. 10 to 40 parts by weight of Gd and/or Dy are mixed with 100 parts by weight of Y. This alloy is useful at 1350° C., highly corrosion resisting, highly workable, and has a high tensile strength at an elevated temperature.

3,591,360

METHOD OF CONTROLLING WEEDS IN SUGAR BEET FIELDS
 Frederick H. Vahlsing, Jr., Allentown, N.J., assignor to Vahlsing, Inc.

No Drawing. Filed Aug. 8, 1968, Ser. No. 751,066
 Int. Cl. A01n 11/00

U.S. Cl. 71-65 6 Claims
 Weeds in sugar beet fields are defoliated, killed or otherwise arrested, without damage to the sugar beets, by application of an aqueous solution of sodium hydroxide in controlled amounts.

3,591,361

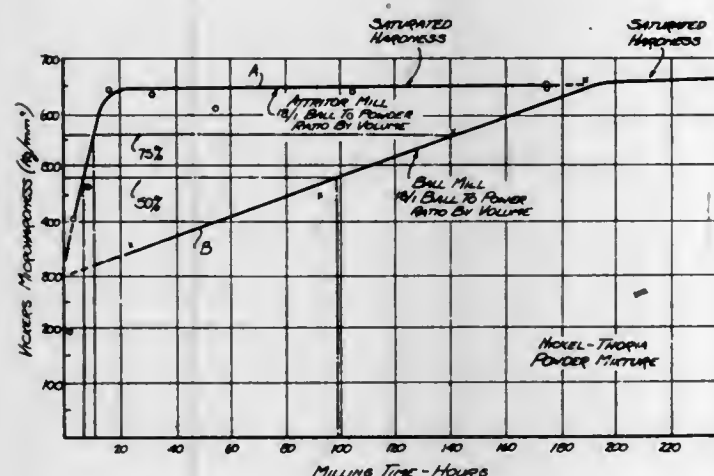
HERBICIDAL MULCHING FILMS
 Shoichi Ishimoto, Chiba-ken, Japan, assignor to Mitsubishi Petrochemical Co., Ltd., Tokyo, and Mikado Seed Growers Co., Ltd., Chiba-shi, Chiba-ken, Japan
 No Drawing. Filed Dec. 23, 1968, Ser. No. 786,408
 Claims priority, application Japan, Dec. 28, 1967, 43/83,784

U.S. Cl. 71-93 3 Claims
 A herbicidal mulching film comprising a polyolefin film containing a herbicide of a member selected from the group consisting of 3-(3,4-dichlorophenyl) - 1,1 - dimethylurea and 2-methylthio-4,6-bis(isopropylamino)-S-triazine.

3,591,362

COMPOSITE METAL POWDER
 John S. Benjamin, Suffern, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.
 Filed Mar. 1, 1968, Ser. No. 709,700
 Int. Cl. B22f 9/00

U.S. Cl. 75-5BA 20 Claims



A wrought composite metal powder, or mechanically alloyed metal powder, is provided comprised of a plurality of constituents, at least one of which is a metal capable of being compressively deformed, the composite powder being preferably in the heavily cold worked condition, i.e., having substantially the saturation hardness for the system involved, the particles thereof being characterized metallographically by a cohesive internal structure comprised of the starting constituents intimately united together and identifiably mutually interdispersed.

3,591,366

ALLOYED GRAY CAST IRON

Peter Triches, Bahnhofquater, Oensingen, Switzerland, and Karl Heinz Kleemann, Dietzenbach-Steinberg, Germany, assignors to Von Roll AG, Gerlafingen, Switzerland

No Drawing. Filed July 24, 1968, Ser. No. 747,087
Claims priority, application Germany, July 29, 1967,
P 16 08 239.6

Int. Cl. C22c 37/04, 37/10

U.S. Cl. 75—126A 13 Claims
A tough gray cast iron having excellent tensile strength and impact modulus, containing approximately 2.5 to 3.8% carbon, less than 0.08%, and preferably less than 0.04% phosphorus, less than 0.08%, and preferably less than 0.04% chromium, less than 3 ml./100 g. hydrogen, less than 0.06%, and preferably less than 0.03% sulphur, a content of manganese greater than 0.3% and up to 2.25%, preferably greater than 0.3% and up to 1.75%, the balance being iron with lowest content of disturbing elements as well as a silicon content which is reduced by about 0.8% absolutely to 1/2 of the silicon content required in cast pieces having the same wall thickness made of conventional gray cast iron.

3,591,367

ADDITIVE AGENT FOR FERROUS ALLOYS
Frederick H. Perfect, Wyomissing, Pa., assignor of fractional part interest to Reading Alloys, Inc., Robesonia, Pa.

No Drawing. Filed July 23, 1968, Ser. No. 746,769
Int. Cl. C22c 35/00

U.S. Cl. 75—133 11 Claims
Method of producing vanadium and columbium alloy steels by adding to molten steel an addition agent containing an oxide of the alloying metal, an inorganic reducing agent, particularly silicon and aluminum, and lime. The amount of reducing agent employed is at least sufficient to reduce the oxide of the alloying metal to the corresponding metal, and the amount of lime is at least sufficient to combine with the oxide of the reducing agent which is produced to form a slag having a melting point below 1800° C.

3,591,368

COPPER ALLOY FOR USE AT HIGH TEMPERATURES

Tsunetaro Ohta, Nishinomiya, Japan, assignor to The Toa Valve Company Limited, Amagasaki, Hyogo Prefecture, Japan

No Drawing. Filed Aug. 8, 1968, Ser. No. 751,048
Claims priority, application Japan, Dec. 15, 1967,
42/80,377

Int. Cl. C22c 9/04

U.S. Cl. 75—134 2 Claims
The alloy of copper base generally comprises zinc, nickel and a small amount of titanium and chromium with addition of a small amount of silicon and lead when desired. With these constituent elements, an alloy of improved mechanical strength and corrosion resistivity at high temperatures in the range of from 300 to 400° C. is obtained.

3,591,369

METHOD OF ADDING MANGANESE TO ALUMINUM

Jordan P. Tuthill, Glenmore, Pa., assignor to Foote Mineral Company, Exton, Pa.

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,940
Int. Cl. C22c 1/02

U.S. Cl. 75—138 11 Claims
Manganese metal is added to molten aluminum in the form of a manganese body having thereon a coating containing a potassium fluoride and which forms a molten

phase at the temperature of the molten aluminum. There is provided a novel manganese additive for this purpose comprising a body of manganese having the stated coating thereon, and there is also provided a method for making the additive comprising providing the stated coating on a body of manganese.

3,591,370

DENTAL ALLOY

André Denéréaz, London, England, assignor to The Amalgamated Dental Company Limited, London, England

No Drawing. Filed Oct. 4, 1968, Ser. No. 764,996
Claims priority, application Great Britain, Oct. 24, 1967,
48,205/67

Int. Cl. C22c 5/00, 7/00

U.S. Cl. 75—169 14 Claims
A new dental alloy comprises silver, tin, copper, nickel and indium, suitably 65 to 75% by weight of silver, 23 to 29% by weight of tin, up to 6% by weight of copper, 0.1 to 2% by weight of nickel and 0.1 to 2% by weight of indium. The alloy may contain mercury in an amount of up to 3% by weight.

3,591,371

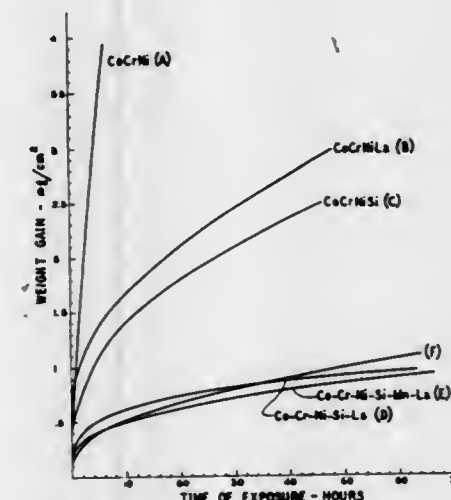
COBALT BASE OXIDATION RESISTANT ALLOY

Henri Hatwell, Indianapolis, Ind., and Charles D. Desforges, Rhode-St.-Genese, and Pierre L. Moentack, Brabant, Belgium, assignors to Cabot Corporation

Filed Nov. 4, 1968, Ser. No. 773,149

Int. Cl. C22c 19/00

U.S. Cl. 75—171 4 Claims



A cobalt base, chromium-containing alloy having minor amounts of silicon and lanthanum characterized by excellent oxidation resistance at temperatures of 1200° C. and higher. The inclusion of small of manganese in the alloy further enhances the oxidation resistance of the alloy.

3,591,372

ALLOY STABILIZATION

John Hockin, Palatine, Michael J. Woulds, Schaumburg, and Carl H. Lund, Arlington Heights, Ill., assignors to Martin Metals Company, Wheeling, Ill.

No Drawing. Filed Aug. 12, 1968, Ser. No. 751,757

Int. Cl. C22c 19/00

U.S. Cl. 75—171 6 Claims
Sensitivity of certain nickel-chromium-base alloys to formation of deleterious sigma phase can be overcome by replacing nickel or iron in such alloys with about 0.5% to about 6% cobalt.

3,591,373

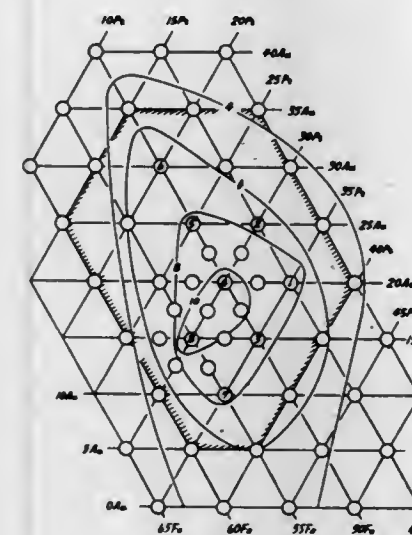
PERMANENT MAGNETIC ALLOY COMPOSED OF PLATINUM, GOLD AND IRON

Shotaro Shimizu and Elgo Hashimoto, Tokyo, Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan

Filed Oct. 7, 1968, Ser. No. 765,604

Int. Cl. C22c 5/00; H01f 1/04

U.S. Cl. 75—172 4 Claims



A permanent magnetic alloy, comprising: 15–40 atomic percent of platinum, 5–35 atomic percent of gold and 40 atomic percent of iron.

3,591,374

PYRYLIUM DYE OVERCOATING OF PYRYLIUM DYE SENSITIZED PHOTOCONDUCTIVE ELEMENTS

Edward J. Seus, Penfield, N.Y., assignor to Eastman Kodak Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 708,805, Feb. 28, 1968. This application Oct. 1, 1968, Ser. No. 764,302

Int. Cl. G03g 13/22, 5/06

U.S. Cl. 96—1.6 12 Claims

High speed electrophotographic elements are prepared by forming a photoconductive composition comprising an organic photoconductor sensitized with a two-phase heterogeneous combination of a sensitizing dye and a film-forming hydrophobic polymer, coating this composition onto a conducting support and then overcoating the composition with a solution of a sensitizing dye in a volatile halogenated hydrocarbon solvent.

3,591,375

METHOD OF PRINTING POSITIVES FROM COLOR NEGATIVES WHOSE SUBJECTS INTEGRATE TO BLUE

Denis Manktelow Neale, Ilford, Essex, England, assignor to Ilford Limited, Ilford, Essex, England

Filed July 15, 1968, Ser. No. 744,959

Claims priority, application Great Britain, July 20, 1967,
33,482/67

Int. Cl. G03c 7/16; G03b 27/78

U.S. Cl. 96—23 6 Claims

This application describes a method of printing positives from multicolour negatives wherein for each colour component of printing light, red, green and blue, printing continues until a predetermined integral of light against time has been administered to the print material as measured by an exposure control means, said predetermined integral being substantially constant for negatives representing subjects integrating to grey, the improvement

which comprises reducing the said predetermined integral in response to means for detecting an abnormally low ratio of integrated transmittance of the negative to blue light relative to light of longer wavelength.

3,591,376

ALKOXY DISUBSTITUTED HYDROQUINONES

Burton D. Wilson and Derek D. Chapman, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 27, 1968, Ser. No. 755,720

Int. Cl. G03c 5/54, 5/38, 5/30

U.S. Cl. 96—29 12 Claims

Photographic developing agents which consist of particular alkoxy disubstituted hydroquinones either as a sole developing agent or in combination with other photographic developing agents provide increased maximum density and contrast without undesired increase in minimum density of developed images. These developing agents are especially suitable in photographic elements, processes and/or developer compositions in diffusion transfer systems.

3,591,377

PHOTOGRAPHIC ELEMENTS AND PROCESSES EMPLOYING PHOTSENSITIVE POLYMERS

Michael J. Alsop, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 24, 1968, Ser. No. 723,918

Int. Cl. G03c 5/00, 1/68

U.S. Cl. 96—35.1 19 Claims

Positive and negative images can be prepared, with an element comprising a photosensitive polyester composition sandwiched between two supports, by a photo-adhesion process which comprises exposing the element to actinic radiation and separating the supports to develop an image.

3,591,378

PROCESS FOR MAKING POSITIVE-WORKING RELIEF PLATE

Joseph H. Altman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed July 31, 1968, Ser. No. 748,968

Int. Cl. G03c 5/00; G03f 7/08

U.S. Cl. 96—35.1 8 Claims

Positive photomechanical reproductions are prepared from normally negative-working photosensitive compositions which comprise an organic solvent-soluble colloid and an oxygen-sensitive aryl azide sensitizer therefor, by first imagewise exposing the composition in the presence of oxygen, then overall exposing the composition in the absence of oxygen and developing an image by removing the composition from areas which have received both an imagewise and overall exposure.

3,591,379

PHOTOGRAPHIC OVERCOAT COMPOSITIONS AND PHOTOGRAPHIC ELEMENTS

James Plakunov, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 9, 1968, Ser. No. 719,844

Int. Cl. G03c 1/76, 1/78, 5/26

U.S. Cl. 96—50 13 Claims

Photographic elements such as, for example, X-ray film, comprising a support, one or more photographic silver

halide layers, and one or more protective overcoat layers and a composition of matter which has utility in such overcoat layers are disclosed. The photographic elements are characterized by having a good combination of photographic properties such as, for example, sensitivity and contrast, resistance to abrasion and low haze; and are more particularly characterized in the use of at least one overcoat layer having the disclosed composition comprising gelatin, and at least one other hydrophilic colloid and finely divided colloidal silica or silica gel having an average particle size below 50 millimicrons.

3,591,380

RAPID STABILIZING PROCESS FOR COLOR PHOTOGRAPHIC MATERIALS

Kinji Ohkubo and Katsumi Hayashi, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed July 22, 1968, Ser. No. 746,322
Claims priority, application Japan, July 28, 1967, 42/48,560

Int. Cl. G03c 5/52

U.S. Cl. 96—55

10 Claims

A method for rapidly developing an exposed photographic material containing differently sensitized gelatin-silver halide emulsions and color formers capable of reacting with the oxidation products of a primary amine whereby said material is placed into a developing bath containing a primary aromatic amine, the developing process is stopped in a stop bath and the product is bleached in a bath containing an anion of an iron (III) monohydrogen ethyl-diamine-N,N,N',N'-tetraacetate and ammonium thiosulfate and thereafter drying said material.

3,591,381

STABILIZED DIAZOTYPE COMPOSITION

William C. Gray and Frederick A. Stahly, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed July 31, 1967, Ser. No. 663,470

Int. Cl. G03c 1/60

U.S. Cl. 96—75

5 Claims

The fading of azo dyes is inhibited by the presence of certain hindered phenols which are substituted in the 2-position and in the 4-position. These hindered phenols are particularly useful in diazotype reproduction media, especially the "two component" media containing a diazonium salt, a blue coupler and a yellow coupler in proportions sufficient to yield a neutral image after exposure and development.

3,591,382

USE OF FINE GRAIN EMULSION WITH COARSE GRAIN EMULSION TO REDUCE IMAGE SPREAD

Allan G. Millikan, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 648,237, June 23, 1967. This application May 15, 1968, Ser. No. 729,432

Int. Cl. G03c 1/76

U.S. Cl. 96—68

9 Claims

Photographic elements having coated on one side of a support: (1) an antihalation layer; (2) a fine grain silver halide emulsion layer; and (3) a coarse grain silver halide emulsion image recording layer which preferably contains a photographic color-former, exhibit low image spread.

3,591,383

COLOR PHOTOGRAPHIC LIGHT SENSITIVE MATERIAL CONTAINING CYAN COUPLER

Makoto Yoshida, Yasuhide Oishi, and Momotoshi Tada, Kanagawa, Japan, assignors to Fuji Photo Film Company, Ltd., Kanagawa, Japan

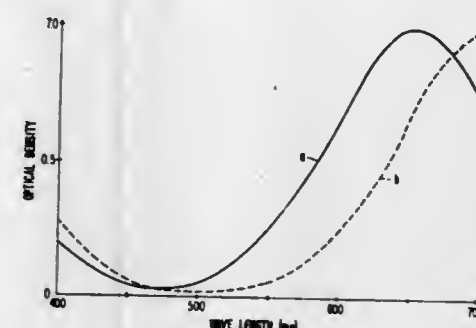
Filed Oct. 14, 1968, Ser. No. 767,171

Claims priority, application Japan, Oct. 13, 1967, 42/65,830

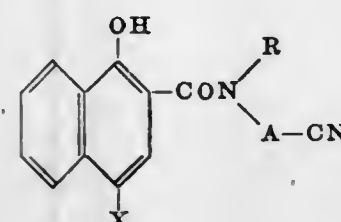
Int. Cl. G03c 1/40, 7/32

U.S. Cl. 96—74

9 Claims



A color photographic material having a light-sensitive silver halide emulsion layer containing a cyan coupler yielding a dye having its main absorption in a suitable red wave length region and having a lowered green absorption. The coupler is represented by the following formula:



The representative moieties set out above are specifically defined in the specification.

3,591,384

SILVER HALIDE EMULSION CONTAINING NAPHTHAMIDE PHOTOGRAPHIC COUPLERS

Alberto Guzzi and Remo Magagnoli, Ferrania, Italy, assignors to Societa per Azioni Ferrania, Milan, Italy

Filed Jan. 31, 1968, Ser. No. 701,995

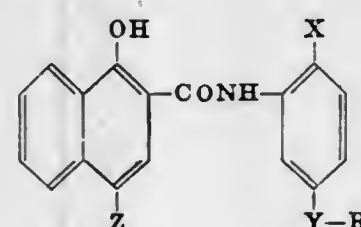
Claims priority, application Italy, Feb. 15, 1967, 34,846/67

Int. Cl. G03c 1/40

U.S. Cl. 96—100

6 Claims

This invention relates to compounds useful as photographic couplers having the general formula:



wherein X is alkyl, Y is either carbonyl or sulfonyl, R is alkyl having from 5 to 20 carbon atoms and Z is hydrogen or halogen. The invention also relates to the use of the abovementioned compounds in photographic emulsions.

3,591,385

SILVER HALIDE EMULSIONS SENSITIZED WITH A COMBINATION OF SULFUR AND SELENIUM FOR COLOR PHOTOGRAPHY

Francis J. Evans, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 22, 1969, Ser. No. 818,418

Int. Cl. G03c 1/28

U.S. Cl. 96—107

14 Claims

Chemical sensitization of a photographic silver halide emulsion containing a color-forming coupler with a combination of labile sulfur with labile selenium provides a synergistic increase in speed. A photographic silver halide emulsion containing a color-forming coupler and sensitized with a combination of a sulfur sensitizer, such as sodium thiosulfate, with a selenium sensitizer, such as dimethyl selenourea, provides a synergistic increase in speed and other desired sensitometric properties.

3,591,386

LITHOGRAPHIC ELEMENT AND NOVEL POLYMERS CONTAINED THEREIN

Thomas I. Abbott, Donald A. Smith, and Robert H. Cunningham, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 18, 1968, Ser. No. 714,034

Int. Cl. G03c 1/72

U.S. Cl. 96—114

16 Claims

This invention relates to novel lithographic elements which contain a polymer which comprises (1) units of an oleophobic monomer and (2) units of a monomer containing hardenable groups thereon. In one aspect this invention relates to novel polymers which can be used in lithographic elements, said polymers comprising (1) units of a vinyl pyridinium compound and (2) units of a monomer containing hardenable groups which can be reacted with photographic hardening agents to increase the molecular weight of said polymer.

3,591,387

SILVER HALIDE EMULSIONS COMPRISING POLYMERIC ACRYLAMIDES AS SENSITIZING ADDITIVES

David Philip Brust, Louis Morton Minsk, and Edward Peter Abel, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 2, 1969, Ser. No. 812,882

Int. Cl. G03c 1/72, 5/24

U.S. Cl. 96—114

22 Claims

Photographic silver halide compositions and elements having improved covering power and sensitometric properties, obtained by employing polymeric additives in a photographic binder are disclosed. Said polymers comprise recurring N-[tris(hydroxymethyl)methyl] acrylamide units. Processes for effecting said improved properties and novel polymers are also disclosed.

3,591,388

PURIFICATION OF MICROBIAL RENNETS

Huibert Cornelis Theüs Moelker and Rutger Matthijsen, Oss, Netherlands, assignors to Organon Inc., West Orange, N.J.

No Drawing. Filed Nov. 14, 1968, Ser. No. 775,941

Claims priority, application Netherlands, Nov. 25, 1967, 6716065

Int. Cl. A23c 19/02; C07g 7/02

U.S. Cl. 99—116

7 Claims

The invention relates to a process for the purification of microbial rennets, contaminated by unspecific proteolytic enzymes, which are capable not only to coagulate or cloth milk, but also to digest the caseins of the obtained curdle, thus giving rise to a bitter flavour during

the aging process of the cheese. The present process comprises contacting the impure rennet with an absorbing silicate at a pH between 3 and 9, by which the taste spoiling, unspecific enzymes are selectively absorbed. In this way the quality of microbial rennets can considerably be improved.

3,591,389

GELLING FISH FOOD COMPOSITION

Earl Schneider, Rego Park, N.Y., assignor to Wardley Products Co., Inc., Long Island City, N.Y.

No Drawing. Filed Sept. 5, 1968, Ser. No. 757,771

Int. Cl. A23k 1/00

U.S. Cl. 99—3

6 Claims

A gelling fish food composition composed of an edible food substance, a binder, guar gum, and a chelating agent.

3,591,390

TREATMENT OF COTTAGE CHEESE CURD

Gary D. Flickinger and Edwin G. Stimpson, Northbrook, Ill., assignors to National Dairy Products Corporation, New York, N.Y.

No Drawing. Filed Apr. 29, 1968, Ser. No. 725,141

Int. Cl. A23c 19/00

U.S. Cl. 99—115

8 Claims

A method is provided for treating cottage cheese or similar cheese so as to provide the desired texture in the finished product. In accordance with the method, an agent is added to the cottage cheese curd so as to reduce the firmness. The agent may also be used to provide desired texture of the curd when acidic materials are added to the cottage cheese curd. The agents used to texture the cottage cheese curd are selected from phosphate or citrate compounds or mixtures thereof.

3,591,391

COMPOUND SEASONING

Shukuo Kinoshita and Iwao Matsuda, Tokyo, and Akio Shiga and Hideyuki Furukawa, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

No Drawing. Filed May 27, 1964, Ser. No. 370,723

Claims priority, application Japan, June 7, 1963, 38/29,274

Int. Cl. A231 1/22

U.S. Cl. 99—140

9 Claims

A seasoning made up of crystalline monosodium glutamate having incorporated in the crystals thereof a flavor enhancing minor proportion of di-sodium 5'-guanylate, di-sodium 5'-inosinate or mono-sodium aspartate.

3,591,392

HIGH ALUMINA BRICK AND METHOD OF MAKING

Wate T. Bakker, Severna Park, Md., assignor to General Refractories Company, Philadelphia, Pa.

No Drawing. Filed July 1, 1968, Ser. No. 741,333

Int. Cl. C04b 35/10, 35/18

U.S. Cl. 106—62

20 Claims

To a high alumina brick batch mix containing from about 85 to about 95% of alumina and from about 5 to about 15% of silica, based on the combined weight of said alumina and silica, including the usual small amounts of impurities associated with the alumina and silica, are added a lithium compound and at least one of an alkaline earth metal compound and iron oxide, the total of such additions being materially less than 1%, by weight, based on 100 parts of said combined alumina and silica, to improve the strength and volume stability of the resulting brick without adversely affecting its refractoriness under load.

3,591,393

INSULATING FIRE BRICK

Adam Smith Rankine, Martinsville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.
No Drawing. Filed Nov. 4, 1968, Ser. No. 773,293
Int. Cl. C04b 21/06, 43/00

U.S. Cl. 106—67 10 Claims
A lightweight insulating refractory composition, or brick thereof, of improved strength characteristics for high temperature service comprising the fired product of kaolin clay, pyrophyllite, grog, and sawdust, containing therein particulate pre-fired mixture of gypsum and kaolin.

3,591,394

METHOD OF PRODUCTION OF INJECTION MORTAR OR POROUS CONCRETE

Kurt Diggelmann, Zurich, and Robert Serena, Koniz, Bern, Switzerland, assignors to Kaspar Winkler & Co., Inhaber Dr. F. A. Schenker-Winkler & Dr. R. Burkard-Schenker, Zurich, Switzerland
No Drawing. Filed Feb. 27, 1968, Ser. No. 708,494
Claims priority, application Germany, Mar. 3, 1967, W 43,482

Int. Cl. C04b 21/00, 13/26 5 Claims
U.S. Cl. 106—87
The method for producing injection mortar or porous concrete comprises adding to a cement containing mixture a nitrogen delivering compound in an amount of 0.1% to 6% of the weight of the cement causing an expansion or formation of pores in said mixture. The nitrogen delivering compound preferably will be a hydrazine derivative, such as hydrazine sulfate or dihydrazine sulfate, or a benzene-sulfohydrazine, a stabilised diazonium salt, or a diazotized nitro-aniline, and an activator for the nitrogen delivering compound may be added.

3,591,395

HYDRAULIC CEMENTITIOUS COMPOSITIONS REINFORCED WITH FIBRILLATED PLASTIC FILM

Johannes J. Zonsveld, Woking, and Ronald Francis Salmons, Hampton Hill, England, assignors to Shell Oil Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 660,186, Aug. 14, 1967. This application June 24, 1970, Ser. No. 49,531

Claims priority, application Great Britain, Aug. 15, 1966, 36,431/66
Int. Cl. C04b 13/24, 31/34 12 Claims
U.S. Cl. 106—99
Concrete, mortar, cement or plaster of Paris are reinforced to provide products of improved bending strength by addition of up to 2% by weight of fibrillated polypropylene film to the mass prior to or during mixing.

3,591,396

NOVEL COMPOSITIONS CONTAINING TETRAISOPROPYLNAPHTHALENE

Seymour W. Ferris, deceased, late of Vincentown, N.J., by Lucretia G. Ferris, executrix, Vincentown, N.J., and Ernest P. Black, West Chester, and Andrew J. Bozzelli, Springfield, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

No Drawing. Original application Nov. 24, 1967, Ser. No. 685,712, now Patent No. 3,474,925. Divided and this application Mar. 5, 1970, Ser. No. 18,358
Int. Cl. C08h 11/00

U.S. Cl. 106—230 5 Claims
This invention relates to novel compositions having improved resistance to liquid water. Specifically the invention relates to slow release fertilizer compositions containing one or more isomers of tetraisopropylnaphthalene.

3,591,397

IRON TRICARBONYL COMPLEXES OF ELEOSTEARIC ACID ESTERS AND COMPOSITIONS CONTAINING THEM

Michael Cais, Abuza, Haifa, Israel, and Edwin N. Frankel, Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed July 25, 1968, Ser. No. 747,471
Claims priority, application Israel, Aug. 18, 1967, 28,524
Int. Cl. C07f 15/02; C09d 3/34; C11c 3/00

U.S. Cl. 106—264 6 Claims
The present invention concerns new iron tricarbonyl complexes of eleostearic acid esters and compositions containing them. The chemical bonds in the complexes with which the invention is concerned are of the π -electron type. In the following description and appended claims these π -bonded complexes will be referred to for short as "complexes."

3,591,398

PROCESS FOR PRODUCING TITANIUM DIOXIDE PIGMENTS

Albert H. Angerman, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Apr. 5, 1968, Ser. No. 719,246
Int. Cl. C09c 1/36, 3/00

U.S. Cl. 106—300 4 Claims
Titanium dioxide pigment is treated by maintaining a water slurry of the pigment at a pH of below about 7 and applying silica in an amount of 3% to 10% by weight, based on the pigment, by adding a solution of soluble silicate to the water slurry. The resultant slurry is adjusted to a pH of from 6-8 and alumina in an amount of 1% to 10% by weight, based on the pigment, is precipitated in the slurry. The pigment produced by this treatment has good hiding power and film integrity.

3,591,399

CORROSION INHIBITIVE CADMIUM PHOSPHATE-CHROMATE PIGMENT

David B. Boles, Chicago, and William P. McDonald, Park Forest, Ill., assignors to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Aug. 12, 1969, Ser. No. 849,486
Int. Cl. C09c 1/10, 1/34; C08b 17/04

U.S. Cl. 106—301 2 Claims
A pigment composition for preventing corrosion of aluminum comprising:

	Percent by weight
CdO	49.4
CrO ₃	19.3
P ₂ O ₅	16.5
KOH	14.8

and the method of producing it.

3,591,400

HEAT-REFLECTIVE FABRICS

Philip V. Palmquist, Maplewood Village, and Nelson Jonnes, Stillwater, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Oct. 6, 1967, Ser. No. 674,070
Int. Cl. B44c 1/14; B32b 27/14

U.S. Cl. 117—3.3 5 Claims



A heat-reflective fabric, and transfer sheet material for application to a base fabric to make heat-reflective fabric. A continuous layer of partially overlapping reflective flakes adhered to, and carried on, a layer of elastomeric

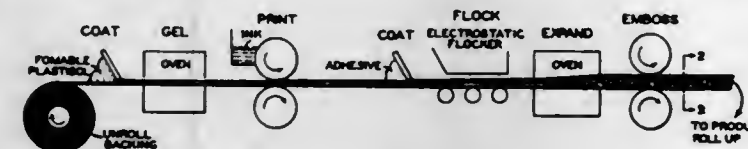
material covers the outside of the fabric. The transfer material includes a fabric-adhesive layer by which the elastomeric, flake-covered layer is attached to the fabric.

3,591,401

FLOCKED, FOAMED, EMBOSSED SURFACE COVERING

Robert W. Snyder, Lancaster, and Daniel M. Sigman, Jr., Strasburg, Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

Filed Mar. 11, 1969, Ser. No. 806,082
Int. Cl. B32b 5/32; B44c 1/08; D06n 3/08
U.S. Cl. 117—9 8 Claims



A surface covering for floors, walls, and the like. The product is made by forming a gelled, foamable but unfoamed plastisol sheet preferably of a vinyl resin and a plasticizer therefor, and containing the blowing agent, stabilizers, and other conventional ingredients. A decorative coating is applied, preferably by printing, to the surface of the gelled, foamable plastisol sheet. A transparent adhesive layer, preferably of a vinyl resin, is applied to the gelled, foamable plastisol layer on top of the printed decorative coating. Flock is then applied, the flock adhering to the sheet by means of the transparent adhesive layer. The system is then heated to fuse and expand the plastisol layer to form a foamed layer. The foamed layer carrying the flock is then mechanically embossed in any desired pattern, but preferably in a pattern to simulate a textile carpet, the embossing being sufficiently deep to create permanent impressions in the foamed layer itself. The embossing step enhances the appearance of the printed decorated coating.

3,591,402

PRINTING ON POLYURETHANE SURFACES

Cyrus L. Blackfan, North Olmstead, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
No Drawing. Filed Oct. 1, 1969, Ser. No. 862,966
Int. Cl. B41m 1/30

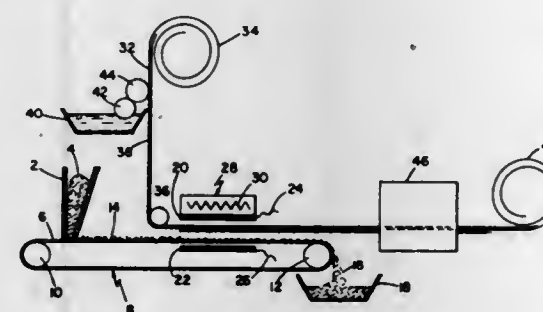
U.S. Cl. 117—12 9 Claims
An improved process for printing on polyurethane surfaces requires first printing with ink on the polyurethane surface and thereafter heating to a temperature above 212° F.

3,591,403

ELECTROSTATIC FLOCKING

Richard W. Sheehan, Longmeadow, Mass., assignor to Bigelow-Sanford, Inc., Thompsonville, Conn.
Filed Dec. 5, 1968, Ser. No. 781,327
Int. Cl. B05b 5/00

U.S. Cl. 117—17 2 Claims



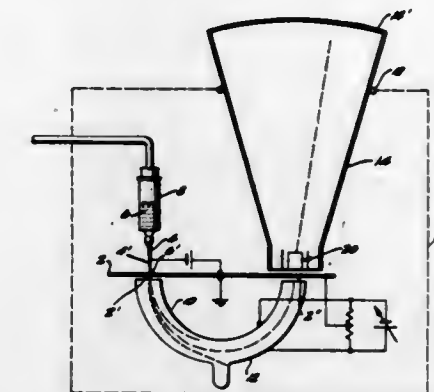
In electrostatic flocking method means is provided for supplying heat to the attracting electrode in addition to any heat supplied by current due to the potential difference between the electrodes.

3,591,404

METHOD OF MAKING VIEWING SCREENS FOR CATHODE RAY TUBES

Hans W. Hell and Burton W. Scott, Malibu, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 23, 1968, Ser. No. 786,296
Int. Cl. H01j 31/20 7 Claims
U.S. Cl. 117—17.5



Method of obtaining an electrically energized stream having the same energy per unit charge and containing phosphor material for use in fabricating a viewing screen for a cathode ray tube wherein the base member for the viewing screen is scanned with the phosphor-containing stream.

3,591,405

CLEANING AND WHITENING SOFTENER COMPOSITIONS

Charles Bruce McCarty, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Dec. 29, 1967, Ser. No. 694,368
Int. Cl. B44d 5/06; D06m 13/46

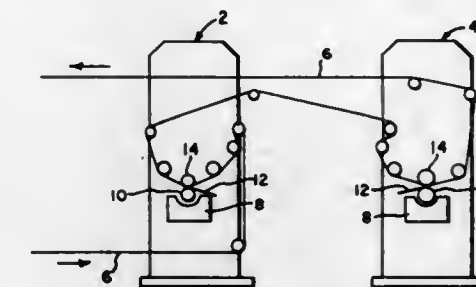
U.S. Cl. 117—33.5 7 Claims
Cleaning and whitening softener formulations containing from about 4 to 50% quaternary ammonium softener, 25 to 94% of certain polyphosphonic acid salts, 0 to 31% of an alkali metal polyacetate sequestering agent and 0.01 to 4% of an optical brightener.

3,591,406

PROCESS FOR BAND-TINTING PLASTICIZED POLYVINYL BUTYRAL SHEETING AND PRODUCT THEREFROM

Robert E. Moynihan, Lowell, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of application Ser. No. 766,070, Oct. 9, 1968. This application Oct. 17, 1969, Ser. No. 867,228

Int. Cl. B44d 1/24, 5/00 2 Claims
U.S. Cl. 117—37



Plasticized polyvinyl butyral sheeting is uniformly tinted without requiring normalization by depositing ink in a myriad of dots substantially coextensively on both sides of the sheeting. The myriad of dots can be in a band, and the resultant band-tinted sheeting is useful as safety glass interlayer.

3,591,407

BONDED NON-WOVEN FABRIC

Peter Petersik, Lutzelsachsen, Bergstrasse, and Adolf Graber, Weinheim an der Bergstrasse, Germany, assignors to Carl Freudenberg, Patentabteilung, Weinheim an der Bergstrasse, Germany

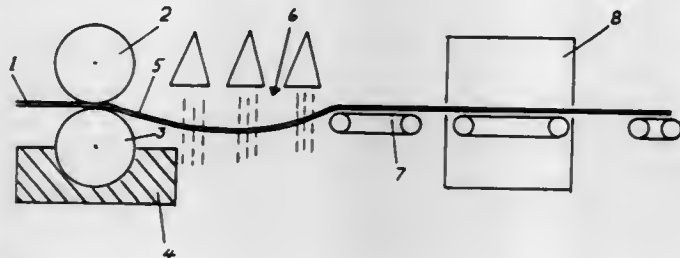
Filed Sept. 9, 1968, Ser. No. 758,387

Claims priority, application Germany, Sept. 26, 1967, P 16 19 054.8

Int. Cl. B44d 1/44

U.S. Cl. 117—46

5 Claims



Improvement in the coagulation of binder impregnated nonwoven fabrics by passing the nonwoven fabric impregnated with a coagulatable binder into operative contact with an open flame whereby to rapidly coagulate at least a substantial portion of the binder.

3,591,408

PROCESS FOR COLORING GLASS FIBERS AND FABRICS

Alfred Marzocchi, Cumberland, R.I., and David W. Boyes, Bedford, Va., assignors to Owens-Corning Fiberglass Corporation

No Drawing. Filed Dec. 6, 1967, Ser. No. 688,309

Int. Cl. C03c 25/02

U.S. Cl. 117—54

12 Claims

The coloring of glass fibers by treatment of the glass fibers with the combination of an amino and/or epoxy silane, its silanol or polysiloxane and a fiber reactive Procian dye or Procion dye having groupings that react with the amino or epoxy groups of the organo silicon compound to form an organo silicon-dye compound that becomes strongly anchored to the glass fiber surfaces with sufficient dye concentration to impart the desired color intensity.

3,591,409

PROCESS FOR COATING RESIN GRANULES BY HIGH INTENSITY MECHANICAL BLENDING AND PRODUCT OBTAINED THEREBY

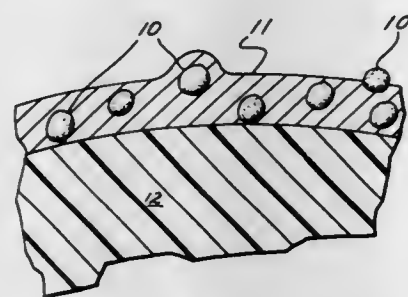
Norman E. Aubrey, South Hadley, Robert E. Beaulieu, Monson, and William J. Hall, Brimfield, Mass., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of application Ser. No. 624,733, Mar. 21, 1967. This application July 28, 1969, Ser. No. 845,384

Int. Cl. B44d 1/12; B32b 5/30

U.S. Cl. 117—100C

5 Claims



A method for preparing coated resin granules wherein a mixture of resin granules, a wax and a particulate material is subjected to high-intensity blending at elevated

temperatures and the product produced thereby. The product thermoplastic resin composition is characteristically dry and substantially dust-free. The wax with the particulate solid material embedded therein substantially uniformly distributed over the surfaces of individual resin particles.

3,591,410

TREATMENT OF RUBBERY MATERIAL

Edward O. Ross, 6118 Sadring Ave., Woodland Hills, Calif. 91364

No Drawing. Filed Nov. 15, 1967, Ser. No. 683,159

Int. Cl. C08c 1/06; C08k 1/28

U.S. Cl. 117—139

10 Claims

A composition for treating the surface of rubbery material for maintaining or restoring texture, comprising an aqueous solution of a penetrating agent and a rubber preservative which may also contain a bactericide is disclosed. Glycerine and an alginate are disclosed as the penetrating agent and preservative, respectively.

The term rubbery material is meant to include not only products made entirely of rubber but also cloth impregnated with rubber and/or over-coated therewith, as well as mixtures of rubber and other non-rubber materials.

3,591,411

COATED DRYING ELEMENT

Paul W. Faulhaber, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Dec. 26, 1967, Ser. No. 693,139

Int. Cl. D21h 1/28

U.S. Cl. 117—155UA

6 Claims

A flexible, liquid permeable, drying element, such as a thin coating, containing an organic desiccant, typically with a synthetic, polymeric binding agent, is used for removing a liquid, such as water, from a permeable solid, such as from one or more layers of a photographic element containing water. For instance, a thin coating of an organic desiccant, such as a mixture of ethylene oxide polymers, removes a large percentage of the water from a wet photographic emulsion layer. An inorganic desiccant and/or other addenda can be present in the thin coating.

3,591,412

COATED PAPER

Gesienus Smit, Sappemeer, Netherlands, assignor to Scholten Research N.V., Groningen, Netherlands

No Drawing. Filed Nov. 14, 1967, Ser. No. 683,019

Claims priority, application Japan, Nov. 15, 1966, 41/75,164

Int. Cl. D21h 1/24, 1/28

U.S. Cl. 117—156

15 Claims

Paper is rendered wet-rub resistant by being provided with a coating containing

- (a) a pigment consisting essentially of clay and about 3–100% of satin white, and
- (b) a binder consisting at least partly of a depolymerized starch phosphate ester.

3,591,413

RESISTOR STRUCTURE FOR THIN FILM VARIABLE RESISTOR

Yasuo Seki, Koetsu Tanno, and Takayuki Kurihara, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Aug. 26, 1968, Ser. No. 755,104

Claims priority, application Japan, Aug. 25, 1967, 42/55,081

Int. Cl. H01c 7/00

U.S. Cl. 117—217

18 Claims

A thin film resistor structure for a variable resistor is described. The structure exhibits a low contact resistance

3,591,416

METHOD OF CLEANING OVENS

Carl E. Johnson, Glen Ellyn, Ill., assignor to Nalco Chemical Company, Chicago, Ill.

No Drawing. Filed Mar. 27, 1969, Ser. No. 811,245

Int. Cl. C23g 1/00; B08b 7/00

U.S. Cl. 134—2

3 Claims

An oven wall cleaning composition having as the active cleaning agent an oxidizing salt such as sodium nitrate, or other alkali metal or alkaline earth metal, nitrate, in combination with a sufficient amount of a caustic alkali, such as sodium hydroxide to give the mixture an alkaline reaction. Such mixtures are applied to an oven wall surface that has become glazed with heat-produced fatty residues, and cleaning is effected by heating the treated surface to a sufficiently high temperature, above about 230° C., for a period of time sufficient to burn off the fatty residues and leave the surface substantially clean. The cleaning composition can be applied dry to a lower horizontal surface or can be dispersed in a carrier, such as an aqueous vehicle in the form of a saturated solution, slurry, gel or the like, with or without a surfactant, and applied by brushing, spraying, wiping or rubbing onto the other oven wall surfaces.

3,591,414

METHOD FOR PRODUCING A MAGNETIC RECORDING MEDIUM

Yuichi Kono, Goro Akashi, and Masaaki Fujiyama, Kanagawa, Japan, assignors to Fuji Photo Film Company, Ltd., Kanagawa, Japan

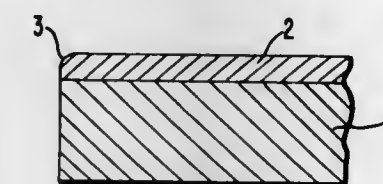
Filed July 5, 1968, Ser. No. 742,602

Claims priority, application Japan, July 4, 1967, 42/43,006, 42/43,007

Int. Cl. H01f 10/00

U.S. Cl. 117—237

10 Claims



The formation of drop-out in magnetic recording or reproducing of a magnetic recording tape caused by scraps of the magnetic recording layer on the tape can be prevented by treating the edges of the magnetic recording layer, after cutting the wide magnetic recording sheet into desired width, with an organic solvent to smoothen the edges. A resinous composition may be coated on the edges instead of the solvent treatment.

3,591,415

ION EXCHANGE REGENERATION

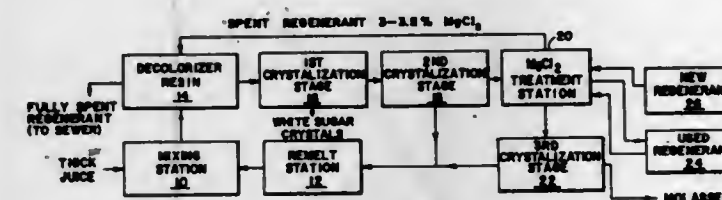
James F. Zievers, La Grange, and Charles J. Novotny, Hickory Hills, Ill., assignors to Industrial Filter & Pump Mfg. Co., Cicero, Ill.

Filed Mar. 18, 1968, Ser. No. 713,861

Int. Cl. C13d 3/14; C13f 1/12; B01d 41/02

U.S. Cl. 127—14

4 Claims



A magnesium cation exchange resin used for potassium removal in a sugar refining process is regenerated with a solution of magnesium chloride which is thereafter used to regenerate an ion exchange resin used as a decolorizer in the same refining process.

3,591,417

NICKEL-CADMIUM STORAGE BATTERY

Peter Ness, Kelkheim, and Antony Ollapuram, Frankfurt am Main, Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed Apr. 9, 1969, Ser. No. 814,804

Claims priority, application Germany, Apr. 11, 1968, P 17 71 151.2

Int. Cl. H01m 43/04

U.S. Cl. 136—24

4 Claims

An improved nickel-cadmium storage battery is constructed with the carrier of the positive electrode made of a diamagnetic or paramagnetic material, which is not oxidized when the battery is charged, for instance, gold or gold-plated copper, and with the carrier of the negative material made of a diamagnetic or paramagnetic substance, for instance copper.

3,591,418

ELECTROCHEMICAL CELL FOR THERMAL BATTERIES HAVING TRANSITION METAL FLUORIDE CATHODE WITH METAL AND AN ALKALI METAL FLUORIDE ELECTROLYTE

Raymond A. Sutula, Hyattsville, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Feb. 5, 1969, Ser. No. 796,667

Int. Cl. H01m 13/00

U.S. Cl. 136—83

6 Claims

An electrochemical cell for construction of a thermal battery formed of three layers of pressed pellets, the first one of which is composed of a transition metal fluoride material and a conductive metal such as silver powder, the second of which is an alkali metal fluoride electrolyte mixture and the third one of which is an electrochemically active metal such as magnesium.

3,591,419

PROCESS FOR GENERATING ELECTRICAL ENERGY USING MANGANESE DIOXIDE WITH OXIDIZING GAS

Charles Eugene Hamilton, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed June 27, 1968, Ser. No. 740,584

Int. Cl. H01m 27/00

U.S. Cl. 136—86

6 Claims

A fuel cell and method of its operation wherein organic materials are contacted with a suitable oxidizing system

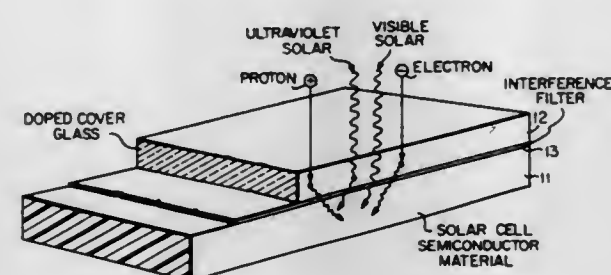
in the presence of an electron-collecting system to produce electrical current.

3,591,420 SOLAR CELL

Elmer R. Streed, Los Altos, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Feb. 6, 1969, Ser. No. 797,219
Int. Cl. H01l 15/02

U.S. Cl. 136—89

6 Claims



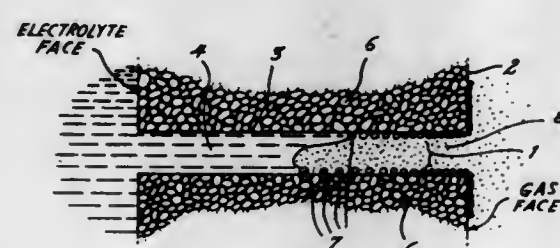
A solar cell utilizes phosphors in the cover glass which are excited to fluorescence by solar ultraviolet radiation and particulate radiation. This fluorescent energy passes through the interference filter for utilization in the solar cell, whereas the ultraviolet and other radiation would not normally be converted to electrical energy because the wavelength is not within the spectral response limits of the solar cell.

3,591,421 POROUS ELECTRODE HAVING LYOPHOBIC MATERIAL AFFIXED TO THE WALLS OF THE PORES

Hans A. Schultze, Neuenhain, and Dieter Spahr, Frankfurt am Main, Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany
Filed Sept. 26, 1966, Ser. No. 581,819
Claims priority, application Germany, Sept. 25, 1965, V 29,399
Int. Cl. H01m 13/00

U.S. Cl. 136—120

8 Claims



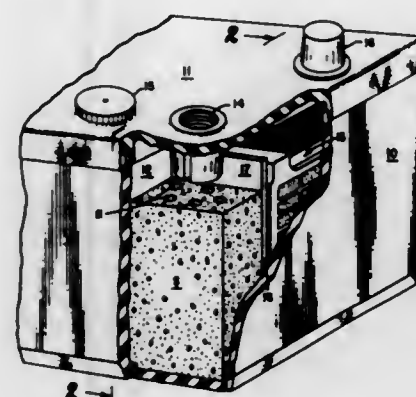
A porous gas diffusion electrode is made up of a single layer of porous material having two opposite faces and pores extending from one face to the opposite face of the electrode. These pores open through the two opposite faces. The walls of the pores are provided with particulate lyophobic material. At the wall area of the pores near their openings at one face of the electrode, the particulate lyophobic material is densely affixed to the wall. The density of the distribution of the particulate lyophobic material decreases along the length of the pores to essentially no coverage adjacent the pore openings at the opposite face of the electrode.

3,591,422 WATER-ACTIVABLE BATTERY UTILIZING ABSORBENT OPEN-CELLED MATERIAL

Herbert A. Bernholtz, Sylvania, and John P. Badger, Genoa, Ohio, assignors to Eltra Corporation, Toledo, Ohio
Filed Apr. 3, 1969, Ser. No. 812,989
The portion of the term of the patent subsequent to Nov. 17, 1987, has been disclaimed
Int. Cl. H01m 45/00

U.S. Cl. 136—162

14 Claims



A storage battery having a plurality of enclosed cells with a separate filler opening positioned over each cell. With each cell, the battery plates are separated from, but in liquid communication with, a body of liquid-absorbent material which is positioned below the filler opening for that cell. The body of absorbent material is of sufficient size and absorbency to retain an amount of concentrated battery acid sufficient to fully activate the cell when water is added through the filler opening to release the concentrated acid from said absorbent body and to fill the battery cell. The absorbent material may be comprised of an open-celled, foamed synthetic material such as a phenolic resin.

3,591,423 METHOD OF MANUFACTURING SEMICONDUCTOR ELEMENTS AND SEMICONDUCTOR INTEGRATED CIRCUITS

Nobuo Kawamura and Kazuo Kamimura, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan
Filed Mar. 11, 1968, Ser. No. 712,212
Claims priority, application Japan, Mar. 20, 1967, 42/17,298
Int. Cl. H01l 7/06, 7/34

U.S. Cl. 148—1.5

3 Claims

A method is provided for manufacturing semiconductor elements and semiconductor integrated circuits of the silicon type having a silicon dioxide film wherein a stable silicon-silicon dioxide system is produced having a low surface charge density which does not alter during bias-temperature treatment, the method comprising annealing the element at a temperature of at least about 850° C. in an atmosphere of hydrogen.

3,591,424 P-N JUNCTION PHOTOEMITTERS

Samuel A. Ward, Riverside, Conn., assignor to Columbia Broadcasting System, Inc., New York, N.Y.
Filed June 26, 1969, Ser. No. 836,874
Int. Cl. H01l 7/54

U.S. Cl. 148—1.5

9 Claims

A method of making photoemitters by ion implantation is disclosed. An n-type guard ring is diffused into the face of a p-type crystalline wafer, an n-type region is implanted within the guard ring by an ion bombardment, the

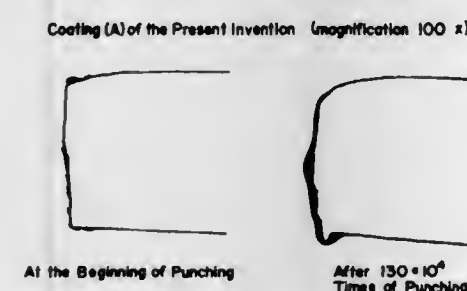
p-n junction is annealed until the required reverse bias characteristic exists, and the junction is surface cesiated to obtain photoemissivity.

3,591,425 COATING METHOD FOR ENHANCING PUNCHABILITY OF STEEL SHEET

Hiroshi Shimanaka, Toshio Irie, and Tooshikuni Tanda, Ashiya-shi, Japan, assignors to Kawasaki Steel Corporation, Fukui-ku, Kobeshi, Japan
Filed Oct. 9, 1968, Ser. No. 766,266
Claims priority, application Japan, Oct. 18, 1967, 42/67,027
Int. Cl. C23f 7/26

U.S. Cl. 148—6.2

7 Claims



A coating on the surface of steel sheet such as electrical steel sheet including silicon steel and low carbon iron to improve the punchability of the steel sheet, said coating comprises chromic acid, calcium and an organic polyhydric alcohol.

3,591,426 CORROSION RESISTANT BERYLLIUM

Patricia M. O'Donnell, North Olmsted, Ohio, assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
No Drawing. Filed Oct. 30, 1968, Ser. No. 772,006
Int. Cl. C23f 1/00

U.S. Cl. 148—6.3

5 Claims

Oxidation of beryllium is prevented by a fluoride coating on the surface.

3,591,427 METHOD OF PROCESSING STEEL SHEET OR STRIP

Henry J. Hansen, Jr., Portage, Ind., assignor to United States Steel Corporation
No Drawing. Original application July 25, 1966, Ser. No. 567,357. Divided and this application July 25, 1969, Ser. No. 845,029
Int. Cl. C21d 1/30, 9/46

U.S. Cl. 148—12

5 Claims

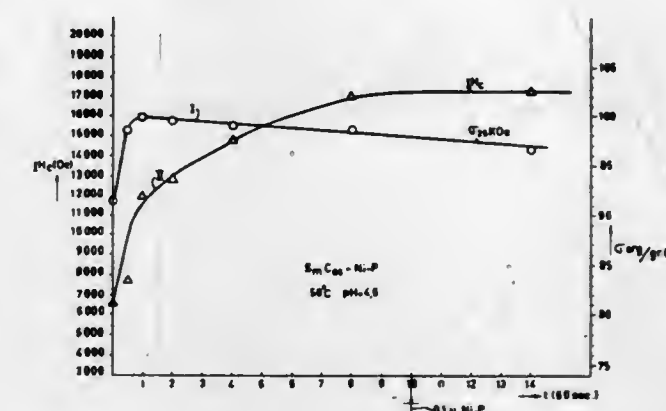
A method of producing fully-hard, stress-relieved plain carbon steel strip suitable for use as can end-stock wherein a low carbon steel is hot rolled to hot band gauge at temperatures within the austenitic range and thereafter rapidly cooled to a temperature below the austenitic range producing small dispersed carbides. The steel is cold reduced to final gauge and continuous annealed at a temperature below about 1050° F. to relieve rolling stresses but avoid substantial recrystallization. On the other hand, a steel strip suitable for use as can body stock, i.e. having less strength but greater formability, is produced if the steel cooled slowly after hot rolling to cause large agglomerated carbides, and if the final continuous anneal is at a temperature below about 1025° F., again to relieve rolling stresses but avoid substantial recrystallization.

3,591,428 BASIC SUBSTANCE FOR THE MANUFACTURE OF A PERMANENT MAGNET

Kurt Heinz Jurgen Buschow, Pieter Aart Naamstepad, Wilhelmus Antonius Johannes Josephus Velge, and Johannes Hendrikus Nicolaas van Vucht, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 26, 1968, Ser. No. 778,981
Claims priority, application Netherlands, Dec. 21, 1967, 6717442
Int. Cl. H01f 1/08

U.S. Cl. 148—31.57

12 Claims



A permanent magnet material is disclosed having a large intrinsic coercive force (H_c) and thus strongly resistant to demagnetization and a large energy product $(BH)_{max}$. This material consists of fine particles having permanent magnet properties and consisting essentially of a compound M_2R having a hexagonal crystal structure. M in this compound is cobalt or a combination of cobalt with one or more of the elements Fe, Ni, and Cu while R is a rare earth metal (which term includes Y) and/or Th. These particles are surrounded with a metallic layer.

3,591,429 SULFUR DOPED RECRYSTALLIZED InSb FILMS

Arthur R. Clawson and Harry H. Wieder, Riverside, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed July 25, 1968, Ser. No. 747,511
Int. Cl. H01l 7/36; C23c 13/00; C01g 15/00

U.S. Cl. 148—174

3 Claims

A process by which recrystallized films of semi-conducting InSb can be donor doped at a predetermined impurity level. Pure indium from which the InSb films are prepared is saturated with sulfur (a donor impurity in InSb) by diffusion. 99.999% pure sulfur and 99.999% pure indium are sealed in vacuum in separate compartments of a pyrex ampoule and heated at 150° C. for several days to saturate the indium with sulfur. A layer of In_2S_3 formed on the indium is removed in a Na_2S solution. The impurity level in the InSb film is controlled by diluting the sulfur doped indium with 99.9999% pure indium in the necessary proportion for the doping level desired; this permits introducing donor impurity levels up to $8 \times 10^{18} \text{ cm}^{-3}$.

3,591,430 METHOD FOR FABRICATING BIPOLAR PLANAR TRANSISTOR HAVING REDUCED MINORITY CARRIER FRINGING

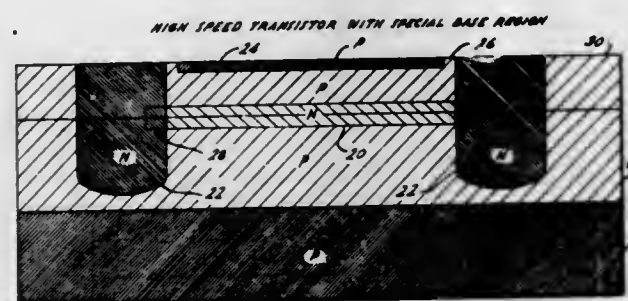
Earl S. Schlegel, Lansdale, Pa., assignor to Philco Ford Corporation, Philadelphia, Pa.
Original application Oct. 14, 1965, Ser. No. 495,927. Divided and this application Nov. 14, 1968, Ser. No. 794,452
Int. Cl. H01l 7/36

U.S. Cl. 148—175

4 Claims

Method of fabricating a bipolar planar transistor having reduced minority carrier fringing comprising forming

low-concentration, slow-diffusing and surrounding high-concentration faster-diffusing base dopant deposits on the surface of the higher-resistivity layer of a two-layer collector-doped substrate, growing an emitter-doped epitaxial layer on the substrate, and causing the high con-



centration dopant deposit to diffuse vertically upward to the surface of the epitaxial layer as well as downward into the substrate, thereby to form a bipolar transistor whose base region is more heavily doped in the portion to the sides of emitter region than under the emitter region.

3,591,431 DIFFUSED P-N JUNCTION DIODES AND METHODS OF DIFFUSION THEREFOR

George R. Pruett, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Application May 14, 1964, Ser. No. 370,145, which is a division of application Ser. No. 159,698, Dec. 15, 1961. Divided and this application Apr. 30, 1969, Ser. No. 820,519

Int. Cl. H011 7/44

U.S. Cl. 148—186 5 Claims
A method of making a photovoltaic diode by diffusing copper into one surface of an N-type conductivity body of indium and diffusing cadmium into the same surface to form a p+pn device.

3,591,432 PROCESS FOR SURFACE TREATMENT OF LEAD AND ITS ALLOYS

Hargovind N. Vazirani, Passaic Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 8, 1968, Ser. No. 727,461

Int. Cl. C23f 1/00, 3/04, 7/26

U.S. Cl. 156—3 9 Claims



This is a method for the surface treatment of lead and its alloys which results in an improved joint subsequently formed between the metal and organic materials and comprises treatment in an aqueous solution containing dichromate ions and hydrofluoric, fluoboric, or acetic acid.

Described embodiments of the surface treatment include use of the solution both as a liquid and as a gel.

3,591,433 METHOD OF IMPREGNATING A TAPE WITH A THERMOSETTING ETHOXYLIN RESIN MIXTURE

Jostein Andreassen, Ojebyn, Sweden, assignor to Allmänna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

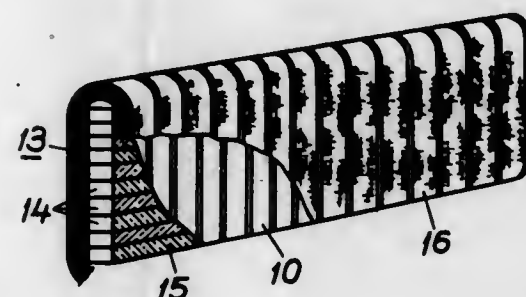
Filed June 28, 1968, Ser. No. 741,007

Claims priority, application Sweden, June 29, 1967, 9,634/67

Int. Cl. H01b 13/30

U.S. Cl. 156—53

4 Claims



A tape to be impregnated with a thermosetting resin has incorporated in it as a curing accelerator the reaction product of aluminum isopropylate and an alkyl amino alkyl phenol. Next, the tape is wrapped around a conductor or a bundle of conductors. The tape is then impregnated with a liquid mixture of an ethoxilin resin containing at least two epoxide groups per molecule and at least one anhydride of a polycarboxylic acid which serves as a curing agent. The article is then heated to cure the resin.

3,591,434 BI-AXIAL LAMINATED NON-WOVEN FABRIC AND METHOD OF MANUFACTURE

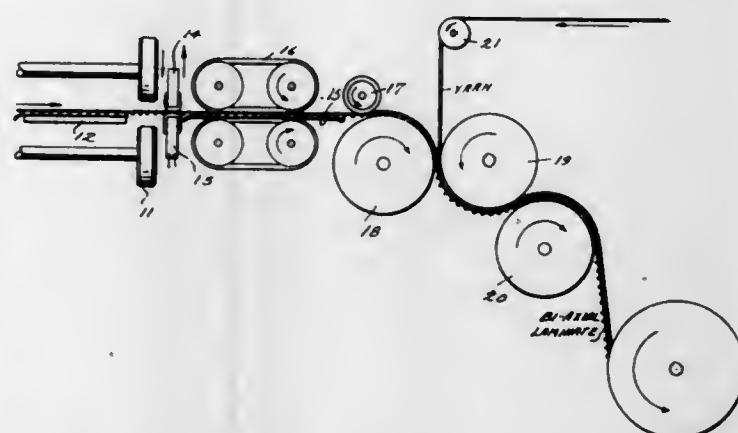
Fred W. Hartstein, Afton, Va., assignor to Swirltex, Inc., Afton, Va.

Filed Aug. 21, 1967, Ser. No. 662,070

Int. Cl. B32b 5/12

U.S. Cl. 156—178

1 Claim



A plurality of yarns are laid parallel to one another and conveyed through a group of heated pressure rollers, where the yarns are bonded to a self-supporting thermoplastic film, such as ethylene acrylic acid copolymer, in order to form a uni-axial laminate. The laminate is passed around a chilled roll to stiffen it for additional processing. A predetermined length of laminate is cut and joined along one edge to the corresponding edge of a second uni-axial laminate of similar dimensions by a pair of heat sealing bars. The joined laminate is conveyed by endless belts to a second group of heated pressure rollers where a second group of parallel yarns is cross-laid and bonded to the opposite side of the uni-axial laminate, thus forming a bi-axial laminated non-woven fabric, which is

chilled by passing over a chilled roll and is wound on a spool. The yarn employed may be relatively stiff, such as paper. Or, it may be made relatively flexible, by using natural or synthetic fibers such as cotton or rayon. Also, a layer of paper yarn may be laid on one side of the film, and a layer of flexible fibers on the opposite surface. The foregoing abstract is not intended to define the scope of the invention and is only provided to permit a cursory review of the gist of the invention.

3,591,435 METHOD OF PRODUCING DECORATIVE FIBER GLASS TUBING

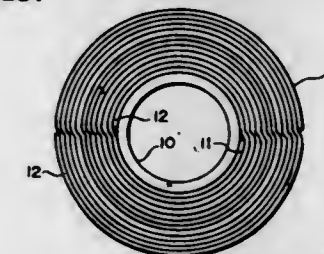
Richard C. Snyder, Coral Gables, Fla., assignor to Gator-glass Manufacturing Co., Inc., Hialeah, Fla.

Filed July 7, 1969, Ser. No. 839,599

Int. Cl. B65h 81/02

U.S. Cl. 156—187

2 Claims



The method of producing a decorative fiber glass tubing by wrapping a pair of different colored fiber glass sheets impregnated with thermosetting plastic and subjecting it to pressure whereby the wrapped tubing is reduced by 30% and the wrapping becomes wrinkled about its periphery. Then after becoming set, the outer surface of the wrapping is cut or ground to any desired depth whereby designs of decorative patterns are effected thereon.

3,591,436 METHOD AND APPARATUS FOR MAKING PRINTED CORRUGATED PAPERBOARD

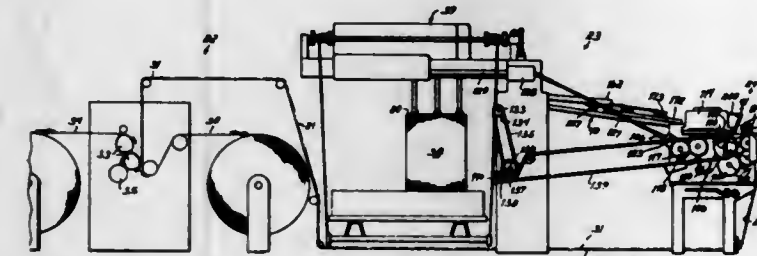
Charles H. Klein, James K. Haley, and Alfred C. Sides, Cincinnati, Ohio, assignors to Novelart Manufacturing Company, Cincinnati, Ohio

Continuation-in-part of application Ser. No. 281,600, May 20, 1963. This application Nov. 24, 1969, Ser. No. 872,465

Int. Cl. B31f 1/22; B32b 31/10

U.S. Cl. 156—210

21 Claims



Apparatus for making double face corrugated board wherein printed sheets are fed sequentially into combining rolls together with single face paper, the sheets being joined to the single face and thereafter processed in a dryer.

3,591,437 METHOD OF MAKING A PLASTIC BUILDING WALL FIN UNIT

Kenneth A. Schafer, Pittsburgh, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa.

Filed July 1, 1968, Ser. No. 741,562

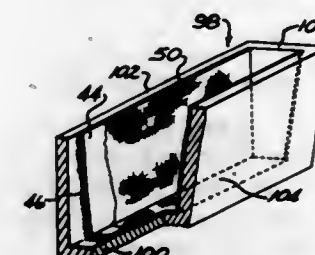
Int. Cl. B29c 19/00

U.S. Cl. 156—245

4 Claims

A prefabricated plastic building wall fin unit comprising a generally U-shaped reinforced plastic shell having

bracket means for securing the fin unit to a building wall. Fireproofing material may be applied to the interior surface of the shell. A foraminous reinforcement



may be partially embedded in the shell to provide positive connection for the fireproofing material and to provide structural reinforcement for the shell.

3,591,438 POLYMERIZABLE ACRYLATE COMPOSITION AND CURING ACCELERATOR THEREFOR

Alex S. Toback, West Hartford, and John T. O'Connor, New Haven, Conn., assignors to Loctite Corporation, Newington, Conn.

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,947

Int. Cl. B32b 7/10; C08f 15/06; C09j 5/04

U.S. Cl. 156—310

22 Claims

The speed of cure of a peroxy initiated acrylate based adhesive or sealant composition is markedly increased by treating one or more of the surfaces to be bonded with a bonding accelerator containing (a) the condensation product of an aldehyde and a primary or secondary amine and (b) as a reducing activator, either (1) a sulfur-containing free radical accelerator or (2) a compound containing an oxidizable transition metal.

3,591,439 TIRE BUILDING MACHINE HAVING PLURAL SUPPLY POSITIONS AND AN AXIALLY SHIFTABLE DRUM

Jean Leblond and Jean Blet, Compiègne, France, assignors to Uniroyal Englebert France S.A., Paris, France

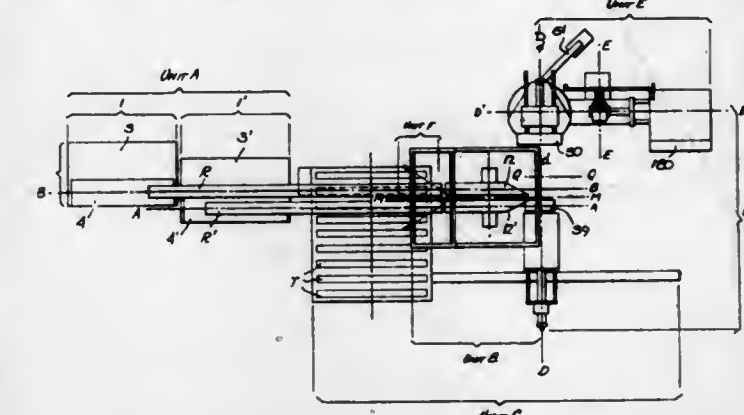
Filed Oct. 3, 1968, Ser. No. 764,664

Claims priority, application France, Oct. 9, 1967, 123,801

Int. Cl. B29h 17/20

U.S. Cl. 156—396

25 Claims

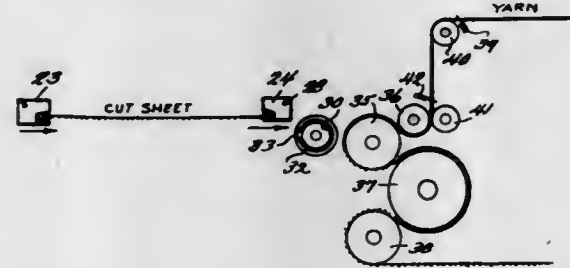


A tire building machine having a pair of supply mechanisms for simultaneously supplying a pair of continuous strips of breaker material of the same or different physical characteristics, a pair of severing devices which sever the strip into strip portions, a pair of transfer mechanisms for transporting the severed strip portions, respectively, to a pair of spaced locations, and a single breaker building drum which is intermittently shiftable along a fixed axis between three stopped positions two of which coincide with said spaced locations, respectively. After the breaker plies are built up on said building drum at said pair of

spaced locations a tread applicator mechanism, also located at the second location, applies a strip of tread material around the breaker ply assembly. In the third position of the building drum a transfer ring cooperates therewith for transferring a completed breaker-tread assembly from the building drum onto a carcass supported on a carcass support member.

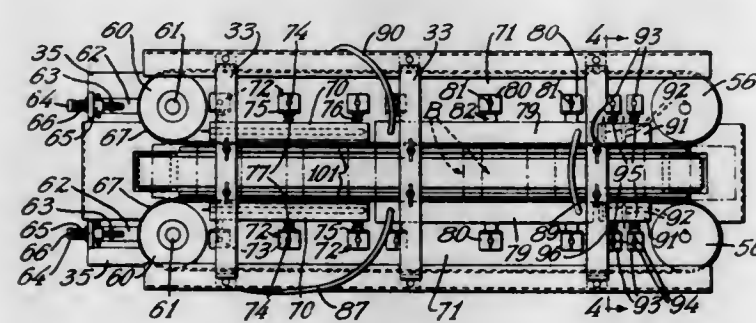
3,591,440
APPARATUS FOR MANUFACTURING A BIAXIAL LAMINATED NONWOVEN FABRIC
Fred W. Harstein, Grottoes, Va., assignor to Swirtek, Inc., Grottoes, Va.
Continuation-in-part of application Ser. No. 662,070, Aug. 21, 1967. This application Jan. 22, 1969, Ser. No. 793,142

Int. Cl. B64h 61/00
U.S. Cl. 156—439 1 Claim



An apparatus for the manufacturing of biaxial laminated nonwoven fabric which includes means for contacting one surface of a thermoplastic film with a plurality of substantially parallel yarns and means for applying sufficient heat and pressure thereto to bond said yarns to said one surface thereby producing a uniaxial laminate, means for severing a length of said uniaxial laminate, means for contacting the yarn-free surface thereof with a plurality of substantially parallel yarns and means for applying sufficient heat and pressure thereto to bond said yarns to the yarn-free surface thereby producing a biaxial laminate, means for joining this biaxial laminate along one of its edges to one edge of another severed uniaxial laminate produced essentially as described above and means for contacting the yarn-free surface of said other severed uniaxial laminate joined to said biaxial laminate with a plurality of substantially parallel yarns and means for applying sufficient heat and pressure thereto to bond said yarns to said yarn-free surface thereof, thereby producing said biaxial laminated nonwoven fabric.

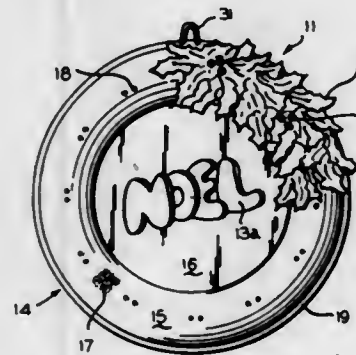
3,591,441
BAND SEALER
Iver L. Nelson, Minneapolis, Minn., assignor to Hoerner Waldorf Corporation, St. Paul, Minn.
Filed June 5, 1967, Ser. No. 643,690
Int. Cl. B32b 29/00
U.S. Cl. 156—498 5 Claims



This invention relates to a band type heat sealer for sealing the closure flaps of wax coated cartons and the like and the method of sealing the carton. The sealer includes a heating element in face contact with a band

of heat conductive material such as stainless steel capable of transmitting sufficient heat to penetrate the outer layer of paperboard and to melt the coating between the outer layer and an inner layer of paperboard. The sealer includes a cooling element in contact with the band capable of reducing the temperature sufficiently to band the two layers together. The sealer also includes a second heating element in contact with the band capable of heating the surface of the outer layer of coated paperboard sufficiently to free the coating from the band and to glaze the outer surface of the coating on the outer layer, the heat provided by the second heating element being insufficient to penetrate the outer layer of paperboard and affect the band between the layers of paperboard.

3,591,442
DECORATIVE WREATHS
Andrew J. Mateal, 3742 N. Troy, Chicago, Ill.
Filed Dec. 19, 1967, Ser. No. 691,792
Int. Cl. A47g 33/08
U.S. Cl. 161—15 4 Claims

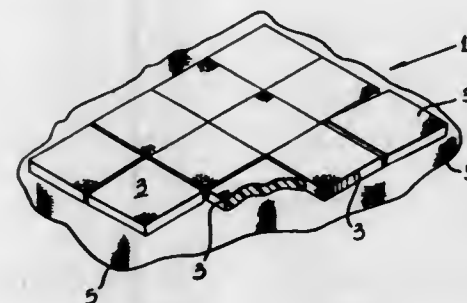


Artificial wreaths comprising base units that are substantially semi-toroidally shaped and equipped to have decorations such as artificial boughs and figurines removably attached thereto.

ERRATUM

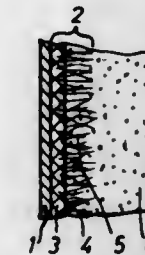
For Class 161—30 see:
Patent No. 3,590,908

3,591,443
FLEXIBLE CORE MATERIAL IN SKIN AND CORE LAMINATES
Edwin Dexter Cox, Scarsdale, N.Y., assignor to Johns-Manville Corporation, New York, N.Y.
Filed Sept. 18, 1967, Ser. No. 668,624
Int. Cl. B32b 3/16
U.S. Cl. 161—37 2 Claims



A flexible core for use primarily in making skin and core structures with curved surfaces, the core being composed of blocks of rigid closed-cell polyvinylchloride foam attached to a flexible backing sheet.

3,591,444
HEAVY-DUTY FOAM LAMINATES
Peter Hoppe, Troisdorf, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
Filed June 26, 1968, Ser. No. 740,111
Claims priority, application Germany, July 4, 1967, F 52,850
Int. Cl. B32b 5/18
U.S. Cl. 161—53 11 Claims

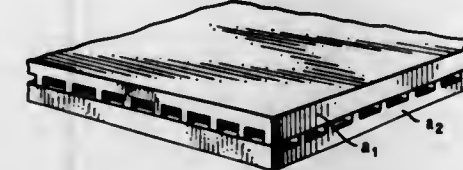


A reinforced foam plastic laminate having a special marginal zone reinforcing insert comprising a reinforcing mat and a layer of fibers which are intermeshed with said reinforcing mat to firmly join the marginal reinforcing mat to the foam core. The heavy-duty foam laminates have extremely high static and dynamic strength values and can be used in various forms in the building of vehicles, housing and furniture or the like.

3,591,445
LUMINESCENT EDGING FOR ARTICLES
Elliott A. Schonberg, East Orange, Charles B. Thomson, Morris Plains, and John Bacha, Clifton, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed July 2, 1969, Ser. No. 838,633
Int. Cl. B32b 3/04; B44f 1/14
U.S. Cl. 161—86 11 Claims

Thermoplastic films having incorporated therein an ultra-violet light sensitizer are disposed about and adhered to the edges of a fabric article, thereby forming a protective border about the edges of the article to prevent unraveling and facilitating quality control inspection.

3,591,446
SURFACES FOR PLAYING FIELDS
Hans-Georg Trieschmann, Hambach, Leo Unterstenhoefer, Limburgerhof, Siegfried Maier, Speyer, and Heinz Berner, Welthe, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany
Filed June 3, 1969, Ser. No. 829,986
Claims priority, application Germany, June 7, 1968, P 17 59 787.4
Int. Cl. B32b 3/00
U.S. Cl. 161—122 2 Claims



Special surfaces for playing fields comprising an upper layer (a₁) and a lower layer (a₂), each layer consisting of a thermoplastic molding material having a special composition. The layers (a₁) and (a₂) are webs or boards provided with parallel ribs on one side only, layer (a₁) being arranged on top of layer (a₂) in such a way that the ribbed sides are in contact, the ribs of one layer being at an angle of from 45° to 90° to those of the other layer.

3,591,447
LOW DENSITY CORK-ASBESTOS FELT AND PROCESS OF PRODUCING THE SAME
Daniel L. Juhl, Lancaster, Pa., assignor to Raybestos-Manhattan, Inc., Manhattan, Pa.
No Drawing. Filed Jan. 31, 1967, Ser. No. 612,812
Int. Cl. B32b 19/08
U.S. Cl. 161—155 17 Claims

A low density cork-filled asbestos felt composed of first and second webs of dry carded spinning grade asbestos fibers, between which there is an intermediate discontinuous layer of granulated cork particles which, prior to being combined with the webs of asbestos fibers, are coated with from 1 to 10 percent of a thermosetting resin. In the felt, fibers in the opposing surfaces of the first and the second webs extend through the interstices in the discontinuous layer of granulated cork particles and are entangled with fibers from the opposing web. The cork-filled asbestos felt contains from 20 to 50 percent, by weight, of a thermosetting resin. A process for preparing the cork-filled asbestos felt is also described.

3,591,448
WOOD WITH A DENSIFIED SURFACE LAYER AND METHOD OF MAKING SAME
Armin Elmendorf, Portola Valley, Calif.
(860 Charleston Road, Palo Alto, Calif. 94303)
Filed Aug. 15, 1966, Ser. No. 572,502
Int. Cl. B27m 1/02; B32b 5/14, 7/02
U.S. Cl. 161—164 13 Claims

This invention relates to a method of densifying wood to provide a board composed of ligno-cellulosic fibers arranged in annular rings containing spring and summer wood, in which the summer wood is of substantially the same density in each ring from one surface of the board to the opposite surface and the spring wood is compacted in an outer surface zone of the board between the rings of the summer wood without case hardening the wood.

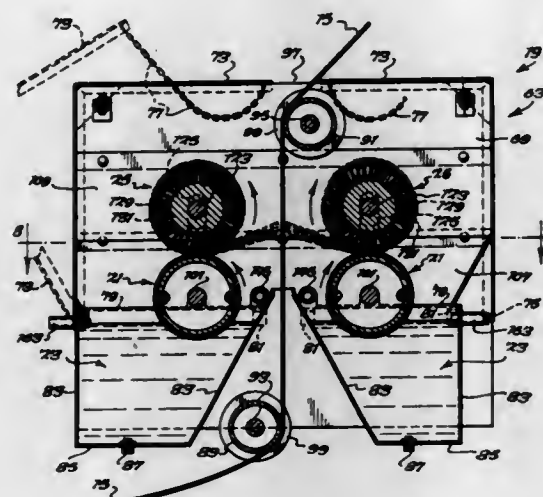
3,591,449
COKING AND OXIDIZING OF WASTE LIQUORS
Howard V. Hess, Glenham, and Edward L. Cole, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
Filed Nov. 29, 1968, Ser. No. 780,078
The portion of the term of the patent subsequent to Apr. 21, 1987, has been disclaimed
Int. Cl. D21c 11/12
U.S. Cl. 162—30 7 Claims

A process for treating aqueous organic waste liquor including the steps of coking the waste liquor, in the absence of free oxygen, thereby forming a coke-containing aqueous slurry, steam, gases, and an effluent, separating aqueous liquid from said slurry and combining said aqueous liquid with said effluent, and air-oxidizing the thus combined liquids to yield a hot effluent having a reduced chemical oxygen demand.

3,591,450
METHOD AND APPARATUS FOR CONDITIONING AND DEFIBRATING A WEB OF PAPER PULP PRIOR TO AIR LAYING
James A. Murphy, Toronto, Ontario, Canada, and Charles Allen Lee, Knoxville, Tenn., assignors to International Paper Company, New York, N.Y.
Filed Aug. 30, 1967, Ser. No. 664,518
Int. Cl. B21b 1/02
U.S. Cl. 162—265 5 Claims

In an apparatus for and a method of defibrating a web of wood pulp, the web is conditioned by a uniform spray of liquid impinging on the web in a uniform pattern and with a uniform density across the full width of the web. The spray may be a mixture of mineral oil and water and

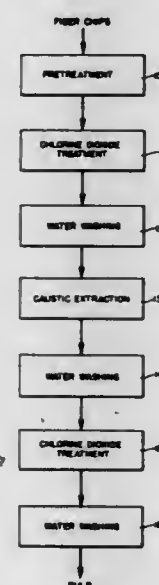
may be generated by rotating a dip roller into a tank of the liquid to lift a film of liquid to a rotating brush roller. The rotational speed of the brush roller is held constant and the rotational speed of the dip roller is varied



in accordance with the web travel speed to provide a uniform density of spray, preferably on both sides of the web. The liquid in the tanks may be held at a constant level by a controlled supply means.

3,591,451
PRETREATMENT OF VEGETABLE MATTER AND DELIGNIFICATION OF THE REFINED MATTER WITH CHLORINE DIOXIDE
Harry D. Wilder, Richmond, Va., assignor to Ethyl Corporation, New York, N.Y.
Filed Feb. 6, 1969, Ser. No. 797,209
Int. Cl. D21c
U.S. Cl. 162—67

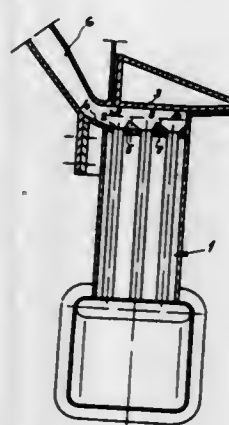
22 Claims



A process for the delignification of chips of vegetable matter by pretreating the chips to obtain at least 64 percent by weight refined vegetable matter, and delignifying the refined vegetable matter with chlorine dioxide. A pulp produced in high yield by the process which refines easier, dries more readily on a paper machine, exhibits higher on-machine filler retention, and possesses greater strength than conventionally bleached kraft pulp made from the same wood mixture. A paper produced from said pulp which has higher tensile, tear, burst, fold, pick and delamination strengths and greater brightness stability than paper produced from conventionally bleached kraft pulp made from the same wood mixture.

3,591,452
APPARATUS FOR FEEDING PAPER STOCK TO A PAPER MACHINE
Erik A. Nykopp, Tampere, Finland, assignor to Oy Tampella AB, Tampere, Finland
Filed Jan. 17, 1969, Ser. No. 791,937
Claims priority, application Finland, Mar. 26, 1968, 836/68
Int. Cl. D21f 1/06
U.S. Cl. 162—343

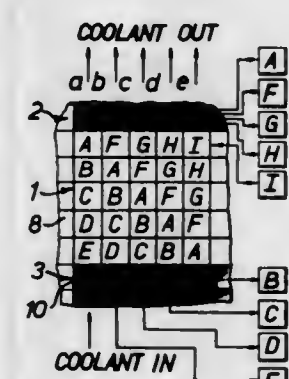
9 Claims



An apparatus for feeding paper stock to a paper machine in which even distribution of the pulp stock free from fiber accumulations is obtained across the entire width of the paper machine. The stock flows from distribution tubes into a chamber through a plurality of transverse inlet rows and impinges on the opposite wall of the chamber. The inlet wall is provided with humps which extend across the chamber, both parallel to and between each pair of inlet rows. The stock flows from the chamber through a discharge channel and to the head box of the paper machine.

3,591,453
METHOD OF OPERATING A GAS COOLED FAST BREEDER REACTOR
Charles Peter Gratton, Dorchester, Dorset, England, assignor to United Kingdom Atomic Energy Authority, London, England
Filed Mar. 18, 1968, Ser. No. 713,601
Claims priority, application Great Britain, Apr. 4, 1967, 15,418/67
Int. Cl. G21g 1/00
U.S. Cl. 176—18

2 Claims



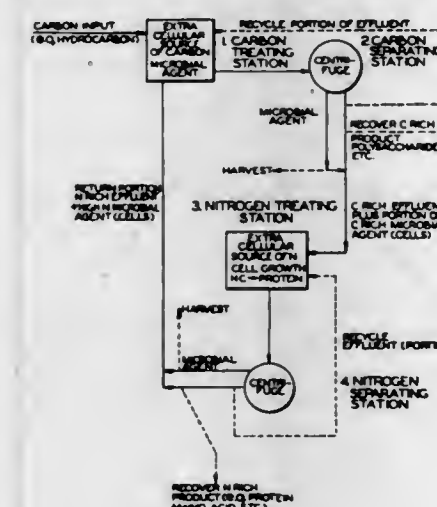
A method of operating a fast breeder reactor in which the coolant is passed serially through at least one part of the blanket and the core in series which method resides in causing the fissile fuel to move through the core in counterflow to the coolant flow direction and the fertile fuel in concurrent flow with the coolant flow direction.

3,591,454
PROCESS AND APPARATUS FOR THE CONTINUOUS FERMENTATION OF DRAFF-CONTAINING MASHES
Hans-Ulrich Laatsch, Berlin, Germany, assignor to Forschungsinstitut für die Gasungsindustrie Enzymologie und technische Mikrobiologie, Berlin, Germany
Filed May 22, 1968, Ser. No. 731,111
Int. Cl. C12b 1/00

U.S. Cl. 195—15 11 Claims
A process for the continuous fermentation of draff-containing mash, consisting preferably of starch-containing raw products, is used for obtaining ethanol. In accordance with the process, mash intended for fermentation and flowing in a continuous stream, are separated into two streams the amount of which have a ratio of 1:10 to 1:12, whereupon the smaller stream is consecutively saccharified, sterilized, cooled, diluted, acidified, treated with feed salts, and enriched with yeast cells up to a concentration of 350 to 400 million cells/ml. Then the smaller stream is united with the larger stream and the two flow jointly through a fermentation battery and are jointly fermented. A suitable apparatus is used to carry out this process.

3,591,455
CONTINUOUS MICROBIAL PROCESS
Robert A. Oppermann, Oak Lawn, Ill., assignor to Nalco Chemical Company, Chicago, Ill.
Filed Feb. 14, 1968, Ser. No. 705,550
Int. Cl. C12b 1/00
U.S. Cl. 195—28

10 Claims



The present invention broadly comprises a process for the utilization of a source of carbon and a separate source of nitrogen in a continuous system wherein by varying the choice of input carbon source and a selected initial batch of microbial agent, oxygenated or reduced hydrocarbon products are formed where the microbial agent is operated under non-proliferating conditions. The invention further contemplates the production of proteins and amino acids at the source of nitrogen where extra cellular nitrogen is provided under nitrogen-supplemental conditions, such as by an inorganic compound like ammonium sulfate. The system is continuous and carefully regulated so that even though carbohydrate product is desired from the source of carbon, a portion of the stream and the microbial particles are passed through the process to the source of nitrogen in a growth cycle before returning to the input source of carbon. After both primary treatment stations in the process centrifuges separate the microbial agent from the medium, the desired commercial product may be further separated and recovered from said stream where optionally the preceding treatment station is live,

i.e. where C or N cells are harvested and optionally commercially products are produced. After each live separating station, the total microbial agent is split; a major portion is harvested and the remainder is passed along to the subsequent treating station of the opposite source (i.e., C or N). A portion of the effluent containing the medium is preferably recycled where the station is live and in a minority of cases a portion of the microbial agent may be recycled to provide inoculum.

3,591,456
PROCESS FOR PRODUCING L-TRYPTOPHAN
Katsunobu Tanaka, Machida-shi, and Keiichi Inuzuka, Tokyo, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
No Drawing. Filed June 14, 1968, Ser. No. 736,987
Claims priority, application Japan, June 17, 1967, 42/38,468
Int. Cl. C12d 13/06

U.S. Cl. 195—29 11 Claims
A process for producing L-tryptophan by fermentation from anthranilic acid which comprises culturing a hydrocarbon-assimilating microorganism under aerobic conditions in an aqueous nutrient medium containing a hydrocarbon or a mixture of hydrocarbons as the main carbon source and precursor amounts of anthranilic acid. Typical microorganisms that can be employed in the process include *Brevibacterium ketoglutamicum*, *Candida tropicalis* and *Streptomyces antibioticus*.

3,591,457
ENZYMATIC DECOMPOSITION OF GLUCANS
Hans Bender, Freiburg im Breisgau, and Harald Metz, Darmstadt, Germany, assignors to E. Merck A.G., Darmstadt, Germany
No Drawing. Continuation of abandoned application Ser. No. 462,739, June 9, 1965. This application Sept. 13, 1968, Ser. No. 760,127
Claims priority, application Germany, June 11, 1964, M 61,327
Int. Cl. C12d 1/00

U.S. Cl. 195—33 7 Claims
The decomposition of β -glucans, particularly native cellulose, by subjecting same to the activity of *Oxyporus populinus*, the culture filtrate thereof, a mycelium extract thereof, or an enzyme produced therefrom, thereby producing such decomposition products as glucose and cellobiose.

3,591,458
PROCESS FOR THE DETERMINATION OF NITROGEN-FIXING ACTIVITY
Ralph W. F. Hardy, Unionville, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Dec. 22, 1967, Ser. No. 692,650
Int. Cl. C12k 1/06

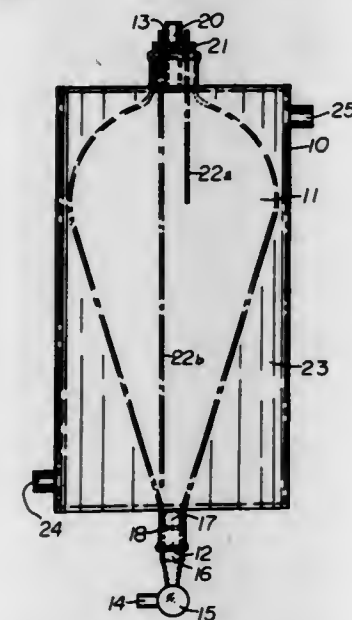
U.S. Cl. 195—103.5 5 Claims
Described and claimed is a process for the qualitative or, preferably, quantitative determination of the nitrogen-fixing activity of living organisms by the measurement of their conversion of acetylene to ethylene as determined, for example, by chromatographic analysis.

3,591,459
METHOD OF ENZYME DETERMINATION
Reinhard Haschen and Wolfgang Farr, Halle (Saale), Dieter Reichelt, Bitterfeld, and Norbert Rehfeld, Halle (Saale), Germany, assignors to VEB Arzneimittelwerk Dresden, Radebeul, Germany
No Drawing. Filed Jan. 4, 1968, Ser. No. 695,585
Int. Cl. G01n 31/14

U.S. Cl. 195—103.5 3 Claims
A method of testing a substance, for example, blood serum, to quantitatively determine the presence of amino acid arylamidase catalytic activity, in which the substance

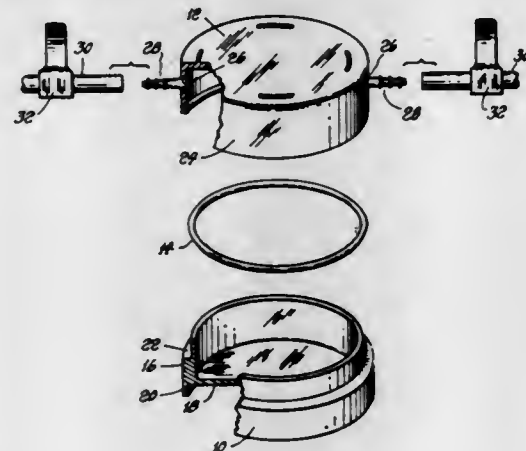
is mixed with a substituted alanine derivative whereby any amino acid arylamidase catalytic activity present splits the substituted alanine derivative to form a substituent which can directly be colorimetrically determined or which can be converted to another substance which, in turn, can be colorimetrically determined.

3,591,460
APPARATUS AND MEANS FOR HANDLING CELLS
David F. Smith, 11810 E. 13 Mile Road,
Warren, Mich. 48093
Filed Aug. 30, 1967, Ser. No. 664,322
Int. Cl. C12b 1/10; C12k 1/10
U.S. Cl. 195—127 4 Claims



A funnel-shaped chamber apparatus is provided for passage therethrough of upwardly flowing fluid medium adapted for the maintenance and/or growth of living cells in suspension. In use, the medium and the cells are introduced into the chamber and fresh medium is put in at a continuous rate at least sufficient to keep the cells suspended. The living cell population distributes according to size vertically in the chamber (or series of successively larger chambers) and thus can be fractionated for size. Also, bacteria, viruses and other microbiological entities as desired can be continuously cultivated on the living cells for harvesting either intermittently or continuously.

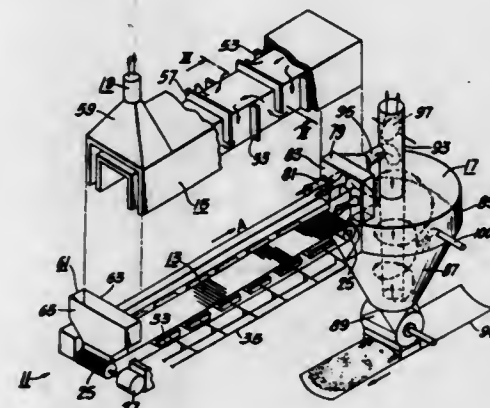
3,591,461
MICRO-ORGANISM CULTURING PLATE
Stephen L. Bazil, 25 Catalpa Lane, Valley Stream, N.Y. 11581, and David B. Land, 57—05 Horace Harding Expressway, Flushing, N.Y. 11368
Filed Aug. 8, 1969, Ser. No. 848,433
Int. Cl. C12b 1/04
U.S. Cl. 195—142 3 Claims



An improved micro-organism culturing petri-type plate including a specimen dish and a tightly fitting cover that

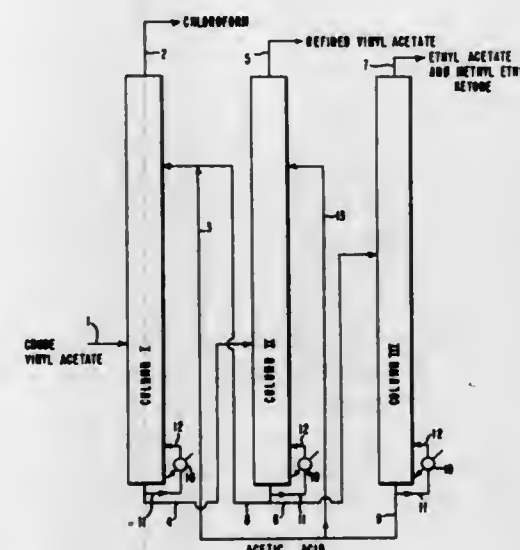
forms a gas-tight seal with the specimen dish, the cover providing a gas space above the dish and having two opposed fittings for gas tubings with gas flow cut-offs, one of the tubings serving as a coupling to a supply of a specific gas.

3,591,462
METHOD AND APPARATUS FOR THE CONTINUOUS CARBONIZATION OF COAL
George M. Bretz, Verona, Pa., assignor to Koppers Company, Inc.
Filed Dec. 12, 1968, Ser. No. 783,199
Int. Cl. C10b 7/06, 5/06
U.S. Cl. 201—15 9 Claims



A continuous coal carbonization system includes automated belt conveying apparatus that carries coal through an elongate coking chamber wherein the temperature varies so as to change the coal into coke.

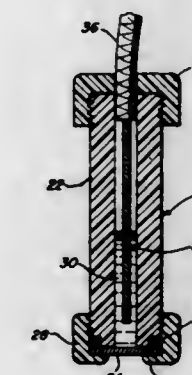
3,591,463
SEPARATION OF CHLOROFORM AND/OR ETHYL ACETATE AND/OR METHYLETHYL KETONE FROM VINYL ACETATE BY EXTRACTIVE DISTILLATION
Harry B. Copelin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Oct. 25, 1968, Ser. No. 770,481
Int. Cl. B01d 3/34; C07c 67/06
U.S. Cl. 203—61 8 Claims



An extractive distillation method of separating chloroform, and/or ethyl acetate and/or methylethyl ketone from vinyl acetate, particularly when such materials are present as impurities in vinyl acetate. The method involves using a 2-10 carbon saturated aliphatic carboxylic

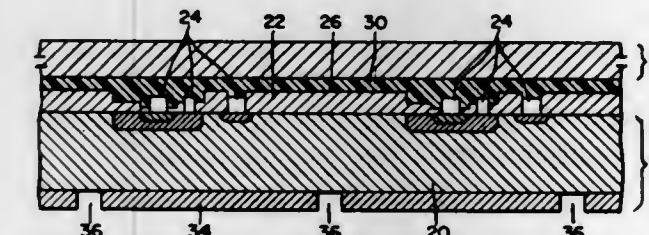
acid as the extraction solvent. Acetic acid is an effective solvent for separating any or all three of such materials, while the other acids of the above type are effective solvents for separating ethyl acetate and/or methylethyl ketone.

3,591,464
METHOD AND APPARATUS FOR DETECTING IONIC ACTIVITY
Martin S. Frant and James W. Ross, Newton, Mass., assignors to Orion Research, Inc., Cambridge, Mass.
Filed Sept. 6, 1968, Ser. No. 757,848
Int. Cl. G01n 27/46
U.S. Cl. 204—1T 40 Claims



A potentiometric, solid state membrane type electrode for detecting ion activities in solution and in which electrode the ion-sensitive element is an imporous solid membrane having a surface intended to contact the solution. The surface comprises an intimate mixture of Ag₂S and another compound selected according to the nature of the ion to which the element is to be responsive. For copper, lead, cadmium and thiocyanate sensitive elements, the latter compound is respectively CuS, PbS, CdS and AgSCN. One form of the membrane is a compressed coprecipitate of the requisite salts free of the metals of which the salts are formed.

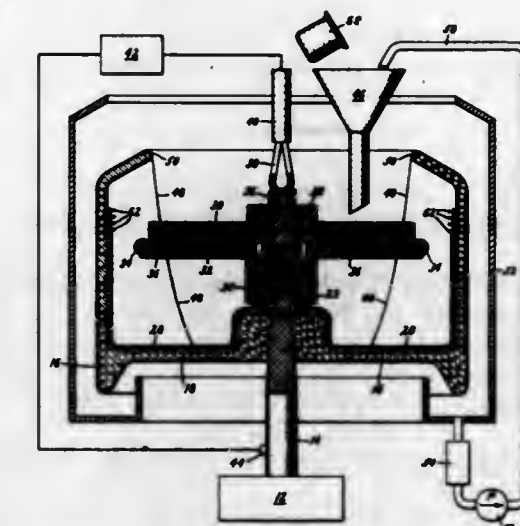
3,591,465
SELECTIVE SILICON GROOVE ETCHING USING A TANTALUM OXIDE MASK FORMED AT ROOM TEMPERATURES
Andrew F. McKelvey, Lansdale, Pa., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 15, 1969, Ser. No. 857,991
Int. Cl. C23b 5/48
U.S. Cl. 204—15 6 Claims



In silicon groove etching, the improved method of applying a tantalum coating to a silicon base material, masking the tantalum coating with photoresist materials, chemically removing the exposed portion of tantalum, stripping the photoresist and anodizing the remaining tantalum to form an oxide, thus providing an inert tantalum oxide mask in the subsequent etching of the silicon base material.

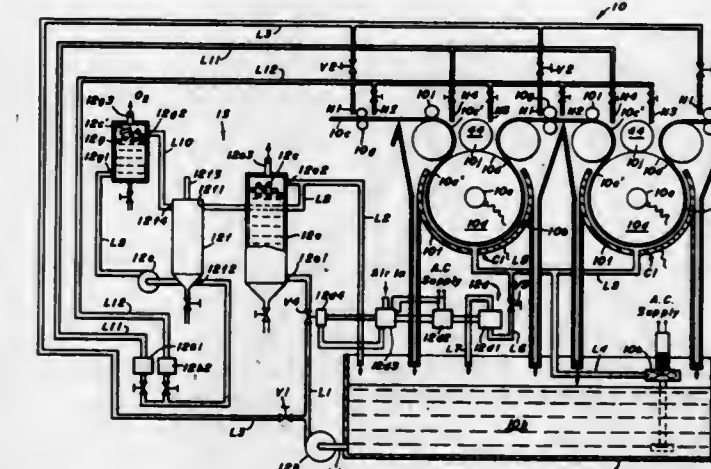
888 O.G.—9

3,591,466
COMPOSITE STRUCTURE PRODUCTION
Samuel Heiman, Philadelphia, Pa., assignor to General Electric Company
Filed Mar. 8, 1968, Ser. No. 711,717
Int. Cl. C23b 7/02, 7/00; B23p 11/00
U.S. Cl. 204—16 1 Claim



Electrodeposition is conducted in rotating cell having rotating deposition electrode. Material to be included (e.g. inorganic fibers) in the electrodeposit is added to the bath, and is held by centrifugal force against work-piece while deposition continues further, firmly investing inclusion in deposit.

3,591,467
APPARATUS FOR AND METHOD OF PROTECTING A SHEET BEING ELECTROPLATED WITH A METAL
Daniel T. Carter, Penn Township, Westmoreland County, Pa., assignor to United States Steel Corporation
Filed May 9, 1969, Ser. No. 823,377
Int. Cl. C23b 5/58; B01k 3/00
U.S. Cl. 204—28 24 Claims



This invention relates to electroplating and more particularly to an apparatus for and a method of protecting one surface of a moving sheet being electroplated with a metal on a rotary type plating apparatus.

3,591,468
METHOD OF COATING METAL SURFACES WITH A FLUORINE-CONTAINING POLYMER
Kazuyo Nishio and Osamu Geshi, Osaka, and Junichi Sako, Kobe, Japan, assignors to Daikin Kogyo Co., Ltd., and Toho Kasei Co., Ltd., both of Osaka, Japan
Filed May 3, 1968, Ser. No. 726,350
Int. Cl. C23f 17/00
U.S. Cl. 204—35R 2 Claims

A method of coating a metal surface with a fluorine-containing polymer, comprising forming a chromium plating layer on a flat or roughened metal surface under

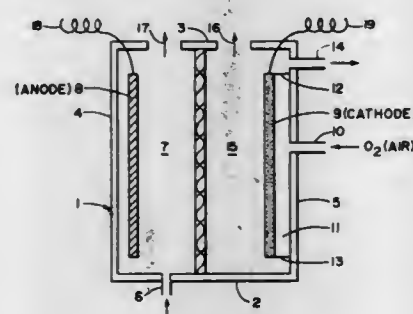
various conditions, i.e. at an optimum electric current density or an electric current density higher than said optimum electric current density, electrolytically etching the surface of said chromium plating layer by reversing the polarities of electrodes to produce a number of pits, cracks or crevices therein, coating the resultant surface with dispersion of the fluorine-containing polymer and sintering said polymer to form a continuous film of said polymer on said surface. The film is anchored to said surface by portions of the polymer filling the pits, cracks or crevices.

3,591,469 PRODUCTION OF LINEAR-TRANS-QUINACRIDONES

Fritz Beck and Rolf Mecke, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany. No Drawing. Filed Sept. 20, 1968, Ser. No. 761,349. Claims priority, application Germany, Sept. 21, 1967, P 16 70 271.9

Int. Cl. C07b 29/06; C07d 37/18
U.S. Cl. 204-74 5 Claims
A process for the production of linear-trans-quinacridones by electrochemical reduction of the corresponding quinacridonequinones in a cell.

3,591,470
METHOD FOR THE PRODUCTION OF PEROXIDE
Donald H. Grangaard, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Original application Jan. 30, 1967, Ser. No. 612,514, now Patent No. 3,507,769, dated Apr. 21, 1970. Divided and this application Dec. 5, 1969, Ser. No. 882,480
Int. Cl. B01k 3/00; C01b 15/00
U.S. Cl. 204-84 3 Claims



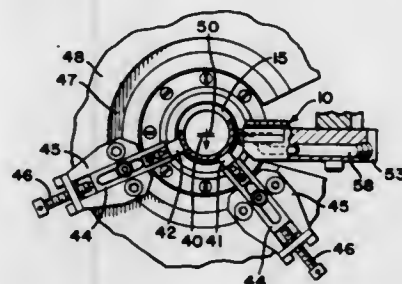
An electrolytic cell for peroxide production having an anode, a cathode, a separating semi-pervious diaphragm dividing the cell into an anode compartment and a cathode compartment, the diaphragm forming the sole flow path for electrolyte between inlet port means in the anode compartment and outlet port means in the cathode compartment. A process of electrolytic cell operation in the production of alkaline peroxide solutions by the electrochemical reduction of oxygen to prehydroxyl ions where the diaphragm of the cell serves as a control for the electrolyte flow.

3,591,471
PREPARATION OF NITROSODISULFONATE
Pius Anton Wehrli, Verona, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed July 14, 1969, Ser. No. 841,614
Int. Cl. C01b 21/54, 21/10
U.S. Cl. 204-91 11 Claims
Preparation of nitrosodisulfonate by electrolysis of an aqueous solution of hydroxylamine disulfonate.

3,591,472
METHOD OF TREATMENT OF SURFACES, ESPECIALLY METALLIC, AND THE PARTS TREATED BY THIS METHOD
Claude Jacques Amsellem, 10 Rue du Portail Rouge, 42 Saint Etienne, France
No Drawing. Filed Aug. 1, 1968, Ser. No. 749,318
Claims priority, application France, Aug. 7, 1967, 117,007
Int. Cl. C23b 1/00

U.S. Cl. 204-140 6 Claims
A method of treatment of surfaces, especially metallic surfaces, which is intended to improve their qualities of resistance to friction and wear, said method consisting of subjecting the surface to electrolysis in an aqueous solution of a salt or a mixture of salts, such as the thio or seleno-molybdates, the thio or seleno-tungstates, the thio or seleno niobates, or of one or more compounds having similar properties, or of a mixture of basic compounds adapted to form said salts in situ.

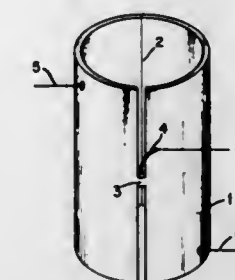
3,591,473
METHOD AND APPARATUS FOR ELECTRO-CHEMICALLY MACHINING ROTATING PARTS
William Andrew Haggerty, Cincinnati, Ohio, assignor to The Cincinnati Milacron Inc., Cincinnati, Ohio
Filed Apr. 8, 1968, Ser. No. 719,451
Int. Cl. B23p 1/00
U.S. Cl. 204-143 11 Claims



A method and apparatus for electrochemically machining workpieces to form surfaces of revolution to precise shapes and dimensions includes means rotating the workpiece on a pair of shoes engaging the surface of the workpiece being machined. An electrochemical machining tool is positioned so that its essentially flat frontal surface is normal to a line from said tool to the center of the workpiece when the workpiece has been machined to its desired dimension. A high velocity flow of electrolyte is forced between the tool and the workpiece and a high density flow of electrical current, approximately 6000 amperes per square inch, removes material anodically from the workpiece as it rotates past the tool to provide a smooth surface finish. The rate at which the tool is fed toward the workpiece establishes a steady state condition thereby keeping the gap distance constant, and thus the current density at a high substantially constant level. The electrical current is reduced to a predetermined magnitude, between 1500 and 3000 amperes per square inch, prior to terminating the machining operation to provide a bright, oxide free surface finish.

3,591,474
METHOD OF MAKING SUPERCONDUCTING CYLINDERS FOR FLUX DETECTORS
John M. Goodkind, Del Mar, and David L. Stofa, La Jolla, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed July 14, 1969, Ser. No. 841,347
Int. Cl. B23p 1/00; C23b 1/00
U.S. Cl. 204-143R 8 Claims
A method of making superconducting cylinders of the "weak link" type is provided. The method allows the

weak link to be made much smaller than was heretofore possible, thereby greatly increasing sensitivity and operating temperature range when the cylinder is used in a flux



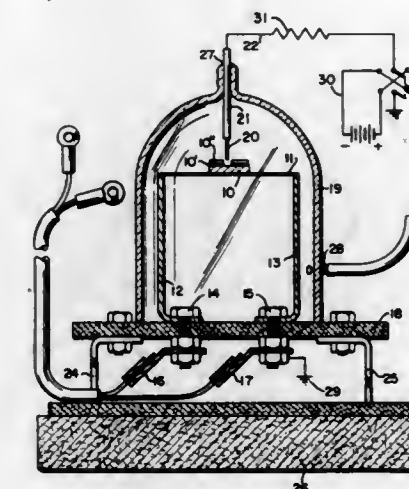
detector. The resistance of the weak link is monitored continuously as metal is removed from the link by electrochemical action.

3,591,475
PREPARATION OF UNSYMMETRICAL THIOL-ALLENE DIADDUCTS
Karl Griesbaum, Forchheim, Germany, and Alexis A. Oswald, Mountainside, and Daniel Noyes Hall, Linden, N.J., assignors to Esso Research and Engineering Company
No Drawing. Continuation-in-part of application Ser. No. 368,351, May 18, 1964, now Patent No. 3,340,332. This application Dec. 9, 1968, Ser. No. 782,466
Int. Cl. B01j 1/10; C07c 149/06, 149/26
U.S. Cl. 204-158R 19 Claims
Unsymmetrical thiol-allene diadducts [1,3- and 1,2-bis (substituted mercapto)-propanes] are prepared by the free radical and/or ionic addition of a thiol compound to a monoadduct allyl sulfide or through the sequential addition of two different thiol compounds to allene. Diadducts containing a dialkyl dithiophosphoric acid constituent and either an alkyl or aryl thiol constituent are effective agricultural chemicals.

3,591,476
MANUFACTURE OF ALIPHATIC ALDEHYDES BY RADIOLYSIS
Hendrik Adriaan Jacobus Battaerd, North Clayton, Victoria, Australia, assignor to Imperial Chemical Industries of Australia and New Zealand Limited, Melbourne, Victoria, Australia
Filed Dec. 1, 1967, Ser. No. 687,241
Claims priority, application Australia, Dec. 12, 1966, 15,155; Dec. 21, 1966, 15,644
Int. Cl. B01j 1/10
U.S. Cl. 204-158 8 Claims
A process of converting alcohols into aldehydes which comprises irradiating alcohol with a source of high energy radiation in the presence of a solid energy transfer catalyst selected from the group consisting of CdO, ZnO, alpha alumina Al₂O₃, PbO, Pb₂O₄, Sb₂O₃, Bi₂O₃, V₂O₅, WO₃, MoO and copper, surface-oxidized to cuprous oxide.

3,591,477
PROCESS FOR GROWTH AND REMOVAL OF PASSIVATING FILMS IN SEMICONDUCTORS
Daniel I. Pomerantz, Lexington, Mass., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.
Continuation-in-part of application Ser. No. 419,972, Dec. 21, 1964. This application July 17, 1968, Ser. No. 745,435
Int. Cl. B01k 1/00
U.S. Cl. 204-164 28 Claims
An insulative passivating film is grown on the surface of a semiconductor slice by heating the slice in a controlled atmosphere in the presence of an electrical dis-

charge between the slice and an electrode. The electrode, supplied with power by a constant-current source, is made cathodic with respect to the slice. Thickness of the film is varied by controlling, among other variables, the current from the source and the time of the discharge. A previously formed passivating film is removed from a



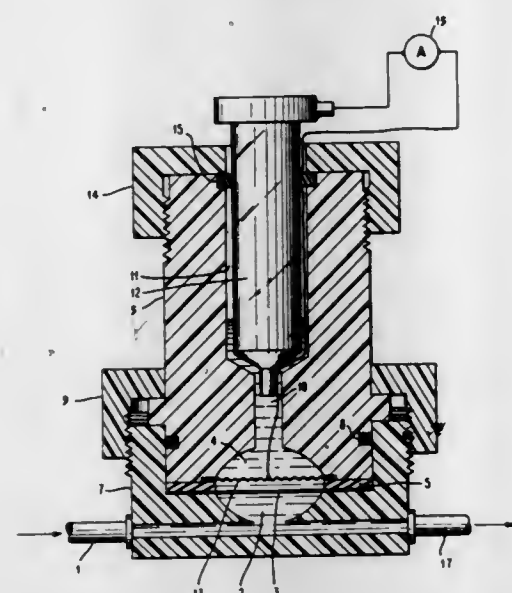
semiconductor slice by reversing the polarity of the electrode. Growth or removal of the passivating film may be limited to predetermined areas by the shape or movement of the electrode, or by placing an apertured mask between the electrode and the slice. The foregoing steps may be combined with diffusion and metallization techniques to produce a semiconductor device.

3,591,478
ELECTROCOATING PROCESS
James R. Erickson, Parma, Ohio, assignor to SCM Corporation, Cleveland, Ohio
No Drawing. Filed May 6, 1968, Ser. No. 727,009
Int. Cl. B01k 5/02; C23b 13/00
U.S. Cl. 204-181 7 Claims
A method for improving and maintaining the quality of the electrocoating deposited on a metallic anode which comprises removing inorganic acid anions from the electrocoating bath.

3,591,479
SPUTTERING PROCESS FOR PREPARING STABLE THIN FILM RESISTORS
Emanuel Stern, Mount Kisco, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed May 8, 1969, Ser. No. 823,063
Int. Cl. C23c 15/00
U.S. Cl. 204-192 6 Claims
Thin film resistors which are stable to thermal and electrical stress are prepared. A metal alloy is deposited onto a substrate in a sputtering atmosphere comprised of a pre-determined mixture of argon and oxygen. A DC bias potential in a range of -70 to -250 volts is applied to the substrate during the sputtering operation.

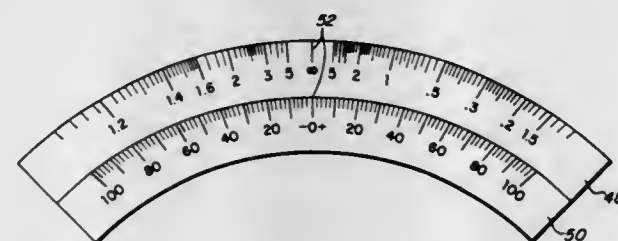
3,591,480
GLUCOSE MEASURING SYSTEM
Gordon W. Neff, Mahopac, Carlos J. Sambucetti, Mohegan Lake, and John E. Iomko, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 15, 1968, Ser. No. 745,007
Int. Cl. G01n 27/32, 27/40, 27/42
U.S. Cl. 204-195 9 Claims
A measuring system is provided which directly measures the concentration of glucose in biological fluids. Glu-

cose from a biological fluid is diffused through a semi-permeable membrane into a reaction chamber and is catalyzed by the enzyme glucose oxidase whereupon gluconic acid and hydrogen peroxide are formed. Iodide ions in the reaction chamber then effect the decomposition of the hydrogen peroxide to form iodine and water.



Then a platinum and calomel electrode, coupled via an electrolyte solution, act to cause galvanic coulometric reduction of the iodine to regenerate iodide. At steady state the only current-regulating mechanism is the diffusion of glucose across the membrane, which is a linear function of concentration.

3,591,481
CONCENTRATION MEASURING SYSTEM
John H. Riseman, Cambridge, Mass., assignor to Orion Research Incorporated, Cambridge, Mass.
Filed Nov. 12, 1968, Ser. No. 774,953
Int. Cl. G01n 27/46
U.S. Cl. 204—195 7 Claims



A system for measuring the concentration of species of ions in a sample solution with a potentiometric electrode having a Nernstian response. The electrode and a reference electrode are connected to a meter which can be nulled at a central indicium on the meter scale. The meter scale is divided to one side of the null indicium into increments over a range from a first minimum value to infinity at the null point according to the function

$$\log \left(\frac{C+Q}{C} \right)$$

where C is the concentration of the species in the sample solution and Q is the fixed molarity of the species of ion

of interest in a standard solution. The scale is divided to the other side of the null indicium in a similar manner but according to the function

$$\log \left(\frac{C}{C-Q} \right)$$

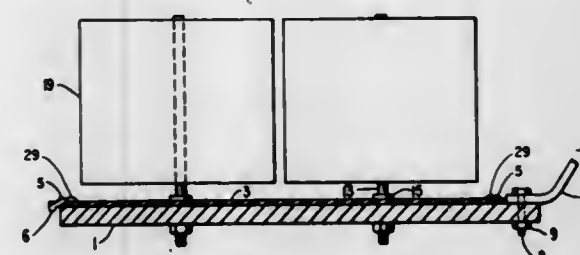
Insertion of the electrodes into the sample solution provides a response which is nulled at the meter. The addition of the standard solution creates a new potential which when read on the appropriate scale, indicates the concentration of the species of ion to which the potentiometric electrode is responsive.

3,591,482
SILVER-SILVER CHLORIDE ELECTRODE AND METHOD OF MAKING SAME
Gordon W. Neff, Mahopac, and Carlos J. Sambucetti, Mohegan Lake, N.Y., and John E. Tomko, Shelburne, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 23, 1969, Ser. No. 818,608
Int. Cl. G01n 27/30
U.S. Cl. 204—195 16 Claims



The silver chloride layer of a silver-silver chloride electrode is coated with a thin protective layer of methacrylate. The layer of methacrylate acts to prevent corrosion of the silver chloride layer and yet allows same to retain its ion sensitivity.

3,591,483
DIAPHRAGM-TYPE ELECTROLYTIC CELLS
Richard E. Lofffield, Chardon, and Henry W. Laub, Palmsville, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio
Filed Sept. 27, 1968, Ser. No. 763,121
Int. Cl. C22d 1/02
U.S. Cl. 204—252 5 Claims



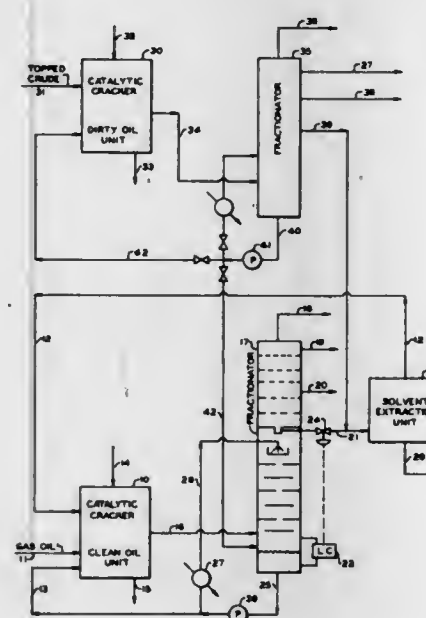
A diaphragm-type electrolytic cell is provided which is especially suited to the use of dimensionally stable anodes. The cell is characterized in having a metal base which serves as a rigid support for the anodes, as a conductor for distributing current to the anodes and as a rigid support for the cell can. Furthermore a sheet of

electrically non-conductive material covers the entire cell base and serves to insulate the contact between the cell can and the cell base and also provides a hydraulic seal to prevent leakage of electrolyte.

3,591,484
COKE SUPPRESSING ADDITIVE
Reese A. Peck and Raymond F. Wilson, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 27, 1968, Ser. No. 787,566
Int. Cl. C10g 9/16, 13/00, 27/00

U.S. Cl. 208—48AA 9 Claims
A coke suppressing additive prepared by contacting an oxidized heavy hydrocarbon fraction with an aromatic polycarboxylic acid and/or anhydride producing compound in the presence of an oxidant followed by treatment with hydrogen. The additive is particularly useful for suppressing coke formation in a hydrocracking process.

3,591,485
COMBINATION CATALYTIC CRACKING PROCESS
Robert C. Mason, Jr., Borger, Tex., assignor to Phillips Petroleum Company
Filed Sept. 10, 1969, Ser. No. 856,779
Int. Cl. C10g 11/00
U.S. Cl. 208—78 4 Claims



In a system wherein a dirty oil fluid catalytic cracking system and a clean oil catalytic cracking system are operated, the slurry oil from the dirty oil unit is, at least in part, charged to the fractionator for the clean oil unit to dilute the catalyst loading of the clean oil unit's slurry, which minimizes erosion of the slurry pumps, increases heavy cycle oil production, and decreases gas and coke production.

3,591,486
HYDROCRACKING PROCESS
Reese A. Peck and Raymond F. Wilson, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 27, 1968, Ser. No. 787,561
Int. Cl. C07c 27/10; C10g 13/00
U.S. Cl. 208—85 10 Claims

A hydrocracking process for increasing the yield of lower boiling hydrocarbons from heavy hydrocarbon fractions by oxidizing the heavy hydrocarbon and contacting said oxidized heavy hydrocarbon fraction with hydrogen in the presence of an aromatic polycarboxylic acid or anhydride producing compound.

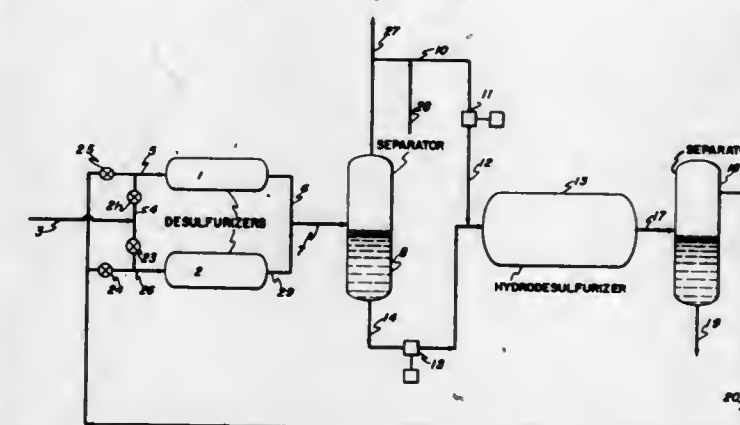
3,591,487
HYDROCRACKING PROCESS IMPROVEMENT BY HIGH TEMPERATURE SULFIDING AND DRY GAS PROCESSING
Hans U. Schutt, Lafayette, Calif., assignor to Shell Oil Company, New York, N.Y.
No Drawing. Filed Dec. 22, 1969, Ser. No. 887,374
Int. Cl. C01g 13/02

U.S. Cl. 208—110 11 Claims
Hydrocracking catalysts which have been prepared by incorporating hydrogenation metal components into a hydrotel of a refractory oxide containing at least one Iron Group hydrogenation metal component and fluoride are greatly improved in activity and stability by sulfiding at a temperature of at least 750° F. and using relatively dry process gas.

3,591,488
HIGH SILICA CRYSTALLINE ZEOLITES AND PROCESSES FOR THEIR PREPARATION
Paul Earl Eberly, Jr., Baton Rouge, Sebastian Marc Laurent, Greenwell Springs, and Harry Edwin Robson, Baton Rouge, La., assignors to Esso Research and Engineering Company
Continuation-in-part of application Ser. No. 552,911, May 25, 1966. This application June 11, 1969, Ser. No. 832,109
Int. Cl. C10g 13/02

U.S. Cl. 208—111 20 Claims
Crystalline aluminosilicate zeolites having silica to alumina mole ratios substantially higher than prior art zeolites are prepared by a process wherein a conventional crystalline aluminosilicate zeolite is contacted with water at an elevated temperature and then treated to remove alumina from the crystal lattice. The water treatment can be accomplished by contacting the crystalline aluminosilicate zeolite with a gas containing at least 2% water at a temperature between 800 and 1500° F. Higher concentrations of water are preferred, and, in accordance with the disclosure, pure steam may be used. In a preferred embodiment, the water treatment is accomplished in two steps; viz, by first treating the crystalline zeolite with a gas containing at least 2% water, followed by treatment with pure steam. Following the water treatment, amorphous alumina may be removed from the zeolite material by contacting with a dilute mineral acid or an organic acid chelating agent.

3,591,489
TWO-STAGE DESULFURIZATION UTILIZING HYDROGEN IN THE SECOND STAGE REACTION
Clark E. Adams and Charles N. Kimberlin, Jr., Baton Rouge, La., assignors to Esso Research and Engineering Company
Filed Jan. 24, 1969, Ser. No. 793,784
Int. Cl. C10g 23/02
U.S. Cl. 208—211 3 Claims

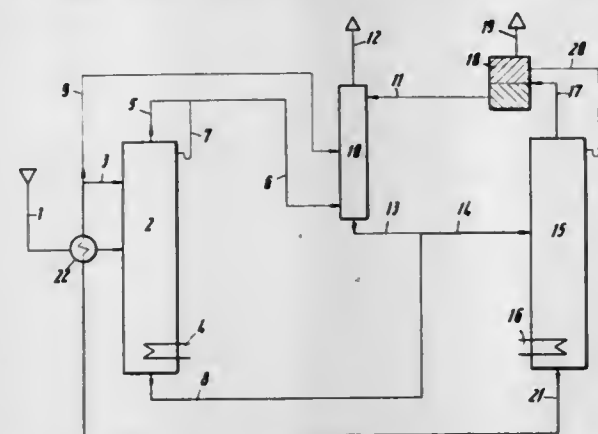


catalyst, the first stage being carried out in the absence of hydrogen and the second in the presence of hydrogen. The catalyst deactivates rapidly in the first stage and is regenerated by stripping with hydrogen or mixtures of hydrogen and hydrogen sulfide.

3,591,490 PROCESS OF SEPARATING PURE AROMATIC HYDROCARBONS FROM HYDROCARBON MIXTURES

Eckart Müller, Bergen Enkheim, and Kamar Percy John, Bad Homburg, Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt, Germany
Filed Nov. 14, 1969, Ser. No. 876,885
Claims priority, application Germany, Nov. 14, 1968, P 18 08 758.6

Int. Cl. B01d 3/40; C10g 21/28
U.S. Cl. 208—313 8 Claims



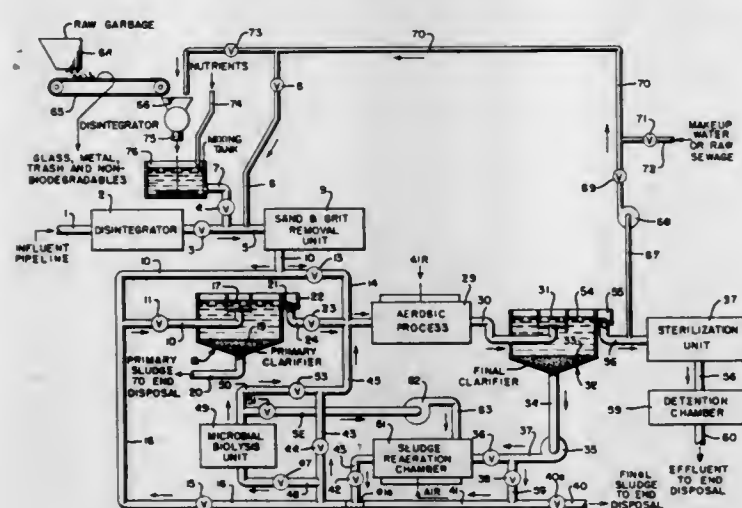
In the recovery of aromatic hydrocarbons from mixtures containing same by extractive distillation utilizing a selective solvent, a purer product in a greater yield can be achieved by passing a portion of the main solvent stream used in the distillation column directly to a countercurrent extraction unit for contact with the raffinate from the distillation column passing in countercurrent flow with water to produce a product mixture from which, after subsequent stripping in a stripping column, aromatic hydrocarbons can be recovered which would have otherwise been lost.

3,591,491 METHOD FOR THE TREATMENT OF AQUEOUS WASTES

Edmund G. Smith, 206 Watchung Ave., Upper Montclair, N.J. 07043, and John W. Hood, 43 John St., Ridgewood, N.J. 07450

Filed Oct. 4, 1968, Ser. No. 765,243
Int. Cl. C02c 1/06

U.S. Cl. 210—6 12 Claims



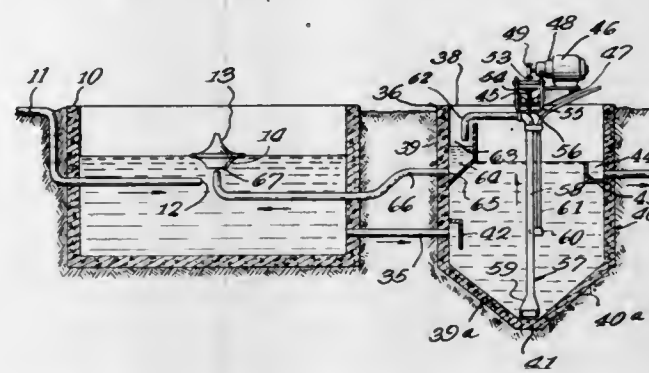
The method of treating sewage or other biodegradable waste materials in a system including an aerobic process

wherein a settleable sludge is formed which comprises returning a part or all of the sludge to a point in advance of the input of the aerobic process and subjecting a selected portion of the returned sludge to the action of ultra violet or other bacteriocidal rays for the biolysis of the bacteria in said portion, the portion being selected to meet the food requirements of the active aerobic bacteria in the aerobic process. The portion subjected to biolysis is so regulated that substantially all of the biodegradable matter is consumed and only a relatively small quantity of sludge is removed to end disposal.

3,591,492 SEWAGE TREATMENT PROCESS AND APPARATUS

Peter J. Neuspiel, Chicago, Ill., assignor to FMC Corporation
Continuation-in-part of application Ser. No. 779,721, Nov. 29, 1968. This application May 8, 1970, Ser. No. 35,613

Int. Cl. B01d 21/04; C02c 1/10
U.S. Cl. 210—7 16 Claims



The process of this invention deals with the aerobic treatment of sewage wherein a surface type aerator mixes the tank contents and incorporates air into the mixed liquor so that microorganisms may effectively remove biochemical oxygen demand and sludge is returned from the settling zone to the aeration zone by delivery to a holding zone from which it flows, as by gravity, to an outlet positioned adjacent the intake of the surface type aerator at which point it mixes with influent sewage. In the preferred embodiment, the apparatus comprises an aeration tank, a surface type aerator, a settling tank, a sludge removal means, a holding tank adapted to receive sludge discharged from the settling tank, conduit means for transfer of sludge from the holding tank to the vicinity of the aerator intake, said holding tank being elevationally positioned so that flow of sludge through the conduit means is at least in part a gravity flow.

3,591,493 METHOD FOR THE TREATMENT OF BIOLOGICAL FLUIDS AND APPARATUS THEREFOR

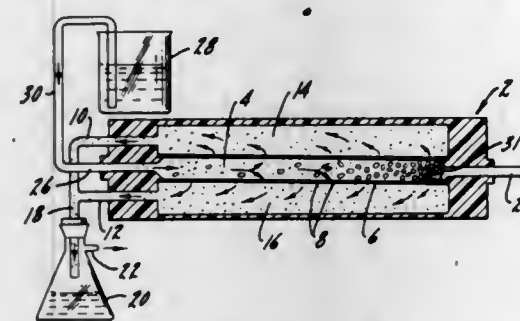
Rashid A. Zeineh, 5742 W. Dakin St., Chicago, Ill. 60634

Filed June 17, 1968, Ser. No. 737,751
Int. Cl. B01d 13/00

U.S. Cl. 210—22 17 Claims

A method and apparatus for the treatment of biological fluids including primarily the separation and microconcentration of macromolecular structure substances from fluids in which they occur by the utilization of a semi-permeable membrane which only permits the flow of smaller molecular structure substances therethrough while retaining the larger molecules for eventual recovery. Preferably, a biological fluid such as urine is introduced into a serpentine-type fluid pathway formed by a porous membrane such as cellophane and because of a pressure differential on either side of the pathway, the components of the biological fluid of smaller molecular structure pass

through the membranes to a collector. The remaining material such as protein of macromolecular structure is



carried through the serpentine path to its terminus where it may be readily recovered.

3,591,494 METHOD OF REMOVING HYDROCARBONS FROM THE SURFACE OF AN AQUEOUS BODY

Willie W. Crouch and Clifford W. Childers, Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Filed Jan. 30, 1969, Ser. No. 795,340

Int. Cl. E02b 15/04

U.S. Cl. 210—40 8 Claims

Hydrocarbons floating on an aqueous body are removed by contacting them with a fine powder which is a mixture of a polymer compatible with hydrocarbons and a water insoluble inorganic filler, whereby the powder absorbs the hydrocarbons and thereafter sinks to the bottom of the aqueous body.

3,591,495 METHOD OF AND COMPOSITION FOR THE TREATMENT OF SCALE

Jack F. Tate, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

No Drawing. Filed June 24, 1968, Ser. No. 739,205
Int. Cl. C02b 5/06

U.S. Cl. 210—58 6 Claims

Method of and composition for the treatment of scale, particularly calcium sulfate scale, using a quaternary ammonium compound comprising a trialkyl-omega-hydroxypolypropoxypropylammonium halide, nitrate, sulfate, acetate and hydroxide including mixtures.

3,591,496 OVERBASED ADDITIVES

Michael A. Vickars, Wantage, and David A. Edwards, Oxford, England, assignors to Esso Research and Engineering Company

No Drawing. Filed July 8, 1968, Ser. No. 743,057
Claims priority, application Great Britain, July 12, 1967, 32,123/67

Int. Cl. C10m 1/48, 1/40, 1/24

U.S. Cl. 252—18 6 Claims

A process comprising preparing a complex by reacting H₂S with an alkoxide of a polyvalent metal, which complex may be dispersed in oil in the presence of a dispersant, followed by heating to decompose said complex and form a dispersion of metal salt in said oil. The resulting metal salt dispersion is useful as a lubricating oil detergent.

3,591,497 DEMULSIFICATION OF HYDRAULIC OILS USING GROUP II METAL SULFONATES AND HYDROXYLIC COMBINATIONS

James H. Walker, Pinole, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Sept. 16, 1968, Ser. No. 762,334
Int. Cl. C10m 1/48

U.S. Cl. 252—32.7 7 Claims

Emulsibility of oils having material contact with water, e.g., hydraulic oils, is significantly reduced by the addi-

tion of alkanols or diols in combination with a Group II metal sulfonate.

3,591,498 SULFONATION OF NEUTRAL OIL-BENZENE ALKYLATE BLEND

Lemuel S. Benbury, Whittier, and Ulric B. Bray, Pasadena, Calif., assignors to Bray Oil Company
No Drawing. Filed May 6, 1968, Ser. No. 727,022

Int. Cl. C10m 1/40

U.S. Cl. 252—33 5 Claims

A blend of petroleum lubricating oil of 400-600 molecular weight and linear alkyl benzene of about 25-35 carbon atoms is sulfonated with oleum. The reaction mixture is immediately diluted with about two volumes of non-aromatic naphtha without hydrolyzing the sludge which is separated and discarded. The naphtha solution is extracted with 8-15% by volume of water, then neutralized with 50 to 100% excess fine hydrated lime and filtered. Calcium sulfate is adsorbed in the excess lime. Naphtha is recovered by distillation.

The residue oil-sulfonate solution containing about 40% sulfonate, is a clear, bright oil soluble sulfonate substantially free of sulfates and chlorides. It is useful as a detergent additive in motor oils and anti-rust compounds.

3,591,499 LUBRICATING GREASE CONTAINING METAL SALT OF ALPHA-OMEGA-DICARBOXYLIC ACIDS HAVING MOLECULAR WEIGHTS OF ABOUT 500 TO 2500

Arnold J. Morway, Clark, N.J., Jeffrey H. Bartlett, Arlington, Va., and George R. Hanington, Baytown, Tex., assignors to Esso Research and Engineering Company
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,937

Int. Cl. C10m 3/18

U.S. Cl. 252—39 8 Claims

Metal salts of branched chain alpha-omega-dicarboxylic acids having molecular weights of about 500 to 2500 are useful in lubricants, particularly greases.

3,591,500 FUNCTIONAL FLUID COMPOSITIONS

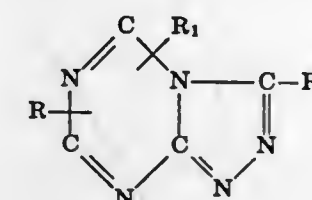
James D. Sullivan, Webster Groves, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 540,488, Apr. 6, 1966. This application Feb. 5, 1969, Ser. No. 796,885

Int. Cl. C10m 1/32, 1/42

U.S. Cl. 252—47.5 8 Claims

Functional fluid compositions comprising a base fluid such as polyphenyl ethers, polyphenyl thioethers, mixed polyphenyloxy thioethers, synthetic esters, alkyl thiophenes, and dihalogenated diphenyl ethers and certain organic nitrogen compounds such as aminoindazoles, hydroxyindazoles, hydroxy and amino substituted pyrazoles, triazoles, tetrazoles, or compounds of the formula



having improved metal compatibility. These compositions are particularly useful as aircraft engine lubricants in hydraulic fluids.

3,591,501

LUBRICANT CONTAINING A HYDROXY-SUBSTITUTED PHOSPHINE OXIDE

William F. Olszewski, Cherry Hill, N.J., and Herbert Myers, Plymouth Meeting, Pa., assignor to Mobil Oil Corporation

No Drawing. Filed Jan. 24, 1969, Ser. No. 793,879

Int. Cl. C10m 1/44

U.S. Cl. 252—49.8 8 Claims

The invention provides lubricant compositions comprising an organic fluid of lubricating viscosity and a hydroxy-substituted organophosphine oxide. The composition has improved load carrying properties.

3,591,502

COPOLYMERS CONTAINING ETHYLENE AND UNSATURATED KETONES ARE WAX CRYSTAL MODIFIERS FOR MINERAL OIL

Stephan Illycky, Islington, Ontario, and Syed S. H. Gilani, Sarnia, Ontario, Canada, assignors to Esso Research and Engineering Company

No Drawing. Filed July 15, 1968, Ser. No. 744,667

Int. Cl. C10m 1/28

U.S. Cl. 252—52R 4 Claims

Copolymers of ethylene and of ethylenically unsaturated ketone, having number average molecular weights of 1,000 to 50,000, are useful as wax crystal modifiers for distillate hydrocarbon fuel oils where they can be used to depress the pour point and improve flow and can also be used as dewaxing aids in preparing light distillate lubricating oils.

3,591,503

ELECTROSTATOGRAPHIC DEVELOPER

Robert J. Hagenbach and Myron J. Lenhard, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

No Drawing. Filed Apr. 17, 1967, Ser. No. 631,192

Int. Cl. G03g 9/02

U.S. Cl. 252—62.1 4 Claims

A xerographic carrier bead material for use in developing electrostatic latent images comprising a glass composition of from about 10 to about 40 parts oxides of silicon, from about 5 to about 50 parts oxides of barium, and oxides of metals selected from the group consisting of titanium, lead and mixtures thereof, all parts being based on a total of 100 parts by weight of the glass composition.

3,591,504

FERROELECTRIC COMPOSITION

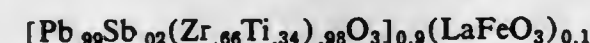
Bernard Jaffe, South Euclid, Ohio, assignor to Clevite Corporation

Filed Dec. 18, 1967, Ser. No. 691,510

Int. Cl. C04b 35/46, 35/48; G11b 9/02

U.S. Cl. 252—62.9 4 Claims

An improved solid state switch or multi-state memory is composed of an electroded block of a solid solution of lead zirconate titanate with lanthanum ferrite, with the substitution of a donor additive in the A or B position of the perovskite lattice. For example, antimony is substituted for a portion of the zirconium or a portion of the titanium, or a trivalent atom is substituted for a portion of the lead. A typical composition is:



The improved composition gives more favorable switching characteristics both with respect to speed and

the number of times satisfactory switching is obtained and little or no degradation takes place.

3,591,505

ALUMINUM COMPLEX SOAP GREASES

Arthur T. Polishuk, Media, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed June 18, 1968, Ser. No. 737,823

Int. Cl. C10m 5/14

U.S. Cl. 252—37.7 11 Claims

An aluminum complex soap grease possessing improved stability is obtained by reacting an aluminum alkoxide sequentially with two different carboxylic acids in the presence of an oil base, wherein the first acid is relatively less reactive than the second. As compared with similar aluminum complex soap greases, this resulting grease shows superior physical properties, particularly in certain roll tests and wheel bearing performance tests, as well as possessing a higher melting point.

3,591,506

FUNCTIONAL FLUIDS CONTAINING HALOCARBONS FOR PREVENTING CAVITATION DAMAGE

Robert L. Peeler, Albany, Douglas Godfrey, San Rafael, and Neal W. Furby, Berkeley, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Jan. 4, 1968, Ser. No. 695,553

Int. Cl. C09k 3/00; C10m 1/46; C28f 11/10

U.S. Cl. 252—78 11 Claims

Functional fluid containing a cavitation-damage inhibiting additive which is a halocarbon containing from 1 to 6 carbon atoms and boiling below 50° C., wherein the halogen substituents on the halocarbon are chlorine, bromine or fluorine.

3,591,507

FLAME-RESISTANT COMPOSITIONS COMPRISING 1,2-BIS(3,4-DIBROMOCYCLOHEXYL)-1,2-DIBROMOETHANE AND ANTIMONY TRIOXIDE

William O. Drake and Ernest A. Zuech, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Continuation-in-part of application Ser. No. 676,615, Oct. 19, 1967, which is a continuation-in-part of application Ser. No. 502,526, Oct. 22, 1965. This application July 23, 1969, Ser. No. 844,168

The portion of the term of the patent subsequent to Jan. 23, 1985, has been disclaimed

Int. Cl. C09k 3/28

U.S. Cl. 252—8.1 6 Claims

1,2 - bis(3,4 - dibromocyclohexyl) - 1,2 - dibromoethane (BrBCE) and Sb_2O_3 are used to flame-proof compositions having a flammable organic base.

3,591,508

PROCESS FOR MAKING HEAVY DUTY LIQUID DETERGENT COMPOSITIONS

James M. Huggins, St. Ann, and Robert T. Jorgen, Bridgeton, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Dec. 7, 1967, Ser. No. 688,710

Int. Cl. C11d 3/075, 3/26, 11/00

U.S. Cl. 252—137 1 Claim

Heavy duty liquid detergents in the form of emulsions wherein the organic active is maintained in a dispersed phase, and said dispersed phase is stabilized in a continuous aqueous phase by a polyelectrolyte. The continuous aqueous phase contains a builder combination of sodium triphosphate and potassium nitrilotriacetate.

3,591,509

LIQUID HARD SURFACE CLEANING COMPOSITIONS

Lawrence Roy Parks and William Edward Zenk, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Sept. 30, 1968, Ser. No. 763,948

Int. Cl. C11d 3/066

U.S. Cl. 252—137 6 Claims

Liquid detergent hard surface cleaning compositions containing 0.25% to 4% of a water-soluble synthetic detergent; 0% to 6% of a water-soluble builder or mixture of builders; 1% to 10% of an organic solvent or mixture of solvents; 0.10% to 0.5% of a water-soluble carboxymethylcellulose having a degree of substitution of from about 1 to about 2 and a degree of polymerization from about 1,000 to about 3,000; and water.

3,591,510

LIQUID HARD SURFACE CLEANING COMPOSITIONS

William Edward Zenk, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Sept. 30, 1968, Ser. No. 763,949

Int. Cl. C11d 3/066

U.S. Cl. 252—137 5 Claims

Liquid detergent hard surface cleaning compositions containing 0.25% to 4% of specific short-chain water-soluble synthetic detergent; 1% to 6% of a water-soluble builder or mixture of builders; 1% to 10% of specific organic solvents or mixture of solvents; and water.

3,591,511

CORROSION INHIBITING SYSTEM

Morton W. Leeds, Murray Hill, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y.

No Drawing. Filed Dec. 31, 1968, Ser. No. 788,999

Int. Cl. C23g 1/06

U.S. Cl. 252—148 3 Claims

Aqueous acid solutions are inhibited against corrosion of metals, especially ferrous metals, by incorporation of a corrosion inhibiting system composed of a combination of an acetylenic carbinol, an acetylenic glycol, and a saturated heterocyclic nitrogen compound mixture derived from gilsonite.

3,591,512

CORROSION INHIBITOR

Morton W. Leeds, Murray Hill, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y.

No Drawing. Filed Dec. 31, 1968, Ser. No. 788,997

Int. Cl. C23g 1/06

U.S. Cl. 252—148 3 Claims

Aqueous acid solutions are inhibited against corrosion of metals, especially ferrous metals, by incorporation of a corrosion-inhibiting system composed of a combination of an acetylenic carbinol and a saturated heterocyclic nitrogen compound mixture derived from gilsonite.

3,591,513

METHOD FOR THE TREATMENT OF SCALE USING DIPOLYETHOXYLATED ALKYLAMINE

Jack F. Tate, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

No Drawing. Filed June 24, 1968, Ser. No. 739,208

Int. Cl. C02b 5/06; C07c 87/16

U.S. Cl. 252—180 5 Claims

Method of and composition for the treatment of scale, particularly calcium sulfate scale, using a dipolyethoxylated alkylamine containing 8-18 carbon atoms in the alkyl group and a total of 5-15 ethoxy groups.

3,591,514

STABILIZATION OF OZONE DERIVATIVES

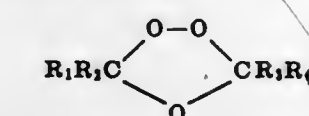
Richard D. Smetana, Beacon, Roger G. Duranleau, Poughquag, and Alfred Arkell, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Apr. 4, 1969, Ser. No. 813,766

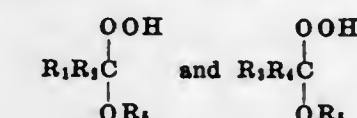
Int. Cl. C01b 13/00

U.S. Cl. 252—186 8 Claims

Stabilized compositions comprising an alkali metal fluoride and ozone derivative selected from the group consisting of oxolane of the formula:



and alkoxyhydroperoxides of the formula:



where R_1 , R_2 , R_3 and R_4 are hydrogen or hydrocarbyl and R_5 is alkyl and a method of producing said stabilized oxolanes and hydroperoxides comprising contacting in the presence of an alkali metal fluoride an olefin of the formula



with ozone or ozone and alkanol of the formula R_5OH .

**3,591,515
PULVERULENT CHLORINE DIOXIDE COMPOSITIONS**

Clement F. Lovely, Butler, N.J., assignor to International Dioxide, Inc., New York, N.Y.

No Drawing. Filed Apr. 16, 1968, Ser. No. 721,572

Int. Cl. A61l 13/00

U.S. Cl. 252—187 8 Claims

Substantially dry pulverulent solid compositions are provided which comprise an effective amount of chlorine dioxide solutions, such as the chlorine dioxide solutions stabilized with peroxy and percarbonate compounds, or a like solution such as the alkaline chlorite solutions, adsorbed on a basic-reacting adsorbent, such as synthetic calcium silicate. These compositions will yield gaseous chlorine dioxide upon acidification to a pH of less than about 6. Preferred acidifying agents include powdered hydrated citric acid or dry acid reacting adsorbents such as silicates having an aqueous solution of an acidic compound, such as ferric chloride or sulfuric acid, adsorbed thereon. The compositions can be used for the preservation of fruits and vegetables being shipped or stored.

3,591,516

FUSED SALT PROCESS FOR PRODUCING RARE EARTH OXYHALIDE AND OXIDE LUMINESCENT MATERIALS

Jacob G. Rabatin, Chardon, Ohio, assignor to General Electric Company

Filed Oct. 23, 1968, Ser. No. 769,940

Int. Cl. C09k 1/08, 1/10

U.S. Cl. 252—301.4R 11 Claims

A method for the production of well-formed crystals of oxyhalides including oxychlorides and oxybromides, and oxides, of yttrium and the rare earth metals, i.e., elements having atomic numbers 39 and 57 through 71. Particles of the oxide of the selected element are mixed with the ammonium halide of the selected oxyhalide and heated for a time and at a temperature sufficient to cause conversion of the oxide to the oxyhalide and recrystallization of the oxyhalide. This recrystallized oxyhalide can be converted to a corresponding oxide as well-crystallized particles by pyrohydrolysis. Alternatively, the oxyhalide

can be formed by initially firing the oxide particles as a mixture with an alkali carbonate and ammonium halide in order to form the alkali halide in situ prior to the firing step which causes formation and recrystallization of the oxyhalide.

3,591,517 RARE EARTH TERMINATED TRANSITION METAL LASERS

Jan P. van der Ziel, Chatham, and Le Grand G. van Uiter, Morris Township, Morris County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 12, 1969, Ser. No. 798,586
Int. Cl. C09k 1/04, 1/54; H01s 3/16
U.S. Cl. 252-301.4R 4 Claims
Type II (three level) transition metal lasers (such as those dependent on Cr³⁺) are converted to Type III (four-level) by coupling the transition metal ion to an appropriate rare earth ion. Suitable rare earths, included as cations of the host composition, include cerium, europium, terbium, praseodymium, and ytterbium.

3,591,518 SILICA AQUASOLS AND POWDERS

Donald McMillan, Penarth, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of abandoned application Ser. No. 526,230, Feb. 9, 1966. This application Dec. 31, 1968, Ser. No. 788,266
Int. Cl. B01j 13/00; C01b 33/12
U.S. Cl. 252-313 12 Claims



Silica aquasols are made by providing a heel of a silica sol containing aqueous ammonium hydroxide in a reaction vessel. Finely divided silicon metal is introduced into the heel and the metal and water react to form silica. The concentration and surface area of the silica in the heel and the production rate of silica in the reaction mixture are such that the silica formed polymerizes on the heel particles to provide novel, spherical silica particles having a surface area average diameter between 150 and 500 mμ.

3,591,519 METHOD OF PREPARING HYDROPHOBIC SILICA

Francis J. Boylan, Limestone Gardens, Del., assignor to Hercules Incorporated, Wilmington, Del.
No Drawing. Filed Apr. 25, 1968, Ser. No. 724,258
Int. Cl. B01d 7 Claims
Disclosed is a method of producing hydrophobic silica which comprises contacting a heated hydrocarbon-silica mixture with oxygen.

3,591,520 QUATERNARY ADDUCTS OF POLYEPIHALO- HYDRIN AND USE THEREOF

Myron T. McDonald, Houston, Tex., assignor to Nalco Chemical Company, Chicago, Ill.
No Drawing. Filed Jan. 17, 1968, Ser. No. 698,441
Int. Cl. B01d 17/04
U.S. Cl. 252-329 13 Claims
Fully quaternized adducts of tertiary alkyl amines and polyepihalohydrins are prepared by reacting liquid poly-

epihalohydrins, preferably polyepichlorohydrin having a molecular weight of at least 3000, with tertiary lower alkylamines and/or oxyalkylated lower dialkylamines. These products are highly water soluble and are compatible with zinc chloride solutions. They are especially useful when added to aqueous zinc chloride solutions or such solutions containing other metal salts for breaking oil-in-water emulsions.

3,591,521 METHOD OF STABILIZING AN ORGANIC SUB- STANCE WITH 5-AMINOOURACIL AND 5- AMINOCYTOSINE AND THEIR DERIVATIVES

Taneo Nobukuni, Tokyo, Nobumitsu Yano, Saitama-ken, Masao Fukushima, Tokyo, Aiko Mizuno, Kanagawa-ken, and Fumio Nagayoshi and Toyoharu Takada, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
No Drawing. Filed Feb. 27, 1969, Ser. No. 803,054
Claims priority, application Japan, Mar. 5, 1968, 43/13,825; Apr. 27, 1968, 43/27,988
Int. Cl. C08f 45/60 15 Claims
Various organic substances are stabilized by adding 5-aminouracil, 5-aminocytosine, and/or their derivatives.

3,591,522 REACTIVATION OF GROUP VIII SELECTIVE HYDROGENATION CATALYSTS

Jean Cosyns, 6 Rue de Sannois, Nanterre, Hauts-de-Seine, France, and Jean-François Le Page, 6 Rue Henri Dunant, Rueil-Malmaison, Hauts-de-Seine, France
No Drawing. Continuation-in-part of abandoned application Ser. No. 592,976, Nov. 9, 1966. This application June 13, 1969, Ser. No. 833,190
Claims priority, application France, Nov. 17, 1965, 38,843
Int. Cl. B01j 11/02 12 Claims
In the selective hydrogenation of highly unsaturated compounds, such as acetylenes and conjugated olefins, to monoethylenic hydrocarbons, said reaction being conducted at about 0-250° C. in the presence of a Group VIII metal, the catalyst becomes deactivated because of the deposit of polymeric or rubbery-like material, and sometimes it is poisoned by sulfurous impurities. The catalyst is reactivated by washing it with inert liquid hydrocarbon at below 200° C., and in subsequent steps, separating the washed catalyst from the liquid, and then contacting the separated catalyst with hydrogen at 200-500° C.

3,591,523 CATALYST AND PROCESS FOR MAKING TER- TIARY OLEFIN FEED STOCKS SUITABLE FOR SULFURIC ACID RECOVERY PROCESS

Arthur R. Goldsby, Chappaqua, N.Y., assignor to Texaco Inc., New York, N.Y.
Filed June 27, 1968, Ser. No. 740,761
Int. Cl. C07c 3/54, 11/00 5 Claims
Methods of preparing olefin conversion catalysts in connection with alkylation operations by reacting a secondary olefin with strong sulfuric acid until no further reaction occurs and concurrently extracting dialkyl sulfates formed therefrom with a hydrocarbon solvent. Catalysts are useful for selectively polymerizing tertiary olefin in the presence of other olefins and to form alkyl sulfates from tertiary olefins. Catalysts prepared from propylene are also effective for conversion of n-butylenes. Catalysts are particularly useful for removal of tertiary olefins from olefin feed stocks charged to absorption sec-

tion of sulfuric acid recovery process operated in conjunction with an alkylation system. In such operation polymers of tertiary olefins are removed from treated olefin feed and the remaining secondary olefins are absorbed in used sulfuric acid alkylation catalyst. Absorbed secondary olefins are extracted as alkyl sulfates with isobutane and passed to alkylation.

3,591,524 OIL ABSORBENT

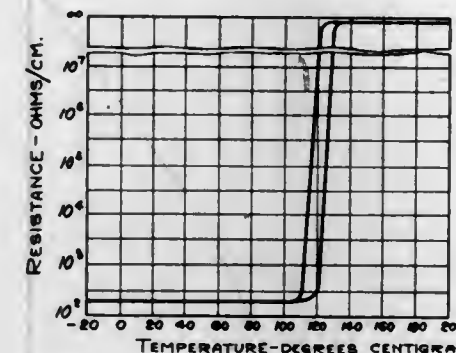
Knut Emli Eriksen, Enhorna, Sweden, assignor to Mo och Domsjo Aktiebolag, Ornskoldsvik, Sweden
No Drawing. Filed Nov. 22, 1968, Ser. No. 778,319
Claims priority, application Sweden, Nov. 29, 1967, 16,347/67
Int. Cl. C02b 1/14 12 Claims
An oil absorbent is provided that is capable of preferentially absorbing oil in the presence of water, and that will float on water for a considerable period of time when loaded with oil, comprising an absorbent carrier having thereon the hydrophobic residue of a heat-decomposed ammonium or amine salt of an aliphatic or cycloaliphatic carboxylic acid and an oil.

3,591,525 MANUFACTURE OF CATALYSTS

Harry Markham, Sheffield, Peter H. Pinchbeck, Chesterfield, and Philippe Pierre Gaynor, Sheffield, England, assignors to United Coke & Chemicals Company Limited, Yorkshire, England
Filed Mar. 28, 1969, Ser. No. 811,559
Int. Cl. C07c 63/02 2 Claims
A catalyst consisting of a glass of vanadium pentoxide and potassium pyrosulphate absorbed by silica gel particles is produced by continuously introducing a preheated mixture of silica gel particles and particles of the glass into a hot fluidised bed of the particles. The catalyst, when used in the production of phthalic anhydride, gives a better yield than a similar catalyst produced by a batch process.

3,591,526 METHOD OF MANUFACTURING A TEMPERA- TURE SENSITIVE, ELECTRICAL RESISTOR MATERIAL

Junshi Kawashima, Osaka, and Hiroyuki Kitamura, Osaka-shi, Japan, assignors to Polyelectric Corporation, Larchmont, N.Y.
Filed Jan. 25, 1968, Ser. No. 704,979
Int. Cl. C08f 1/84; H01b 1/06 9 Claims
U.S. Cl. 252-511

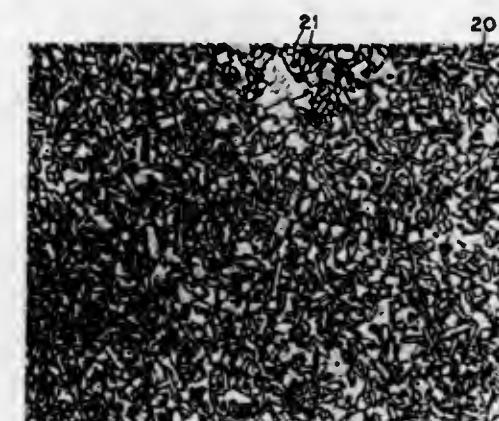


A method of producing a temperature sensitive, organic electrical resistor material in which a thermoplastic, such

as polyethylene, and a conductive material, such as carbon black, are mixed in predetermined proportions and then such mixture is mixed with a thermosetting or thermoplastic molding material and molded to provide a substance exhibiting a relatively low electrical resistance below a temperature range of about 100°-130° C. and a relatively high resistance above said temperature range.

3,591,527 CERAMIC COMPOSITIONS AND METHODS OF MAKING

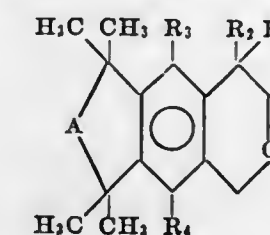
Yorihiro Murata, North Tonawanda, N.Y., assignor to The Carborundum Company, Niagara Falls, N.Y.
Filed Sept. 10, 1969, Ser. No. 856,794
Int. Cl. B01k 3/06; C01b 35/66; H01b 1/06 16 Claims
U.S. Cl. 252-518



Refractory, hard, wear-resistant and corrosion-resistant compositions especially suitable for fabricating current-conducting elements useful in aluminum refining, are produced by hot pressing a mixture consisting essentially of about 80-99 percent niobium diboride and about 1-20 percent titanium mononitride at about 2000-2200° C.

3,591,528 COMPOSITIONS CONTAINING A TRICYCLIC ISOCROMAN AS ODORANT

Lambertus Gerke Heeringa and Muus Gerrit Jan Beets, Hilversum, Netherlands, assignors to International Flavors & Fragrances Inc., New York, N.Y.
Original application June 20, 1963, Ser. No. 289,261, now Patent No. 3,360,530, dated Dec. 26, 1967. Divided and this application Oct. 19, 1967, Ser. No. 719,279
Claims priority, application Great Britain, July 23, 1962, 28,221/62; Feb. 1, 1963, 28,221/63; Feb. 18, 1963, 6,412/63
Int. Cl. A61k 7/00; C11b 9/00 5 Claims
U.S. Cl. 252-522
Compositions containing as a musk odorant, a novel tricyclic isochroman having the structural formula



wherein R₁, R₂, R₃, and R₄ are methyl or hydrogen and where either R₃ or R₄ is methyl, the other is hydrogen, and A is methylene, ethylene, ethylidene, 1,2-propylene, or 2,3-butylene, and methods for imparting fragrances using such a tricyclic isochroman.

3,591,529

PHOSPHORUS-CONTAINING POLYAMINES

Hans H. Stockmann, Plainfield, and Joseph Fertig, Elizabeth, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 722,200, Apr. 18, 1968. This application Feb. 2, 1970, Ser. No. 7,983

Int. Cl. C08g 33/16

U.S. Cl. 260—2P 2 Claims
High molecular weight polyphosphorus amidoamines comprising the products resulting from the reaction of an epihalohydrin with the reaction product of a polyalkylene polyamine and a phosphorus-containing reagent. The resulting chain extended products are applicable for use as pigment retention additives in paper, flocculants, anti-static agents and fire retardants.

3,591,530

PROCESS FOR THE PRODUCTION OF POLYMERS CONTAINING PHOSPHORUS AND NITROGEN

Urs Sollberger, Fullinsdorf, Basel, and Rainer Wolf, Allschwil, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed Oct. 6, 1969, Ser. No. 864,201
Claims priority, application Switzerland, Oct. 16, 1968, 15,452/68; May 23, 1969, 7,878/69

Int. Cl. C08g 33/16

U.S. Cl. 260—2 8 Claims
Phosphorus- and nitrogen-containing polymers which are suitable as flame-proofing agents and are obtained by reacting phosphonitrilic halides, especially the chlorides, with organic compounds containing 2, 3 or 4 aliphatically bound hydroxy groups and optionally heating the reaction products with ammonia, a primary or secondary amine.

3,591,531

FOAMED AND FOAMABLE COPOLYMERS

Gunter Schroeder, Ober Ramstadt-Eiche, and Wolfgang Gaenzler, Darmstadt, Germany, assignors to Rohm & Haas G.m.b.H., Darmstadt, Germany

No Drawing. Continuation-in-part of application Ser. No. 655,766, July 25, 1967. This application Sept. 10, 1968, Ser. No. 758,694

Claims priority, application Germany, Sept. 19, 1967, R 46,932

Int. Cl. C08f 47/10, 45/44, 29/36

U.S. Cl. 260—2.5 6 Claims
Improved method for making foamable copolymers by dissolving 0.5 to 10 percent by weight of a vinyl polymer in a mixture of urea or dimethylurea and (A) acrylic and methacrylic acid, (B) the amides or nitriles of these acids, and (C) optional additional comonomers, prior to copolymerizing said mixture.

3,591,532

HIGH DENSITY CELLULAR POLYURETHANE ELASTOMER

Lawrence W. Abercrombie and Nabil N. Saaty, Hamden, and Adnan A. R. Sayigh, North Haven, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of application Ser. No. 604,625, Dec. 27, 1966. This application June 6, 1968, Ser. No. 734,869

Int. Cl. C08g 22/46

U.S. Cl. 260—2.5AN 14 Claims
Cellular polyurethane elastomers of high density (illustratively from 10 to 50 p.c.f.) are prepared from (1) methylenebis (phenyl isocyanate) or modified forms thereof, including mixtures of polymethylene polyphenyl isocyanates containing methylenebis (phenyl isocyanate), and (2) a polyester diol, a polyalkadiene polyol having a functionality of at least two or a polyether polyol (functionality 2 to 4) and, optionally, (3) a curative, using conventional high density foam procedures. The novel compositions can be used for a variety of purposes including shoe soles, gaskets, shock and sound absorbent applications, and the like.

PROCESS FOR THE PRODUCTION OF POLYAMIDE FOAMS

Hermann Schnell, Krefeld-Uerdingen, and Heinrich Gilch, Uerdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 19, 1967, Ser. No. 654,382
Int. Cl. C08f 47/08; C08j 1/14

U.S. Cl. 260—2.5 8 Claims
The invention relates to the production of polyamide foams from the polymerization of lactams in the presence of an organic isocyanate and a metal borohydride.

3,591,534

CURABLE STARCH ADHESIVE MANUFACTURE

Harry E. Dunholter and James C. Jones, Toledo, Ohio, assignors to Owens-Illinois, Inc.

No Drawing. Filed Dec. 10, 1968, Ser. No. 782,723
Int. Cl. C08b 25/02

U.S. Cl. 260—9 10 Claims
Water-resistant or waterproof starch-containing paper-board adhesives are manufactured from a non-water-resistant adhesive by adding an alkaline setting resin of the phenolic aldehyde or ketone-aldehyde type directly to the non-water-resistant adhesive.

3,591,535

HIGH MOLECULAR WEIGHT/LOW MOLECULAR WEIGHT PHENOL-FORMALDEHYDE CURTAIN COATING ADHESIVE COMPOSITION

Reino A. Jarvi, Bellevue, Wash., assignor to Simpson Timber Company, Seattle, Wash.

No Drawing. Continuation-in-part of application Ser. No. 751,687, July 31, 1968. This application July 25, 1969, Ser. No. 845,082

Int. Cl. C08b 21/32; C08g 5/06, 37/08

U.S. Cl. 260—14 7 Claims
A phenol-formaldehyde adhesive composition for use in a gravity curtain coater is prepared by mixing together a high molecular weight, highly advance, phenol-formaldehyde resin, a low molecular weight, long-flow, phenol-formaldehyde resin, anionic surfactant having particular characteristics, and a thickening agent in specified portions. The resins are preferably formulated by condensing 1.8 to 1 to 2.2 to 1 moles formaldehyde to phenol under reflux conditions to a viscosity of from 200–250 cps. at 70° F. in the presence of not over 10 wt. percent of an alkaline catalyst based on the weight of the resin constituents, removing and cooling a portion of the resin, heating the remainder of the resin under reflux conditions to a viscosity of from 900–1000 cps. at 70° F., adding the removed resin portion to the remaining portion, and cooling the entire mixture. The final resin mixture has a viscosity of 600–800 cps. at 70° F.

3,591,536

POLYPROPYLENE OR POLY-4-METHYL-PENTENE-1 FIBERS WITH CELLULOSE DERIVATIVES AND A PROCESS FOR PRODUCING THE SAME

Noboru Fukuma, Kenichi Matsui, and Chiyouni Nakai, Nobeoka-shi, Yoshisato Fujisaki, Tokyo, Atsuo Nakaniishi, Yokohama, and Tsukasa Shima, Nobeoka-shi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed June 8, 1967, Ser. No. 644,500
Claims priority, application Japan, June 11, 1966, 41/37,315; June 15, 1966, 41/38,244; Jan. 19, 1967, 42/3,349

Int. Cl. D01f 7/02

U.S. Cl. 260—17 6 Claims
Polypropylene or poly-4-methylpentene-1 fibers, useful in clothing and as interior materials which consist of a composition obtained by mixing:
(A) crystalline polypropylene or crystalline poly-4-methylpentene-1 with

(B) a polymer of at least one member selected from the group consisting of cellulose derivatives, polyester polymers and polyvinyl polymers having a melting point or softening point of less than 200° C. and
(C) a substance of at least one member selected from the group consisting of liquid paraffin, polyalkylene oxide and phthalic acid ester.

The substances are added in amounts of 5–15% (B) and 5–20% (C) by weight respectively, based on the total weight of the composition (A)+(B)+(C).

3,591,537

PRODUCTION OF POLYVINYL AROMATIC COMPOSITIONS

John Mansel Squire, Thorpe, and Michael John Symes, Sutton, England, assignors to The British Petroleum Company Limited, London, England

No Drawing. Filed June 5, 1968, Ser. No. 735,958
Claims priority, application Great Britain, June 22, 1967, 28,800/67

Int. Cl. C08f 19/04, 19/08, 33/02

U.S. Cl. 260—17 13 Claims
Preformed vinyl aromatic polymer and rubber are dissolved in vinyl aromatic monomer. The resulting blend is suspended in water and polymerized to give a toughened polyvinyl aromatic compound such as toughened polystyrene.

3,591,538

OLEFIN POLYMERS HAVING IMPROVED GLOSS

Vernon J. Smith, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 754,959, Aug. 23, 1968. This application May 16, 1969, Ser. No. 825,404

Int. Cl. C08f 19/14, 21/04

U.S. Cl. 260—23 12 Claims
Olefin polymers having improved gloss and decreased haze are prepared by incorporating therein from about 20 to about 500 p.p.m. of a metal salt of a fatty acid and from about 10 to about 2000 p.p.m. of a metal salt of a carboxylic acid containing an aromatic group.

3,591,539

VINYLATED URETHANE OILS

Stephen F. Hudak, Minneapolis, Minn., assignor to Ashland Oil, Inc., Houston, Tex.

No Drawing. Filed May 14, 1969, Ser. No. 824,662
Int. Cl. C08f 25/00

U.S. Cl. 260—23 7 Claims
A coating resin and the process for preparing it comprising the steps of:

- (1) reacting 30% to 60% of a drying oil, at least 5% of the oil containing conjugated double bonds, e.g., safflower oil, dehydrated castor oil, with 2% to 25% of an aliphatic polyhydric alcohol, e.g., glycerol, pentaerythritol; and then
 - (2) adding and reacting up to 30% by weight of an organic polyisocyanate, e.g., toluene diisocyanate, 4,4'-methylene-bis(cyclohexylisocyanate); and then
 - (3) adding and addition polymerizing 15% to 60% of an ethylenically unsaturated monomer, e.g., styrene, vinyl toluene;
- all percentages based on the solid weight of the product.

3,591,540

STABLE, FREE FLOWING PEROXIDE COMPOSITIONS

Arras M. Praskach, Edison, N.J. 08817
No Drawing. Continuation-in-part of application Ser. No. 567,385, July 25, 1966. This application Nov. 12, 1969, Ser. No. 876,040

Int. Cl. C07c 73/06

U.S. Cl. 260—23 8 Claims
A stable free flowing peroxide composition is disclosed consisting essentially of about 45–75 wt. percent of par-

ticulate benzoyl peroxide, about 2–30 wt. percent of an inert particulate polyolefin, about 0.05–5 wt. percent of particulate metallic soap of Group II and from about 12–25 wt. percent of water.

3,591,541

EMULSION POLYMERIZATION USING MODIFIED CARBOXYLIC EMULSIFIERS

Robert D. Athey, 100 Kings Highway, Milford, Del. 19963, and Emil G. Sammak, 515 Westwood Drive, and Edward Witt, 567 Westwood Drive, both of Dover, Del. 19901

No Drawing. Filed Sept. 25, 1967, Ser. No. 670,406
Int. Cl. C08d 1/09; C08f 15/40

U.S. Cl. 260—23.7 25 Claims
A polymerization system for producing unique stable latices containing a substantial proportion of bound alkaline sensitive groups which comprises an aqueous emulsion containing a carboxylic emulsifier modified by the presence of a noncationic hydrophilic group in its hydrocarbon chain, e.g., cocoyl sarcosine, and polymerizable monomeric material containing alkaline sensitive groups, e.g., a mixture of butadiene, styrene and itaconic acid or methylol acrylamide, at a pH in a range from acid to substantially neutral. This system (1) supports emulsion polymerization even in low-shear large capacity reactors without the occurrence of excessive preflow deposition of the resulting polymeric solids, (2) gives reproducible polymerization rates and (3) produces stable latices of useful viscosity having high solids content.

The process for producing the unique stable latices includes effecting polymerization of the polymerizable monomeric material containing alkaline sensitive groups in an aqueous emulsion containing the modified carboxylic emulsifier and having a pH in a range from acid to substantially neutral, e.g., 2 to 6, at temperatures from about 0° C. to about 100° C., and thereafter recovering the resulting latex from the unreacted monomers.

3,591,542

QUICK-SETTING CEMENTITIOUS COMPOSITIONS

Bernard Bonnel, Pierre Allemand, and Pierre Versmeé, Lyon, France, assignors to Progil

Filed May 26, 1967, Ser. No. 641,695
Claims priority, application France, June 1, 1966, 47,351

Int. Cl. C08g 51/04, 51/24

U.S. Cl. 260—29.4 10 Claims
A quick-setting cementitious composition having exceptional resistance qualities including a quick setting hydraulic binder and the polymer formed in situ from an aqueous solution of acrylamide and formaldehyde and a polymerization catalyst; the polymer constituting 3–10% of the total weight of the final product.

3,591,543

TIME CONTROLLED GELATION OF POLYVINYL ALCOHOL WITH CHROMIC ION

Edward Philip Stafford, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 9, 1969, Ser. No. 831,772
Int. Cl. C08f 29/26

U.S. Cl. 260—29.6 14 Claims
Method of gelling polyvinyl alcohol at controlled rates which comprises mixing an aqueous solution consisting essentially of (a) water, (b) polyvinyl alcohol which is at least about 85 mole percent hydrolyzed and has a molecular weight which provides a Hoesppler viscosity of about 4 to 150 centipoises in an amount sufficient to provide a Brookfield viscosity of at least 20 centipoises, (c) a water-soluble chromic salt in an amount sufficient to provide about 1 to 100 parts of chromic ion per 100 parts

for making abrasion- and alkali-resistant insulated wire, having a repeating unit of a combination of aromatic nucleus-fused bis(benzoylene quinoxaline) and/or bis(benzoylene-4-thia-1,3-diazine dioxide) and N,N'-arylene-diisindole dione. The polymer is produced by reacting aromatic diaminodiamido compounds and aromatic diamines with aromatic tetracarboxylic acid dianhydrides to form a new copolyamide, and cyclizing under dehydration the copolyamide.

3,591,558

POLYMERS PREPARED FROM ORGANIC COMPOUNDS CONTAINING AN ACTIVE METHYL OR METHYLENE GROUP AND AN ORGANIC DIHALIDE AND METHOD OF PREPARATION

Derek Brown, Michael Edward Benet Jones, and William Ramsey Maltman, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation of application Ser. No. 685,961, Nov. 27, 1967. This application Dec. 15, 1969, Ser. No. 882,354

Claims priority, application Great Britain, Dec. 12, 1966, 55,602/66

Int. Cl. C08g 15/00, 15/02, 25/00

U.S. Cl. 260—47R

11 Claims

A process for the production of a polymeric material by the polycondensation of an organic compound containing an active methyl or methylene group with a substantially equimolar amount of an organic dihalide, in the presence of specified proportions of a base. The process is preferably carried out in solution. Also, new polymeric materials which may be prepared by this process.

3,591,559

ALL AROMATIC POLYSULFONAMIDES AND METHOD OF PREPARATION

Stephanie Louise Kwolek, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Aug. 1, 1969, Ser. No. 846,923

Int. Cl. C08g 20/00, 20/20

U.S. Cl. 260—49

5 Claims

High molecular weight all-aromatic polysulfonamides are prepared by a solution polymerization of selected monomers and are useful in the preparation of shaped articles (e.g., fibers and films).

3,591,560

POLYURETHANES FROM BIURET-CONTAINING ORGANIC POLYISOCYANATES

Kuno Wagner, Otto Bayer, and Rudolf Schroter, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Sept. 12, 1963, Ser. No. 308,346, now Patent No. 3,441,588, dated Apr. 29, 1969. Divided and this application July 31, 1968, Ser. No. 763,457

Claims priority, application Germany, Sept. 19, 1962, F 37,835

Int. Cl. C08g 22/20

U.S. Cl. 260—77.5

2 Claims

Polyurethane plastics are prepared by a process which comprises reacting an organic compound containing at least two active hydrogen containing groups as determined by the Zerewitinoff method with an organic polyether polyisocyanato biuret.

3,591,561

PROCESS OF PRODUCTION OF POLYURETHANE ELASTOMER FROM A MIXTURE OF A LACTONE POLYESTER POLYOL AND A LOW MOLECULAR WEIGHT ALIPHATIC DIOL

Selji Kazama, Suita, Osaka, and Fumihiro Doura, Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Aug. 29, 1967, Ser. No. 663,947

Claims priority, application Japan, Aug. 29, 1966, 41/57,100

Int. Cl. C08g 22/10

U.S. Cl. 260—77.5

6 Claims

Polyurethane elastomer having good physical properties is produced by reacting organic diisocyanate with polyol mixture consisting of lactone polyester polyol and low molecular aliphatic diol, followed by curing the resultant product.

3,591,562

HETEROCYCLIC POLYMERS

Tad L. Patton, Baytown, Tex., assignor to Esso Research and Engineering Company

No Drawing. Filed Nov. 24, 1967, Ser. No. 685,311

Int. Cl. C08g 22/00

U.S. Cl. 260—77.5

7 Claims

New heterocyclic polymers having the same heterocyclic ring system are produced by the reaction of diisocyanates with hydrogen cyanide, by the reaction of dicyanoforamides with diisocyanates, and by the polymerization of cyanoformamidyl isocyanates in the presence of an effective catalyst. The heterocyclic polymers are characterized by repeating units which contain either or both 4-imino-1,3-imidazolidine-2,5-dione-1,3-diyl rings and 5-imino-1,3-imidazolidine-2,4-dione-1,3-diyl rings. The imino group on the foregoing rings may be modified by replacement of the imino hydrogen by acyl groups such as carbamoyl or the imino group may be replaced with oxygen.

3,591,563

ANTISTATIC PROTECTION FOR PLASTIC HAVING A PROPENSITY FOR ACCUMULATING ELECTROSTATIC CHARGES

Walter P. Barie, Jr., Shaler Township, Allegheny County, Norman W. Franke, Penn Hills Township, Allegheny County, and Stanley C. Paviak, Shaler Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

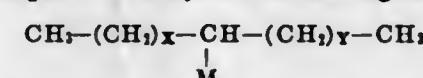
No Drawing. Filed Dec. 26, 1968, Ser. No. 787,241

Int. Cl. C08g 20/38

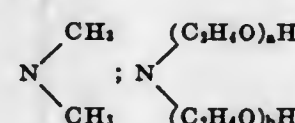
U.S. Cl. 260—78

16 Claims

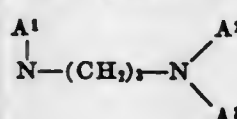
Isomeric monoamine mixtures of the various individual compounds represented by the following formula:



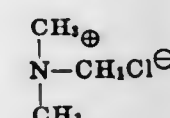
wherein the total number of carbon atoms in the linear paraffin chain is from about 8 to 22; wherein X is a whole number from about 0 to 19 and Y is a whole number from about 0 to 19; and wherein M is a member selected from the group consisting of NH₂, acetate and hydrochloride salts of NH₂;



wherein a and b are each greater than zero;



wherein A¹, A², and A³ are selected from the group consisting of hydrogen and (C₂H₄O)_xH where x is one or greater; and



are used as effective antistatic agents for plastics. In practice, these compounds are preferably mixtures of substantially equal amounts of the various monoamine isomers wherein the monoamine is attached to a different internal carbon atom.

3,591,564

TRANSPARENT POLYAMIDES FROM TETRAHYDROTRICYCLOPENTADIENYLENE DIAMINES

Paul Raff and Ludwig Schuster, Ludwigshafen (Rhine), Guenter Becht, Speyer (Rhine), and Helmut Doerfel, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Original application Oct. 26, 1965, Ser. No. 505,291, now Patent No. 3,505,402, dated Apr. 7, 1970. Divided and this application Apr. 3, 1968, Ser. No. 738,739

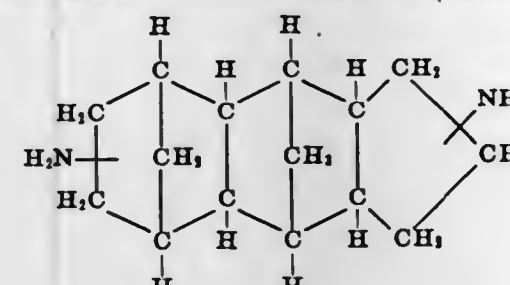
Claims priority, application Germany, Oct. 29, 1964, B 79,115; Mar. 27, 1965, P 15 70 246.2

Int. Cl. C08g 20/20

U.S. Cl. 260—78

3 Claims

Production of transparent polyamides of tetrahydrotricyclopentadienylene diamines having the formula:



wherein said diamines are polycondensed with dicarboxylic acids, dicarboxylic esters or dicarboxylic chlorides at elevated temperature, and new polyamides containing said diamines.

3,591,565

POLYAMIDES CONTAINING ALKALI METAL HALIDE ADDITIVES AS VOID FORMATION INHIBITORS

John Edward Hansen, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 673,287, Oct. 6, 1967. This application Aug. 15, 1969, Ser. No. 850,665

Int. Cl. C08g 20/00; D02g 3/00

U.S. Cl. 260—78

1 Claim

Polyamide compositions containing a synthetic polyamide intimately mixed with 1.0 to 10 percent by weight of certain lithium halides are spun into large diameter, void-free, high tenacity monofilaments which are useful, for example, in zippers and tire cord.

3,591,566

BETA LACTONE POLYMERIZATION PROCESS WITH HETEROCYCLIC CATALYSTS

Klaas Ruyter and Johan van Olmen, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Dec. 20, 1968, Ser. No. 785,766

Claims priority, application Great Britain, Jan. 8, 1968, 1,053/68

Int. Cl. C08g 17/017

U.S. Cl. 260—78.3

8 Claims

An improved process for bulk polymerization of one or more betapropiolactones, at least 50% mole being

pivalolactone, in the presence of organic heterocyclic initiators, wherein the heteroatom is from the group comprising phosphorous, arsenic, antimony, sulfur, selenium or tellurium, or in the presence of "onium" addition compounds of such initiators.

3,591,567

METHOD FOR PRODUCING INTERNALLY PLASTICIZED COPOLYMER OF VINYL CHLORIDE AND A HIGHER ALKYL ESTER OF CROTONIC ACID

Yuzo Chihara, deceased, late of Yokohama, Japan, by Waka Chihara, legal representative, 21, 11 Matsukagecho, Hakodate-shi, Hokkaido, Japan, and Ryoji Takahashi, 21 Otsutomacho, Yokohama, Japan

No Drawing. Continuation-in-part of application Ser. No. 561,722, June 30, 1966. This application Sept. 5, 1969, Ser. No. 870,591

Claims priority, application Japan, July 10, 1965, 40/41,357

Int. Cl. C08f 15/26

U.S. Cl. 260—86.3

10 Claims

This invention relates to a method for producing an internally plasticized vinyl chloride copolymer having excellent transparency in films, processability, and heat stability, which comprises copolymerizing 100 parts by weight of vinyl chloride and between about 1 to 40 parts by weight of a higher alkyl ester of crotonic acid having 12 to 20 carbon atoms in the alkyl group.

3,591,568

POLYMERIZATION PROCESS

Elliott Farber, Trenton, N.J., assignor to Tenneco Chemicals, Inc.

No Drawing. Filed Jan. 6, 1969, Ser. No. 789,367

Int. Cl. C08f 1/11

U.S. Cl. 260—87.1

8 Claims

Process for production of solution-grade poly(vinyl chloride-vinyl acetate) copolymers by suspension polymerization of vinyl chloride and vinyl acetate monomers in the presence of an alkylated poly(vinyl pyrrolidone) as a protective colloid and utilizing incremental addition of monomeric vinyl chloride to the reaction mixture.

3,591,569

FREE-FLOWING SINTERED GRANULES OF THERMOPLASTIC ORGANIC POLYMERS

Jerry D. Ilavsky, Sarnia, Ontario, Canada, assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed June 2, 1969, Ser. No. 829,804

Int. Cl. C08d 3/04, 5/02; C08f 15/04

U.S. Cl. 260—88.2

10 Claims

Free-flowing sintered granules of normally solid, water-insoluble, thermoplastic organic polymers such as the ethylene polymers are prepared by (1) dispersing a fine powder of the polymer in a non-solvent liquid medium, (2) heating the resulting dispersion to a temperature from about 1° C. below the Vicat softening point of the polymer to about 8° C. thereabove while subjecting the dispersion to agitation and (3) cooling the dispersion under continued agitation.

3,591,570

COPOLYMERS OF PROPYLENE OXIDE AND ALLYL GLYCIDYL ETHERS

Arthur E. Gurgiolo and Robert W. McCada, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Sept. 3, 1964, Ser. No. 394,301. Divided and this application Sept. 20, 1968, Ser. No. 798,483

Int. Cl. C08f 7/12

U.S. Cl. 260—88.3

9 Claims

Vulcanizable and vulcanized copolymers of propylene oxide are made by the copolymerization of propylene

oxide with a glycidyl ether containing an allylic terminal group such that at least one oxyalkylene or thioalkylene group intervenes between the glycidyl group and the allylic group of the monomer.

3,591,571
SUPERCHLORINATED POLYVINYL CHLORIDE AND METHOD OF PRODUCING IT
Georgette Steinbach-Van Gaver, Paris, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Paris, France
No Drawing. Filed Feb. 15, 1966, Ser. No. 527,476
Claims priority, application France, Feb. 16, 1965, 5,758

Int. Cl. C08f 27/02, 27/03
U.S. Cl. 260—92.8 14 Claims
Process for the production of superchlorinated polyvinyl chloride and product thereof. The PVC is swollen in a first step by insufflating with gaseous chloro-hydrocarbon of which chloroform is preferred. The swollen PVC is suspended in a concentrated aqueous solution of HCl. Chlorine is then passed into the suspension to about saturation, after which the suspension is irradiated with ultraviolet rays, while chlorination is continued to the desired value. The process is of relatively short duration, efficient in use of ingredients and reactants, and gives a high quality of SPVC of uniform granulometry and precise control of chlorine percentage of finished product.

3,591,572
POLYMERIZATION PROCESS USING N-HYDRO-CARBYL - N - METHYLENE SULFONATES AS DISPERSING AGENTS
Walter Stamm, Tarrytown, N.Y., and Eugene H. Uhing, Ridgewood, N.J., assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 622,445, Mar. 13, 1967. This application June 19, 1968, Ser. No. 738,092
Int. Cl. C08f 1/13, 3/30, 15/02
U.S. Cl. 260—92.8 6 Claims
The invention is a process for preparing polymers by dispersion polymerization techniques using an N-hydro-carbyl N-methylene sulfonate as a dispersing agent.

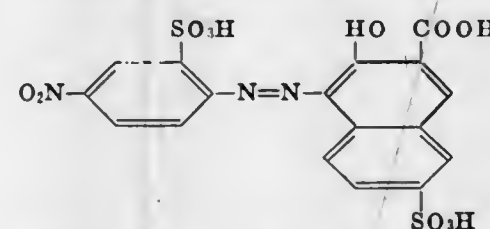
3,591,573
REACTION PRODUCTS OF PETROLEUM HYDRO-CARBON-INSOLUBLE PINE WOOD RESIN AND PROPYLENE OXIDE
Jay B. Class, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 630,552, Apr. 13, 1967, which is a continuation-in-part of application Ser. No. 435,348, Feb. 25, 1965. This application Nov. 7, 1968, Ser. No. 774,214
Int. Cl. C09f 1/04
U.S. Cl. 260—103 2 Claims
A resinous reaction product is prepared by reacting a petroleum hydrocarbon-insoluble pine wood resin and propylene oxide. The resinous reaction product is substantially free of polyether chains.

3,591,574
TRI-N-PHENYLGLYCYL DERIVATIVES OF INSULIN
Richard L. Fenichel, Wyncote, Norman H. Grant, Wynnewood, and Harvey E. Alburn, West Chester, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed May 29, 1968, Ser. No. 732,812
Int. Cl. A61r 17/02; C07c 103/52
U.S. Cl. 260—112.7 2 Claims
Acyl-substituted-insulins, particularly phenyl- and substituted-phenylglycyl-insulins, especially N-phenylglycyl-

insulin, N-p-methylphenylglycyl-insulin and N-p-chloro-phenylglycyl-insulin (I), are prepared by treating insulin with an acylating agent, especially the corresponding N-chloroformyl-N-phenyl or substituted-phenylglycyl (II). The new compounds (I) have hypoglycemic activity and are useful to treat diabetes, especially in subjects who are insulin fast.

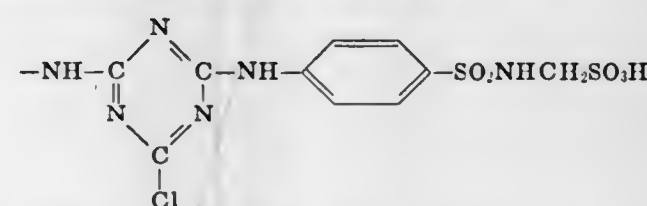
3,591,575
PREPARATION OF DIAZONIUM COMPOUNDS
Eugene Golda, Bronx, N.Y., assignor to Polychrome Corporation, Yonkers, N.Y.
No Drawing. Filed Aug. 14, 1967, Ser. No. 660,220
Int. Cl. C07c 113/00; C23f 11/14
U.S. Cl. 260—141 9 Claims
A method for making a storage-stable, moisture-resistant, light-sensitive diazonium compound in dry powder form by reacting a light-sensitive, water-soluble diazo compound with a hydroxyl-containing coupling agent therefor in an aqueous medium at a pH of about 1.5 to about 7.5 substantially to avoid resinification and loss of light-sensitivity, and recovering the precipitated diazonium compound reaction product.

3,591,576
CALCIUM OR MANGANESE LAKES OF PHENYL-AZO-NAPHTHOL ACID DYESTUFFS
Heinz Haubrich, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed May 24, 1968, Ser. No. 731,711
Claims priority, application Germany, June 3, 1967, F 52,595
Int. Cl. C07c 107/08; C09b 29/16, 45/14
U.S. Cl. 260—151 1 Claim
Calcium or manganese lakes of the azo dyestuff of the formula



are produced for use as pigment dyestuffs, adapted for incorporation in lacquers and varnishes, synthetic materials, spinning masses and in the field of paper and textile printing. The lakes exhibit particularly good light fastness properties.

3,591,577
REACTIVE TRIAZINE CONTAINING AZO DYESTUFFS
Ugo Molso, Cesano Maderno, Milan, and Giulio Craia, Saronno, Varese, Italy, assignors to Aziende Colori Nazionali Affini Acna S.p.A., Milan, Italy
No Drawing. Continuation-in-part of abandoned application Ser. No. 349,158, Mar. 3, 1964. This application July 19, 1968, Ser. No. 746,002
Int. Cl. C09d 62/08; D06p 1/02
U.S. Cl. 260—153 7 Claims
Reactive dyestuffs of the azo or anthraquinone series wherein the dyestuff radical is bonded, through a benzene or naphthalene nucleus, to the radical,



and wherein the dyestuff radical contains 2 or 3 SO₃H substituents as well as at least one substituent selected

from the group consisting of —OH, —COOH, —NH₂, —NO₂, benzoylamino, chlorine, and —R₃, —R₃OH and R₃CONH— radicals, wherein R₃ is an alkyl chain having from 1 to 4 carbon atoms, and metallized complexes of one or two molecules of the foregoing dyestuffs with a heavy metal selected from the group consisting of copper, chromium and cobalt. Cellulose or cotton fabrics dyed with the foregoing dyestuffs.

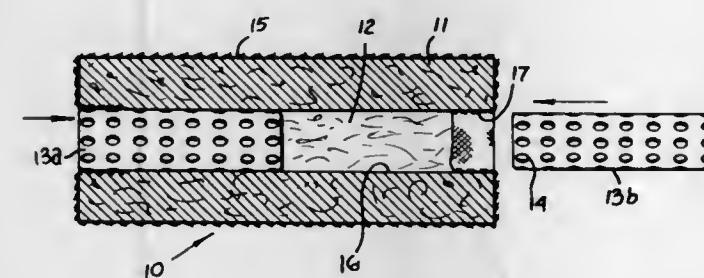
3,591,578
PROCESS FOR TREATING POLYSACCHARIDES PRODUCED BY FERMENTATION
Pierre Colin and Victor Guibert, Melle, Deux-Sevres, France, assignors to Melle-Bezons, Melle, Deux-Sevres, France
No Drawing. Filed Sept. 6, 1968, Ser. No. 758,102
Claims priority, application France, Apr. 29, 1968, 484
Int. Cl. C07c 47/18

U.S. Cl. 260—209 6 Claims
In the treatment of polysaccharides obtained by fermentation in a must or broth and from which the polysaccharide is recovered by precipitation, the improvement which comprises heating the broth prior to precipitation at a temperature within the range of 80° to 130° C. for a time within the range of 10 to 120 minutes while at a pH within the range of 6.3 to 6.9.

3,591,579
RESOLUTION OF AMINO-CAPROLACTAMS
Yasuo Shibahara, Sakyo-ku, Kyoto, Motoyuki Suzuki, Hirakata, Yoshihiro Hayashi, Ukyo-ku, Kyoto, and Toshiro Fukuda, Otsu, Japan, assignors to Sanyo Chemical Industries, Ltd.
No Drawing. Filed Aug. 13, 1968, Ser. No. 752,175
Claims priority, application Japan, Aug. 25, 1967, 42/55,051, 42/55,052
Int. Cl. C07d 41/06

U.S. Cl. 260—239.3 8 Claims
A mixture of D- and L-amino-ε-caprolactams is resolved into its enantiomorphs by converting the mixture, e.g. as the DL-aminolactam, into the salts with certain specific sulfonic acids, more especially with β-naphthalene-1-sulfonic acid or with 2-naphthyl amino-1-sulfonic acid, and then resolving the salts into the optically active isomers by crystallizing from a supersaturated solution thereof in a solvent (water or water-miscible organic solvent).

3,591,580
FILTER CONSTRUCTION FOR A FLUID-SOLID SEPARATION
Frank Arthur Winterhalter, Toledo, and Ronald Buxton Raab, Perrysburg, Ohio, assignors to Johns-Manville Corporation, New York, N.Y.
Filed Jan. 17, 1969, Ser. No. 792,005
Int. Cl. B01d 27/00
U.S. Cl. 210—232 8 Claims



Fluid-solid separating filter construction for a filtering medium having an internal channel for fluid influence and/or effluence and a reinforcing tube for the channel of the filtering medium which is hollow and perforated to distribute or collect and conduct the influent or effluent

to or from the filtering medium, wherein the channel of the filtering medium and the reinforcing tube are co-operatively arranged to provide a press grip therebetween and thus securely fix the intermediately inserted ends of a protective retaining covering enveloping the filtering medium to hold the same in position.

3,591,581
4,5-EPOXY-1,3,4,5-TETRAHYDRO-2H-1,4-BENZODIAZEPIN-2-ONES
George Francis Field, West Caldwell, Robert Ye-Fong Ning, Verona, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Continuation-in-part of application Ser. No. 766,649, Oct. 10, 1968. This application June 23, 1969, Ser. No. 835,720
Int. Cl. C07d 53/06

U.S. Cl. 260—239.3 24 Claims
4,5-epoxy - 1,3,4,5 - tetrahydro-2H-1,4-benzodiazepin-2-ones are prepared by light irradiation of a correspondingly substituted 1,3-dihydro-2H-1,4-benzodiazepin-2-one 4-oxide. The epoxy compounds are useful as sedatives, muscle relaxants and anticonvulsant agents. These compounds have also exhibited antibacterial activity against certain specific organisms.

3,591,582
PROCESS FOR PREPARING ALPHA-ACYLOXY KETONE STEROIDS
Francisco Alvarez, Palo Alto, Calif., assignor to Syntex Corporation
No Drawing. Original application Aug. 29, 1966, Ser. No. 575,556, now Patent No. 3,453,295, dated July 1, 1969. Divided and this application Feb. 12, 1969, Ser. No. 817,598
Int. Cl. C07c 169/28

U.S. Cl. 260—239.55 4 Claims
This discloses a process useful for preparing 3-keto-19-nor-Δ^{4,9(10)} steroids, which have known uses, by treating the corresponding 3-keto-10-carboxy-Δ⁵ steroids with about one molar equivalent of a positive halogen ion releasing agent in an organic tertiary amine solvent. Also disclosed is a process useful for preparing 2β,19-oxido steroids, which can be converted in accordance with known procedures to useful steroids, by similar treatment of the corresponding 3-keto-10-carboxy-5α or -5β steroid or of a 3-keto-10-carboxy-Δ^{4,6} steroid. A similar process useful for preparing known and useful α-acyloxy keto steroids from the corresponding keto steroids containing an α-hydrogen atom is also disclosed.

3,591,583
STEROIDAL LACTONES
Yvon Lefebvre, Pierrefonds, Quebec, Canada, assignor to American Home Products Corporation, New York, N.Y.
No Drawing. Filed Feb. 24, 1969, Ser. No. 801,828
Int. Cl. C07c 173/00

U.S. Cl. 260—239.57 10 Claims
There are disclosed herein steroidal lactones of 4-hydroxy-2-butenic acid in which the lactone ring is attached in position 3 to the 17α-position of the steroid, with the steroids being selected from 3,17β-dihydroxyestra-1,3,5(10)-trienes, 3,17β-dihydroxyestra-1,3,5(10),6,8-pentenes and 3,17β-dihydroxy-7α,8-epoxyestra-1,3,5(10)-trienes. The 3-hydroxy group on the steroid nucleus may also carry an acyl substituent containing from 2 to 4 carbon atoms, an alkyl substituent containing from 1 to 4 carbon atoms or a cycloalkyl substituent containing from 5 to 6 carbon atoms. The process for preparing the steroidal lactones of this invention comprises treating the

corresponding 17 α -furyl-substituted steroids with an organic peracid in the presence of a nucleophilic reagent, thus obtaining as intermediates the corresponding steroidal 4,4-dihydroxy-2-butenic acid lactones, in which the 4-hydroxy group may be acylated, if desired. Treatment of said intermediates with sodium borohydrides yields the steroidal lactones of this invention. Said last-named compounds are highly active estrogens and methods for their use are also disclosed.

3,591,584

BENZOTHIADIAZINE DIOXIDES

Joseph G. Lombardino, Niantic, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Aug. 27, 1968, Ser. No. 767,594
Int. Cl. C07d 93/02

U.S. Cl. 260—243 37 Claims
A series of novel 3,4-dihydro-4-oxo-2H-1,2-benzothiazine-3-carboxamide 1,1-dioxides and 3,4-dihydro-3-oxo-2H-1,2-benzothiazine-4-carboxamide 1,1-dioxides have been prepared, including 3,4-dihydro-2-methyl-4-oxo-2H-1,2-benzothiazine-3-carboxanilide 1,1-dioxide, 3,4-dihydro-2-methyl-4-oxo-N-(2-thiazolyl)-2H-1,2-benzothiazine-3-carboxamide 1,1-dioxide, 2',4'-dichloro-3,4-dihydro-2-methyl-3-oxo-2H-1,2-benzothiazine-4-carboxanilide 1,1-dioxide and 4'-bromo-3,4-dihydro-2-methyl-3-oxo-2H-1,2-benzothiazine-4-carboxanilide 1,1-dioxide. All these compounds are useful in therapy as non-steroidal anti-inflammatory agents. Alternate methods of preparation are provided and some of these synthetic routes are described in great detail.

3,591,585

PROCESS FOR MAKING DESACETOXYCEPHALOSPORINS

Lowell D. Hatfield, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Feb. 14, 1969, Ser. No. 799,504
Int. Cl. C07d 99/24

U.S. Cl. 260—243 11 Claims
Desacetoxycephalosporin esters, useful in preparing cephalosporin antibiotics, e.g., cephalixin, are prepared in improved yields by heating a penicillin sulfoxide ester dissolved in a tertiary carboxamide containing solvent in the presence of sulfuric acid while providing a means for removing or inactivating water in the reaction mixture.

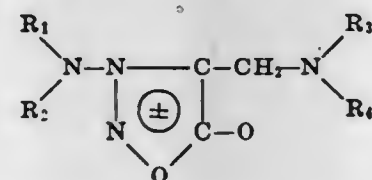
3,591,586

3-TERTIARY AMINO-4-TERTIARY AMINOMETHYL-SYDNONES

Yoshio Imashiro, Osaka, and Katsutada Masuda, Hyogo, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

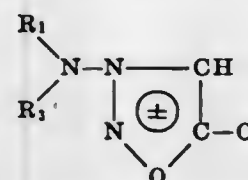
No Drawing. Filed Apr. 16, 1968, Ser. No. 721,627
Int. Cl. C07d 87/40

U.S. Cl. 260—246 30 Claims
Novel analgesic sydnone derivatives of the formula:

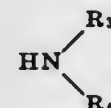


and pharmaceutically acceptable salts thereof wherein each of R₁ and R₂ is methyl or allyl or R₁ and R₂ taken together with the adjacent nitrogen atom are morpholino or piperidino and each of R₃ and R₄ is alkyl of one to five carbon atoms, allyl or benzyl or R₃ and R₄ taken together with the adjacent nitrogen atom are morpholino,

piperidino, 4-benzylpiperazino, 4-p-chlorophenylphenylpiperazino, hexamethylenimino, 4-methylpiperazino, 4-formylpiperazino, pipercolino and pyrrolidino are provided. The novel compounds are produced by a novel process which comprises reacting a compound of the formula:

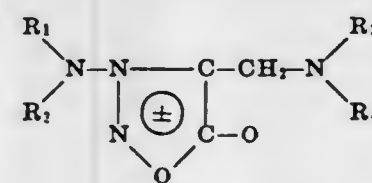


wherein R₁ and R₂ have the same meaning as defined above is reacted with formaldehyde and a secondary amine of the formula

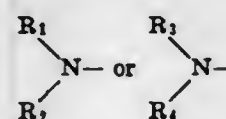


wherein R₃ and R₄ have the same meaning as defined above.

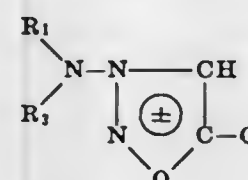
Sydnone Derivatives of the formula



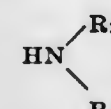
and pharmaceutically acceptable salts thereof, wherein each of R₁, R₂, R₃ and R₄ is C₁-C₅ alkyl, C₇-C₉ alkenyl or C₇-C₉ aralkyl, or where



is a 5- to 7-membered heterocyclic ring, are analgesics of low toxicity in mammals. They are prepared by reacting the appropriate compound of the formula



with formaldehyde and a secondary amine of the formula



3,591,587

HETEROCYCLIC SUBSTITUTED-CHLORINATED METHANONAPHTHALENE COMPOUNDS

Carleton W. Roberts, Midland, and Gale D. Travis, Shepherd, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 434,709, Feb. 23, 1965. This application Oct. 31, 1968, Ser. No. 772,404

Int. Cl. C07d 87/36

U.S. Cl. 260—247.2 3 Claims
7-substituted 1,2,3,4,9,9-hexachloro-1,4,4a,5,6,7,8,8a-octahydro-1,4-methanonaphthalene-6,7-dicarboxylic acid derivatives bearing a heterocyclic substituent such as a morpholino, piperidino or pyrrolidinyl on the 7-carbonyl radical are disclosed as novel compounds useful as parasitocides and anthelmintics.

3,591,588

PROCESS FOR THE PREPARATION OF 1-CARBOETHOXYHYDRAZINOPHTHALAZINE HYDROCHLORIDE

Stanislaw Biniecki, Warsaw, and Stanislaw Chachula, Helena Jozwiak, Zbigniew Ludwicki, Stefan Labedzki, and Wiktor Pietrzak, Pabianice, Stanislaw Pieta and Stanislaw Paradowski, Lodz, Poland, and Josef Izdebski, deceased, late of Warsaw, Poland, by Alicja Maria Izdebska and Barbara Anieszka Izdebska, heirs, Warsaw, Poland, assignors to Pabianickie Zaklady Farmaceutyczne "Polfa" Przedsiębiorstwo, Pabianice, Poland Continuation-in-part of application Ser. No. 406,930, Apr. 28, 1964. This application Oct. 29, 1968, Ser. No. 773,977

Claims priority, application Poland, May 11, 1963, 101,553; Dec. 9, 1963, 103,201
Int. Cl. C07d 51/06

U.S. Cl. 260—250 3 Claims
Two moles of 1-hydrazinophthalazine and one mole of ethyl chlorocarbonate are reacted to yield one mole of 1-carboethoxyhydrazinophthalazine in an organic solvent (e.g. ethanol). The 1-hydrazinophthalazine hydrochloride produced during the reaction, is filtered, the filtrate is evaporated under reduced pressure to a dry state and the residue is dissolved in hot hydrochloric acid to convert 1-carboethoxyhydrazinophthalazine into the hydrochloride which, after addition of dilute ethanol and cooling, crystallizes in the form of a raw product. This product is filtered and then crystallized from diluted ethanol for its purification. The pharmaceutical compound has been found to exert a slow but persistent hypotensive effect in hypertensive and normotensive animal subjects.

3,591,589

6-DIALKYLAMINOALKOXY-2-ARYL-4-CHLOROPYRIMIDINES AND 6-DIALKYLAMINOALKYLTHIO-2-ARYL-4-CHLOROPYRIMIDINES

Dong H. Kim and Arthur A. Santilli, Delaware, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 642,142, May 29, 1967. This application Apr. 8, 1969, Ser. No. 814,448

Int. Cl. C07d 51/36

U.S. Cl. 260—256.4 10 Claims
This disclosure is concerned with 6-dialkylaminoalkoxy-2-aryl-4-chloropyrimidine and 6-dialkylaminoalkylthio-2-aryl-4-chloropyrimidine compounds which are active as antiemetic agents in vitro.

3,591,590

DIISOCYANATES

Theobald Haug, Frenkendorf, and Hans Batzer, Arlesheim, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed Mar. 9, 1970, Ser. No. 17,856
Claims priority, application Switzerland, Mar. 27, 1969, 4,793/69

Int. Cl. C07d 49/32, 51/30

U.S. Cl. 260—260 9 Claims
New 1,3-di-(γ -isocyanatopropyl)-hydantoins and dihydantoins, for example 1,3-di-(γ -isocyanatopropyl)-5,5-dimethylhydantoin or 1,3-di-(γ -isocyanatopropyl)-5,5-dimethyl-5,6-dihydantoin and their use for the manufacture of polyurethanes by reaction with polyhydroxyl compounds. The new diisocyanates are completely odourless; irritation of the mucus membranes was not detectable; they are therefore preferably used in the lacquer field. The new diisocyanates react significantly more rapidly with primary alcohols than do aliphatic diisocyanates, for example 1,6-hexamethylenediisocyanate, and on the other hand more slowly than aromatic diisocyanates, for example 1,4-tolylene-diisocyanate.

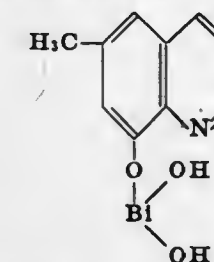
3,591,591

BISMUTH SALT OF 6-METHYL-8-HYDROXYQUINOLINE

Eugene Riviere, Issy-les-Moulineaux, Danyele Yvette Vilarel, Chantilly, and Roger Lucien Debré, Brenouille, France, assignors to Ugine Kuhlmann, Paris, France No Drawing. Filed Nov. 29, 1968, Ser. No. 780,206
Claims priority, application France, Dec. 1, 1967, 130,566

Int. Cl. C07d 33/44

U.S. Cl. 260—270 1 Claim
The compounds of the formula:



The compound is useful for the treatment of diarrhoea.

3,591,592

SYNTHESIS OF DISUBSTITUTED PYRIDINES

Paul S. Anderson, North Wales, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Mar. 29, 1968, Ser. No. 717,407
Int. Cl. C07d 31/20

U.S. Cl. 260—290 3 Claims
By introducing an alkyl or aryl group into the 2-position of a 4-alkyl or 4-aryl pyridine with an alkyl or aryl lithium reagent 2,4-alkyl and aryl pyridine compounds can be conveniently prepared.

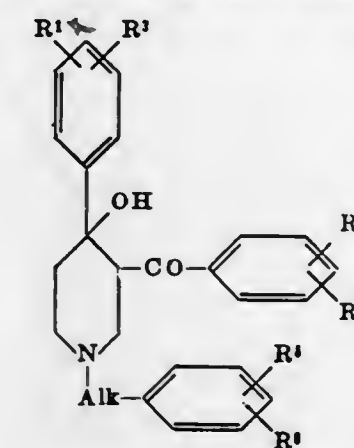
3,591,593

1-PHENYLALKYL-3-BENZOYL-4-HYDROXY-4-PHENYL SUBSTITUTED PIPERIDINES

Kurt Thiele and Walter von Bebenburg, Frankfurt am Main, and Klaus Posselt, Bergen-Enkheim, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany No Drawing. Filed July 9, 1968, Ser. No. 743,297
Claims priority, application Germany, Nov. 2, 1967, D 54,500

Int. Cl. C07d 29/20

U.S. Cl. 260—294.7D 13 Claims
Substituted piperidines of the formula



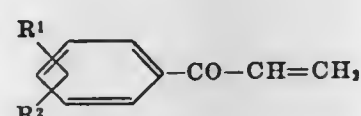
and their acid addition salts and their quaternary ammonium salts and their diastereomers and optically active isomers having pharmaceutical activity for treatment of heart and circulatory conditions and especially for increasing the coronary blood flow partly in combination with an improvement of the heart function wherein:

Alk is a straight or branch chained saturated aliphatic hydrocarbon or hydroxy substituted hydrocarbon chain of 2-4 carbon atoms;

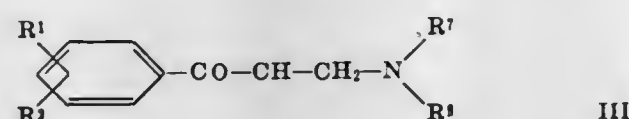
Each of R¹-R⁴ is selected from the group consisting of hydrogen, halogen, nitro, hydroxy, lower alkoxy, lower alkyl or lower trifluoroalkyl and each pair of R¹ and R²,

R³ and R⁴ and R⁵ and R⁶ on the phenyl rings when taken together can be lower alkylene dioxy, which are prepared by

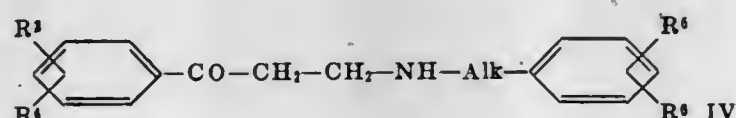
(a) Reacting one mol of a compound of the formula



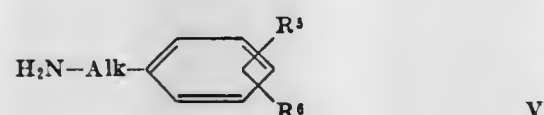
or the corresponding Mannich compound of the formula



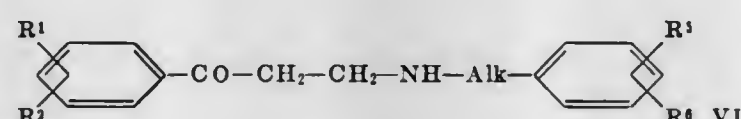
wherein R⁷ and R⁸ are lower alkyl with one mol of a compound of the formula



or reacting 2 mol of a compound of the Formula II or the Formula III with one mol of a compound of the formula

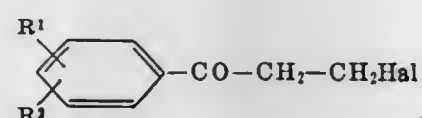


or heating a compound of the formula



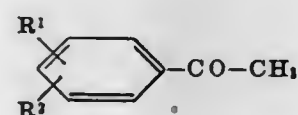
in an inert medium.

(b) Reacting one mol of a compound of the formula



wherein Hal is Cl or Br with one mol of a compound of the Formula IV or reacting 2 mol of a compound of the Formula VII with 1 mol of a compound of the Formula V in the presence of an acid acceptor.

(c) Reacting 2 mol of a compound of the formula



with one mol of a compound of the Formula V and formaldehyde or a formaldehyde yielding substance and,

if desired, forming the acid addition or quaternary ammonium salts of the compounds produced.

3,591,594

SUBSTITUTED 6,7-DIHYDRO-INDOLE-4-(5H)-ONE

Harvey Byron Hopps and John Hans Blel, Milwaukee, Wis., assignors to Aldrich Chemical Company, Inc., Milwaukee, Wis.

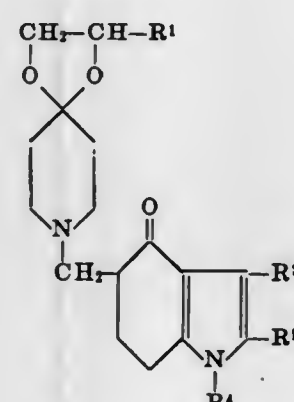
No Drawing. Filed Oct. 2, 1968, Ser. No. 764,594

Int. Cl. C07d 29/28

U.S. Cl. 260—294.7

Compounds of the formula

12 Claims



wherein R¹, R², R³ and R⁴ each represent a member selected from the group consisting of hydrogen, (lower) alkyl, (loweralkenyl), (lower)alkynyl, phenyl and benzyl; and the pharmaceutically acceptable nontoxic salts thereof exhibit tranquilizing and antiemetic activity and are useful as tranquilizers and antiemetic agents in mammals.

3,591,595

CERTAIN 2 - HYDROXYLOWERALKYL-TETRA-HYDRO-2-H-INDENO[1,2-c]PYRIDINES AND 2-HYDROXY LOWERALKYL-HEXAHYDRO-2-H-INDENO[1,2-c]PYRIDIN 5-OLS

Anton Ebnother, Arlesheim, and Jean-Michel Bastian, Birsfelden, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,306

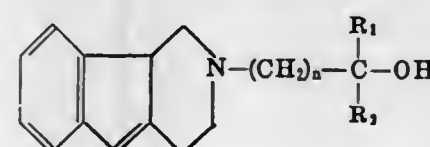
Claims priority, application Switzerland, Apr. 5, 1968, 5,123/68; Dec. 19, 1968, 18,945/68

Int. Cl. C07d 29/16, 31/28

U.S. Cl. 260—294.7

14 Claims

The invention concerns acid addition salts of indeno-pyridine derivatives of the formula:



wherein *n* is an integer of from 1 to 4, and R₁ and R₂ are hydrogen or lower alkyl of 1 to 4 carbon atoms.

The abovementioned acid addition salts exhibit psychotropic properties and more particularly, the compounds are useful antidepressants.

A process for the production of the compounds is furthermore described.

3,591,596

1,2-DIHYDRO - 6 - METHYL-2-OXO-4-PYRIDYL ESTERS OF CERTAIN BENZENE SULFONIC ACIDS AND DERIVATIVES THEREOF

Chun-sang Wang and Thomas W. McGee, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

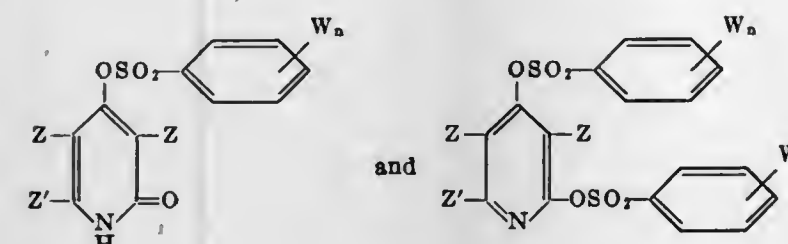
No Drawing. Filed Mar. 17, 1969, Ser. No. 807,961

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8

3 Claims

The invention relates to halogenated 6-methyl-4-pyridyl and 6-methyl-2,4-pyridinediyl esters of benzenesulfonic acid of the formulae



wherein each Z is hydrogen or X; X is chlorine, bromine or iodine; Z' is —CH₃, —CH₂X, —CHX₂ or —CX₃; W is a member selected from the group consisting of halogen, nitro and cyano and *n* is an integer of from 0 to 3, inclusive. The compounds of the invention are particularly useful as fungicides.

3,591,597

VAPOR PHASE PRODUCTION OF MONOCHLOROCYANOPYRIDINES

William H. Taplin III, Lafayette, and Sven H. Ruetman, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Jan. 6, 1969, Ser. No. 789,379

Int. Cl. C07d 31/46

U.S. Cl. 260—294.9

7 Claims

Monochlorocyanopyridines are prepared by the reaction of chlorine and a monocyano-pyridine in a process which comprises introducing a monocyano-pyridine, usually carried in a substantially inert diluent, both being in the vapor phase, into a reaction zone and contacting this mixture in a rapid turbulent mixing step with at least two moles of chlorine per mole monocyano-pyridine. The reaction zone is maintained at a temperature in the range of from about 275° C. to about 375° C.

3,591,598

CERTAIN CONDENSATION PRODUCTS DERIVED FROM MANNICH BASES

Thornton P. Traise, Chicago Heights, Ill., and Roger W. Watson, Highland, and Randel Q. Little, Munster, Ind., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Nov. 8, 1968, Ser. No. 774,497

Int. Cl. C07d 31/42

U.S. Cl. 260—296

5 Claims

This invention concerns the condensation product of an aldehyde reactant having more than one carbon atom and/or ketone reactant, formaldehyde, an alkylene polyamine, and an alkyl-substituted phenol and/or a methyl-substituted amino pyridine. These compositions can be used as ashless alkaline additives for motor oils.

3,591,599

ISOINDOLO[1,2-b]BENZOTHAZOL-11 (4bH) ONE 5-OXIDES

Hans Hoehn, Regensburg, and Ernst Schulze, Burgweinting, Germany, assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

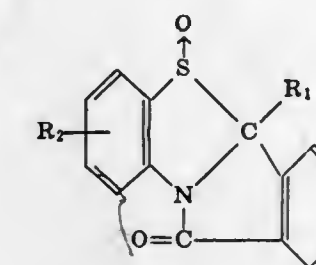
No Drawing. Filed Dec. 31, 1969, Ser. No. 889,683

Int. Cl. C07d 99/06

U.S. Cl. 260—304

9 Claims

New isoindolo[1,2-b]benzothiazol-11(4bH)one 5-oxides which are anti-inflammatory and analgesic agents have the formula



3,591,600

2-AMINOTHIAZOLE PHOSPHATES AND PHOSPHONATES

Llewellyn W. Fancher, Orinda, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

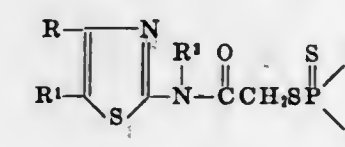
No Drawing. Filed July 7, 1969, Ser. No. 839,626

Int. Cl. C07d 11/34

U.S. Cl. 260—306.8R

12 Claims

Compounds of the formula



in which R is hydrogen; alkyl; naphthyl; phenyl; mono or di substituted phenyl wherein the substituents are halogen, nitro, alkyl; or the group —CH₂—S—R⁵ in which R⁵ is alkyl, phenyl, benzyl, or halophenyl;

R¹ is hydrogen; alkyl; phenyl; mono or di substituted phenyl wherein the substituents are halogen, nitro, alkyl; nitro; or halogen;

R² is hydrogen, alkyl; allyl or phenyl;

R³ is alkoxy, and

R⁴ is alkoxy or alkyl and the use of these compounds as insecticides and acaricides.

3,591,601

N-CHLORO OR BROMO-2-OXAZOLIDINONES

Wilhelm E. Walles, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 30, 1967, Ser. No. 679,227

Int. Cl. C07d 85/28

U.S. Cl. 260—307

4 Claims

The N-chloro and N-bromo derivatives of 2-oxazolidinone, 2-morpholinone, 2-oxazinidinone, and the corresponding hydrocarbon substituted compounds are prepared by halogenation, using a halogenated isocyanuric acid as the halogenating reagent. These N-halo compounds are germicides and bleaching agents.

3,591,602

PYRROLIDINE COMPOUNDS

Ian Moyle Lockhart, Egham, Surrey, England, assignor to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed Mar. 20, 1969, Ser. No. 808,994
Claims priority, application Great Britain, Mar. 25, 1968, 14,356/68

Int. Cl. C07d 27/04

U.S. Cl. 260—326.3

13 Claims

1-cyclopropylmethyl- and 1-cyclobutylmethyl-3-alkyl-3-(m-hydroxyphenyl)pyrrolidine compounds, salts and esters thereof, and their production by (a) reacting a 1-cycloalkylcarbonyl-3-alkyl-3-(m-hydroxyphenyl)pyrrolidine with a complex metal hydride reducing agent and then hydrolyzing the reaction product, (b) reacting a 1-cycloalkylmethyl-3-alkyl-3-(m-alkoxyphenyl)pyrrolidine with an acidic reagent capable of cleaving the ether linkage, and (c) reacting one of the 1-cycloalkylmethyl-3-alkyl-3-(m-hydroxyphenyl)pyrrolidines or a reactive derivative thereof with a reactive derivative of an acid to produce one of the esters. The compounds of the invention are useful both as chemical intermediates and as pharmacological agents exhibiting analgesic activity.

3,591,603

3(3-INDOLE)-LOWER-ALKYLAMINES

Zinon B. Papanastassiou, Lexington, and John L. Neumeyer, Wayland, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

No Drawing. Filed May 13, 1968, Ser. No. 728,818

Int. Cl. C07d 27/56

U.S. Cl. 260—326.15

6 Claims

New 3-indoleglyoxamides and (3-indole)-lower-alkylamines having useful C.N.S. depressant activity and prepared, respectively, by reaction of a 3-indoleglyoxal halide or a (3-indole)-lower-alkyl halide with an appropriate amine.

3,591,604

DERIVATIVES OF DIBENZOXAZOCINE AND DIBENZTHIAZOCINE

Harry Louis Yale, New Brunswick, Francis Alexander Sowinski, Edison, and Jack Bernstein, New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 346,407, Feb. 21, 1964, now Patent No. 3,454,598.
This application Oct. 1, 1968, Ser. No. 764,320

Int. Cl. A61k 27/00; C07d 87/54, 93/00

U.S. Cl. 260—327B

3 Claims

Disclosed herein are derivatives of dibenzoxazocine and dibenzthiazocine which are active as ataractic agents.

3,591,605

THIOPHENE DERIVATIVES

Toshio Mizutani, Hirakata-shi, Nobushige Itaya and Shigeyoshi Kitamura, Minoo-shi, Nobuyuki Kameda, Takarazuka-shi, Yositosi Okuno, Toyonaka-shi, and Keimei Fujimoto, Kyoto, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed May 5, 1969, Ser. No. 821,943

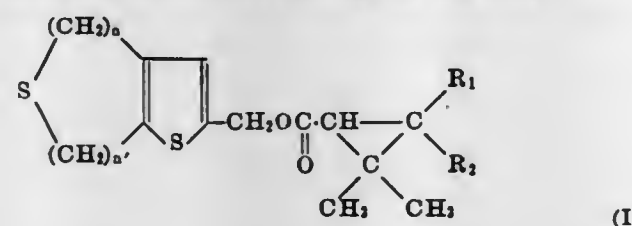
Claims priority, application Japan, May 11, 1968, 43/31,763; June 1, 1968, 43/37,680

Int. Cl. C07d 63/18; A01n 9/12

U.S. Cl. 260—332.2R

8 Claims

Novel thiophene derivatives having the formula,



wherein R₁ means hydrogen atom or methyl group, R₂ means methyl, 2-methyl-1-propenyl or phenyl group when R₁ is hydrogen atom, and means methyl group when R₁ is methyl group, and n and n' mean an integer of 1 or 2 (when any one of them is an integer of 2, the other is an integer of 1), which have excellent insecticidal activities.

3,591,606

3,5-DIKETALS OF 4,5-SECO-GONANE-3,5,17-TRIONES AND PROCESS OF PREPARATION

Julien Warnant, Neuilly-sur-Seine, Jean Jolly, Clchysous-Bois, and Robert Joly, Montmorency, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Filed May 23, 1967, Ser. No. 640,507

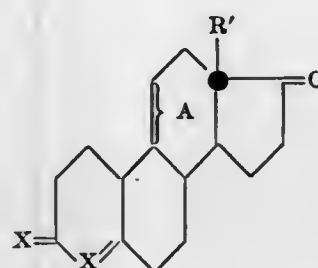
Claims priority, application France, May 26, 1966, 63,086; Aug. 30, 1966, 74,629; Sept. 1, 1966, 74,982

Int. Cl. C07d 13/04

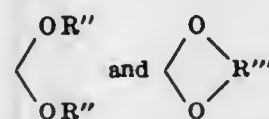
U.S. Cl. 260—340.9

4 Claims

The present invention relates to 3,5-diketals of 4,5-seco-gonane-3,5,17-triones of the formula



wherein R' represents an alkyl having from 1 to 4 carbon atoms; X represents a member selected from the group consisting of



wherein R'' is lower alkyl and R''' is selected from the group consisting of lower alkylene and substituted lower alkylene; and A is selected from the group consisting of two hydrogens and a double bond. These compounds are useful as intermediates in the total synthesis of steroids, particularly those having substituents on the 17 carbon atom.

3,591,607

RETROSTEROID A-RING FORMATION

Andor Furst, Basel, and Wolfgang Koch, Riehen, Switzerland, and Milan Radoje Uskokovic, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

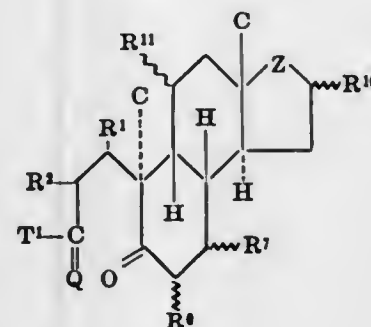
No Drawing. Filed Apr. 19, 1966, Ser. No. 543,526

Int. Cl. C07c 171/07; C07d 3/00

U.S. Cl. 260—343.9

10 Claims

3,5-seco-9 β ,10 α steroids of the formula:



wherein:

R¹ is a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, and lower alkylthio;

R² is a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, and lower alkylthio;

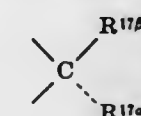
R³ is a member selected from the group consisting of hydrogen, lower alkyl, lower alkylthio, lower alkanoylthio, and halo;

R⁴ is a member selected from the group consisting of hydrogen, lower alkyl, lower alkylthio, lower alkanoylthio, and halo;

R⁵ is a member selected from the group consisting of hydrogen, hydroxy, and lower alkanoyloxy;

R⁶ is a member selected from the group consisting of hydrogen, lower alkyl, hydroxy, lower alkoxy, lower alkanoyloxy, and, when the 17 β -substituent is acetyl or substituted acetyl, fluorine;

Z is a member selected from the group consisting of carbonyl, (17 β -hydroxy-17 α -lower alkanoyl acid lactone), and



R^{17a} is a member selected from the group consisting of hydroxy, lower alkanoyloxy, and



Y is a member selected from the group consisting of hydrogen, halo, and hydroxy;

R^{17a}, when R^{17a} is hydroxy and lower alkanoyloxy, is a member selected from the group consisting of hydrogen and lower aliphatic hydrocarbyl, and, when R^{17a} is



is a member selected from the group consisting of hydrogen, alkyl, hydroxy, lower alkanoyloxy, and halo;

Q, when taken alone, is oxo;

T¹, when taken alone, is a member selected from the group consisting of alkali metal oxy and lower alkoxy; and

T¹ and Q, when taken together, are nitrilo. These compounds are intermediates which can be converted to a known class of endocrinologically active 9, 10-steroids.

3,591,608

MACROCYCLIC KETOLACTONES

Hans U. Immer, Cote St. Luc, Montreal, Quebec, and Jehan F. Bagil, Valois Gardens, Quebec, Canada, assignors to Ayerst, McKenna & Harrison Limited, St. Laurent, Quebec, Canada

No Drawing. Filed Nov. 15, 1968, Ser. No. 776,277

Int. Cl. C07d 7/00

U.S. Cl. 260—343.2

8 Claims

There are disclosed herein the compounds 10-methoxy- and 12-methoxy-3,4,5,6-tetrahydro-8H-2-benzoxecin-1,7-dione, 3,4,5,6,8,9-hexahydro-2-benzoxacycloundecene-1,7-dione and its 11-hydroxy and 11-acetoxy derivatives, and 3,4,5,6,9,10-hexahydro-12-methoxy-8H-2-benzoxacyclododecane-1,7-dione, as well as its 2-methyl derivative. The intermediates used to prepare the above compounds are also disclosed, viz., 2(4'-hydroxybutyl)-5-methoxy-and-7-methoxy-indan-1-one, 3,4-dihydro-2(4'-hydroxybutyl)-

2H-naphthalene-1-one, and its 6-hydroxy, 6-acetoxy, and -6 methoxy derivatives, 2-(4'-hydroxybutyl)-, 2-(pent-4'-enyl)-, and 2-(4'-hydroxypentyl)-7-methoxy-2,3,4,5-tetrahydro-1H-benzocyclohepten-1-one, 8-methoxy- and 10-methoxy-2,3,4,5-tetrahydro-6H-indeno-[1,2-b]oxepin, 2,3,4,5,6,7-hexahydronaphth[1,2-b]oxepin and its 9-acetoxy derivative and 2,3,4,5,7,8-hexahydro-10-methoxy-6H-benzocyclohepten[1,2-b]oxepin and its 2-methyl derivative.

3,591,609

SYNTHESIS OF 2-FURYL THIOETHERS

R. A. Silverman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 1, 1968, Ser. No. 764,331

Int. Cl. C07d 5/10

U.S. Cl. 260—347.2

12 Claims

A one step process of preparing a 2-furyl thioether which comprises reacting an aliphatic or aromatic mono or dithiol with a 2,5-diloweracyloxy-2,5-dihydrofuran; 2,5-dihydro-2,5-diloweralkoxyfuran; 2,5-dihydro-2,5-diloweralkoxy-2-methyl furan, or fumaric dialdehyde. Certain 2-furyl thioethers are novel compounds. Compounds prepared according to the described one step process are useful as silver complexing agents in photographic compositions.

3,591,610

ANTHRAQUINONE DYES

Hirohito Kenmochi, Toyonaka-shi, Tatsuo Kanda, Takarazuka-shi, Seiji Hotta, Minoo-shi, and Takashi Akamatsu, Ashiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed Aug. 14, 1967, Ser. No. 660,239

Claims priority, application Japan, Aug. 18, 1966, 41/54,615, 41/54,616; Aug. 27, 1966, 41/56,563

Int. Cl. C09b 1/40, 1/52

U.S. Cl. 260—372

2 Claims

The novel dyes of the class of reactive anthraquinone dyes and employable for dyeing fiber articles containing nitrogen atom in clear shade with fastnesses.

3,591,611

3-OXYGENATED-17-UREIDO-ANDROSTANES

Glen E. Arth, Cranford, Lewis H. Sarett, Princeton, and Arthur A. Patchett, Cranford, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Aug. 4, 1969, Ser. No. 847,462

Int. Cl. C07c 169/14

U.S. Cl. 260—397.3

14 Claims

The invention disclosed herein relates to novel steroid compounds and processes for preparing them. More particularly, it relates to 3-oxygenated-17-ureido steroids of the androstane series which are effective as androgen biosynthesis inhibitors. These 3-oxygenated-17-ureido androstanes are prepared starting with a 3-oxygenated-5-pregnene-20-one compound, e.g. pregnenolone acetate, as follows: the 3-oxygenated-5-pregnene-20-one compound is reacted with hydroxylamine to form the 20-oxime which is then reacted with phosphorous oxychloride thereby forming the corresponding 3-oxygenated-17-acetamido-androst-5-ene compound; the latter compound is then hydrolyzed to form the corresponding 17-amino compound which, upon reaction with potassium cyanate, is converted to the corresponding 3-oxygenated-17-ureido-androst-5-ene compound. Where pregnenolone acetate per se is used as starting material, the compound obtained is 3-hydroxy-17-ureido-androst-5-ene which is then oxidized to produce 17-ureido-androst-4-ene-3-one.

3,591,612

NOVEL CARBONATES

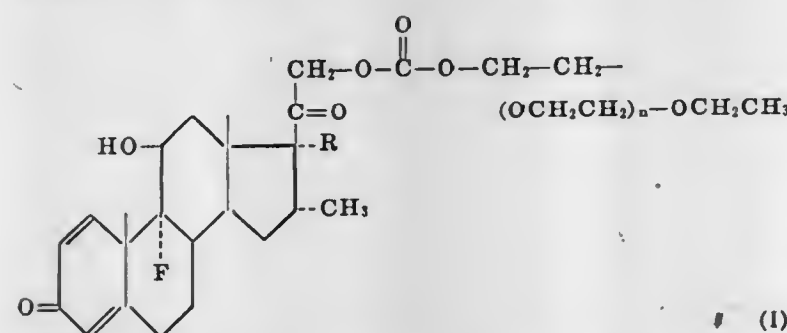
André Allais, Les Lilas, France, assignor to Roussel-UCLAF, Paris, France
No Drawing. Filed Apr. 15, 1969, Ser. No. 816,386
Claims priority, application France, Apr. 22, 1968, 148,895

Int. Cl. C07c 169/32

U.S. Cl. 260—397.45

5 Claims

Mixed carbonates of 9α-fluoro-16α-methyl-17α-R-Δ^{1,4}-pregnadiene-11β-21-diol-3,20-dione of the formula



wherein n is an integer from 0 to 10 and R is selected from the group consisting of hydrogen and hydroxyl having anti-inflammatory activity and their preparation.

3,591,613

CYCLOPENTANEDICARBOXYLIC ACID DERIVATIVES

Bozidar Palameta, St. Laurent, Quebec, Canada, assignor to Ayerst, McKenna & Harrison, Limited, St. Laurent, Quebec, Canada

No Drawing. Filed Jan. 7, 1969, Ser. No. 789,617

Int. Cl. C08h 17/36

U.S. Cl. 260—413

5 Claims

There are disclosed herein 4-(8-carboxy-octanoyl)-5-heptanoyl-, 4-(8-carboxy-1-hydroxyoctyl)-5-(1-hydroxyheptyl)-, and 4-(8-carboxy-octyl)-5-heptyl-1,3-cyclopentanedicarboxylic acids, lower diacylates of the above dihydroxy acid, and intermediates used in the preparation of the above compounds. The compounds inhibit aldose reductase and are useful for the treatment of galactosemic cataracts. Processes for their preparation and methods for their use are also disclosed.

3,591,614

SUBSTITUTED ETHYL DERIVATIVES OF TRICYCLOHEXYLTIN

Donald E. Bublitz, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 20, 1968, Ser. No. 761,310

Int. Cl. A01n 9/20, 9/24; C07f 7/22

U.S. Cl. 260—429.7

4 Claims

Substituted ethyl derivatives of tricyclohexyltin, wherein the substituted ethyl group is selected from 2-carboxyethyl, 2-cyanoethyl or 2-carb(lower)alkoxyethyl, said derivative being useful as pesticides.

3,591,615

CHLOROPHENYL THIOTRICYCLOHEXYLTIN COMPOUNDS

Donald E. Bublitz, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 20, 1968, Ser. No. 761,312

Int. Cl. A01n 9/00; C07f 7/22

U.S. Cl. 260—429.7

1 Claim

Novel tricyclohexyltin thio-ethers, i.e. phenylthio-tricyclohexyltin and chlorophenylthio-tricyclohexyltin which are useful as pesticides.

3,591,616

ORGANIC COMPLEX FERRIC COMPOUNDS

Rudolf Baldt, Innsbruck, Austria, assignor to Pharmazeutische Fabrik Montavit Gesellschaft mit beschränkter Haftung, Absam, Tirol, Austria

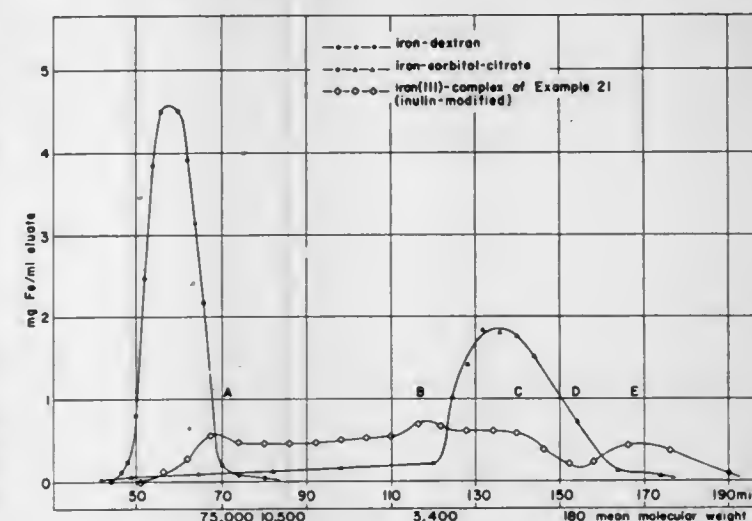
Filed June 28, 1968, Ser. No. 741,016

Claims priority, application Austria, July 4, 1967, A 6,220/67

Int. Cl. A61k 27/00; C07c 17/18; C07f 15/02

U.S. Cl. 260—439R

6 Claims



The invention relates to iron (III)-glycerin-hydroxy-carboxylic acid complexes and inulin-modified variations thereof. Processes for the production of the said complexes are also described.

The iron (III) complexes are indicated for the treatment of iron deficiency anemias.

3,591,617

PURIFICATION OF TOLUENE DIISOCYANATE

Norbert N. Buchsbaum, Clifton, N.J., assignor to The Lummus Company, Bloomfield, N.J.

Filed Mar. 7, 1968, Ser. No. 711,321

Int. Cl. C07c 119/04

U.S. Cl. 260—453

1 Claim

A process for purifying a crude organic isocyanate, such as toluene diisocyanate, wherein the crude isocyanate is dissolved in a suitable solvent and the solution cooled to a temperature at which a portion of the isocyanate crystallizes. The crystals are separated from the mother liquor and a portion of the mother liquor is recycled to the crude isocyanate stream while the remaining portion is purged from the system. The crystals are then dissolved in a mixture of fresh solvent and mother liquor recycled from a subsequent stage. The number of stages employed depends on the desired purity of the final product. The temperature employed in each crystallization stage is higher than in the previous crystallization, thereby providing a mother liquor richer in isocyanate than the preceding stage. The isocyanate crystals from the last stage are recovered as final product.

3,591,618

PROCESS FOR THE PREPARATION OF m- AND p-CYANO BENZYLAMINE AND THE HEXA-HYDRO-DERIVATIVES THEREOF

Ernst Hanschke, Burghausen (Salzach), Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Aug. 29, 1968, Ser. No. 756,326

Claims priority, application Germany, Sept. 29, 1967, F 53,620

Int. Cl. C07c 121/46, 121/52

U.S. Cl. 260—464

2 Claims

m- and p-Cyano benzylamine and the hexahydro-derivatives thereof are obtained in excellent yield and purity by catalytic hydrogenation of the corresponding dinitrile in the presence of ammonia and of a (further) solvent

when using the amount of hydrogen calculated for one nitrilo group.

3,591,619

PREPARATION OF NITROTETRACYANOCYCLOPENTADIENIDE SALTS BY REACTION OF TETRACYANODITHIIN, TETRACYANTHIOPHENE OR DICHLOROFUMARONITRILE WITH NITROMETHANE

Owen W. Webster, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Nov. 21, 1968, Ser. No. 777,887

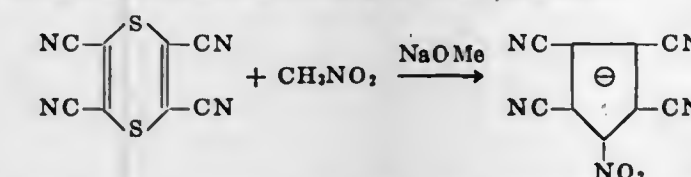
Int. Cl. C07c 121/48

U.S. Cl. 260—464

6 Claims

Described and claimed are the processes for preparing nitrotetracyanocyclopentadienide salts which comprise

(1) the base-catalyzed reaction of nitromethane with tetracyanodithiine according to the equation



(2) the base-catalyzed reaction of nitromethane with tetracyanthiophene followed by nitration of the

mixture of propylene, molecular oxygen and ammonia in the vapor phase at an elevated temperature with a catalyst having the empirical formula:



wherein X represents P or B .

The catalyst mentioned above is distinguished over the promoted or unpromoted iron oxide-antimony oxide catalyst disclosed in the prior art, in the following respects:

(1) It comprises a base catalyst system having a specific atomic ratio of Fe/Sb and a particular promoter being present in an extremely small amount, (2) it exhibits an improved conversion of propylene to acrylonitrile, particularly in the case where high conversion is achieved and the amount of residual oxygen is very small.

For example, the catalysts according to this invention (E-1, E-4 and E-6), and the catalysts disclosed in the prior art (R-1, R-2 and R-4) are prepared by similar procedures, and the activities thereof are tested by the same method to obtain results as shown in the following table.

Catalyst No.	Catalyst composition						Carrier, (SiO ₂) _n	Optimum reaction temp., ° C.	Conversion of propylene to acrylonitrile, percent
	Fe	Sb	X			O			
			V	P	B				
E-1.....	10	25	0.1	0.5	.....	67	30	460	73
E-4.....	10	25	0.2	.....	0.5	66	30	460	72
E-6.....	10	60	0.5	0.2	.....	137	60	460	72
R-1.....	10	25	.....	.....	.....	65	30	420	65
R-2.....	10	60	.....	.....	.....	135	60	450	66
R-4.....	10	25	3.0	.....	.....	73	30	410	48

3,591,621

METHOD FOR FORMING NITRILE COMPOUNDS

William M. Hutchinson, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Nov. 15, 1965, Ser. No. 507,700

Int. Cl. C07c 121/02, 121/08, 121/40

U.S. Cl. 260—465.4

5 Claims

Multifunctional compounds are prepared by reacting certain nucleophiles such as sodium cyanide, certain olefinically or acetylenically unsaturated compounds such as acrylonitrile, and an alkylating agent such as ethylchloroacetate in the presence of a dipolar aprotic solvent such as dimethylformamide.

3,591,622

AMALGAM HYDRODIMERISATION OF ORGANIC COMPOUNDS

Brian John Woodhall, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Jan. 31, 1968, Ser. No. 701,837

Claims priority, application Great Britain, Feb. 7, 1967, 5,842/67

Int. Cl. C07c 121/26

U.S. Cl. 260—465.8

6 Claims

α,β -Olefinically unsaturated nitriles or esters (for example acrylonitrile) are converted to their hydrodimers (for example adiponitrile) by reductive dimerisation employing an "onium" amalgam, for example a quaternary ammonium amalgam.

3,591,620

PROCESS FOR PRODUCING ACRYLONITRILE

Takachika Yoshino, Yokohama, Shigeru Saito, Fuchu-shi, Yutaka Sasaki, Yokohama, and Kiyoshi Moriya, Kanagawa-ken, Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan

Filed Nov. 19, 1968, Ser. No. 777,103

Claims priority, application Japan, Nov. 28, 1967, 42/75,891

Int. Cl. C07c 121/02

U.S. Cl. 260—465.3

5 Claims

This invention provides an improved process for the production of acrylonitrile which comprises contacting a

3,591,623

NITROPHENYLACETIC ACID DERIVATIVES

Gayle E. Back, Olathe, and Norman A. Dahle, Mission, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Original application Jan. 23, 1967, Ser. No. 610,746, now Patent No. 3,547,619, dated Dec. 15, 1970. Divided and this application July 31, 1969, Ser. No. 870,702

Int. Cl. C07c 83/08, 101/44

U.S. Cl. 260—471R 2 Claims
Weeds are combated by herbicidally effective amounts of isomeric nitrophenylacetic acids and with pre-emergent control, in particular, obtained by use of 2-nitrophenylacetic acid and amides and esters thereof.

3,591,624

4-(SUBSTITUTED ARYL) CYCLOHEXENE-CARBOXYLIC ACIDS

George Karmas, Bound Brook, N.J., and Alexander Mebane, New York, N.Y., assignors to Ortho Pharmaceutical Corporation
No Drawing. Filed Aug. 22, 1967, Ser. No. 662,310

Int. Cl. C07c 69/76; A61k 27/00

U.S. Cl. 260—473 2 Claims
4-(substituted aryl) cyclohexenecarboxylic acids, wherein the substituted aryl portion of the molecule is p-cyclopentoxyphenyl and o-tolyl, are useful as agents for the suppression of animal reproduction.

3,591,625

ESTERIFICATION OF TEREPHTHALIC ACID WITH AN ALKYLENE GLYCOL IN THE PRESENCE OF UREA OR AN ALKYL UREA

Ian C. Twilley and Stanley D. Lazarus, Petersburg, Va., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed June 17, 1968, Ser. No. 737,311

Int. Cl. C07c 69/82

U.S. Cl. 260—475PR 13 Claims
A process for the direct esterification of terephthalic acid with an alkylene glycol which comprises esterifying terephthalic acid with an alkylene glycol containing 2 to about 10 carbon atoms per molecule under direct esterification conditions in the presence of an amount of urea or an alkyl urea sufficient to suppress the formation of aliphatic ether groups.

3,591,626

TETRAVINYL COMPOUNDS

Elihu J. Aronoff, Framingham, and Santokh S. Labana, Dearborn Heights, Mass., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 4, 1969, Ser. No. 847,241

Int. Cl. C07c 69/54

U.S. Cl. 260—486R 6 Claims
A tetra vinyl compound having utility in coating compositions and other polymer-forming operations is formed by first reacting a diepoxide with acrylic and/or methacrylic acid and subsequently reacting the resultant ester condensation product with a vinyl unsaturated acyl halide.

3,591,627

OIL-SOLUBLE SULFONATE PREPARATION WITH NOVEL SEPARATION STEP

Ulric B. Bray, Los Angeles, and Lemuel S. Benbury, Whittier, Calif., assignors to Bray Oil Company, Los Angeles, Calif.

No Drawing. Filed July 7, 1967, Ser. No. 651,695

Int. Cl. C07c 143/24

U.S. Cl. 260—505S 9 Claims
Oil soluble sulfonates suitable for lubricating oil additives etc. are made substantially free of corrosive sulfates by controlled addition of water to alkyl benzene sulfonic

acids in solution in a hydrocarbon solvent, thereby separating a major part of the associated sulfuric acid, then neutralizing with excess powdered metal oxide, hydroxide or carbonate and filtering to remove the excess solids on which are adsorbed remaining sulfates.

3,591,628

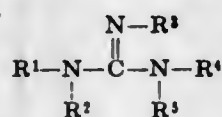
CARBOXYLATION PROCESS

Edwin L. Patmore, Fishkill, N.Y., assignor to Texaco Inc., New York, N.Y.

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,945

Int. Cl. C07c 51/14

U.S. Cl. 260—515 4 Claims
A method of carboxylating indene, cyclopentadiene, fluorene and hydrocarbyl cyanide by contacting said compounds with carbon dioxide under substantially anhydrous conditions in the presence of a guanidine of the formula:



where R¹ through R⁵ are hydrogen or alkyl of from 1 to 5 carbons and acidifying the resultant reaction mixture to form the carboxylic acid derivative and recovering said derivative therefrom.

3,591,629

CATALYST SELECTIVITY IN PURIFYING TEREPHTHALIC ACID

Arnold F. Stancell, Highland, and Raymond J. McGowan, Wayne, N.J., assignors to Mobil Oil Corporation
No Drawing. Filed Aug. 19, 1968, Ser. No. 753,772

Int. Cl. C07c 51/42

U.S. Cl. 260—525 15 Claims
The sorption of a phenylbenzene, as exemplified by biphenyl and 1,3-terphenyl, by a Group VIII metal catalyst alters the selectivity of the catalyst for promoting various reactions. In the purification of crude terephthalic acid in dispersed form (e.g., vaporized at elevated temperature in a superheated steam carrier) by contact in the presence of hydrogen with a catalyst, such as palladium supported on activated carbon particles, a phenylbenzene-treated catalyst provides superior yields of highly purified product by minimizing the conversion or degradation of terephthalic acid while effecting high percentage conversions of the small amounts of para-carboxybenzaldehyde contaminating the crude acid.

3,591,630

CAKING-RESISTANT GRANULAR SODIUM NITRILOTRIACETATES AND PROCESSES FOR PRODUCING THE SAME

Chung Yu Shen, St. Louis, Mo., and Norman Earl Stahlheber, Columbia, Ill., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,876

Int. Cl. C11d 1/10, 1/66; C07c 101/20

U.S. Cl. 260—534E 5 Claims
Caking-resistant granular sodium nitrilotriacetate is prepared by forming a reaction mixture of nitrilotriacetic acid and trisodium nitrilotriacetate and water; the molar ratio of nitrilotriacetic acid to trisodium nitrilotriacetate being from about 1:2 to about 1:10, said water comprising from about 15 to about 25% by weight based upon the weight of the total reaction medium and drying the resulting mixture to obtain a detergent additive containing disodium nitrilotriacetate and trisodium nitrilotriacetate and having a bulk density of from about 0.4 to about 0.8 g./cc. and having about 60% of its particles smaller than the openings in a U.S. Standard 10 mesh screen and about 80% larger than the openings in a U.S. Standard 60 mesh screen and less than about 8% by weight of water.

3,591,631

NOVEL PROCESS FOR THE PREPARATION OF UREA-N,N'-DICARBOXYLIC ACIDS

Jörg Strickrodt, Hannover, and Gerhard Blume and Hans Scheck, Wolfenbüttel, Germany, assignors to Salzgitter Chemie GmbH, Hannover, Germany

No Drawing. Filed Apr. 10, 1968, Ser. No. 720,361

Claims priority, application Germany, Apr. 11, 1967, S 109,278

Int. Cl. C07c 99/06, 127/16

U.S. Cl. 260—534 5 Claims
A process for the preparation of urea-N,N'-dicarboxylic acids from (1) amino-carboxylic acids, their salts or the corresponding lactams and (2) carbonyl sulfide.

3,591,632

METHOD FOR RECOVERING TRANS-TRAUMATIC ACID

August J. Pacini, San Pedro, Calif., assignor to Purex Corporation, Ltd., Lakewood, Calif.

No Drawing. Continuation-in-part of application Ser. No. 380,071, July 2, 1964. This application Jan. 29, 1968, Ser. No. 701,136

Int. Cl. C07c 51/42

U.S. Cl. 260—537 2 Claims
Essentially pure trans-traumatic acid is obtained from a mixture of cis- and trans-isomers by twice recrystallizing the acid from acetonitrile solution.

3,591,633

NOVEL PROCESS

Henri Ulrich, North Branford, Conn., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Sept. 17, 1968, Ser. No. 760,355

Int. Cl. C07c 127/00

U.S. Cl. 260—553 3 Claims
The chlorination of N,N'-diphenylurea to give bis(2,4,6-trichlorophenyl)urea is effected in high yield and with facile separation of product, by employing an inert aprotic solvent as reaction medium (N,N-dialkylalkanoamides such as dimethylformamide are preferred). The bis(2,4,6-trichlorophenyl)urea is an intermediate for the known N,N'-dichloro-bis(2,4,6-trichlorophenyl)urea, an antivessicant.

3,591,634

N-(TERTIARY AMINO-ALKYL)-BENZAMIDES

Michel Leon Thominet, Paris, France, assignor to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France, Paris, France

No Drawing. Filed June 19, 1968, Ser. No. 738,123

Claims priority, application France, June 20, 1967, 111,225; Sept. 5, 1967, 120,026

Int. Cl. C07c 103/33

U.S. Cl. 260—559 4 Claims
The compositions of this invention are useful as local anesthetics for mammals. They are significantly more potent than cocaine, xylocaine and procaine. They may be administered in the form of tablets, ampoules or aerosols.

3,591,635

CATALYTIC HYDROGENATION PROCESS FOR PREPARING DI(4-AMINOCYCLOHEXYL) METHANE

William J. Farrissey, Jr., North Branford, and Floro F. Frulla, Wallingford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Sept. 25, 1968, Ser. No. 762,661

Int. Cl. C07c 85/00

U.S. Cl. 260—563B 12 Claims
A process is disclosed for the catalytic hydrogenation of di(4-aminophenyl)methane to di(4-aminocyclohexyl)

methane. The novelty resides in use of a supported rhodium catalyst (rhodium-on-alumina preferred) with a rhodium content of about 1% to about 20% by weight. High yields of di(4-aminocyclohexyl)methane, free from aromatic contaminants, are obtained. The catalyst can be recycled many times without exhaustion.

3,591,636

SUBSTITUTED BENZYLIDENEAMINO GUANIDINES

William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 743,613, July 10, 1968. This application Sept. 16, 1968, Ser. No. 762,356

Int. Cl. C07c 133/10

U.S. Cl. 260—564 7 Claims
Substituted benzylideneamino-3-hydroxy guanidines, e.g., 1-(2,6-dichlorobenzylideneamino)-3-hydroxyguanidine, are useful as hypotensives and agrochemicals.

3,591,637

BIS(DIALKYLAMINOMETHYL)HYDROXY-BENZYL SULFIDES

Francis X. O'Shea, Naugatuck, Conn., and Gordon P. Sage, Charleston, W. Va., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,968

Int. Cl. C07c 87/28

U.S. Cl. 260—570.9 6 Claims
This invention is concerned with a new series of compounds found to be useful as antioxidants, and their novel method of production. The compounds, described as (dialkylaminomethyl) hydroxy benzyl sulfides are particularly effective in retarding oxidative deterioration.

3,591,638

PROCESS FOR N-METHYLATING NITROANILINES AND COMPOUNDS PREPARED THEREBY

Alexander Halasz, Norwalk, Conn., assignor to Clairol Incorporated, New York, N.Y.

No Drawing. Filed May 13, 1968, Ser. No. 728,786

Int. Cl. C07c 9/44, 85/10, 87/52

U.S. Cl. 260—574 12 Claims
N-methylating nitroanilines by reacting nitroanilines with a mixture containing formaldehyde or paraformaldehyde and sulfuric acid; compounds prepared by this process being useful as hair dyes.

3,591,639

PREPARATION OF AMINES FROM N-SUBSTITUTED AMIDES

Harlan E. Tiefenthal, Western Springs, and Eugene J. Miller, Jr., Wheaton, Ill., assignors to Armour Industrial Chemical Company

No Drawing. Filed Nov. 2, 1967, Ser. No. 680,036

Int. Cl. C07c 85/12

U.S. Cl. 260—583 12 Claims
A process for preparation of primary and secondary amines comprising reacting an N-substituted amide with ammonia at an elevated temperature forming an amine and unsubstituted amide which in the presence of a catalyst dehydrates the unsubstituted amide to a nitrile. The amines formed by this reaction are useful as mineral flotation agents, biocides, and as intermediates to form surface active chemicals and nitrogen derivative compounds such as diamines, quaternary ammonium compounds and the like.

3,591,640 PROCESS FOR THE PRODUCTION OF ETHYLENIC COMPOUNDS

Duncan Clark and Percy Hayden, Norton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Continuation-in-part of application Ser. No. 483,860, Aug. 30, 1965. This application July 29, 1968, Ser. No. 748,218
Int. Cl. C07c 41/06, 41/10, 43/00

U.S. Cl. 260—614 15 Claims
Unsaturated ethers are produced with reduced by-product acetal formation by reacting a vinyl or allyl alkanate with an alkanol at -50 to 200°C . in a solution containing not more than 10% water, a palladium salt or complex palladium compound and a stationary concentration of the acetal formed as by-products in the process.

3,591,641 PRODUCTION OF DIALKYL ETHERS OF POLYALKYLENE GLYCOLS

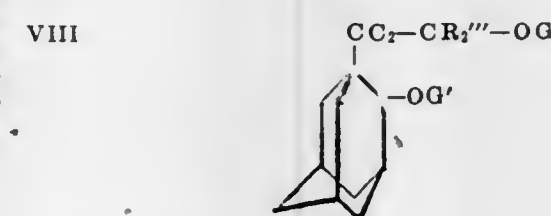
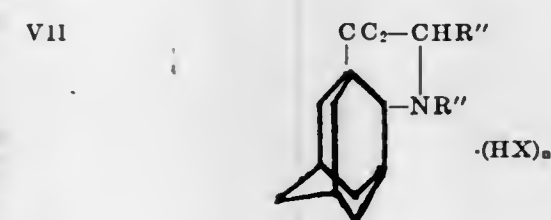
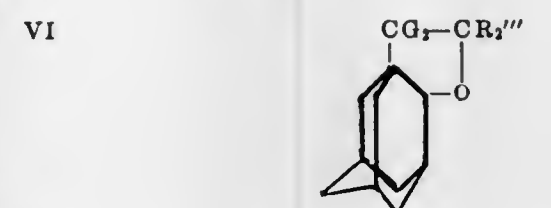
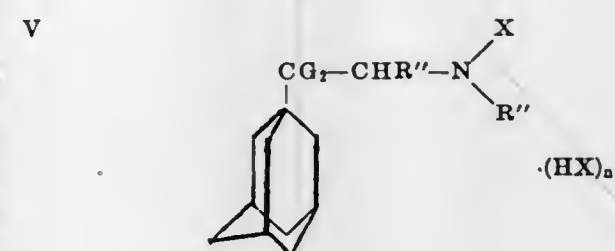
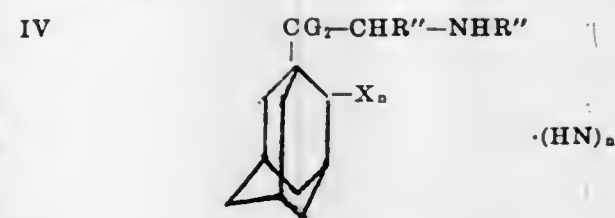
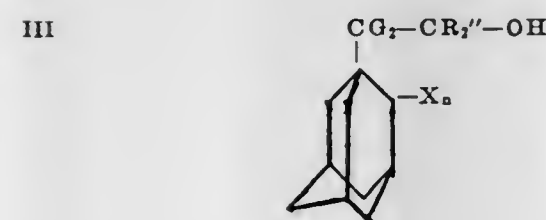
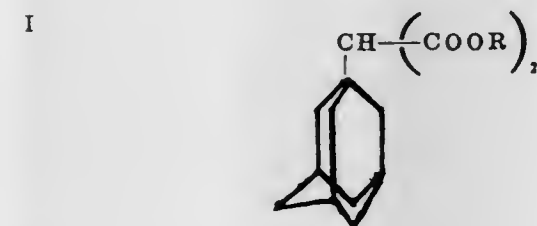
Jameil Ameen and Charlie A. Horner, Jr., Hopewell, and Floyd A. Harrison, Colonial Heights, Va., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Oct. 28, 1968, Ser. No. 771,326
Int. Cl. C07c 41/04

U.S. Cl. 260—615 6 Claims
In the production of dialkyl ethers of polyalkylene glycols by forming the sodium alcoholate of the monoalkyl ether and reacting the sodium alcoholate with an alkyl chloride, incorporation of a small amount of water in the reaction medium facilitates separation of the sodium chloride by-product. The need for a sodium dispersing agent such as toluene is avoided by the incorporation of water.

3,591,642 ADAMANTANE COMPOUNDS

Stephen S. Szinai, Wokingham, England, and William H. W. Lunn, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Filed Oct. 13, 1967, Ser. No. 675,037
Claims priority, application Great Britain, Oct. 24, 1966, 47,666/66
Int. Cl. C07c 35/22, 69/16; A61k 25/00

U.S. Cl. 260—617 3 Claims
The present invention is directed to adamantane compounds of the formulae:



wherein each G independently represents hydrogen or straight-chain alkyl of from 1 to 6, both inclusive, carbon atoms; G' represents hydrogen or acetyl; R represents hydrogen or alkyl of from 1 to 6, both inclusive, carbon atoms; R' represents halo, alkoxy containing from 1 to 6, both inclusive, carbon atoms in the alkyl group, hydrogen or alkyl of from 1 to 6, both inclusive, carbon atoms; each R'' independently represents hydrogen or alkyl of from 1 to 6, both inclusive, carbon atoms; each R''' independently represents hydrogen or alkyl of from 1 to 6, both inclusive, carbon atoms; or both R''' groups taken together represent oxo(=O); X represents halo; and each n independently represents an integer of from 0 to 1, both inclusive. The terms "halo" and "halide" are employed herein to designate occurrences of bromine, chlorine, and iodine.

3,591,643 PROCESS FOR THE PREPARATION OF BICYCLO HEXANE COMPOUNDS AND THE NOVEL COM- POUND DEMETHYL-CIS-SABINENE HYDRATE

Wayne Irwin Fanta and William Francis Erman, Springfield Township, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Feb. 28, 1968, Ser. No. 708,780
Int. Cl. C07c 35/22; C11b 9/00; A23l 1/26

U.S. Cl. 260—617F 2 Claims
Novel process for the preparation of demethyl-cis-sabinene hydrate comprising the steps of (1) cyclizing 2-methyl-3,6-heptane-dione with a base in a suitable solvent to form 3-isopropyl-2-cyclopentenone; (2) reducing the 3-isopropyl-2-cyclopentenone with a suitable reducing agent to obtain 3-isopropyl-2-cyclopentanol; and (3) reacting the 3-isopropyl-2-cyclopentanol with appropriate reagents

to form the novel compound demethyl-cis-sabinene hydrate. Sabina ketone, sabinene and cis- and trans-sabinene hydrates can readily be prepared from the demethyl-cis-sabinene hydrate, if desired.

3,591,644 PROCESS FOR PREPARING HALOGENATED AROMATICS

Vincent A. Notaro, Monroeville, and Charles M. Selwitz, Pitcairn, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed May 20, 1968, Ser. No. 730,646
Int. Cl. C07c 25/04

U.S. Cl. 260—650 14 Claims
A process for preparing a nuclear chloro or nuclear bromo aromatic compound which involves heating an aromatic compound in the presence of a nitrate ion, a nitrite ion, NO or NO₂, a chloride or bromide ion, water and oxygen.

3,591,645 PROCESS FOR PREPARING A HALOGENATED AROMATIC

Charles M. Selwitz, Pitcairn, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Continuation-in-part of application Ser. No. 602,469, Dec. 19, 1966. This application May 20, 1968, Ser. No. 730,589
Int. Cl. C07c 25/04

U.S. Cl. 260—650 38 Claims
A process for preparing a nuclear chloro or nuclear bromo aromatic hydrocarbon which involves heating an aromatic compound with a compound selected from the group consisting of copper, manganese, cerium, cobalt, vanadium, chromium, iron, nickel, cadmium, tin, antimony, mercury, bismuth, the noble metals (platinum, palladium, iridium, rhodium, osmium and ruthenium) and compounds of these metals, a nitrate ion, a nitrite ion, NO or NO₂, a chloride or bromide ion and an inert solvent.

3,591,646 PROCESS FOR OBTAINING HALOGENATED, FLUORINE CONTAINING ORGANIC COM- POUNDS

Martino Vecchio, Milan, Italo Cammarata, Bollate, and Vittorio Fattore, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
No Drawing. Continuation-in-part of application Ser. No. 329,361, Dec. 10, 1963. This application Dec. 18, 1967, Ser. No. 691,214
Claims priority, application Italy, Dec. 28, 1962, 25,491/62

The portion of the term of the patent subsequent to Nov. 17, 1987, has been disclaimed
Int. Cl. C07c 17/08

U.S. Cl. 260—653.6 6 Claims
Continuous process for the preparation of chlorofluoroethanes by catalytic reaction in gaseous phase of acetylene, hydrogen fluoride and chlorine carried out in the presence of a recycle mixture of halogenated hydrocarbons at a temperature in the range from 250 to 500° C.

3,591,647 PROCESS FOR ISOMERIZING 5-ALKENYLNORBORNENE

Hiromi Kochi, Yoshiaki Komori, and Shigeaki Muto, Hitachi-shi, Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan
No Drawing. Filed Apr. 22, 1970, Ser. No. 30,939
Claims priority, application Japan, Apr. 30, 1969, 44/33,443
Int. Cl. C07c 5/24

U.S. Cl. 260—666 3 Claims
5-alkenylnorbornene is isomerized to 5-alkylidene norbornene by allowing the 5-alkenylnorbornene to come in

contact with a basic catalyst consisting of an alkali metal hydride and a dimethylsulfoxide or an aliphatic amine. The 5-alkenylnorbornene is utilized as the third component for ethylenepropylene rubber.

3,591,648 POLYCYCLIC POLYENE COMPOUNDS OBTAINED BY REACTING FULVENE DERIVATIVES AND DIENES, AND A METHOD OF PRODUCING SAME

Walter Marconi, Sebastiano Cesca, and Arnaldo Roggero, San Donato Milanese, Italy, assignors to Snam Progetti S.p.A., Milan, Italy
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,917
Claims priority, application Italy, Mar. 13, 1967, 13,637/67
Int. Cl. C07c 13/28

U.S. Cl. 260—666 15 Claims
A process for the manufacture of orthocondensed polycyclic polyene condensation products which comprises condensing a conjugated diene compound and a fulvene derivative at a temperature between 100 to 250° C., the mole-ratio of diene/fulvene being at least one is disclosed.

3,591,649 CONVERSION CATALYST

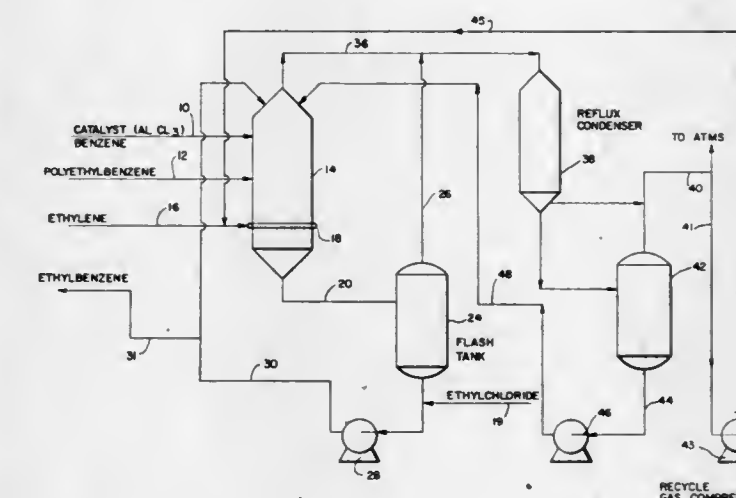
Wolfram R. Kroll, Linden, and George W. Dembinski, West Orange, N.J., assignors to Esso Research and Engineering Company
No Drawing. Filed Oct. 10, 1968, Ser. No. 766,651
Int. Cl. C07c 5/10; B01j 11/22

U.S. Cl. 260—667 22 Claims
An activated conversion catalyst may be prepared by a unique processing sequence. In this sequence a conventional supported transition metal catalyst is brought to substantially improved levels of activity by impregnation with a reduced transition metal catalyst, capable of activating molecular hydrogen.

3,591,650 ALKYLATION PROCESS

Dimitri M. Mitsak, Edgeworth, Sewickley, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.
Filed June 12, 1969, Ser. No. 832,653
Int. Cl. C07c 3/56

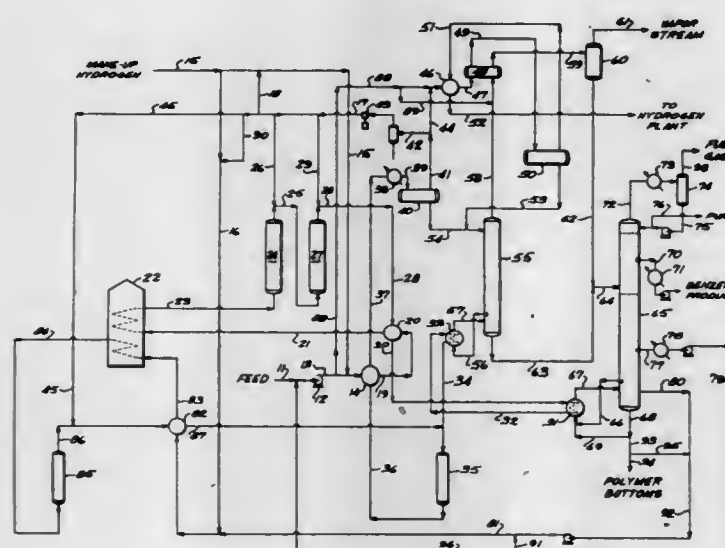
U.S. Cl. 260—671 8 Claims



An improved process for the alkylation of aromatic hydrocarbons in which product effluent from an alkylation reaction is flash distilled to recover unreacted aromatic and the recovered aromatic is combined with hydrogen chloride gas produced in the alkylation reaction. The combined vapors are cooled to condense the aromatic and dis-

solve the hydrogen chloride gas in the condensed aromatic, and the enriched condensate is thereafter returned to the alkylation reaction.

3,591,651
COMBINATION THERMAL HYDRODEALKYLATION DIPHENYL HYDROGENATION PROCESS
Norman L. Carr, Allison Park, and Sheldon J. Kramer and Donald L. Stahlfeld, Glenshaw, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Continuation-in-part of application Ser. No. 596,125, Nov. 22, 1966. This application Mar. 14, 1969, Ser. No. 816,145
Int. Cl. C07c 3/58, 15/00
U.S. Cl. 260—672 9 Claims



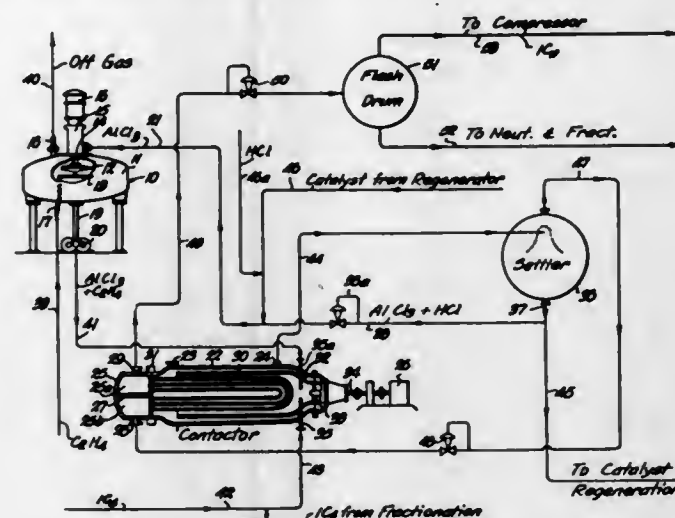
In a process for the thermal hydrodealkylation of alkyl aromatic compounds, wherein polyphenyl reactants are subjected to conversion to benzene in an auxiliary reaction zone, hydrogenation of the effluents of the primary and auxiliary reaction zones results in prolonged coke-free operation.

3,591,652
CONVERSION OF MERCAPTAN TO OLEFIN AND H₂S
Arthur Lee Larsen, Denver, Colo., assignor to Marathon Oil Company, Findlay, Ohio
Filed Aug. 26, 1968, Ser. No. 755,434
Int. Cl. C07c 11/02
U.S. Cl. 260—677 12 Claims
Olefin and H₂S are obtained from alkyl mercaptans by contacting the mercaptans with an iron catalyst at 150°–500° C. for a contact time of at least about 0.5 minute. For example, ethylene and H₂S are obtained in high yields from ethyl mercaptan.

3,591,653
ETHYLENE ABSORPTION AND ALKYLATION WITH ALUMINUM CHLORIDE
David H. Putney, Shawnee Mission, Kans., assignor to Stratford Engineering Corporation, Kansas City, Mo.
Filed Feb. 17, 1969, Ser. No. 799,680
Int. Cl. C07c 3/56
U.S. Cl. 260—683.53 10 Claims

Absorption of dilute ethylene streams (as from tail gas) with aluminum chloride complex catalyst in a separate absorption vessel, such as a flash vaporization reactor; alkylation of isobutane in a second reactor vessel such as a circulating pressurized mixer or contactor with the ethylene-aluminum chloride complex absorption product; separation of the reaction effluent from the second reactor with recycle of the relatively heavier catalyst phase to

catalyst regeneration or directly to the ethylene absorption step and passage of the relatively light settler phase

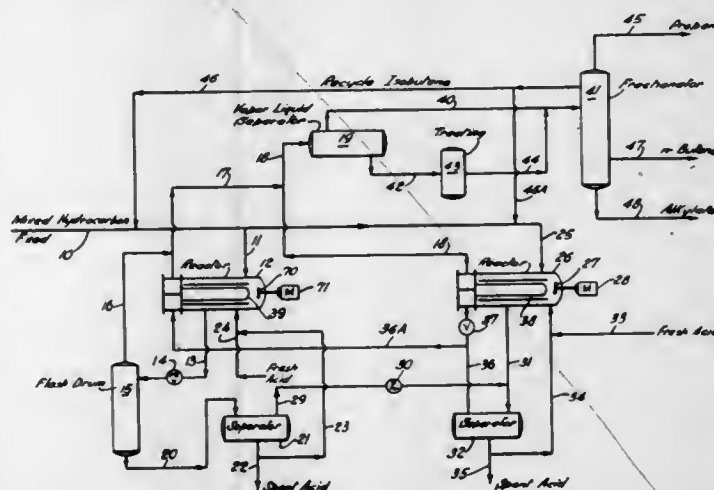


optionally through effluent refrigeration of the alkylation step before passage to neutralization and fractionation.

3,591,654
PROCESS FOR ALKYLATION OF AN ISOPARAFFIN WITH AN OLEFIN AND WITH SULFURIC ACID-AROMATIC HYDROCARBON COMPLEX REACTION PRODUCTS
Arthur Newton, Johannesburg, Transvaal, Republic of South Africa, assignor to Texaco Trinidad, Inc., Trinidad, West Indies
No Drawing. Filed Jan. 31, 1969, Ser. No. 795,746
Int. Cl. C07c 3/54
U.S. Cl. 260—683.61 6 Claims

Hydrocarbon stock comprising paraffins and aromatics is treated with strong sulfuric acid forming acid complex reaction products and the resulting acid-acid complex mixture operation, having a titratable acidity above 85 percent sulfuric acid by weight, is employed as a catalyst for the alkylation of an isoparaffin with an olefin and is more active as a catalyst than is indicated by its titratable acidity.

3,591,655
COMBINATION OF EMULSION FLASHING AND EFFLUENT REFRIGERATION IN SULFURIC ACID ALKYLATION
Ralph M. Lewis, Nederland, Tex., Henry D. Mooror, Richmond, Va., and James O. Francis, Houston, Tex., assignors to Texaco Inc., New York, N.Y.
Filed Dec. 16, 1968, Ser. No. 783,932
Int. Cl. C07c 3/54
U.S. Cl. 260—683.62 3 Claims



Process for obtaining improved refrigeration results in sulfuric acid alkylation utilizing two alkylation reactor: The emulsion of acid and hydrocarbon from one

reactor is flashed and the resulting mixture is separated into a cold acid phase and a cold hydrocarbon phase. The acid phase is used to cool this reactor while the hydrocarbon phase is combined with the reaction mixture from the other reactor to provide temperature reduction. The reaction mixture of this reactor is separated into acid and hydrocarbon phases, the acid phase returned to said reactor and portions of the hydrocarbon phase is passed through the tube bundles in each reactor. Pressure reduction provides effluent cooling in one of the reactors.

3,591,656
HETEROGENEOUS CATALYST PROCESS
Wolfram R. Kroll, Linden, N.J., assignor to Esso Research and Engineering Company
No Drawing. Original application Oct. 10, 1967, Ser. No. 674,709. Divided and this application Jan. 24, 1969, Ser. No. 793,877
Int. Cl. C07c 5/02, 5/18
U.S. Cl. 260—683.9 11 Claims

Heterogeneous conversion catalysts are prepared by forming, in an inert atmosphere, complexes between a reduced transition metal and a support, the complex is then stabilized by heating. The catalysts so formed may be used for the conversion of organic feed compounds in the presence of hydrogen.

3,591,657
BLENDED RESIN AND HIGH TRANSPARENCY HIGH IMPACT STRENGTH VINYL CHLORIDE POLYMER BLENDS CONTAINING SAME
Fumio Ide and Seiji Deguchi, Hiroshima, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan
Filed July 19, 1968, Ser. No. 746,024
Claims priority, application Japan, July 28, 1967, 42/48,571
Int. Cl. C08f 29/24, 41/12; C08d 9/08
U.S. Cl. 260—876R 6 Claims

A resinous additive containing a styrene, n-butyl acrylate and butadiene-1,3 elastomer in admixture with a copolymerize of styrene and methyl methacrylate and/or acrylonitrile. Vinyl chloride polymer compositions containing this resinous additive and having both excellent transparency and impact resistance.

3,591,658
PRODUCTION OF BUTADIENE-STYRENE GRAFT COPOLYMERS WITH A NICKEL CARBOXYLIC ACID SALT-BORON TRIFLUORIDE ETHERATE-TRIALKYLALUMINUM CATALYST
Akira Onishi, Shiro Anzai, Takao Ishikawa, Akira Koga, Koichi Irako, and Motoki Ishii, Tokyo, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan
No Drawing. Continuation-in-part of abandoned application Ser. No. 474,500, July 23, 1965. This application July 2, 1968, Ser. No. 741,909
Claims priority, application Japan, Apr. 30, 1965, 40/25,215
Int. Cl. C08f 15/04
U.S. Cl. 260—880 6 Claims

A process for manufacturing rubbery or plastic butadiene graft-copolymers having a cis-1,4 content of at least 85% and substantially no gel, which comprises polymerizing butadiene, and copolymerizing styrene at a temperature of from 80° C. to 180° C., with a catalyst system consisting of (A) an organic carboxylic acid salt of nickel, (B) a boron trifluoride etherate and (C) a trialkylaluminum.

3,591,659
POLYESTER-ACRYLIC ACID ESTER POLYMER THERMOPLASTIC MOULDING COMPOSITIONS
Ludwig Brinkmann, Frankfurt am Main, Harald Cherdron, Wiesbaden, and Klaus-Dieter Asmus, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,839
Claims priority, application Germany, Oct. 10, 1967, P 16 94 200.0
Int. Cl. C08f 29/10, 29/12
U.S. Cl. 260—873 18 Claims

Thermoplastic moulding compositions comprising linear saturated polyesters and polymers of esters of acrylic acid, from which shaped articles can be made having a good hardness, abrasion resistance and solvent resistance, and a particularly high impact strength.

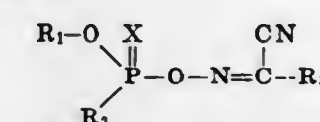
3,591,660
THERMOPLASTIC COMPOSITIONS FOR THE PREPARATION OF INHERENTLY FLEXIBLE SHEET MATERIALS
Glen H. Graham and Robert R. Blanchard, Port Allen, La., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Nov. 22, 1967, Ser. No. 684,925
Int. Cl. C08f 29/24, 29/12
U.S. Cl. 260—897 6 Claims

This invention relates to thermoplastic compositions based on intimate blends of certain chlorinated olefin polymers, vinyl chloride polymers and copolymers of ethylene and copolymerizable alkyl esters of an alpha, beta-ethylenically unsaturated acid. These compositions are inherently flexible under usual environmental conditions and retain such flexibility to an unexpected extent at low temperatures.

3,591,661
POLYMERIC PHOTSENSITIZERS
Fulton Floyd Rogers, Jr., Richmond, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed July 23, 1969, Ser. No. 844,171
Int. Cl. C08f 37/18
U.S. Cl. 260—897 2 Claims
Improved copolymeric photosensitizers comprising alpha olefin and acryloxyalkyl and methacryloxyalkyl substituted anthraquinones, useful for crosslinking polymers.

3,591,662
PHOSPHORUS CONTAINING ALPHA OXIMINO ACETIC ACID NITRILES
Walter Lorenz, Wuppertal, Vohwinkel, Christa Fest, Wuppertal, Elberfeld, Ingeborg Hammann, Cologne, Manfred Federmann and Winfried Flucke, Wuppertal, Elberfeld, and Wilhelm Stendel, Wuppertal, Vohwinkel, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed May 26, 1966, Ser. No. 553,031
Claims priority, application Germany, June 26, 1965, F 46,446, Patent 1,238,902
Int. Cl. C07f 9/08; C07d 31/46; A01n 9/36
U.S. Cl. 260—940 22 Claims

Phosphorus-containing alpha-oximino-aryl acetic acid-nitrile having the formula:



in which R₁ is alkyl and haloalkyl; R₂ is alkyl alkoxy, haloalkoxy, alkyl amino, di-alkyl amino, phenyl, phenoxy,

cyclohexyl and cyclohexyloxy; R_3 is phenyl, naphthyl, pyridyl and substituted phenyl which is substituted with mono-, di- and trihalo, alkyl, alkoxy, alkyl mercapto and/or nitro; and X is oxygen and sulfur, which possess biocidal properties, and which may be prepared by reacting the corresponding phosphorus ester halide with the appropriate α -oximino arylacetic acid nitrile in the form of the corresponding salt or in the presence of an acid-binding agent. The compounds are pesticides.

3,591,663 CHLOROALKYL-THIOL-PHOSPHORIC ACID ESTERS AND ESTER AMIDES

Hellmut Hoffmann, Wuppertal-Elberfeld, and Hans Scheinpflug, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 8, 1968, Ser. No. 727,697
Claims priority, application Germany, May 10, 1967, F 52,369

Int. Cl. C07f 9/08; A01n 9/36
U.S. Cl. 260—965 10 Claims
O-chloroalkyl-S-(alkyl, cycloalkyl, phenyl and chloro-, alkyl-, nitro- and/or alkylmercapto-substituted phenyl)-[O- and S-(alkyl, cycloalkyl, phenyl and chloro-, alkyl-, nitro- and/or alkylmercapto-substituted phenyl) as well as N-alkyl and N,N-dialkyl]-thiol and -dithiol-phosphoric acid esters and -thiol-phosphoric acid ester amides, which possess fungicidal properties and which may be produced by reacting the corresponding O-chloroalkyl-S-(alkyl, cycloalkyl, phenyl and chloro-, alkyl-, nitro- and/or alkylmercapto-substituted phenyl)-thiol-phosphoric acid diester chloride with the appropriate alcohol, mercaptan, phenol, thiophenol, N-alkyl amine or N,N-dialkylamine, in the presence of an acid binding agent or with the second component in the form of its salt, e.g. alkali metal or ammonium salt.

3,591,664
PROCESS FOR THE PREPARATION OF TRI-SUBSTITUTED HYDROCARBYL PHOSPHATES
Yutaka Kodama and Tsutomu Kodama, Toyama-shi, and Masao Nakabayashi, Namerikawa-shi, Japan, assignors to Toyama Chemical Co., Ltd., Tokyo, Japan
No Drawing. Filed Sept. 11, 1968, Ser. No. 759,241
Int. Cl. C07f 9/08

U.S. Cl. 260—973 2 Claims
Preparation of tri-substituted hydrocarbyl phosphates, by reacting dihydrocarbylchlorophosphates with alcohols in the presence of caustic alkalis, such as caustic soda and caustic potash, etc., whereby the hydrogen chloride formed simultaneously is neutralized quickly with the caustic alkali. According to this process, it is possible not only to prevent the decomposition of dihydrocarbylchlorophosphates but also to suppress the side reaction represented by the equation:



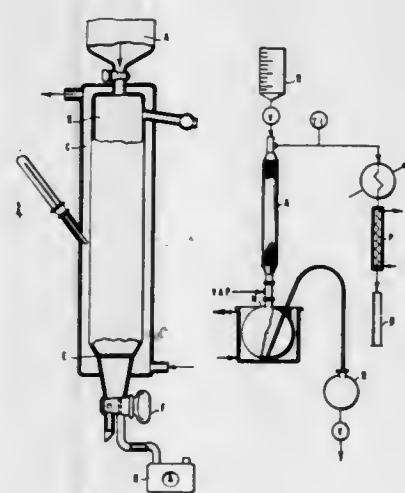
wherein R is an alkyl group. The compounds produced by the invention are useful as additives for gasoline, plasticizers for thermoplastic resins and flame retarding agents for rigid polyurethane foam, polyester resin, etc.

3,591,665
PROCESS FOR PRODUCING PHYTIC ACID
Goro Kimura, Kamakura, Eiichi Noda, Hisagi Zushi, Hideaki Takeuchi, Yokohama, and Koji Tsukushiro, Isehara-machi, Japan, assignors to Mitsui Toatsu Chemicals Incorporated, Tokyo, Japan
No Drawing. Filed Sept. 8, 1967, Ser. No. 666,448
Int. Cl. C07f 9/08

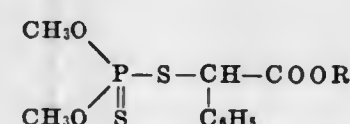
U.S. Cl. 260—983 10 Claims
Phytic acid is obtained by extracting phytin from cereals, brans, glutens, embryos, plant seeds and/or their

defatted sediments with a dilute aqueous solution of an acid, precipitating the phytin by adding an alkaline substance so as to adjust the pH of the extract to the alkaline side, filtering and dispersing it in water, treating the dispersion with a cation exchange resin and then with a weak anion exchange resin, and concentrating it. The phytic acid thus obtained is useful as a metal-inactivator in fats and oils, a stabilizer of various foods and food products, a stabilizer of vitamins, a softener of water, an antioxidant of fats and oils, a corrosion inhibitor for many metals and as an additive in fermentation.

3,591,666
METHOD OF LOWERING THE TOXICITY OF
ALKYL ESTERS OF O,O-DIMETHYLDITHIO-
PHOSPHORYL-ALPHA-PHENYLACETIC ACID
Giovanno Pellegrini, Romano Santi, and Nicola Trolani, Milan, Italy, assignors to Montecatini Edison S.p.A.
Filed Jan. 9, 1967, Ser. No. 608,092
Claims priority, application Italy, Jan. 13, 1966, 618/66
Int. Cl. A01n 9/36; C07f 9/08
U.S. Cl. 260—990 1 Claim



Described is a method of lowering the toxicity of compounds of the formula:



wherein R is linear or branched alkyl from 1 to 5 carbon atoms. The method comprises subjecting the compound to at least one distillation treatment in countercurrent vapor.

3,591,667
METHOD OF PRODUCING A CELLULOSE
HEMODIALYSIS MEMBRANE
Virendra Kumar Kulshrestha, Salt Lake City, Utah, assignor to University of Utah
No Drawing. Filed Mar. 16, 1970, Ser. No. 20,029
Int. Cl. C08b 1/00, 29/24

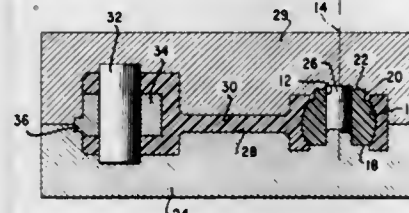
U.S. Cl. 264—218 7 Claims
The invention disclosed herein relates to a novel method for producing a regenerated cellulose hemodialysis membrane. The cellulose is dissolved in a cupriethylene-diamine hydroxide solution and then cast into a film and suitably treated to produce a hemodialysis membrane of improved permeability and ultrafiltration. Cuenophane is the name chosen by the inventor to be applied to this regenerated cellulose membrane.

3,591,668
STRENGTHENING FULLY SINTERED ALUMINA
AND TITANIA ARTICLES BY REHEATING IN
A FLUORINE ATMOSPHERE
Henry P. Kirchner and Ralph E. Walker, State College, Pa., assignors to Henry P. Kirchner, State College, Pa.
No Drawing. Filed May 28, 1968, Ser. No. 732,521
Int. Cl. C04b 33/32, 33/34, 35/64

U.S. Cl. 264—65 11 Claims
Alumina and titania bodies which have previously been fully sintered by conventional techniques are reheated to at least 1400° C. in an atmosphere containing at least 20% fluorine for a period of about 1-4 hours to substantially improve their strength.

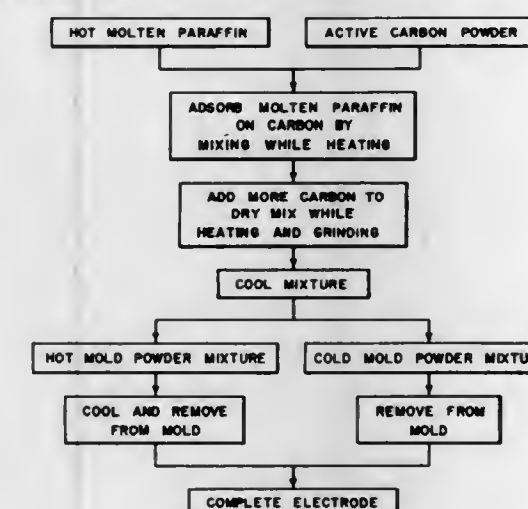
3,591,669
PLASTIC UNIVERSAL BEARINGS AND METHOD
OF MANUFACTURE THEREOF
Thomas J. Membry, Parsippany, N.J., assignor to The Singer Company, New York, N.Y.
Filed May 7, 1968, Ser. No. 727,229
Int. Cl. B29b 3/00

U.S. Cl. 264—101 2 Claims



This disclosure relates to a plastic universal or self-aligning bearing of the ball and socket type and the method of manufacture thereof. The bearing is formed in a two-shot molding process in which a plastic bearing member is first molded and thereafter swelled by increasing the moisture content thereof. The swelled plastic bearing member is then inserted into a second die cavity in which a second material, plastic or metal, is molded into a suitable socket member which entraps the swelled insert therein. On subsequent treatment the moisture content of the insert is reduced, thus causing the insert to return to a smaller, or initial volume. This creates a clearance between said bearing member and said socket member which acts to lessen any frictional interference between said members on relative movement thereof.

3,591,670
METHOD OF PRODUCING A PARAFFIN-ACTIVE
CARBON ELECTRODE
Donald H. Grangaard, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Original application Dec. 27, 1966, Ser. No. 604,933, now Patent No. 3,459,652, dated Aug. 5, 1969. Divided and this application Mar. 17, 1969, Ser. No. 807,818
Int. Cl. H01m 13/04
U.S. Cl. 264—105 4 Claims



A porous, low cost alkali stable electrode which is resistant to wetting, highly efficient for the electrolytic re-

duction of oxygen to perhydroxyl ion and formed by cold or hot pressing activated carbon having paraffin intimately adsorbed thereon.

3,591,671
AGGLOMERATION OF PLASTIC PARTICLES IN
LIQUID SUSPENSION
William E. Burt and Michael E. Kucsma, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y.
No Drawing. Filed Aug. 28, 1968, Ser. No. 755,835
Int. Cl. B01j 2/06

U.S. Cl. 264—117 7 Claims
A process for preparing large particles of plastic materials, particularly polyvinyl chloride. A substantially water immiscible solvent for the plastic material is first dispersed in an aqueous medium. The aqueous medium is heated to a temperature in the range of from about 45° C. to about 85° C. The water-solvent mixture is stirred to disperse the solvent into fine droplets. Small particle size plastic material is then added to the water-solvent mixture while continuing the stirring. Stirring is continued until agglomerates of the desired size are formed. Solvent is removed by distillation and the large particle size plastic material is recovered by centrifuging or filtering. Particles produced by this process are suitable for use as a filter media.

3,591,672
PROCESS FOR THE PRODUCTION OF A
CONTINUOUS FILAMENTARY YARN
Stanley Davies, Goytre, and Haydn Leigh Canton, Cwmbran, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Nov. 22, 1967, Ser. No. 684,954
Claims priority, application Great Britain, Dec. 8, 1966, 55,062/66
Int. Cl. D01d 5/20

U.S. Cl. 264—167 8 Claims
A process for the production of a spun continuous filament synthetic yarn having variable properties along its length comprising applying to the spun, solidified, undrawn yarn a plasticiser for the yarn material in an amount varying along the length of the yarn to produce relatively plasticised yarn portions and relatively unplasticised yarn portions and thereafter drawing the yarn to an extent such that variable properties are imparted along its length.

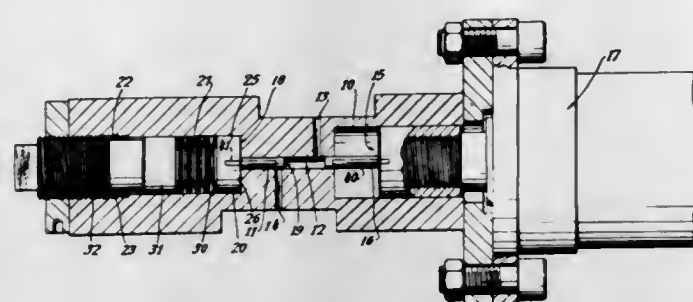
3,591,673
METHOD FOR MELT-SPINNING FIBERS REINFORCED
WITH PARTICLES OF POLY(1,4-BENZAMIDE)
Harold Pollack, Claymont, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed July 24, 1968, Ser. No. 747,111
Int. Cl. B28b 3/20

U.S. Cl. 264—176 7 Claims
A method for melt spinning fibers reinforced with particles of poly(1,4-benzamide) of specific characteristics. The solid reinforcing polymer is dispersed in a melt of the matrix polymer, the melt is extruded and the resulting fibers are drawn.

3,591,674
PROCESS FOR THE PREPARATION OF
POLYMERIC MATERIALS
Thomas Paul Engel, 6056 Heusenstamm, Offenbach am Main, Germany
Filed Mar. 9, 1967, Ser. No. 621,952
Claims priority, application Great Britain, Mar. 14, 1966, 11,128/66
Int. Cl. B29d 23/04; B29f 1/08

U.S. Cl. 264—209 20 Claims
The present invention relates to a process for the manufacture of shaped articles of a cross-linked thermoplastic material which process comprises mixing a thermoplastic

material capable of forming a free radical with a cross-linking agent, subjecting said material to instantaneous compression at a pressure in excess of 2000 atmospheres to effect uniform distribution of the cross-linking agent within said thermoplastic material under conditions such that substantial cross-linking of the thermoplastic material does not occur, and thereafter forming shapes of the mixture and causing or allowing the cross-linking of the shaped material to take place. This invention also includes apparatus comprising a pressure chamber, first and second pressure members capable of operating to



exert pressure within said chamber, motor means for said first pressure member adapted to move said first member in said chamber, inlet means for said chamber adapted to be closed by said first member and outlet means for said chamber adapted to be closed by said second member, in which a material introduced into the chamber is subjected to pressure exerted by said first member and which when the pressure exerted on said material reaches a predetermined maximum the second pressure member moves to open the outlet to permit discharge of the material from the chamber.

3,591,675
COMPOSITION AND METHOD FOR PREVENTING FORMATION OF DENTAL PLAQUE
Herbert Brilliant, 191 Presidential Blvd., Bala-Cynwyd, Pa. 19004
No Drawing. Continuation-in-part of application Ser. No. 557,921, June 16, 1966. This application June 20, 1969, Ser. No. 835,267

Int. Cl. A61r 7/16
U.S. Cl. 424-54
A composition, essentially consisting of a substantially saturated aqueous solution of carbon dioxide and a cationic surface active agent, is applied to the teeth daily by a simple rinsing technique. Optionally, the composition could include ethyl alcohol. Preferably, the teeth should first be given a thorough prophylaxis by a dentist using a pumice paste applied with a motor-driven flexible cup in order to remove heavy accumulations of dental plaque and tartar that may be present; thereafter, such prophylaxis should be required with much less frequency than heretofore has been necessary if the novel composition is applied daily.

3,591,676
SURGICAL ADHESIVE COMPOSITIONS
Gary F. Hawkins, Kingsport, Tenn., and David W. Fassett, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Nov. 1, 1968, Ser. No. 772,847
Int. Cl. A61l 15/00, 17/00
U.S. Cl. 424-81
Surgical adhesive compositions for bonding body tissues and characterized by a high degree of spreadability and good foreign body reaction comprising comprising

mixtures of methyl 2-cyanoacrylate with dimethyl methacrylate and with higher esters of 2-cyanoacrylic acid.

3,591,677
ALLERGENIC EXTRACT AND PROCESS FOR PREPARING SAME
Margaret Strauss Kramer, New York, N.Y., assignor to Miles Laboratories, Inc., Elkhart, Ind.
No Drawing. Filed Apr. 3, 1969, Ser. No. 813,297
Int. Cl. A61k 23/00

U.S. Cl. 424-91
A process for preparing antigenic or allergenic extracts and the product obtained thereby comprising treating with an aqueous extracting fluid, substances known to contain physiologically active principles which elicit allergic and/or antigenic responses, separating the aqueous extracting fluid containing the water-soluble active principles from the water-insoluble portion of the substance, treating the water-insoluble portion of the substance with an aqueous-organic solvent or non-aqueous solvent extracting fluid, separating in organic solvent extracting fluid from the portion of the substance insoluble therein, insolubilizing the active principles contained in said extracts by the addition thereto of an aluminum compound, separating the insolubilized active principles from the extracting fluids and preferably resuspending same in a physiologically acceptable aqueous fluid.

3,591,678
METHOD OF PURIFYING INTRINSIC FACTOR
Leon Ellenbogen, New City, N.Y., and Derek Rowland Highley, Upper Saddle River, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation-in-part of application Ser. No. 615,355, Feb. 13, 1967, which is a continuation-in-part of application Ser. No. 340,805, Jan. 28, 1964. This application Sept. 5, 1969, Ser. No. 855,768
Int. Cl. A61k 27/00

U.S. Cl. 424-96
A process for purifying intrinsic factor by a batch chromatography process which utilizes an ion exchange resin; and the resultant high purity intrinsic factor. Typically, impure intrinsic factor is dissolved in a buffer solution having relatively low pH and ionic strength, and the resultant solution is contacted with a cellulosic exchange resin. The resin is separated from the solution and the purified intrinsic factor is eluted therefrom with a buffer solution having a higher pH and ionic strength than the buffer solution in which the impure intrinsic factor was dissolved. The product is recovered from the eluate by evaporating the liquid solvent. The residue, which is the purified product, has a potency of at least 1 N.F. unit in amounts as low as 0.5 mg.

3,591,679
ANTIBACTERIAL COMPOSITIONS
Jack G. Voss, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Aug. 13, 1969, Ser. No. 849,907
Int. Cl. A01n 11/00, 9/02

U.S. Cl. 424-127
Antibacterial compositions consisting essentially of (1) specific chelating agents, (2) specific organic cation-forming compounds, and (3) specific antibacterial agents whose antibacterial effectiveness is enhanced by (1) and (2) and, optionally, (4) sufficient alkaline buffering salt to maintain the pH under usage conditions between 7 and 11, and (5) optionally other compatible detergents and/or antibacterial agents; dilute aqueous solutions prepared from said compositions.

3,591,680
CONCENTRATED ANTACID COMPOSITIONS AND METHOD OF PRODUCING ANTACID ACTIVITY
Leon C. Greene, Moorestown, N.J., and Allen Mishner, Broomall, and William E. Smith, Fort Washington, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 566,749, July 21, 1966. This application Nov. 17, 1969, Ser. No. 877,476
Int. Cl. A61k 27/00

U.S. Cl. 424-156
Aqueous pharmaceutical suspensions containing a high concentration of antacid and a method of producing an increased degree of protection and duration of antacid and anti-ulcer activity by orally administering said suspensions.

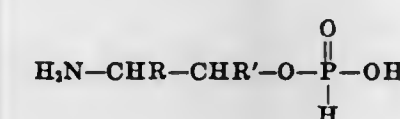
3,591,681
COMPOSITION CONTAINING SILYL ETHERS OF CHLORAMPHENICOL
Ronald L. Houtman, Parchment, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Original application Aug. 31, 1966, Ser. No. 576,239, now Patent No. 3,442,926, dated May 6, 1969. Divided and this application Oct. 14, 1968, Ser. No. 795,754
Int. Cl. A61k 27/00

U.S. Cl. 424-184
This invention relates to pharmaceutical compositions for combatting gram-positive and gram-negative bacteria, mycoplasma and rickettsial organisms containing silyl esters of chloramphenicol.

3,591,682
AMINOALKYL PHOSPHITE FUNGICIDES AND USE THEREOF IN AGRICULTURE
Jean Thiollere, Lyon, France, assignor to Pechiney-Progil, Societe pour le Developpement et La Vente de Specialites Chimiques, Lyon, France
No Drawing. Filed Apr. 22, 1968, Ser. No. 723,282
Claims priority, application France, Apr. 20, 1967, 48,557
Int. Cl. A01n 9/36

U.S. Cl. 424-211
A fungicidal composition containing as the active ingredient a compound having the empirical formula $PNC_2H_6RR'O_3$

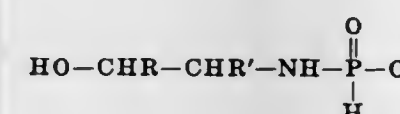
corresponding to the tautomeric formulae:



and/or



and/or

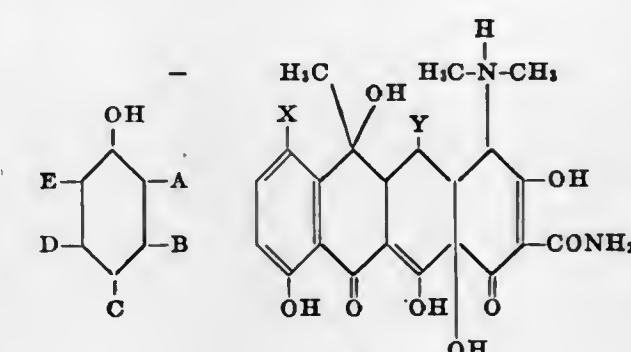


where R and R' are hydrogen or an alkyl radical, and the method of protecting plants against fungicidal attack by use of same.

3,591,683
PHARMACEUTICAL COMPOSITION INCLUDING PHENOSULFONIC ACID DERIVATIVE OF TETRACYCLINE AND METHOD OF TREATMENT
Carlos Ferrer Salat, Jorge Ferrer Baties, and Juan Colome Riera, Barcelona, Spain, assignors to Laboratorios Ferrer S.L., Barcelona, Spain
Continuation-in-part of application Ser. No. 727,066, May 6, 1968, which is a division of application Ser. No. 477,032, Aug. 3, 1965. This application June 23, 1969, Ser. No. 835,921

Claims priority, application Spain, Aug. 8, 1964, 302,954
Int. Cl. A61k 21/00

U.S. Cl. 424-227
A pharmaceutical composition for use in cases of microbial infections comprising a pharmaceutical diluent and a compound of the following formula



wherein X is hydrogen or chlorine if Y is hydrogen and wherein X is hydrogen if Y is OH, and wherein A is —OCH₃ or is hydrogen with the proviso that:

(I) if A is —OCH₃, then B and E are hydrogen and one of the two radicals designated C and D is SO₃⁻ and the other is hydrogen, and
(II) if A is hydrogen, then B is methyl, C is SO₃⁻, D is hydrogen and E is isopropyl.

3,591,684
CONTROLLING SOUTHERN ARMYWORM WITH 3-iodo-3',4',5-trichlorosalicylanilide
Jack D. Early, Bethesda, Md., and John P. Chupp, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Original application May 29, 1968, Ser. No. 732,870, now Patent No. 3,541,147, dated Nov. 17, 1970. Divided and this application Feb. 11, 1970, Ser. No. 10,632
Int. Cl. A01n 9/20

U.S. Cl. 424-230
Control of *Prudonia eridania* larvae, commonly known as southern armyworm larvae with 3-iodo-3',4',5-trichlorosalicylanilide.

3,591,685
CONTROLLING MOSQUITOES WITH 3',4'-DICHLORO-5-NITRO-3-PHENYLSALICYLANILIDE
John P. Chupp, Kirkwood, Mo., and Jack D. Early, Bethesda, Md., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Original application May 28, 1968, Ser. No. 732,534, now Patent No. 3,541,148, dated Nov. 17, 1970. Divided and this application Feb. 11, 1970, Ser. No. 10,630
Int. Cl. A01n 9/20

U.S. Cl. 424-230
Controlling mosquitoes with 3',4'-dichloro-5-nitro-3-phenylsalicylanilide.

3,591,686

ANTI-INFLAMMATORY COMPOSITIONS AND METHODS UTILIZING N-ACYLCYSTEINES AND THE β -ALKYL AND CARBOXYL DERIVATIVES THEREOF

Aaron Leonard Sheffner, Evansville, Ind., assignor to Mead Johnson & Company, Evansville, Ind.

No Drawing. Continuation-in-part of application Ser. No. 482,931, Aug. 26, 1965. This application Aug. 1, 1967, Ser. No. 657,498

Int. Cl. A61u 27/00

U.S. Cl. 424—234

21 Claims

N-acylcysteines and the β -alkyl and carboxyl derivatives thereof have anti-inflammatory action in animals.

3,591,687

BILE ACIDS AND DERIVATIVES THEREOF AS ANORECTIC AGENTS

George A. Bray, 654 Wellesley St., Weston, Mass. 02193

No Drawing. Filed Mar. 13, 1968, Ser. No. 712,583

Int. Cl. A61k 17/00

U.S. Cl. 424—238

2 Claims

Certain unconjugated bile acids as well as certain conjugates thereof, at sufficient dose levels, suppress the appetite in man and the food intake of experimental animals. By direct reduction of caloric intake, they provide a variable and reversible process for the treatment of obesity. Among these acids are those synthesized by the human liver. No toxic or otherwise untoward effect on the central nervous system, on renal, hepatic or hematological functions, or on other body organs has been noted during their use.

3,591,688

METHOD OF PREVENTING OVULATION AND COMPOSITION THEREFOR

Robert C. Jones, Narberth, and Richard A. Edgren, Berwyn, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 816,121, Apr. 21, 1969, which is a continuation-in-part of application Ser. No. 767,823, Oct. 15, 1968. This application Aug. 22, 1969, Ser. No. 852,456

Int. Cl. A61k 17/06

U.S. Cl. 424—239

20 Claims

Compositions comprising (a) a progestogen, specifically, a 3-cyclopentyloxy-13-polycarbonalkyl-17 α -ethynylgon-3,5-diene-17 β -ol, or 17-acylate in admixture with (b) an estrogen, specifically, a 3-cyclopentyloxy-13-alkyl-17 α -ethynylgon-1,3,5(10-trien-17 β -ol or a Δ^7 -dehydro analog thereof are useful to prevent ovulation in warm-blooded ovulating vertebrates after oral administration. In one advantageous aspect, because of their prolonged duration of activity, the instant compositions may be administered in simplified regimens, e.g., at once-a-week intervals.

3,591,689

PROGESTATIONAL COMPOSITION IN ORAL DOSAGE FORM

Neil H. Mercer and Kenneth P. Stremming, Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.

No Drawing. Filed June 4, 1969, Ser. No. 830,520

Int. Cl. A61j 3/07; A61k 9/04, 17/06

U.S. Cl. 424—243

6 Claims

A therapeutic composition comprising a solution of megestrol acetate in coconut oil in encapsulated form.

3,591,690

METHOD OF TREATMENT OF DIARRHEA IN PIGLET OF 2-4 WEEKS OF AGE

Kiyoshi Iwaya, 5-16-3 Satsukigaoka, Ikeda-shi, Osaka Prefecture, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 604,558, Dec. 27, 1966. This application May 8, 1969, Ser. No. 823,162

Claims priority, application Japan, Feb. 19, 1966, 41/10,175

Int. Cl. A61k 17/12, 17/16

U.S. Cl. 424—243

9 Claims

Diarrhea in piglets of two to four weeks of age is successfully treated with the aid of therapeutic compositions possessing specific activity against such piglet diarrhea and comprising as active ingredient betamethasone, dexamethasone, prednisolone, prednisone, paramethasone, methylprednisolone, triamcinolone, hydrocortisone or cortisone.

3,591,691

COMPOSITIONS AND METHODS FOR TREATMENT OF SPASTIC CONDITIONS

Charles Gansser, Essonne, France, and Walter Schindler, Riehen, Switzerland, assignors to Gelgy Chemical Corporation, Ardsley, N.Y.

No Drawing. Division of application Ser. No. 647,228, June 19, 1967, now Patent No. 3,505,314, dated Apr. 7, 1970, which is a continuation-in-part of application Ser. No. 235,177, Oct. 30, 1962, which in turn is a continuation-in-part of application Ser. No. 52,044, Aug. 26, 1960. This application Mar. 4, 1968, Ser. No. 735,934

Claims priority, application Switzerland, Aug. 28, 1959, 77,491/59; Jan. 13, 1960, 299/60; Feb. 25, 1960, 2,190/60

Int. Cl. A61u 17/00

U.S. Cl. 424—244

4 Claims

5-(n-butyl)-iminodibenzyls which are substituted in γ -position at the n-butyl substituent by a dimethylamino or diethylamino radical as well as pharmaceutically acceptable salts thereof with inorganic and organic acids, which compounds have strong spasmolytic and especially muscletropic action rendering them useful in the treatment of psychosomatic disturbances, especially spastic conditions of smooth muscle structures of the gastro-intestinal, urogenital and biliary tracts and/or the bronchial system while being practically free from antidepressant action on the central nervous system whereby these compounds are distinguished from well-known antidepressant iminodibenzyl derivatives; spasmolytic compositions containing the aforesaid compounds; and a method for the treatment of spastic conditions of smooth muscle structures in mammals with the aid of the aforesaid compounds.

3,591,692

ANTI-INFLAMMATORY COMPOSITIONS CONTAINING HALOGENATED HETEROCYCLIC ACIDS AND METHODS OF USING THEM

Blaine M. Sutton, Hatboro, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

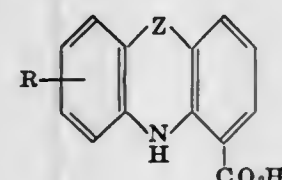
No Drawing. Continuation-in-part of application Ser. No. 524,828, Feb. 3, 1966. This application June 4, 1968, Ser. No. 734,215

Int. Cl. A61k 27/00

U.S. Cl. 424—247

9 Claims

Pharmaceutical compositions containing dosage units of compounds of the formula:



in which R is a halogen such as fluoro, bromo or chloro or a trifluoromethyl and Z is sulfur or oxygen, have anti-inflammatory activity. The active ingredients are prepared by a Smiles rearrangement for the phenothiazine series (when Z is sulfur) or a ring closure of a 3-(2'-acylamino-phenoxy)-2-chlorobenzoic acid for the phenoxazine series (when Z is oxygen).

3,591,693

COMPOSITIONS AND METHOD FOR TREATING MYCOBACTERIUM TUBERCULOSIS WITH 2,4,6-TRIS(ALKYLAMINO)-s-TRIAZINE

Margot Louise Cantrall, New City, Martin Leon Sassiver, Monsey, and Robert Gordon Shepherd, South Nyack, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed May 22, 1969, Ser. No. 827,031

Int. Cl. A61k 27/00

U.S. Cl. 424—249

10 Claims

This disclosure describes compositions of matter useful for the treatment of *Mycobacterium tuberculosis* infections in warm-blooded animals and the method of treating *Mycobacterium tuberculosis* infections in warm-blooded animals therewith, the active ingredients of said compositions of matter being certain 2,4,6-tris(alkylamino)-s-triazines.

3,591,694

TREATMENT OF CHRONIC RESPIRATORY DISEASE IN POULTRY WITH 1,2,3,4-TETRAHYDROPHENAZINE-5,10-DIOXIDES AND DERIVATIVES THEREOF

James David Johnston, Old Saybrook, Conn., assignor to Chas. Pfizer & Co., Inc., New York, N.Y.

No Drawing. Application Oct. 18, 1966, Ser. No. 587,420, now Patent No. 3,480,713, dated Nov. 25, 1969, which is a continuation-in-part of application Ser. No. 502,602, Oct. 22, 1965. Divided and this application Dec. 18, 1968, Ser. No. 798,547

Int. Cl. A61k 27/00

U.S. Cl. 424—250

2 Claims

A series of 3,4-dihydrophenazine- and 1,2,3,4-tetrahydrophenazine-5,10-dioxides and the non-toxic salts thereof used in controlling chronic respiratory disease in poultry and in promoting growth and improving feed efficiency of animals in general.

3,591,695

ANTIDEPRESSANTS METHODS AND COMPOSITIONS OF 4-PHENYL-3,4-DIHYDROQUINAZOLINES

Hans Ott, Basel-Land, Switzerland, assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 557,370, June 14, 1966. This application Aug. 15, 1969, Ser. No. 850,669

Int. Cl. A61k 27/00

U.S. Cl. 424—251

7 Claims

Disclosed are pharmaceutical compositions and method for effecting central nervous systems stimulation and

utilizing, as the active pharmaceutical agent, a compound of the class of 4-phenyl-3,4-dihydroquinazolines.

3,591,696

METHOD OF TREATING JAUNDICE IN ANIMALS
Allan H. Conney, Westchester, and John J. Burns, New York, N.Y., assignors to Burroughs Wellcome Co., Tuckahoe, N.Y.

No Drawing. Original application June 15, 1966, Ser. No. 557,606. Divided and this application Nov. 6, 1969, Ser. No. 871,259

Int. Cl. A61k 27/00

U.S. Cl. 424—254

4 Claims

A method of treating an animal suffering from jaundice which comprises administering to the animal a pharmacologically effective jaundice treatment amount of a compound 1-phenyl-5,5-diethyl barbituric acid.

3,591,697

1,4-DIHYDRO-1-SUBSTITUTED-6,7-METHYLENE-DIOXY-4-OXO-3-QUINOLINE CARBOXYLIC ACID ANTIBACTERIAL AGENTS

Daniel Kaminsky, Parsippany, and Robert I. Meltzer, Rockaway, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J.

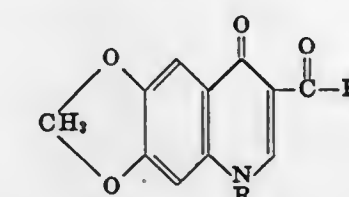
No Drawing. Continuation-in-part of application Ser. No. 639,304, May 18, 1967. This application June 19, 1970, Ser. No. 47,893

Int. Cl. A61k 27/00

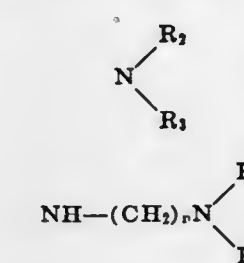
U.S. Cl. 424—258

4 Claims

The present invention relates to compositions of matter containing quinolines of the formula:



wherein R represents alkyl, substituted lower alkyl, cycloalkyl, alkenyl and aralkyl; R₁ represents O-alkyl, O-mono or dialkylaminoalkyl, O-cycloalkyl, NH-alkyl, NH-aryl,



NHCOOR₂, NHOR, or any readily hydrolyzable group. These compounds are useful as anti-microbial agents.

ELECTRICAL

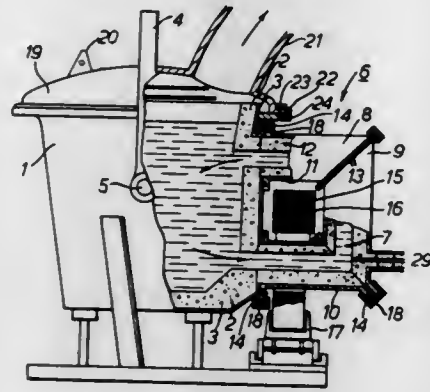
3,591,698

METAL TREATMENT APPARATUS

John Christie Howard, Curbar near Sheffield, and Charles Peter Brittain, Whittington, both of, England, assignors to Associated Electrical Industries, Limited, London, England
Filed Nov. 6, 1967, Ser. No. 680,827
Claims priority, application Great Britain, Nov. 9, 1966, 50258/66
Int. Cl. H05b 5/14

U.S. Cl. 13-29

6 Claims



Molten metal equipment comprising a transportable vessel which is substantially airtight and has an enclosed duct extending from the vessel and communicating with its interior at two spaced positions below the normal level of the molten metal, a part of the duct being surrounded by a windowed magnetic core embraced by an induction coil. The enclosed duct is disposed on one side of the vessel and lies in a vertical plane like the handle of a mug. In one embodiment the vessel and duct are substantially airtight in themselves and at any connections between them. Alternatively they can be contained in a substantially airtight container.

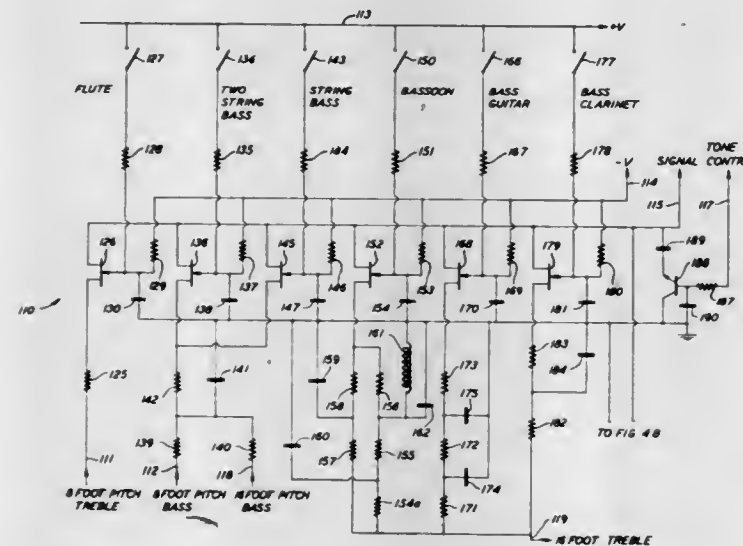
3,591,699

MUSIC VOICING CIRCUIT DERIVING AN INPUT FROM A CONVENTIONAL MUSICAL INSTRUMENT AND PROVIDING VOICED MUSICAL TONES UTILIZING THE FUNDAMENTAL TONES FROM THE CONVENTIONAL MUSICAL INSTRUMENT

Royce L. Cutler, 2625 Karbach, Houston, Tex.
Filed Mar. 28, 1968, Ser. No. 716,964
Int. Cl. G10h 1/06, 1/00

U.S. Cl. 84-1.11

20 Claims



A voicing circuit for use with a conventional musical instrument. A tone pickup is placed on a conventional instrument. For example, a single coil is placed beneath each string on a guitar. The signal formed is the fundamental colored with many harmonics. An electronic circuit filters the harmonics to leave a much cleaner fundamental. The fundamental is voiced by a voicing circuit to add harmonics in such

portions as to achieve a desired voicing. The voiced output follows the conventional instrument in terms of relative volume, shift in fundamental, vibrato of the fundamental.

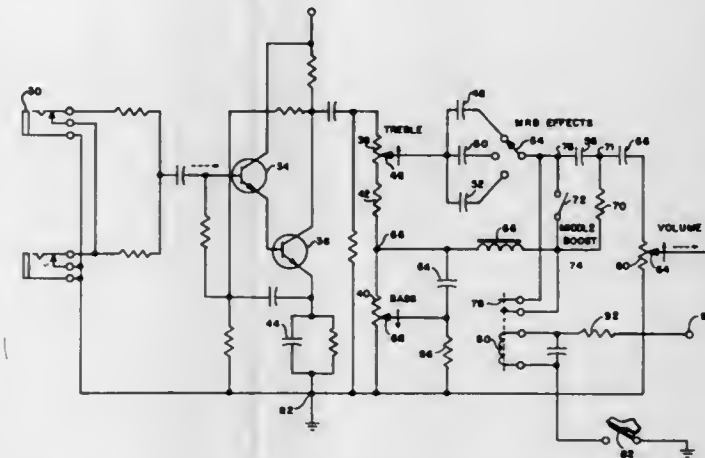
3,591,700

SWITCH OPERATED TONE CONTROL CIRCUITRY AND AMPLIFIER FOR MUSICAL INSTRUMENTS

Fred H. Neubauer, Pacific Palisades, and Sava W. Jacobson, Northridge, both of, Calif., assignors to Warwick Electronics Inc., Chicago, Ill.
Filed Apr. 14, 1967, Ser. No. 631,008
Int. Cl. G10h 1/02

U.S. Cl. 84-1.24

9 Claims



The tone control circuit is particularly suited for an amplifier designed primarily for musical tone signals, for example, those generated by an electric guitar. Within the ready and instant control of the instrument player or performer is a switch actuator, such as a foot switch, by means of which there may be selectively connected in and out of the amplifier circuit a frequency-discriminating circuit or network. The network discriminates in favor of a narrow band of frequencies. By operating the foot switch in synchronism with his playing, the performer can create novel effects under his continuous control. The frequency-discriminating network is integrated into the conventional treble and bass manual controls on the amplifier so as to make double use of circuit components and create novel musical response.

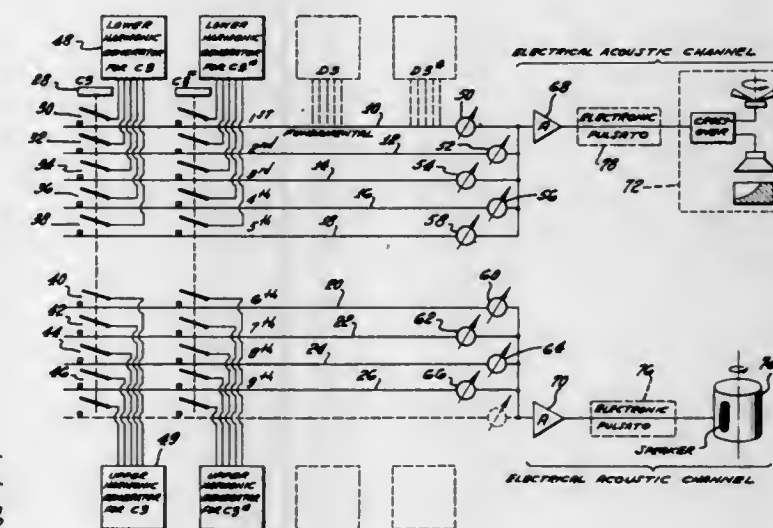
3,591,701

HARMONICALLY RELATED PULSATO SYSTEM

Donald J. Leslie, 1561 Gaywood Drive, Altadena, Calif.
Filed Sept. 2, 1969, Ser. No. 854,529
Int. Cl. G10h 1/04

U.S. Cl. 84-1.25

11 Claims



A musical instrument produces electrical impulses corresponding to musical tones. The harmonic components of

JULY 6, 1971

ELECTRICAL

297

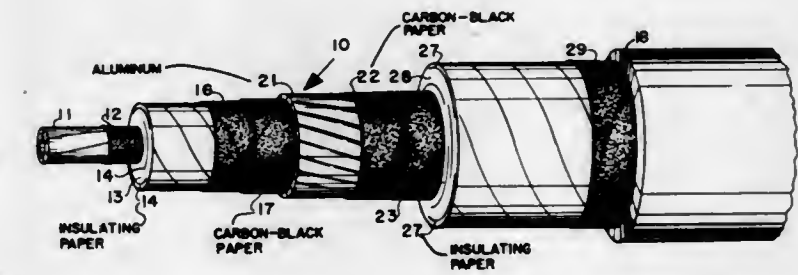
3,591,704

HIGH-VOLTAGE CABLE

Lawrence Charles Ebel, Hastings-on-Hudson, N.Y., assignor to Anaconda Wire and Cable Company
Filed Jan. 9, 1969, Ser. No. 790,000
Int. Cl. H01b 7/26

U.S. Cl. 174-108

5 Claims



A high-voltage cable, with an insulating wall built up of dielectric tapes, has an electrically floating metal armor tape at midpotential of the insulation. When the cable is manufactured it can be reeled up after the application of the armor and run through the taping machine a second time to apply the outer layers of insulating tape.

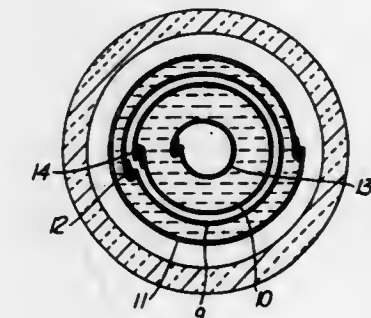
3,591,705

SUPERCONDUCTIVE DEVICES AND CONDUCTORS THEREFOR

Richard Grigsby, London, and Raymond Jeffrey Slaughter, Kent, both of, England, assignors to British Insulated Cables Limited, London, England
Filed Nov. 19, 1968, Ser. No. 777,121
Claims priority, application Great Britain, Nov. 21, 1967, 52,897/67
Int. Cl. H01b 7/34

U.S. Cl. 174-15 C

10 Claims



The critical current-carrying capacity of a superconductor strip is increased by folding at least one edge of the strip to form a fold which defines a lateral limit of the superconductor. The strip may be fractured at the fold and the edge portion discarded, or the folded-over portion may remain attached and lie in contact with the surface of the strip. In forming a superconductive cable, the fold is directed away from the return conductor.

3,591,706

MULTI-IMAGE TELEVISION CAMERA

Norman Neville Parker-Smith, Billericay, and Pedro Martinez, Great Baddow, both of, England, assignors to The Marconi Company Limited, London, England
Filed Nov. 15, 1968, Ser. No. 776,212
Claims priority, application Great Britain, Dec. 22, 1967, 58,280/67
Int. Cl. H04n 9/06

U.S. Cl. 178-5.4 ST

8 Claims

A camera in which a number of optical images of a subject of transmission are optically projected adjacent one another on a cathode-ray image-receiving screen and the single cathode-ray beam of the tube scans a number of different electrical images corresponding to the optical images in similar line rasters, the beam being interrupted during

the impulses are segregated into two electrical channels so that, for example, low order harmonics exist in one electrical channel and high order harmonics exist in another channel. A device operating in conjunction with the electrical channel for the low order harmonics adds pulsato in that channel that is more intense than the pulsato, if any, that is added in the other channel. By grouping impulses according to harmonic order rather than according to frequency, accurate simulation of pipe organ characteristics is achieved.

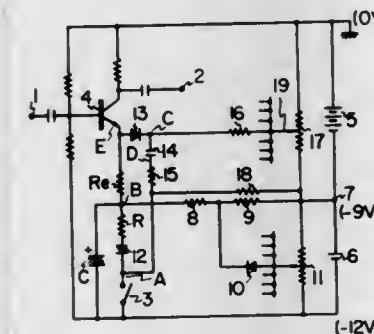
3,591,702

ATTACK AND DECAY CIRCUITRY FOR ELECTRONIC MUSICAL INSTRUMENT

Takeshi Adachi, Shizuoka-ken, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan
Filed May 21, 1969, Ser. No. 826,490
Int. Cl. G10h 1/02

U.S. Cl. 84-1.26

3 Claims



A switching circuit for an electronic musical instrument which is generally composed of an emitter-grounded type transistor amplifier in which an input is supplied to a base, an output is taken out from a collector and a key switch is interposed in an emitter path. The emitter is connected serially through a first resistor, a second resistor, a first diode, and the key switch to a power line. A juncture between the first and second resistors is connected to a cutoff potential via a third resistor and to the power line via a first capacitor for giving a decay effect. The emitter is further connected serially through a second diode, a second capacitor and a fourth resistor, to a juncture between the first diode and the key switch for giving an attack effect.

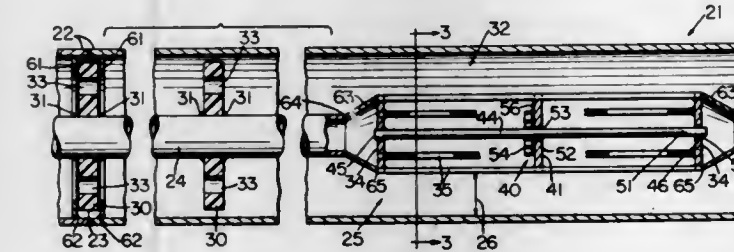
3,591,703

ELECTRICAL EXPANSION JOINT AND SYSTEM USING SAME

George F. Swenck; John J. Bahen, Jr., and Robert B. Lightner, all of Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.
Filed Oct. 7, 1969, Ser. No. 864,438
Int. Cl. H01b 9/04; H02g 15/24

U.S. Cl. 174-13

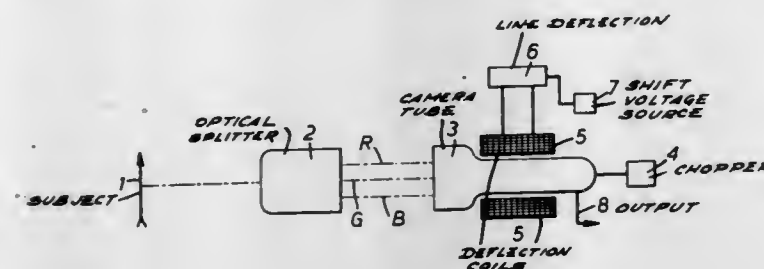
20 Claims



An expansion joint having a pair of spaced supports which are adapted to be fixed to associated ends of a pair of electrical conductors and the expansion joint is provided with a plurality of flexible electrical leads having their opposite ends fastened to the spaced supports. Means is provided for rotating the central portions of the leads to take up varying amounts of slack therein caused by relative movement of the supports toward and away from each other.

scanning at a frequency which is high relative to the picture frequency and being deflected at a frequency correlated with the interruption frequency between the electrical images

mitting color programs or black-and-white programs, said switching elements corresponding in number to the broadcast waves so that indicator means connected with the respective



whereby, although the electrical images are similarly scanned in lines, output video signals which occur successively in time are developed from points in different electrical images.

3,591,707

COLOR TELEVISION DEMODULATOR

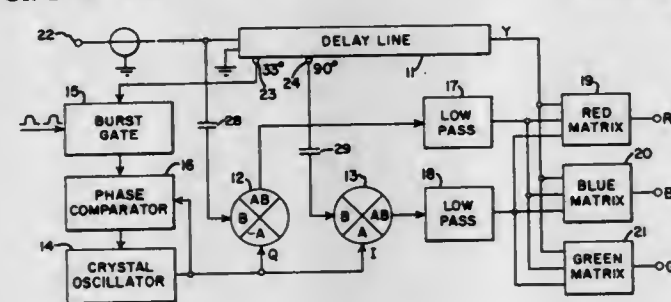
Harold W. Abbott, Syracuse, N.Y., assignor to General Electric Company

Filed Jan. 8, 1969, Ser. No. 789,878

Int. Cl. H04n 9/50

U.S. Cl. 178-5.4

13 Claims



A color television demodulator is disclosed for processing the NTSC color signal. It abstracts three individual color signals suitable for application to a three-color reproducer from the detected video signal. The demodulator employs a pair of doubly balanced four-quadrant, true product multipliers for synchronously detecting the chrominance signal at two preassigned angles with respect to the color subcarrier. When such demodulators process the NTSC color signal, wherein the color subcarrier is modulated on a carrier whose frequency is selected to produce alternate line and alternate field phase reversals in a synchronously detected signal, the chrominance and luminance components need not be separated at the demodulator inputs since the effects of the unwanted luminance components at the outputs of the demodulators are effectively cancelled. This cancellation effect, while imperfect, greatly reduces the need for filtering before and after demodulation. The detection angles of the demodulators are accurately controlled by suitably coupling the demodulators and local oscillator phase control inputs to taps on a delay line to which the video signal is applied.

3,591,708

COLOR TELEVISION RECEIVER

Masayoshi Hirashima, Takatsuki-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 17, 1969, Ser. No. 807,591

Claims priority, application Japan, Mar. 22, 1968, Apr. 12, 1968, June 25, 1968, June 27, 1968, Dec. 26, 1968, Dec. 26, 1968, 43/19282; 43/25107; 43/44734; 43/45252; 44/994; 44/995

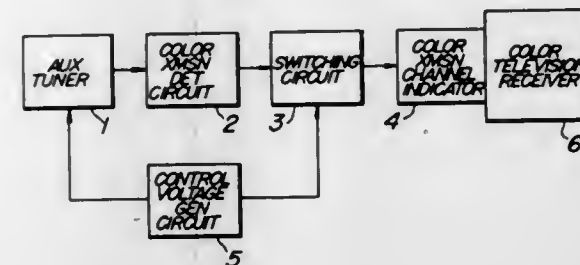
Int. Cl. H04n 9/12

U.S. Cl. 178-5.4 R

10 Claims

A color television receiver, wherein a tuner is adapted to successively receive different broadcast waves under the control of a control voltage of stepped waveform, switching elements are successively rendered conductive for a predetermined period by a logical product of a signal resulting from detecting as to whether the broadcast stations are trans-

switching elements are energized, thereby indicating whether the broadcast stations are transmitting color programs or black-and-white programs.



3,591,709

PHOTOGRAPHIC CAMERA DEVICE

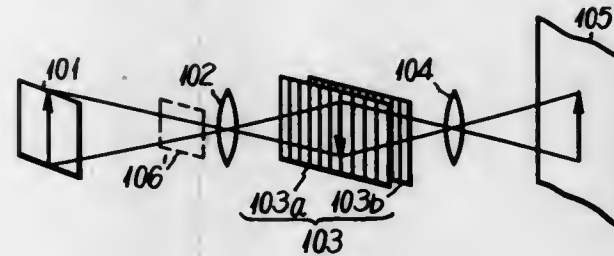
Toshihiko Takagi, and Takashi Yamazaki, both of Kawasaki-shi, Japan, assignors to Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.), Tokyo, Japan

Division of Ser. No. 572,642, July 27, 1966, Pat. No. 3,495,518 this application Aug. 6, 1969, Ser. No. 847,915

Int. Cl. H04n 9/06

U.S. Cl. 178-5.4

6 Claims



A camera apparatus for reproducing a color picture on monochromatic film with stripe patterns of a filter wherein the filter is placed in the light path of the camera and the stripe patterns correspond to the primary color components of the object. The filter comprises a single filter element which includes strip filter elements of different types with a first filter element being capable of transmitting visible light of all colors, a second filter element capable of transmitting light of only one color, a third filter element capable of transmitting light of a single color different from the first color and a fourth filter element capable of transmitting light of a color different from the other two colors.

3,591,710

FINE TUNING INDICATOR

Katsuhito Uetake, Seishiro Iwamura, and Yoshihisa Nishitani, all of Otokuni-gun, Kyoto, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 15, 1969, Ser. No. 791,479

Claims priority, application Japan, Jan. 23, 1968, Jan. 24, 1968, Jan. 26, 1968, 43/3867; 43/4135; 43/4653

Int. Cl. H04n 5/50

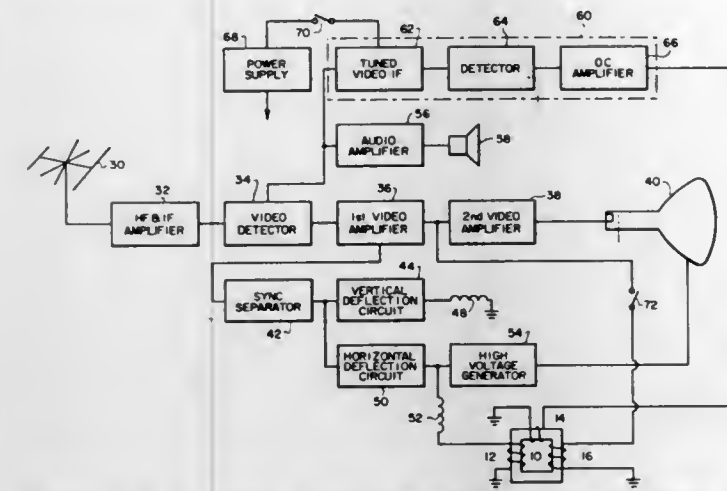
U.S. Cl. 178-5.8

4 Claims

A sawtooth current for horizontal deflection flows through an exciting winding of a pulse transformer to form pulses across its output winding one for each line. A direct current having a maximum for correct tuning flows through a control transformer winding to displace the pulse with respect to the associated sawtooth current. Upon rotating a finely adjusting knob the pulses are applied to a picture tube to form a verti-

cal line on its faceplate. The knob rotates to bring the line just above a mark disposed on or adjacent the faceplate in-

in facsimile apparatus upon rotation of recording paper drive means at a normal speed.



dicating its position corresponding to correct tuning. Then the line disappears.

3,591,711

LANDLINE FACSIMILE SYSTEM

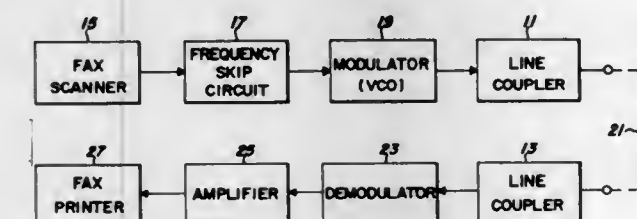
Paul H. De Groat, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed May 26, 1966, Ser. No. 553,175

Int. Cl. H04n 5/40

U.S. Cl. 178-6

6 Claims



A skip frequency circuit for selectively excluding from the signal spectrum thereof any tonal frequency signals which fall within a predetermined forbidden band in the transmission network of a facsimile system. The forbidden bands would be defined by those control frequencies employed in the landline telephone transmission facilities over which the facsimile system is to operate. In response to the detection of signals within a forbidden zone, a skip or jump is automatically initiated, thus shifting the facsimile video signals to another level thereby avoiding the generation of signal frequencies within a predetermined forbidden frequency zone.

3,591,712

FACSIMILE PRINTER BAR ACTUATING MEANS

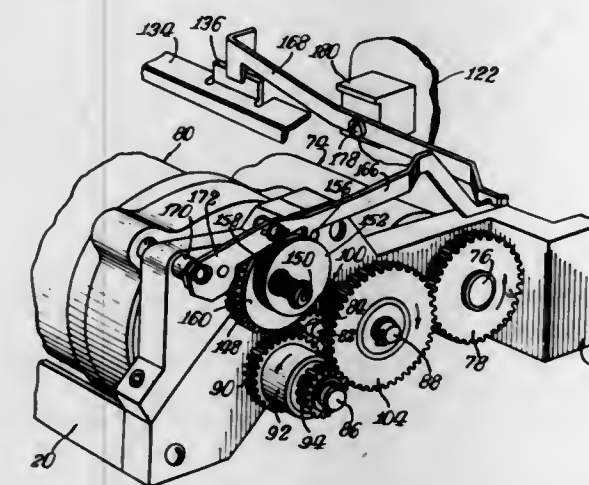
Frans Brouwer, Glencoe, and Frank L. Sobchak, Chicago, both of, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed June 21, 1968, Ser. No. 739,018

Int. Cl. G01d 15/24

U.S. Cl. 178-6.6R

8 Claims



Force transmitting means for moving a printer bar assembly into an operative position for printout of graphic data

3,591,713

THERMOGRAPHY EQUIPMENT FOR PRODUCING A DIRECTLY OBSERVABLE THERMAL PICTURE

Tore Bertil Reinhold Olsson, and Ake Valentin Nilsson, both of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

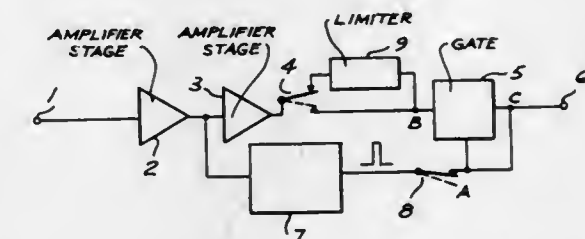
Filed Dec. 18, 1968, Ser. No. 784,601

Claims priority, application Sweden, Dec. 22, 1967, 17,741/1967

Int. Cl. H04n 5/22, 7/02, 7/18

U.S. Cl. 178-6.8

3 Claims



A signal transmission system for passing signals from the detector to the intensity modulating electrode of a picture tube in a thermography equipment of the type in which a "heat picture" of the depicted object is produced on the screen of a cathode-ray tube. The system includes a normal video channel and an additional channel for producing a so-called thermal band. Switching means are provided for simultaneously connecting a limiting device into the normal video channel and connecting the additional channel in parallel with the normal channel. The limiting device limits the output signals from the normal channel to a level below the constant maximum level of the output pulses from the additional channel. A gate is included in the normal channel and is controlled by the output pulses from the additional channel so as to block the normal channel, when output pulses appear in the additional channel.

3,591,714

ARRANGEMENTS FOR SAMPLING AND MULTIPLEXING ELECTRICAL SIGNALS

Leslie Henry Guildford, Haywards Heath, Sussex, England, assignor to U.S. Philips Corporation

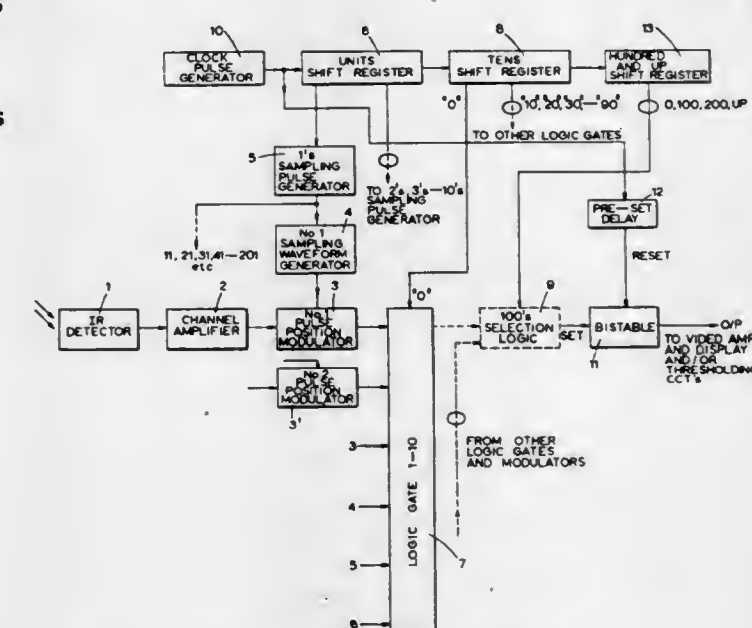
Filed Feb. 12, 1969, Ser. No. 798,742

Claims priority, application Great Britain, Feb. 15, 1968, 7,572/68

Int. Cl. H04n 5/14

U.S. Cl. 178-6.8

10 Claims



A circuit for sampling and multiplexing a plurality of amplitude modulated signals, particularly those from an array of

infrared detectors features a plurality of time modulators, e.g. pulse position or pulse width modulators, for each of the signals. Then the signals are multiplexed together. Each of the time modulators are controlled by a sampling waveform generator which can have a variety of sweeps, such as, linear, exponential or reduced linear, to result in various types of amplitude compression.

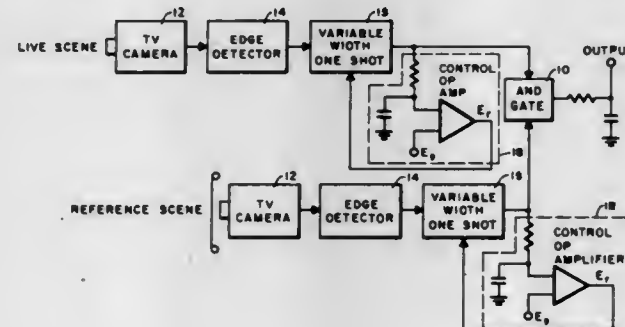
3,591,715

VARIABLE WIDTH VIDEO EDGE DETECTOR

David Rubin, Riverside, and John B. Seybold, Corona, both of, Calif., assignors to The United States of America as represented by the Secretary of the Navy
Filed Oct. 13, 1969, Ser. No. 865,709
Int. Cl. H04n 1/02

U.S. Cl. 178-7.1

2 Claims



A device, used with an analog video correlation, for edge detecting the video input from two TV cameras to immediately discern the time correlations peak from past or future partial correlation peaks providing dependable real time map matching.

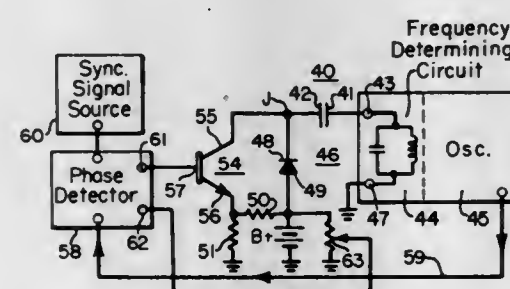
3,591,716

AUTOMATIC FREQUENCY CONTROL CIRCUIT

Howard F. Jirka, Riverside, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed Aug. 1, 1968, Ser. No. 749,453
Int. Cl. H04n 5/44

U.S. Cl. 178-7.3

7 Claims



An automatic frequency control circuit for an oscillator having a frequency determining circuit includes a capacitor which is coupled across the frequency determining circuit by a switching device. The operating period of the switching device is controlled by a constant current source. A control signal, developed by a phase detector, is coupled to an input terminal of the constant current source to adjust the operating period of the switching device.

3,591,717

FACSIMILE ADJUSTMENT FIXTURE

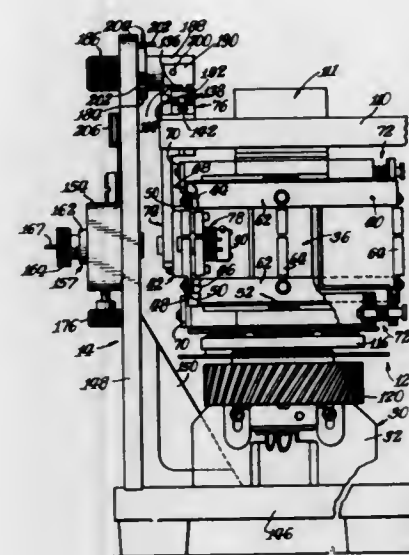
Thomas R. Kawai, Cicero, and Lance C. Lawson, Glenwood, both of, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.
Filed Oct. 15, 1969, Ser. No. 866,551
Int. Cl. H04n 1/14, 1/24

U.S. Cl. 178-7.6

10 Claims

A fixture having an adjustable light source unit for aligning the optical scanners of a facsimile scanner assembly, and

having a revolvable stud member with a longitudinal flat and



a lengthwise metal shim relative to which the printer contact means of the scanner assembly may be adjusted.

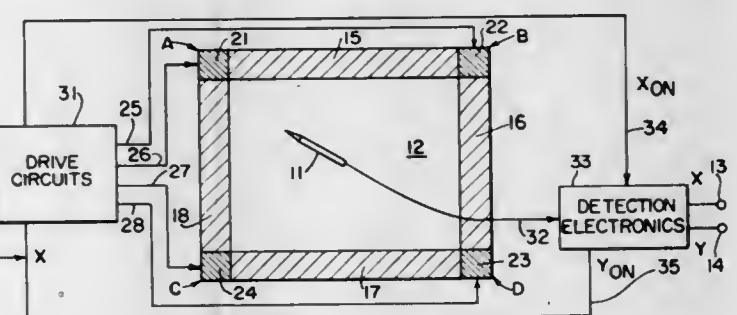
3,591,718

GRAPHICAL INPUT TABLET

Shintaro Asano, Cambridge, and Larry K. Baxter, Lexington, both of, Mass., assignors to Shintaro Company, Inc., Cambridge, Mass.
Filed Apr. 18, 1968, Ser. No. 722,335
Int. Cl. G08c 21/00

U.S. Cl. 178-19

18 Claims



An AC potential field is established on an electrographic tablet. A stylus that may be used to write upon the tablet comprises a capacitive pickup to provide a potential representative of the stylus position. The potential field is alternately switched at a rapid rate between vertical equipotentials and horizontal equipotentials in synchronism with output analog switches coupled to the stylus to provide an X analog signal output and a Y analog signal output representative of the horizontal and vertical coordinates, respectively, of the stylus tip above the tablet.

3,591,719

AUTOMATIC PROGRAM TEST CIRCUIT FOR DATA SETS

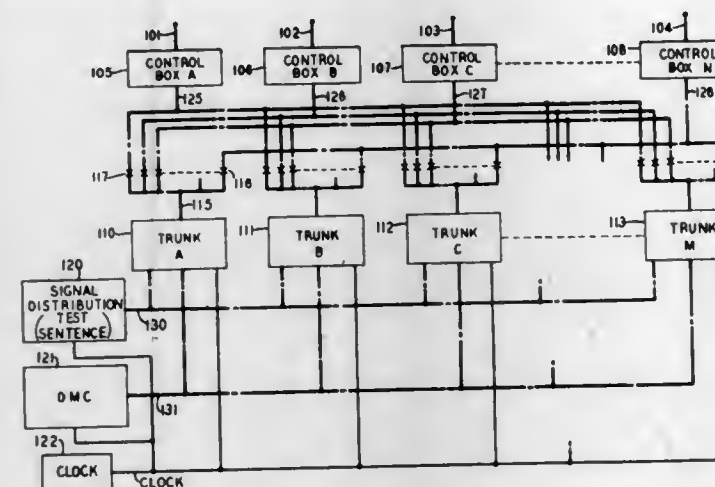
Fred B. Crowson, Monmouth Beach, and Richard A. Previte, Morganville, both of, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 7, 1968, Ser. No. 735,317
Int. Cl. H04I 25/02

U.S. Cl. 178-69

8 Claims

An automatic test circuit for simultaneously testing a plurality of data sets wherein the test circuit provided for each data set a multiphase program which includes sending test signals to the data set and measuring the distortion of signal received from the data set. During a measuring phase the test circuit enables each data set to contend for a common measuring circuit to apply signals to the measuring circuit upon seizure thereof and to thereafter release from the measuring circuit in response to a signal from the data set. The test cir-

cuit then either advances to the next program phase if the distortion of the measured signals is below a predetermined record medium carried on a platen and producing relative movement between the platen and a scanning device so that



threshold level or again bids for the measuring circuit to repeat the measuring phase if the distortion exceeds the threshold level.

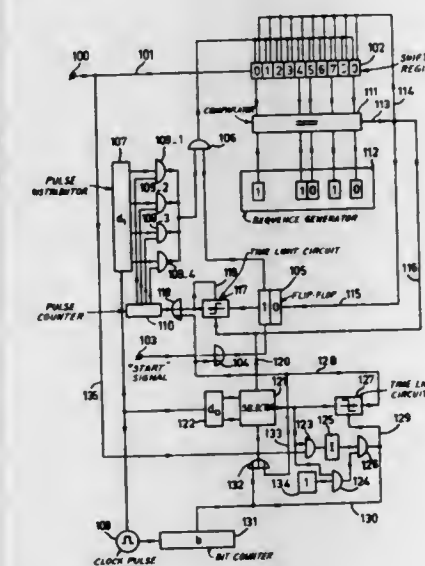
3,591,720

METHOD OF SYNCHRONIZING A RECEIVER

Friedrich-Ernst Othmer, Nurnberg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 24, 1969, Ser. No. 869,317
Claims priority, application Germany, Oct. 26, 1968, P 18 05 463.2
Int. Cl. H04I 7/08; H04J 3/06

U.S. Cl. 178-69.5 R

1 Claim



A method for synchronizing a receiver to a bitstream which is divided into blocks having a constant number of bits, each block having at least two different synchronizing bits arranged in synchronization-bit pattern periodically repeated from block to block, which method includes the steps of comparing a first divisional sequence consisting of a series of bits lying spaced apart by equal first distances with a locally generated signal until equality is found, and then comparing each bit of a second divisional sequence with the most recently selected bit of the first sequence until inequality is found.

3,591,721

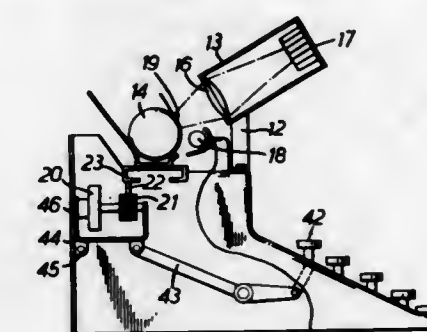
ELECTRICAL SIGNAL GENERATING APPARATUS

Hassan Paddy Abdel Salam, London, England, assignor to Universal Telewriters (Pty.) Ltd., Durban, Republic of South Africa
Filed Apr. 21, 1969, Ser. No. 817,923
Claims priority, application Great Britain, Apr. 24, 1968, 19404/68
Int. Cl. G06k 9/00; H04I 17/14

U.S. Cl. 178-81

9 Claims

Electrical symbols representative of alphanumeric characters are generated by impressing the characters in a line on a



the line of characters is scanned by a plurality of electrooptical devices yielding the signals.

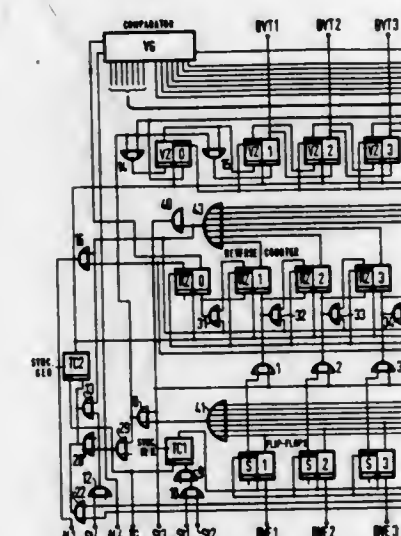
3,591,722

CIRCUIT ARRANGEMENT FOR DATA PROCESSING TELEPHONE EXCHANGE INSTALLATIONS WITH SYSTEMS FOR MESSAGE TRANSMISSION

Helmut Palsa, near Dachau, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Feb. 24, 1969, Ser. No. 801,427
Claims priority, application Austria, Feb. 26, 1968, 1834/68
Int. Cl. H04m 11/06

U.S. Cl. 179-2

3 Claims



A circuit arrangement for telephone exchange installations wherein messages of different length are divided according to their length into a number of corresponding code signals of constant information volume for transmission in series over the same transmission path and consist of equally large groups of code elements, and wherein, prior to the code signals of a message, a length indicating signal indicative of the length of the message is transmitted to indicate the number of code signals corresponding to the message. First counter means presettable to an initial position by the length indicating signal and controllable to switch forward in pulse manner to a first predetermined position are used in conjunction with second counter means synchronously dependent on the switching forward of the first counter means and responsive thereto to be switched forward out of a second predetermined position. The second counter means have control outputs assigned to its counting positions that control the transmission and reception of code signals transmitted in series over the same transmission path from and to circuits individually assigned thereto. A comparator is responsive to the first counter means when the latter attains the first predetermined position to test the position of the second counter means and the received length indicating signal with regard to agreement.

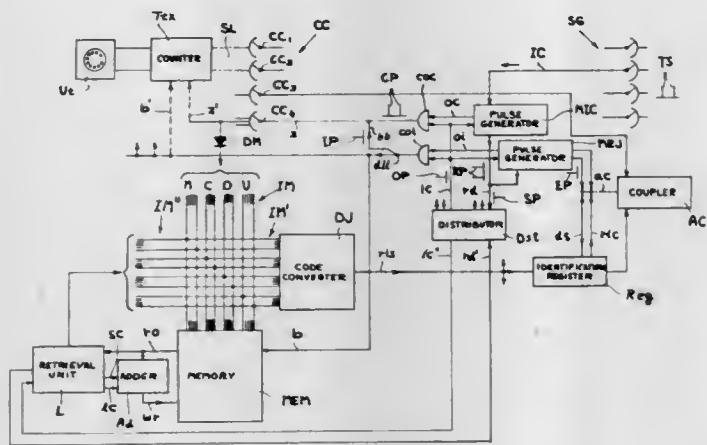
3,591,723

CENTRALIZED IDENTIFICATION AND DEBITING
SYSTEM FOR TELEPHONE SUBSCRIBERS

Giorgio Dal Monte, Milan, Italy, assignor to Societa Italiana
Telecomunicazioni Siemens S.P.A., Milan, Italy
Filed May 10, 1968, Ser. No. 728,200
Claims priority, application Italy, May 11, 1967, May 29,
1967, 15,961;16,620
Int. Cl. H04m 15/18

U.S. Cl. 179-7

6 Claims



A central memory in a telephone exchange contains, in storage sections assigned to individual subscribers, binary words representing the current balances of their respective accounts together with possible classification information. An input multiple, whose leads are selectively energizable by a line finder in the presence of an incoming call, addresses the storage section assigned to the calling subscriber and concurrently transmits an identification of this subscriber to a code register. The input multiple also receives, in the case of a toll call, counting pulses from a called subscriber to indicate the amount of the toll to be debited to the calling subscriber, each counting pulse causing the contents of the addressed storage section to be read out and promptly reinscribed after augmentation by one unit; readout or augmentation is inhibited whenever the energization of the input multiple is due to an interrogation pulse occurring upon seizure of the register.

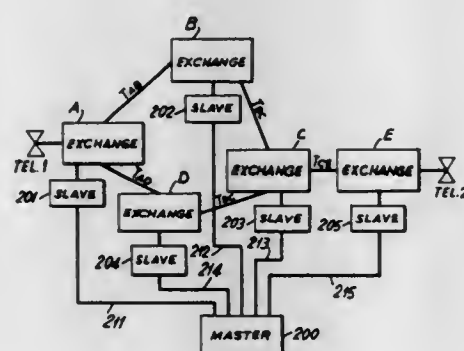
3,591,724

A LOAD SENSITIVE SWITCHING NETWORK SYSTEM
Tadao Yaku, Sendai-shi; Shogo Isizaki, Urawa-shi; Kunihiro
Fujiwara, Tokyo; Kazuya Ohzeki, Tokyo, and Tatsumi
Yamaki, Tokyo, all of Japan, assignors to Japanese Na-
tional Railways and Nippon Electric Company, Limited,
Tokyo, Japan

Filed July 13, 1967, Ser. No. 653,212
Claims priority, application Japan, July 15, 1966, 41/46255
Int. Cl. H04g 3/56

U.S. Cl. 179-18 EA

4 Claims



A plurality of common control automatic switching offices are each provided with an "exchange-trunk information" unit for deriving exchange-trunk or load information representing the load or capacity of the exchange and the in-

teroffice trunk groups extending from the exchange. One of the offices is equipped with an "availability information" unit for translating the exchange-trunk information sent from all the exchange-trunk information units into availability information representing whether the exchanges and the interoffice trunk line groups are available for new calls. Each office is further provided with means responsive to the availability information for controlling the establishment of the connection.

3,591,725

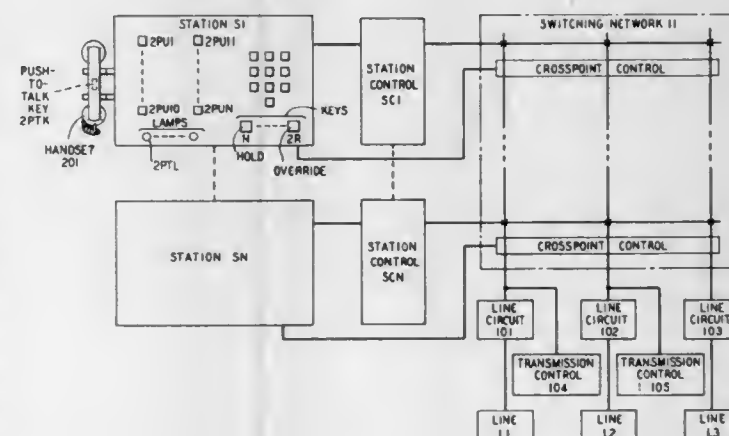
SHARED USAGE OF KEY TELEPHONE SYSTEM LINE
CIRCUITS

Charles E. Morse, Holmdel; John P. Smith, Holmdel, and
Ralph Truby, Rumson, all of N.J., assignors to Bell
Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed July 11, 1969, Ser. No. 840,905

Int. Cl. H04m 3/42

U.S. Cl. 179-18 AD

9 Claims



A key telephone system is arranged to provide access for any number of key telephone stations to any number of line circuits. When two or more stations are selectively connected to the same line circuit, the transmission capability of each such station is placed under control of a push-to-talk key at that station. The line circuit is associated with a selector for scanning each such connected station sequentially and for providing exclusive transmission capability to a first detected station having an operated push-to-talk key. On simultaneous connections to certain line circuits, the enabling of an override key at any of the connected stations provides unlimited transmission capability from that station without regard to the operational status of the push-to-talk key.

3,591,726

METHOD OF TRANSLATION BETWEEN A SUBSCRIBER
DIRECTORY NUMBER AND A SUBSCRIBER
EQUIPMENT NUMBER IN A TELECOMMUNICATION
SYSTEM

Nils Herbert Edstrom, Friherregatan, and Goran Anders Hen-
rik Hemdal, Bollmoravagen, both of Sweden, assignors to
Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed Oct. 25, 1968, Ser. No. 770,511

Claims priority, application Sweden, Nov. 23, 1967, 16110
Int. Cl. H04q 3/47

U.S. Cl. 179-18 ET

4 Claims

A method is disclosed for translations between a subscriber directory number consisting of a number of digits and a subscriber equipment number in a telecommunication equipment. There is a plurality of digit store cells for storing all possible digits which can occur in the different digit positions. The digit store cells with the lowest digit positions are directly associated to the subscriber equipment numbers. Address conversion cells each associated with a digit store cell contain a sum of two addresses, the address of a digit in the next higher digit position and the address of a digit in the next lower digit position. Upon translation in a first direction from the subscriber directory number to the subscriber equipment number a logical operation is carried out between

3,591,728

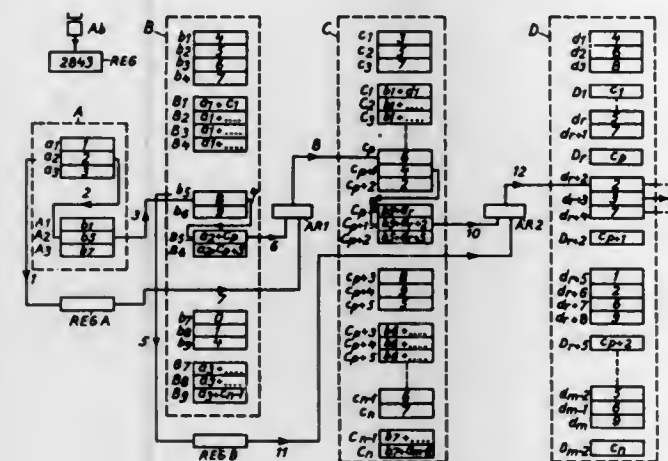
LOCAL RINGING AND RING-TRIP RELAY FOR
CARRIER TERMINAL

Michael J. Birck, Clarendon Hills, Ill., assignor to Western
Electronics Development Corporation, San Anzelo, Tex.
Filed Feb. 11, 1966, Ser. No. 526,785

Int. Cl. H04m 1/00, 3/06

U.S. Cl. 179-84

3 Claims



the digits in the first direction a comparison of the digits in the subscriber directory number is carried out with said digits in said digit store cells so as to find the address conversion cells and upon translation in the second direction a subscriber number digit is indicated which is found in the respective digit store cell whose address is obtained by the logical operation.

3,591,727

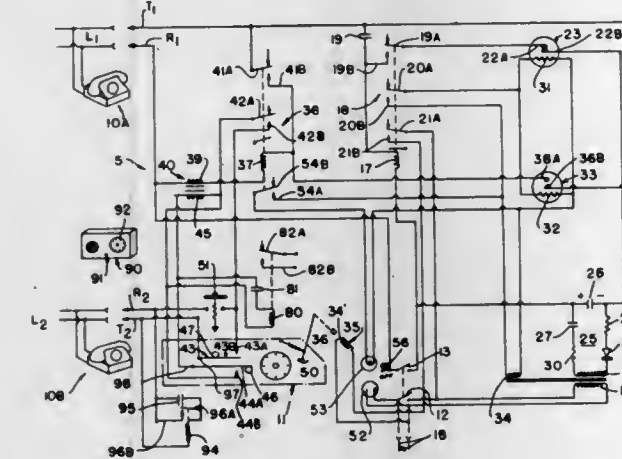
AUTOMATIC REROUTING SYSTEM FOR TELEPHONE
SUBSCRIBER STATION

Walter H. Shaw, 600 N.W. 196th St., Miami, Fla.
Filed Dec. 10, 1968, Ser. No. 782,636

Int. Cl. H04m 3/54

U.S. Cl. 179-18

4 Claims



A subscriber station is provided with equipment which, in response to an incoming call on one of plural remote lines to that station, holds that line, transmits over another line to that station the dialing code of a preselected remote station, using a known type of automatic dialing unit connected to the circuitry of the subscriber station, and completes at the subscriber station a coupling link between said remote lines for communication between and the remote station of origin of the call and the preselected remote station. The subscriber has complete control in rerouting of calls directed to his station and may change the rerouting destination to suit his needs.

3,591,729

MAGNETIC TRANSDUCER HEAD WITH AUXILIARY
MEANS FOR DIVERTING RESIDUAL FLUX

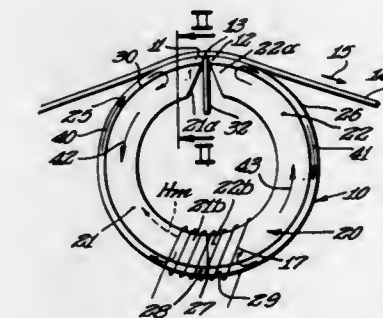
Marvin Camras, Glencoe, Ill., assignor to IIT Research In-
stitute, Chicago, Ill.

Continuation-in-part of application Ser. No. 835,017, Aug.
20, 1959, now Patent No. 3,382,325, dated May 7, 1968, and
a continuation-in-part of 126,121, July 24, 1961, now Patent
No. 3,334,192, dated Aug. 1, 1967. This application Mar. 23,
1966, Ser. No. 536,869

Int. Cl. G11b 5/10, 5/12

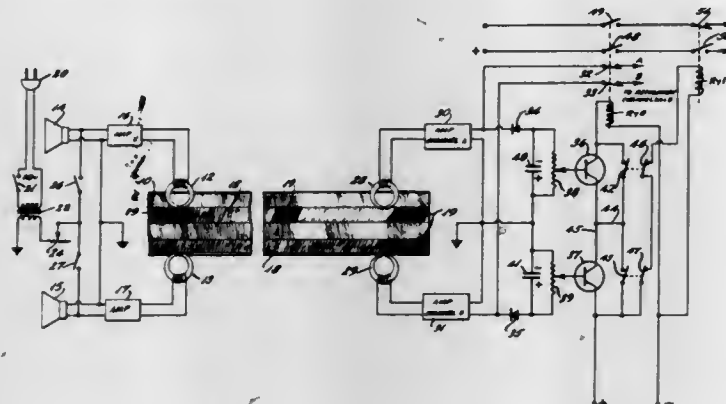
U.S. Cl. 179-100.2 C

35 Claims



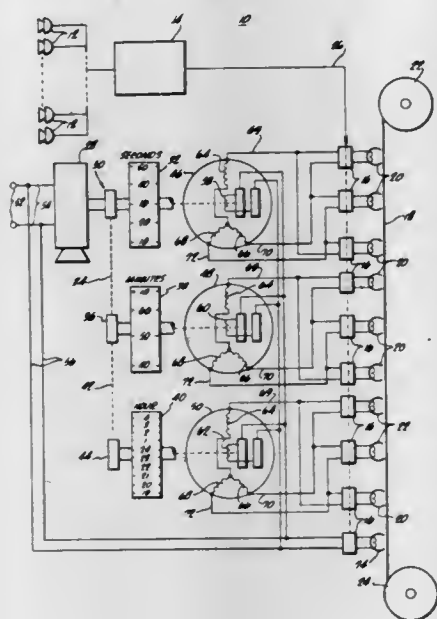
A magnetic head is shown having auxiliary core material in a substantially unstressed condition with very low direct current coercivity and located within the working magnetic core for diverting magnetic flux due to residual magnetization of the main core of the head away from the record medium path. Crossfield magnetic heads, offset pole magnetic heads, and composite core magnetic heads with windings for different frequency ranges are also disclosed.

3,591,730
AMPLITUDE SENSITIVE MAGNETIC MARKING AND SELF-MUTING MARK SENSING SYSTEM
 Daniel C. Chang, 1 Roosevelt Road, Sec. 1, Taipei, Taiwan, China
 Filed Jan. 31, 1968, Ser. No. 702,014
 Int. Cl. G11b 15/06
 U.S. Cl. 179—100.2 9 Claims



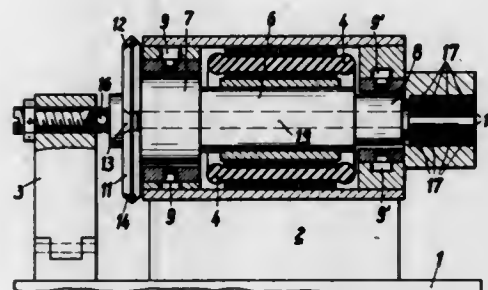
A record receiving medium is provided with saturated magnetic markings to serve as control signals for a record recorder and reproducer. The record recorder and reproducer is provided with means to mute the output of the reproducer at the time the control signals are received.

3,591,731
METHOD AND APPARATUS FOR RECORDING REAL TIME SUPERIMPOSED ON OTHER INFORMATION
 William V. Stancil, Hollywood, Calif., assignor to Leigh Products, Inc., Coppersville, Mich.
 Filed Sept. 23, 1968, Ser. No. 761,712
 Int. Cl. G11b 27/10
 U.S. Cl. 179—100.2 MD 19 Claims



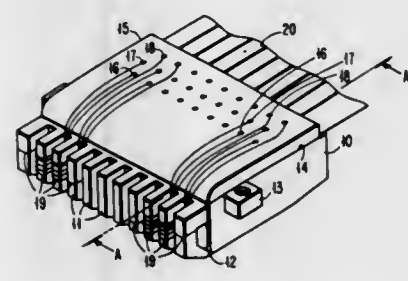
A method and apparatus for recording real time information simultaneously with other information signals to be recorded. The system utilizes one or more self-synchronous "generators" (record synchros) with a recording apparatus to generate real time signals which are recorded on a recording medium together with primary information signals to be recorded. A corresponding number of self-synchronous "motors" (reproduce synchros) are utilized with a playback apparatus to "read" the previously recorded real time information and to reproduce this information by driving a time display device associated with the playback apparatus. The primary information signals and the real time signals are recorded in different frequency bands with suitable dividing networks being provided with the record and playback mechanisms.

3,591,732
QUICK REMOVAL MAGNETIC HEAD-WHEEL ROTOR ASSEMBLY
 Rudolf Prochnow, Darmstadt-Eberstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany
 Filed Dec. 26, 1968, Ser. No. 786,872
 Claims priority, application Germany, Dec. 27, 1967, P 15 24 842.7
 Int. Cl. G11b 5/50
 U.S. Cl. 179—100.2 5 Claims



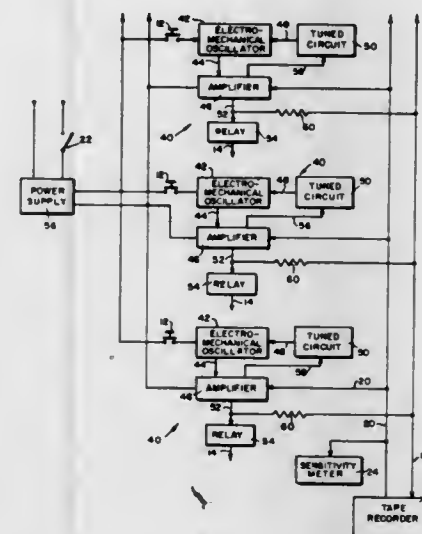
A head-wheel, carrying recording and pickup heads for a magnetic tape recording and playback system, is mounted on the rotor shaft of a drive motor, together with signal transfer rotary transformer coils to constitute a rotor assembly, which can be, as a unit, axially separated from the stator of the drive motor for the rotor assembly. Manufacturing tolerances permit assembly of any such rotor assembly into any stator, and therefore permit easy and simple substitution of a replacement rotor assembly when an operating rotor has reached a stage where the heads are worn and require replacement. The rotor assembly is axially stepped to permit easy axial positioning of the rotor into the supporting bearings, and to permit easy removal therefrom.

3,591,733
MAGNETIC COUPLING COMPENSATION MEANS FOR A MULTIELEMENT MAGNET HEAD
 Louis E. Pflughaupt, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed May 28, 1969, Ser. No. 828,547
 Int. Cl. G11b 5/44
 U.S. Cl. 179—100.2 K 8 Claims



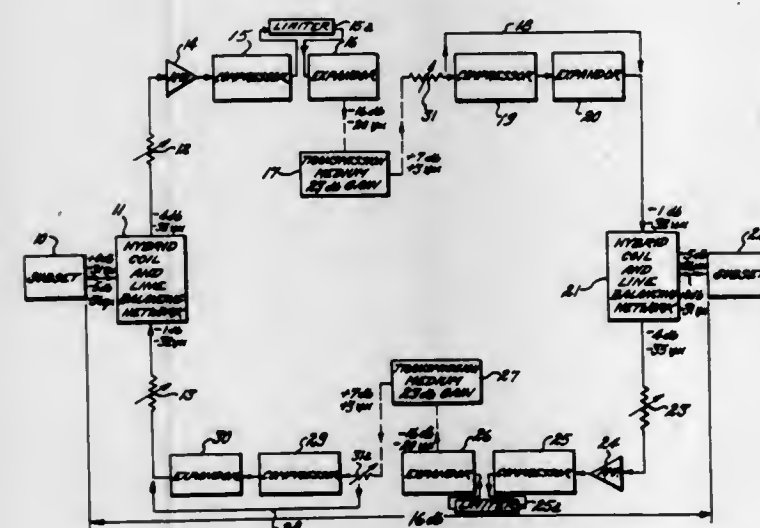
An arrangement for winding the coils of multigap magnetic heads to attenuate readback crosstalk between multiple tracks. A bifilar read coil, both filaments being connected together to provide opposite phases, is supplied on each element forming a gap of the multigap head. Additionally, each filament of the coil is separately wound on a different one of the adjacent elements out of phase with the leakage flux coupling. The resultant three-terminal winding is connected to a center-tapped differential amplifier. Hence, a deliberate one-sided crosstalk overcompensation results in a common mode coupling signal reduced in that the common mode rejection of the differential amplifier attenuates the net coupling signal.

3,591,734
A SYSTEM FOR SELECTIVELY CONTROLLING MULTIPLE OPERATIONS
 Don W. Abbott, Indianapolis, Ind., assignor to Recorded Sales Visual Presentations, Inc., Indianapolis, Ind.
 Filed June 10, 1968, Ser. No. 735,629
 Int. Cl. G11b 23/36
 U.S. Cl. 179—100.2 S 3 Claims



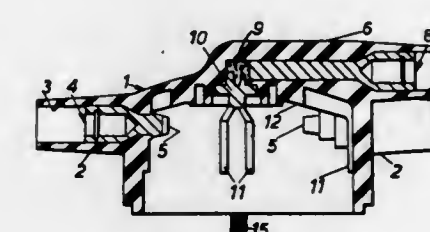
A system for the recording and playback of a tape record in which a plurality of relay switches are operated to control a corresponding plurality of electrically operated components. A console is provided having pushbutton switches coupled to operate oscillators which in turn energize the relay switches. The oscillator outputs are also coupled to a tape recorder for making a recording of the sequence and duration of pushbutton switch closures. The output of the tape recorder is coupled back to the oscillators so that when the recorder is played back the relay switches are closed in the same sequence and for the same duration as when the pushbutton switches are manually operated. The contacts of the relays may be used to close circuits to control lighting, slide projection, and other desired functions.

3,591,735
ANALOG VOICE PROCESSING FOR A TRANSMISSION SYSTEM
 Fred A. Brooks, 5 Emerson Gardens, Lexington, Mass.
 Filed May 13, 1968, Ser. No. 728,681
 Int. Cl. H04b 3/20
 U.S. Cl. 179—170.2 2 Claims



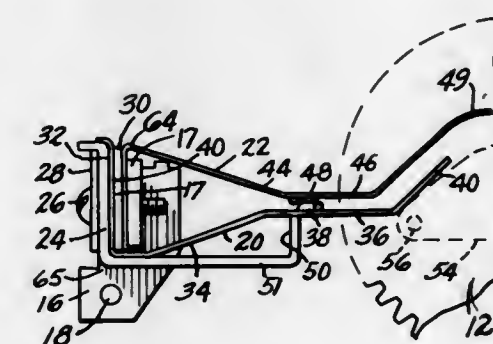
Analog voice processing for a transmission system wherein the talker volumes applied to the transmission medium is regulated with a concurrent adjustment of the volume at a preselected level to secure a desired singing margin in the system.

3,591,736
INTERNAL COMBUSTION ENGINE IGNITION DISTRIBUTOR CAP WITH IMPROVED CEMENT TERMINAL CONNECTOR MEANS
 Ronald Arthur Ernest Morgan, Dunstable, Bedfordshire; Colin George James Lock, Bletchley, Buckinghamshire, and Rex Harold Robinson, Redbourn, Hertfordshire, all of, England, assignors to General Motors Corporation, Detroit, Mich.
 Filed Mar. 2, 1970, Ser. No. 15,751
 Claims priority, application Great Britain, Mar. 13, 1969, 1,3181/69
 Int. Cl. H01h 19/00
 U.S. Cl. 200—19 4 Claims



An internal combustion engine distributor cap has an H.T. input terminal in the top of the cap, and a central contact member, which projects within the cap is electrically connected to the inner end of the input terminal, and secured in the cap, by a mass of conductive cement formed from a mixture of epoxy resin and iron powder.

3,591,737
SWITCH MECHANISM FOR ELECTRIC SPRING WOUND CLOCK
 Chester B. Marble, and Harry Albinger, Jr., both of Ashland, Mass., assignors to General Electric Company
 Filed Nov. 29, 1968, Ser. No. 779,883
 Int. Cl. H01h 7/08, 1/18
 U.S. Cl. 200—35 4 Claims

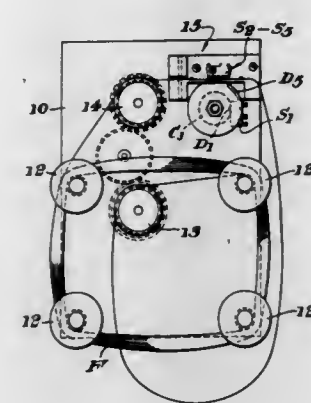


A switch contact arrangement for starting and stopping an electric motor which periodically rewinds the main spring of a spring wound clock. Switch contacts are positioned at an angle to each other and are moved with respect to each other so that the switch is closed and contact is made at one of the ends of said contacts, the contacts slide on each other, and then the switch is opened and contact is broken at the opposite ends of the contacts.

3,591,738
MECHANISM FOR THE TIME CONTROL OF ELECTRIC SWITCHES
 Edward Wilkinson, Pavement Pocklington, York, Yorkshire, England
 Filed Dec. 2, 1969, Ser. No. 881,434
 Int. Cl. H01h 43/08
 U.S. Cl. 200—46 6 Claims

A controlling or programming mechanism in which switches are controlled by the movement of feeler pins, this

movement being controlled both by perforations through a means such as a printed circuit. The switch mechanism is moving tape, and also by depressions in cams, the arrange- contained within a housing and has a detent-positioned



ment being such that a switch is actuated only when its pin passes through a perforation and into a cam depression.

3,591,739

SWITCH ACTUATOR MECHANISM FOR USE WITH BED-RIDDEN PATIENTS

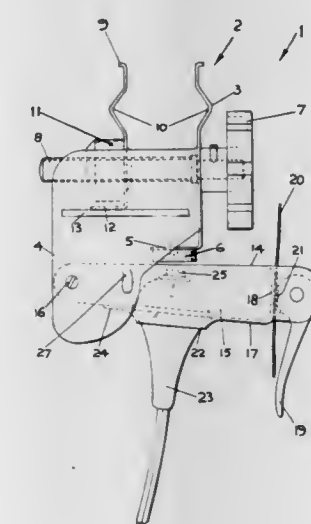
Henry Bruce Kenton, 31 Hall Road, Sawyer Bay, Dunedin, Otago, New Zealand

Filed Apr. 17, 1969, Ser. No. 817,046

Int. Cl. H01h 35/00, 3/00

U.S. Cl. 200-52

8 Claims



A switch actuator for use with bedridden patients to operate, upon excessive movement of the patient, the actuator having a switch carrying member supported on a rail of a bed, a strap fixed to record the movement of a patient in bed and engaged with the operating arm of the switch carrying unit so that when the patient rises from the recumbent position or otherwise moves excessively in the bed, the switch will be operated.

3,591,740

SELECTOR SWITCH ASSEMBLY

Wilhelm K. Kolster, Michigan City, Ind., assignor to Meridian Industries, Inc.

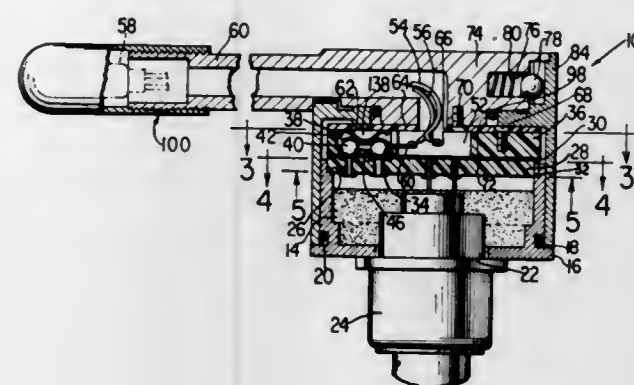
Continuation-in-part of application Ser. No. 681,406, Nov. 8, 1967. This application Jan. 27, 1969, Ser. No. 814,220

Int. Cl. H01h 21/78

U.S. Cl. 200-61.27

9 Claims

A switch for automotive turn signals, and the like, in which a plurality of prearranged resiliently biased electrical contacts are carried by a rotatable member and are adapted to engage selective contacts electrically to associated circuit



operating arm carrying a lever for releasing the arm to a selected operating position.

3,591,741

PRESSURE RESPONSIVE LIQUID LEVEL PUMP CONTROL

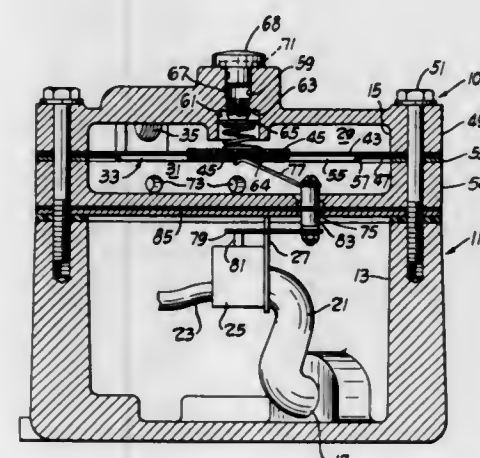
Fred E. Tutthill, Grafton, Ohio, assignor to American Crucible Products Co., Lorain, Ohio

Filed Mar. 13, 1969, Ser. No. 806,842

Int. Cl. H01h 35/34

U.S. Cl. 200-83

8 Claims



A pressure responsive control for pumps. The pump is controlled by a switch operated by a pressure sensitive diaphragm whose effective diameter may be changed to vary the pressure at which the pump is started and whose point of response is adjustably predetermined by a preloading spring means.

3,591,742

SEPARABLE CONTACTS FOR VACUUM CIRCUIT INTERRUPTERS WITH ASYMMETRIC WELD-BREAKING CONTACT CONFIGURATIONS

Richard L. Hundstad, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 7, 1968, Ser. No. 765,390

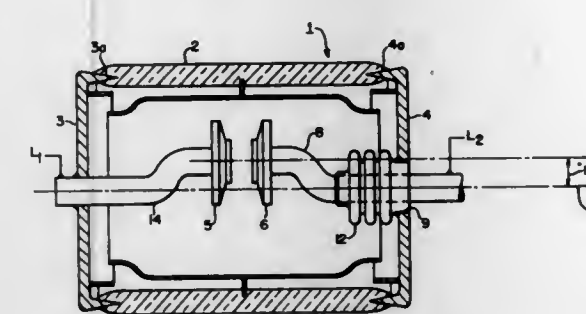
Int. Cl. H01h 33/66, 1/12

U.S. Cl. 200-144

5 Claims

A vacuum-type circuit interrupter is provided having separable contacts with an asymmetric arrangement, or con-

figuration, which will aid in breaking welds by accomplishing a tearing, or blending action upon the separable contacts at arc current than the magnetic field developed in the throat



the initial time of contact separation during the opening operation.

3,591,743

VACUUM-TYPE CIRCUIT INTERRUPTER WITH FLEXIBLE, WELD-BREAKING CONTACT STRUCTURE

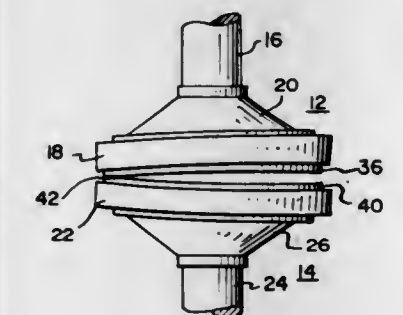
John W. Ranheim, Oak Creek, Wis., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Nov. 13, 1968, Ser. No. 775,428

Int. Cl. H01h 33/66, 1/66

U.S. Cl. 200-144 B

7 Claims



A contact member for a vacuum-type circuit interrupter having a ring-shaped electrode joined to the contact member adjacent its outer periphery and a movable conductive support rod extending from the center of the contact member for moving the electrode into and out of engagement with another contact member. The positioning of the electrode adjacent the periphery of the contact member allows the utilization of the maximum available lever arm to apply a breaking force on welds occurring between the electrode and the other contact member. The contact member may be slightly deformable to allow application of a prying action to the welded electrode.

3,591,744

ARC CHUTE WITH MAGNETIC BLOWOUT MEANS HAVING LARGER PHASE LAG FOR VERTEX OF CHUTE THAN THE THROAT

Gerhard Frind, Glenolden, Pa.; Rudolf Hunziker, Collingswood, N.J., and Richard M. Korte, Media, Pa., assignors to General Electric Company

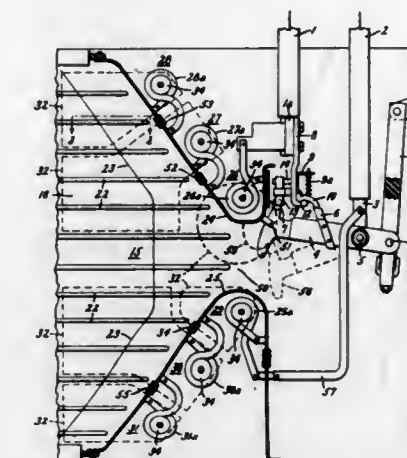
Filed May 26, 1969, Ser. No. 827,720

Int. Cl. H01h 33/18

U.S. Cl. 200-147 R

5 Claims

Discloses an arc chute for an alternating current circuit breaker which comprises a plurality of electromagnets for developing magnetic fields in different parts of the chute. The magnetic field developed in and beyond the vertex re-



region of the arc chute. This latter magnetic field is nearly in phase with the arc current.

3,591,745

MANUALLY OPERATED TOGGLE ACTING SWITCH HAVING A JOG FUNCTION LEVER

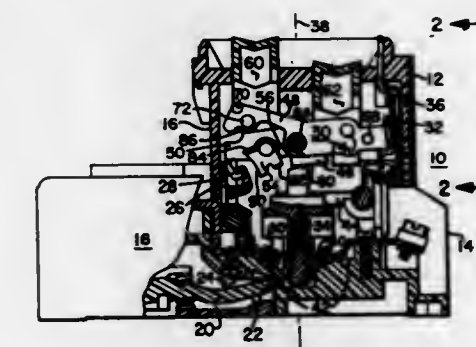
Jordan F. Puetz, Milwaukee, Wis., assignor to Square D Company, Park Ridge, Ill.

Filed Feb. 6, 1970, Ser. No. 9,205

Int. Cl. H01h 3/00

U.S. Cl. 200-153

7 Claims



A manually operated switch having a toggle mechanism which applies positive pressure between the contacts of the switch during the interval the toggle levers are passing through the toggle centerline. The switch includes a jog function lever which is selectively movable between an operative position which will cause the levers of the toggle mechanism to return with a snap toggle action from a position which causes the contacts of the switch to be closed to a position wherein the contacts of the switch are open when a manual force on the ON button or lever is removed when the jog function lever is at one position and which will permit the toggle mechanism to move and remain in the position whereat the contact of the switch remain closed after the manual force which is used to actuate the ON button or lever is removed.

3,591,746

CIRCUIT CONTROL SWITCH MEANS WITH AXIALLY ADJUSTABLE CAM

William E. Engelhard, Apalachin, N.Y., assignor to Pyro-Sew Instruments, Inc., North Arlington, N.J.

Filed May 8, 1968, Ser. No. 727,509

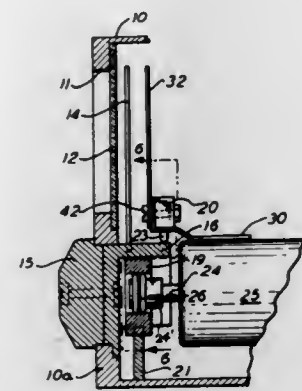
Int. Cl. H01h 3/42, 19/62

U.S. Cl. 200-153

4 Claims

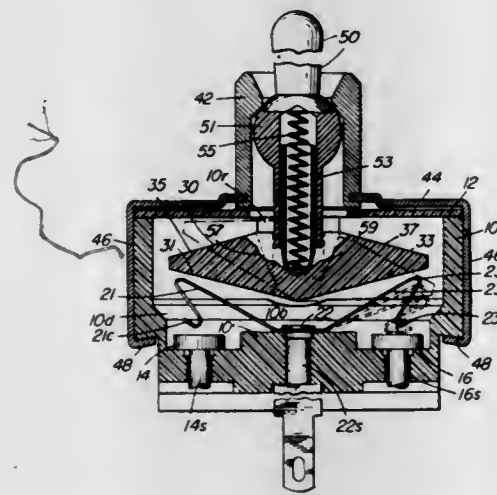
Can and switch means for control of circuits, such that, on setting or aligning the cam relative to a point on a scale, a switch member will be rotated to change the position thereof, relative to the cam, to actuate the switch at the set scale

point, and thus control a circuit. The cam is adjustable along its axial dimension so that if one portion of it is worn, a new



portion can be brought into contact with the cam follower without changing the cam.

3,591,747
LEVER OPERATED SWITCH WITH TILTABLE CONTACT ACTUATOR AND FLEXIBLE CONTACTS
John J. Dennison, Southington, Conn., assignor to Arrow-Hart, Inc., Hartford, Conn.
Filed Dec. 29, 1969, Ser. No. 888,294
Int. Cl. H01h 3/00
U.S. Cl. 200—153 9 Claims

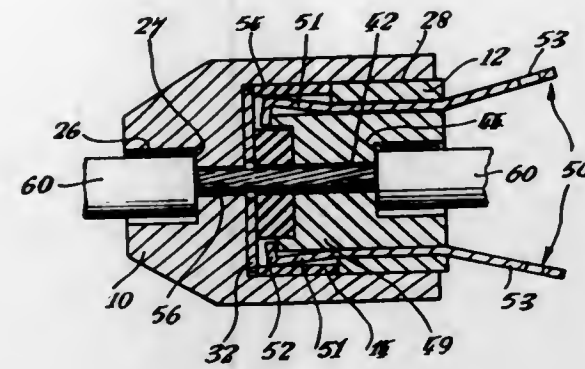


A lever operated electric switch has a rocker that is tilted to one side or the other from an intermediate neutral position by movement of the lever. The rocker engages one arm or the other of a leaf spring type of contact member causing engagement with one or another fixed contact. The ends of the arms are reversely bent doubly into S-shape so that the extremity presents a longitudinal surface which wipes over the fixed contact surface. The ends are also bifurcated and laterally dished into trough shape.

3,591,748
ELECTRIC SWITCH
Brian Astbury Holden, Washington, England, assignor to Burgess Mirco Switch Company, Limited, Gateshead, Durham County, England
Filed Mar. 12, 1969, Ser. No. 806,453
Claims priority, application Great Britain, Mar. 28, 1968, 15,023/68
Int. Cl. H01h 17/08
U.S. Cl. 200—161 14 Claims

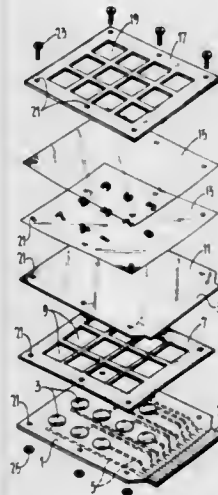
A switch is constructed with inner and outer members that support the contact elements of the switch and that sandwich

between them a rubber gasket having apertures that form totally enclosed spaces in which the contact elements are



brought into engagement when an operating force is applied to compress the gasket, beyond an initial prestressed state, by a Bowden cable on which the switch is mounted.

3,591,749
PRINTED CIRCUIT KEYBOARD
James Martin Comstock, Livermore, Calif., assignor to The Singer Company
Filed May 12, 1969, Ser. No. 823,658
Int. Cl. H01h 9/16, 3/12
U.S. Cl. 200—167 R 8 Claims

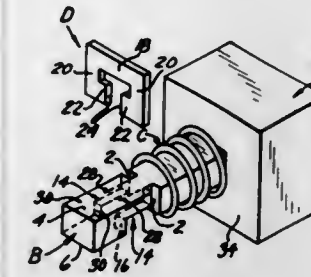


A printed circuit keyboard having contacts thereon with leads from the contacts passing through the board and connected to conductors on the underside of the board. A ground plane in the form of a conductive sheet is positioned above the contacts and biased out of contact therefrom. This sheet could be Mylar plated with nickel. The Mylar sheet is positioned over an apertured member aligned with the contacts to provide the biasing. The Mylar is sufficiently taut so that only one contact can be positioned against the depressed Mylar sheet at one time. A cellophane or other member can be placed over the Mylar and aligned with the apertures to provide numeric indicators for the keyboard.

3,591,750
STOPPER PLATE MOUNTING FOR PUSHBUTTON SWITCH
Masao Ohkita, Tokyo, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan
Filed Mar. 16, 1970, Ser. No. 19,976
Claims priority, application Japan, Apr. 10, 1969, 44/32,695
Int. Cl. H01h
U.S. Cl. 200—172 R 8 Claims

A pushbutton switch comprises a pushrod having communicating vertical and longitudinal channels, the stopper plate against which the biasing spring is adapted to operate having

downwardly extending arms with inwardly extending parts, the inwardly extending parts being passable through the ver-

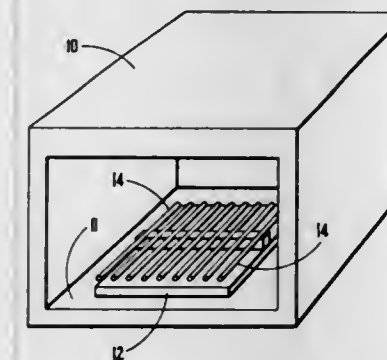


sure the temperature in the conductor of a cable undergoing a load cycle test. The temperature of the metallic shield of the cable is measured directly with a temperature-sensitive device in contact therewith. A feedback circuit is provided to automatically control the current input necessary to achieve and maintain a desired conductor temperature throughout the entire load cycle test.

3,591,753
PLANAR ELECTRICAL FOOD WARMER
William J. Gartner, Schaumburg, Ill., assignor to Kem Industries, Inc.
Filed Dec. 8, 1969, Ser. No. 883,215
Int. Cl. H05b 3/68, 3/06, 3/16
U.S. Cl. 219—464 3 Claims

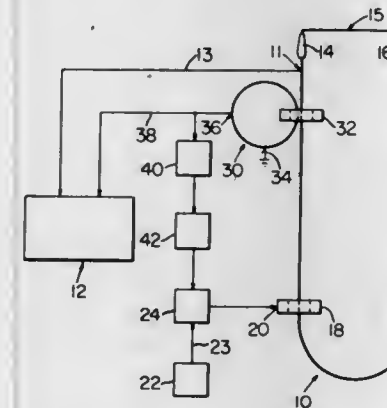
tical channels and then being movable along the longitudinal channels to the ends thereof under the influence of the biasing spring.

3,591,751
BROWNING APPARATUS FOR USE IN A MICROWAVE OVEN
Costas E. Goltso, Weston, Mass., assignor to Teckton, Inc., Waltham, Mass.
Filed Sept. 26, 1969, Ser. No. 861,418
Int. Cl. H05b 9/06, 9/04
U.S. Cl. 219—10.55 9 Claims

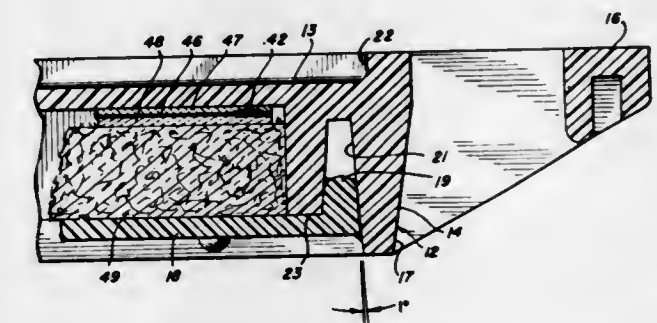


In a microwave oven wherein a portion of food is to be cooked, microwave coupling devices are located in contact or close proximity to the food for the purpose of browning the food. The microwave devices, in one embodiment, include a plurality of metal rods, each having a length that is a multiple of a half wavelength with respect to the microwave energy within the oven. The microwave devices effectively transform the microwave energy into thermal energy in which form the energy causes the browning of the food contained therein.

3,591,752
APPARATUS FOR MEASURING THE CONDUCTOR AND SHIELD TEMPERATURE OF HIGH VOLTAGE CABLE
Jorge G. Valdes, Wilmington, Del., assignor to Reynolds Metals Company, Richmond, Va.
Filed Dec. 8, 1969, Ser. No. 883,207
Int. Cl. H05b 1/02, 5/00
U.S. Cl. 219—10.77 12 Claims

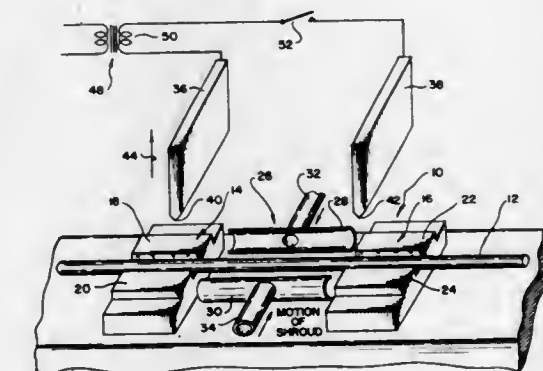


A temperature-sensitive device is placed in contact with the conductor of a measuring loop in order to indirectly mea-



An electrical food warmer is provided having a hermetically sealed shell made of a thermoplastic material. The heating unit which underlies the flat top of the shell is a sheet having an insulating layer coated with an electrically conductive coating to provide a resistance between about 25 and about 100 ohms per square.

3,591,754
APPARATUS FOR STRIPPING WIRE BY WIRE-IN-CIRCUIT HEATING
Charles L. Baldwin, Jr., Penfield, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 30, 1969, Ser. No. 795,246
Int. Cl. H02g 1/12
U.S. Cl. 219—50 2 Claims



The disclosure relates to a method and an apparatus for removing insulation from an electrical wire by electrical resistance heating of the wire to vaporize the insulation, the entire operation being conducted in an inert atmosphere for those applications where oxidation of the bare electric wire would be harmful.

3,591,755
FUSION BONDING
Robert Holbrook Cushman, Princeton, N.J., assignor to Western Electric Company, New York, N.Y.
Filed June 6, 1969, Ser. No. 831,164
Int. Cl. H05b 1/00
U.S. Cl. 219—50 8 Claims

Workpieces fabricated from lead, or other metallic materials having substantially similar characteristics, are fusion

when the pin is supported on a horizontal surface, such as a layer of insulator material disposed above a duct, the included angle between the insulator material and the plane of the head portion is less than 45°.

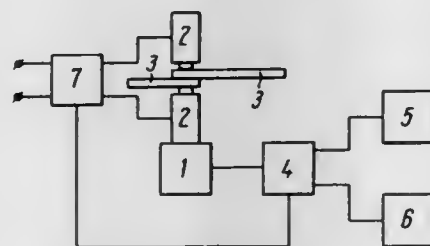
3,591,764 METHOD OF CHECKING METAL EXPULSION IN RESISTANCE WELDING

Jury Matveevich Taran, ul. Bolshaya Kitaevskaya 99, kv. 38, and David Solomonovich Vorona, ul. Scherbakova 51, kv. 21, both of Kiev, U.S.S.R.

Filed Feb. 24, 1969, Ser. No. 801,531
Int. Cl. B23k 9/10, 11/24

U.S. Cl. 219-110

7 Claims



The present invention concerns a method and device for detecting metal expulsions in resistance welding wherein mechanical or electric change occurring in the welding zone are utilized for the estimation of time and quantity parameters of the expulsion.

3,591,765 ELECTRIC BLANKETS

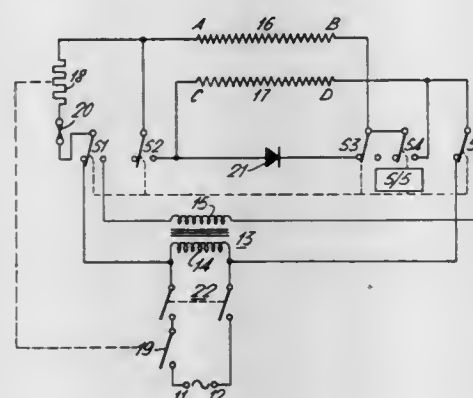
Leonard C. Owers, Southampton, England, assignor to Dreamland Electrical Appliances Limited, Southampton, England

Filed May 19, 1969, Ser. No. 828,092
Claims priority, application Great Britain, June 17, 1968, 28761/68

Int. Cl. H05b 1/00

U.S. Cl. 219-212

4 Claims



A circuit for an electric blanket or an electrically heated pad has two heater elements. The circuit is such that these heater elements can either be connected directly to a source of supply, or indirectly by way of a transformer.

3,591,766 SPOT-WELDING MACHINE FOR THERMOPLASTICALLY CONNECTING THE SEVERAL COMPONENTS OF INTERLINING ASSEMBLIES

Karl Nerold, Nikola, Austria, assignor to "Vienna" Bekleidungs-Und Waschefabrik Ges.m.b.H., Vienna, Austria

Filed Apr. 25, 1969, Ser. No. 819,323

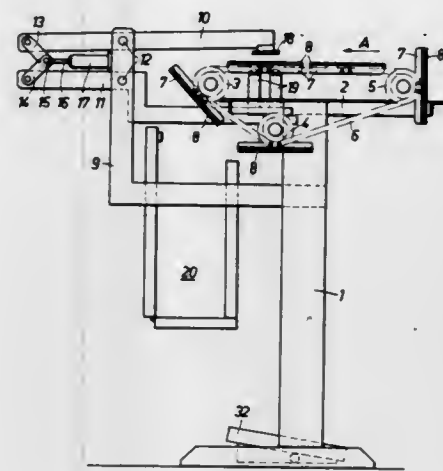
Claims priority, application Austria, Aug. 7, 1968, A 7729/68
Int. Cl. H05b 1/00

U.S. Cl. 219-243

13 Claims

A spot-welding machine for thermoplastically connecting the several components of interlining assemblies, particularly

shirt-collar interlinings, is provided which comprises a plurality of electrically heatable weld punches and a possibly likewise heatable pressplate, as well as adjustable edge-locating means for the several components of an interlining as-



sembly, wherein the edge-locating means have the form of templates which are adapted to the shape of the several components of the interlining assembly and which are interposable between the weld punches and the pressplate of the machine.

3,591,767 RADIANT SHRINK TUNNEL

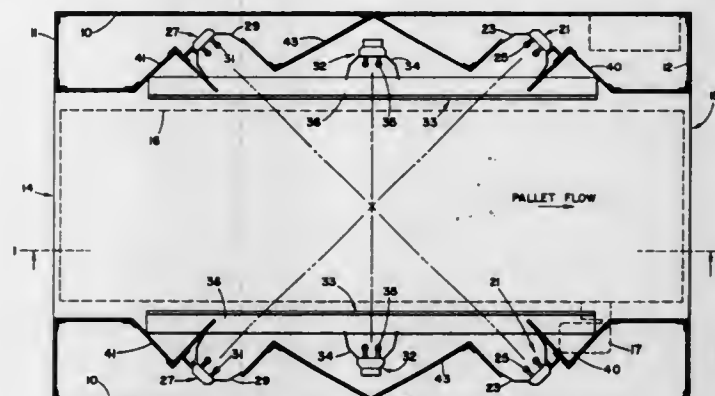
David Jeffrey Mudie, 30 Ben Machree Drive, Port Credit, Ontario, Canada

Filed June 23, 1969, Ser. No. 835,412

Int. Cl. F24h 3/00; H05h 1/00

U.S. Cl. 219-354

7 Claims



An open-ended tunnel-shaped heating chamber for shrink wrapping of large quantities of merchandise in pallet loads, the chamber being open at each end for erection on a conveyor system without the use of doors, and having electrical radiant heating units arranged in three separate zones consisting of forward, rear and intermediate zones, along the tunnel, the forward and rear zones being arranged and directed to progressively heat and shrink different portions of the shrink film draped around the merchandise on the loaded pallet and the intermediate zone being arranged to heat the film draped around the lower region of the pallet and shrink the same around and underneath the pallet, the heating units being provided with parabolic reflectors to focus and direct the heat in narrow intense bands so as to procure progressive heating of small areas of the films, and the tunnel being provided with heat reflective baffle means to trap any stray radiant heat which may otherwise escape from the tunnel through its open ends, and the heating being provided with separate zone controls whereby the operator can vary the heat applied by each of the zones, thereby enabling the construction of a shrink tunnel without doors for incorporation in a continuous flow production line.

3,591,768 THERMAL CONTAINER KIT

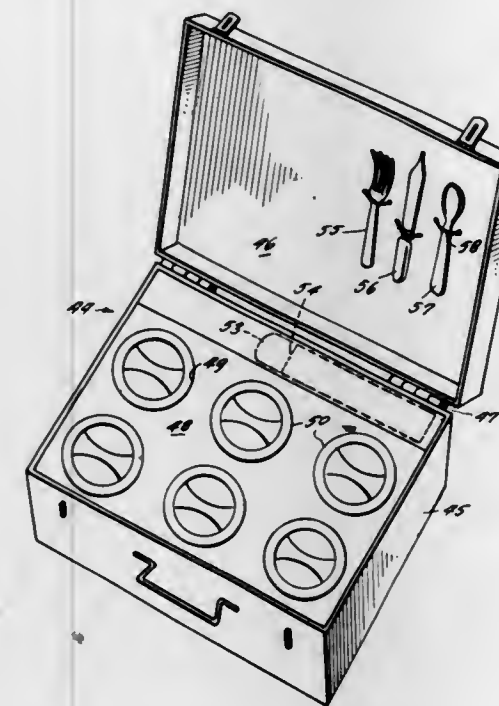
Frank Torres, 87 W. Greenwich Ave., Roosevelt, N.Y.

Filed June 21, 1968, Ser. No. 740,445

Int. Cl. A21b 1/52; F27d 11/02

U.S. Cl. 219-387

3 Claims



An improved Thermos container kit comprised of a plurality of Thermos bottles fitted into a case so as to provide both hot and cold foods, and each Thermos container comprising a vacuum bottle having a nozzle pouring spout.

3,591,769 ELECTRICAL OVEN COOKING AND CLEANING CONTROL SYSTEM

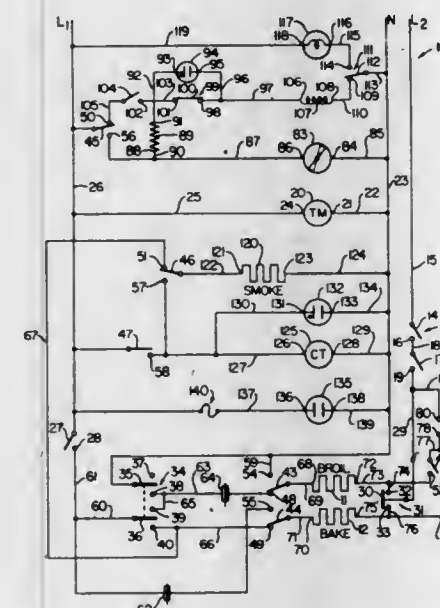
Siegfried E. Manecke, Indiana, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Jan. 22, 1968, Ser. No. 699,433

Int. Cl. H05b 1/02

U.S. Cl. 219-494

17 Claims



This disclosure relates to a control system for an electrical oven that permits the broil and bake heaters thereof to not only be utilized for normal cooking operations, but also for an oven-cleaning operation wherein the temperature of the oven is elevated to burn off the undesirable cooking soil and the like, the control means operating the bake heater at substantially full rated power and the broil heater at part rated power in a parallel relation thereof when the control means is set for a cleaning operation and the oven is below the clean-

ing temperature while operating both of the bake and broil heaters at part rated power thereof in a series relation thereof when the temperature of the oven is above the cleaning temperature.

3,591,770 HEAT GENERATING PIPE

Masao Ando, Kanagawaken, Japan, assignor to Chisso Corporation, Osaka, Japan

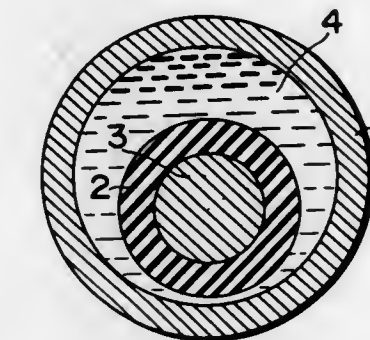
Filed Apr. 3, 1967, Ser. No. 627,721

Claims priority, application Japan, Apr. 5, 1966, 41/21393

Int. Cl. H05b 3/40

U.S. Cl. 219-540

4 Claims



A heat-generating pipe arrangement employs at least one pipe of ferromagnetic metal, an insulated electric conductor line connected to a source of AC supply and inserted within the pipe throughout the entire length thereof and a good heat-conductive material such as water, sea water or the like which exists in the clearance space between the conductor line and the pipe. The pipe is heated by the alternating current flowing through the inner wall portion thereof on account of the skin effect, which is a return current from the conductor line to the source of AC. The heat-conductive material is effective in preventing the temperature rise of insulating-material covering the conductor line and reduces the cost of heat-generating pipe per unit of heat generation.

3,591,771 ELECTRIC HEATERS

John F. Volker, Pittsburgh, Pa., assignor to Emerson Electric Company, St. Louis, Mo.

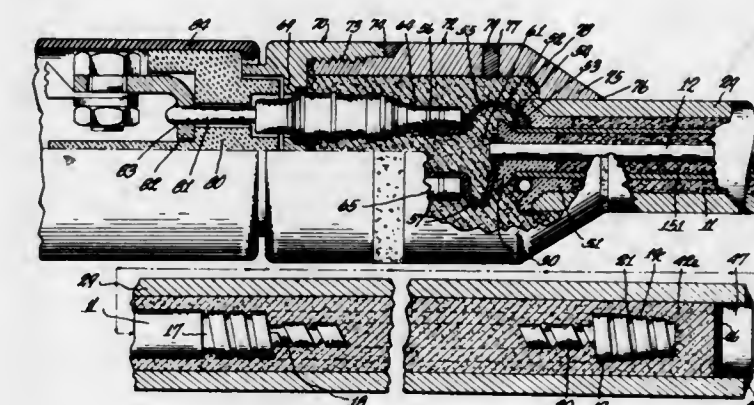
Division of Ser. No. 755,297, Aug. 8, 1968, Pat. No. 3,521,352.

Filed Jan. 22, 1970, Ser. No. 10,684

Int. Cl. H05b 3/10

U.S. Cl. 219-553

5 Claims



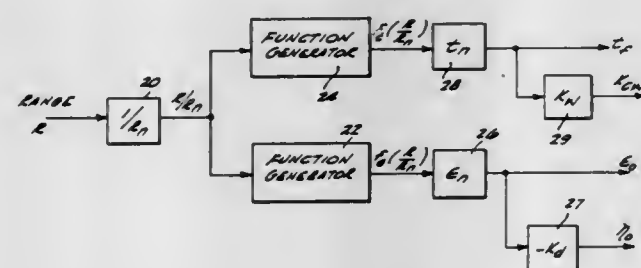
An electric heater comprising a terminal section including a terminal rod disposed in electrically insulated concentric relation within a metal tube, and a pair of concentric coiled resistors, the outer resistor having an end electrically connected to the tube and the inner resistor having an end electrically connected to the terminal rod. The terminal section, with attached resistors, are then disposed in coaxial relation within a tubular metal sheath and refractory material is in-

serted within the sheath for electrical insulation. The sheath is hermetically sealed at one end by a plug welded in the sheath, and at the other end by a terminal housing which is welded to the sheath. The terminal housing contains electrical connections with the terminal rod and metal tube, and such connections include looped portions to accommodate expansion and contraction.

3,591,772
COMPUTER CIRCUIT

William E. McAdam, Jr., Thousand Oaks, and Roy G. Clutterbuck, Los Angeles, both of, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed June 24, 1968, Ser. No. 739,420
Int. Cl. G06g 7/80, 7/26

U.S. Cl. 235—61.5 E **27 Claims**

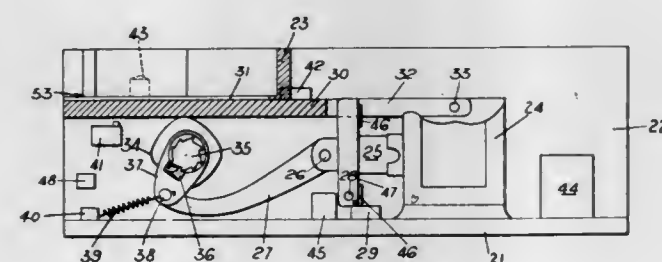


A computer circuit for generating signals related to the ballistics of a plurality of projectile or ammunition types, the signals including time of flight, super-elevation, and ballistics drift signals. The computer includes a plurality of parallel channels, including a first adjustable multiplier circuit, which operates on the range information by a selected ballistics normalizing transfer function to generate an individual normalized range signal for a selected individual one of the plurality of projectile or ammunition types, a function generator coupled to receive and operate on the normalized range signals with a nonlinear transfer function common to the ballistics of all of the projectile type for generating an exponential function signal related to the selected projectiles, and a second adjustable multiplier circuit coupled to the function generator for multiplying the function signal by a selected individual unnormalizing transfer function for the selected projectile type generating signals related to the ballistics of the projectile, such as super-elevation and time of flight.

3,591,773
CARD READER

John Covell Collier, Farnworth, and David William Rickards, Stanmore, both of, England, assignors to AMP Incorporated, Harrisburg, Pa.
Filed Aug. 2, 1968, Ser. No. 749,712
Claims priority, application Great Britain, June 27, 1968, 30774/68
Int. Cl. G06k 7/04

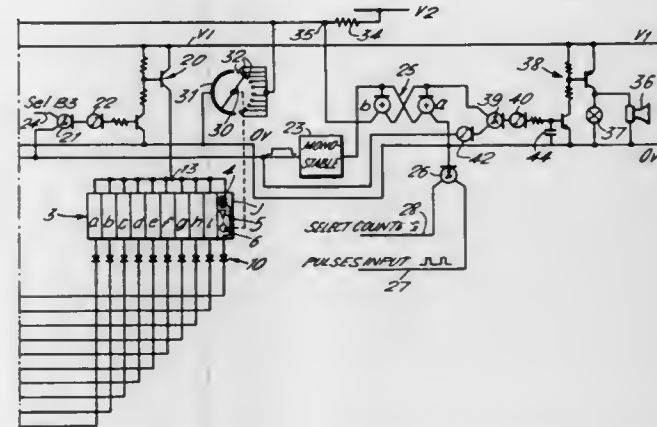
U.S. Cl. 235—61.11 4 Claims



A card reader uses a solenoid-operated linkage mechanism to give a greater mechanical advantage to close a card-carrying platform against reading means with an increasing force. The platform is inclined to the plane of the reading means so that on closure the reading means are successively engaged by the card.

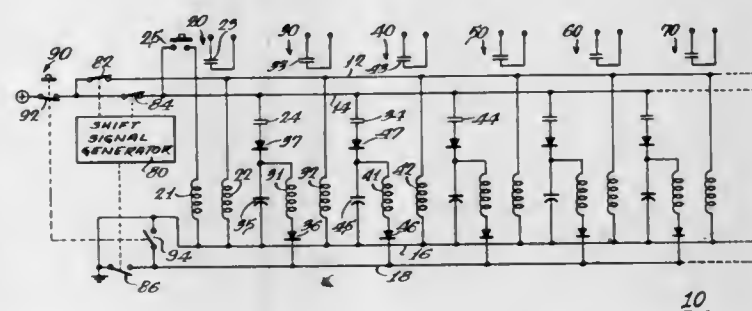
3,591,774
MECHANICAL COUNTERS

Manfred Huber, and Norbert Klimek, both of London, England, assignors to English Numbering Machines Limited, Enfield, England
Filed May 2, 1968, Ser. No. 726,171
Claims priority, application Great Britain, May 9, 1967, 21,395/67
Int. Cl. G06m 3/12



The invention relates to electromagnetically controlled counters in which a checking circuit is provided for checking the operation of the counter and for preventing further counting if the operation is found to be faulty. It includes both transistorized methods and relay methods of operation and may be applied to single counters or banks thereof.

3,591,775
SHIFT REGISTER USING SEALED REED SWITCHES
 Donald P. Schulze, La Mirada, Calif., assignor to C. P. Clare
 & Company, Chicago, Ill.

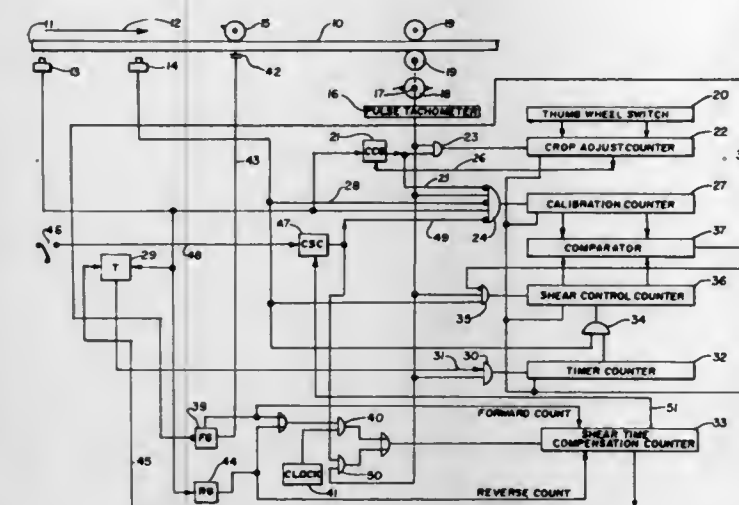


A plural stage shift register uses a reed relay including a pair of windings and one or more sealed reed switches in each stage. The contacts formed by the reed switches of each stage are operated by concurrent energization of the windings and held operated by the energization of one winding. One winding in each stage is provided with a holding potential. A transfer capacitor in each stage is charged through the contacts of the next lowest stage and is discharged through one of the windings in the same stage to obtain concurrent energization of two windings. By sequencing the removal of the holding potential and the discharge of the capacitors, bits stored in the register are shifted from the lowest stage of the highest stage.

3,591,776
AUTOMATIC CROP SHEAR CONTROL SYSTEM
Robert A. Sylester, Corapolls, Pa., assignor to Jones &
Laughlin Steel Corporation, Pittsburgh, Pa.
Filed Dec. 3, 1969, Ser. No. 881,650
Int. Cl. G06m 7/00

A system employing digital techniques for automatically controlling a shearing device to crop a desired length from

the trailing end of an elongated article while the article is conveyed along a longitudinal path. Two sensors determine parameters in the plant. The constraint circuits are utilized to prevent the system from correcting too rapidly in predeter-



the ends of the article; and control the counting of tachometer pulses. Provision is made to compensate for delay time of the shear.

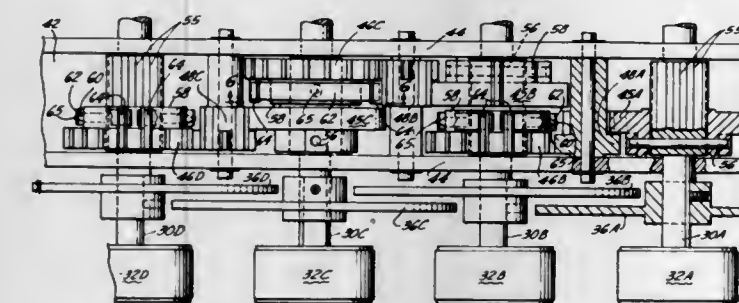
3,591,777
REGISTER INCORPORATING UNIDIRECTIONAL
TRANSFER MEANS

Joel A. Naive, La Jolla, and Peter J. Van Benschoten, Rancho Santa Fe, both of, Calif., assignors to Wavetek, San Diego, Calif.

Filed June 29, 1966, Ser. No. 561,558

U.S. Cl. 235-133

12 Claims

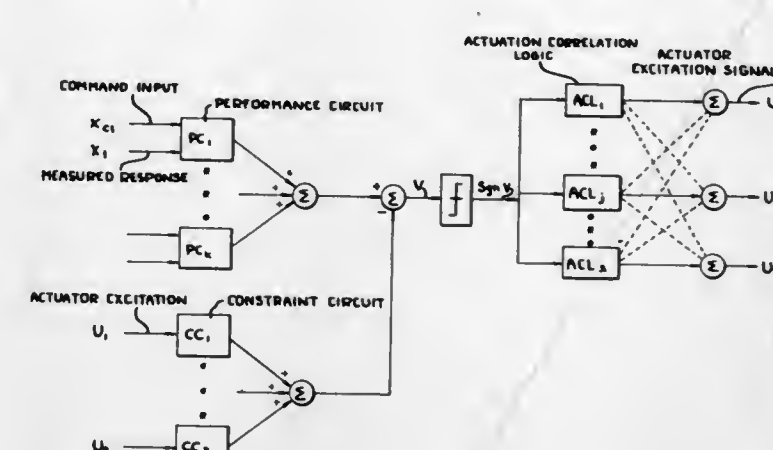


In a counter assembly comprising rotary counters corresponding to successive orders of integers, the transfer means from each lower order counter to the next higher order counter is unidirectional to transmit a carry from the lower order counter to the higher order counter but to prevent the higher order counter from operating the lower order counter.

3,591,778
SELF-ORGANIZING CONTROL SYSTEM WITH
CONSTRAINED PERFORMANCE ASSESSMENT
 Roger L. Barron, Burke, Va., assignor to Adaptronics, Inc.,
 McLean, Va.

U.S. Cl. 235—150.1 **14 Claims**

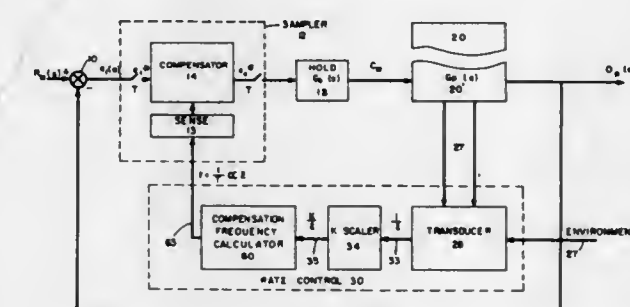
The disclosure relates to a self-organizing control system having performance assessment circuitry responsive to each command signal, capable of providing an error performance term which is a summation of the signals provided by each of the performance assessment circuits. The system also includes constraint circuitry, there being one constraint circuit corresponding to each actuator excitation signal, the constraint circuit outputs being summed and subtracted from the summation of the performance assessment circuitry outputs to provide a single value signal. The single value signal is utilized to control all of the actuation correlation logic circuits which, in turn, can control the individual actuators or



3,591,779
VARIABLE FREQUENCY COMPENSATION FOR
SAMPLED DATA CONTROL SYSTEMS

Arthur A. Sutherland, Jr., Woburn, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.
Filed Feb. 21, 1968, Ser. No. 707,268
Int. Cl. G06f 15/46

U.S. Cl. 235—151.1 10 Claims



Compensation for a sampled data control system that in effect provides a functional coupling between the compensation frequency and the plant's responsiveness to its control signal. The plant's behavioral properties are determined by the characteristic frequency of a dominant pole. The characteristic frequency is monitored and controls the rate at which compensation is applied. As the plant's response becomes faster the compensation rate is increased and, conversely, as it becomes slower the compensation rate is appropriately reduced.

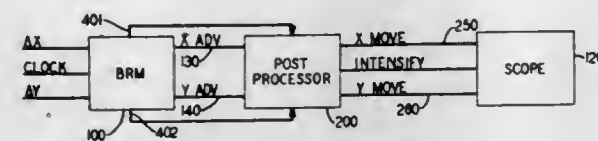
3,591,780

STRAIGHT LINE GENERATOR WHICH SPECIFIES A POSITION INCREMENT IN A MINOR COMPONENT

**DIRECTION ONLY WHEN ACCOMPANIED BY AN
INCREMATION IN THE MAJOR COMPONENT DIRECTION**
Peter E. Rosenfeld, Berkeley Heights, N.J., assignor to Bell
Telephone Laboratories, Incorporated, Murray Hill,
Berkeley Heights, N.J.
Filed Apr. 4, 1968, Ser. No. 718,805
Int. Cl. G06g 7/48

A technique for vector generation in a point-plotting system is disclosed which provides an improved approxima-

tion to the desired linear trajectory by specifying a position



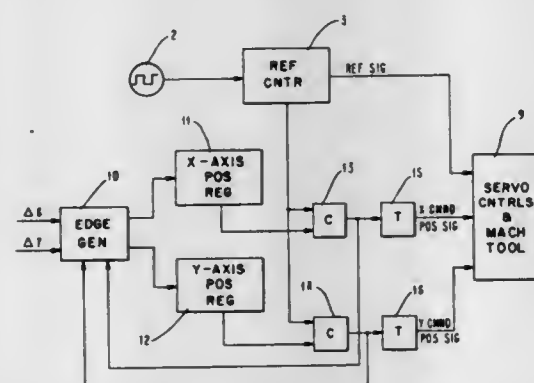
increment in a minor component direction only when accompanied by an increment in a major component direction.

3,591,781 MACHINE TOOL CONTROL SYSTEM WITH EDGE GENERATOR

James G. Brenza, Putnam Valley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 30, 1968, Ser. No. 787,643
Int. Cl. G05b 19/30

U.S. Cl. 235-151.11

19 Claims



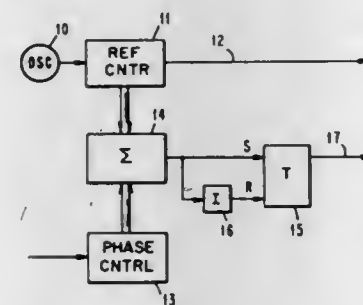
A machine tool control system wherein command-position signals (such as square waves) are generated without the use of linear interpolation logic. A number representing a position in time equivalent to each rise or fall of the command-position square wave is generated and placed in a position register, which is compared with a running reference counter. An equal-compare signal reverses the level of a binary trigger and signals the apparatus to supply another number to the position register. The output of the binary trigger is used to generate the command-position square wave.

3,591,782 DIGITAL TO PHASE ANALOG CONVERTER

Geert H. Bouman, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of application Ser. No. 791,414, Jan. 15, 1969, now abandoned. This application Oct. 31, 1969, Ser. No. 880,754
Int. Cl. G05b 19/18; H03k 13/04

U.S. Cl. 235-151.11

10 Claims



A digital to phase analog converter which accepts input digital data from a linear interpolator and produces a reference square wave signal for each machine tool and a

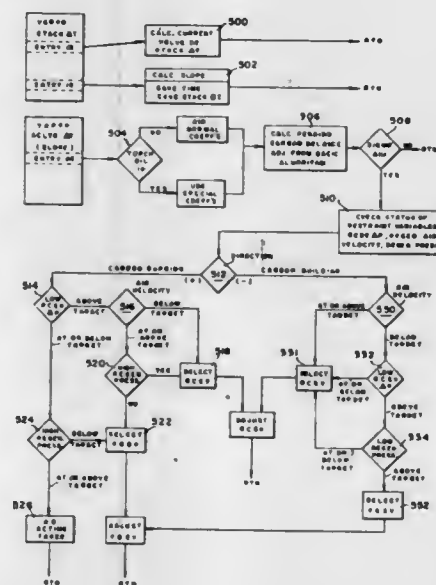
command-position signal for each machine tool axis that is being controlled. Each command-position signal has a phase displacement from the reference signal that is related to the input digital data. The command-position signal is generated by adding the contents of a running counter to the contents of a phase control register. The high-order trigger of the adder produces the command-position signal.

3,591,783 AUTOMATIC CONTROL OF FLUID CATALYTIC CRACKING UNITS

Robert E. Zumwalt, Baytown, Tex., assignor to Esso Research and Engineering Company
Filed Feb. 24, 1969, Ser. No. 801,388
Int. Cl. G05b 15/02; C10g 13/14

U.S. Cl. 235-151.12

7 Claims



A fluidized catalytic cracking unit is controlled for carbon balance and maximization of a secondary control function by using a general purpose digital computer, which is responsive to various temperatures and pressures, as the controlling means for variables such as the settings on the regenerator flue gas control valve and the regenerated catalyst circulation control valve. The process of the present invention involves obtaining a plurality of signals representing control variables, comparing these with the desired values for the control variables, and carrying out in a general purpose computer the calculation of a carbon adjustment factor according to the algorithm:

$$\Delta SV_n = K_r [\text{Abs.}(\delta T_n) + K_s] (\delta T_n) + K_p \left[\frac{\Delta T_n - \Delta T_{n-1}}{\Delta t} \right]$$

where each of the variables has the definition set forth in the specification.

When ΔSV_n is positive, indicating a correction for carbon-burning conditions, the desired control action is obtained by a logic sequence which determines whether either of the controlled variables is under constraint and if not, takes the control step most consistent with optimization of the secondary variable. If one or both of the controlled variables are under constraint, the logic sequence indicates the correct control step to be taken or, if no control step can be taken, indicates that none can be taken.

When ΔSV_n is negative, indicating a correction for carbon-building conditions, the logic sequence likewise allows the choice of the optimum control step to be taken or, if none can be taken, indicates this fact.

After the logic sequence based upon the algorithm has been completed, a signal is obtained to move the correct control valve (that is, make the required adjustment in the controlled variable), the signal being corrected to reflect the difference in control function (depending upon which valve is to be moved) and for the position of the valve immediately prior to movement to the new position.

By carrying out the control function of the present invention, carbon balance can be well controlled in a catalytic cracking unit while the secondary control variable (such as regenerator air velocity) can be controlled or maximized.

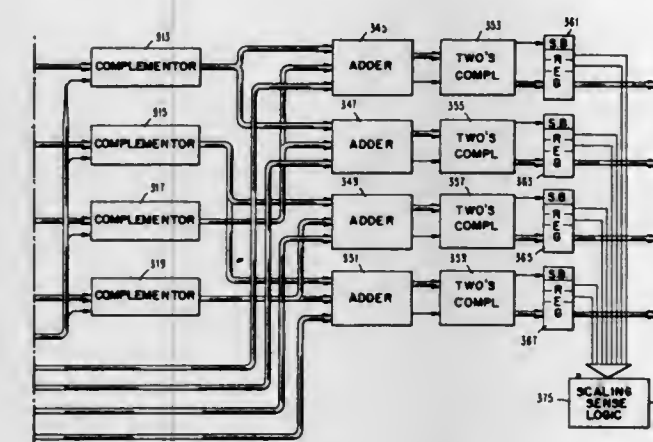
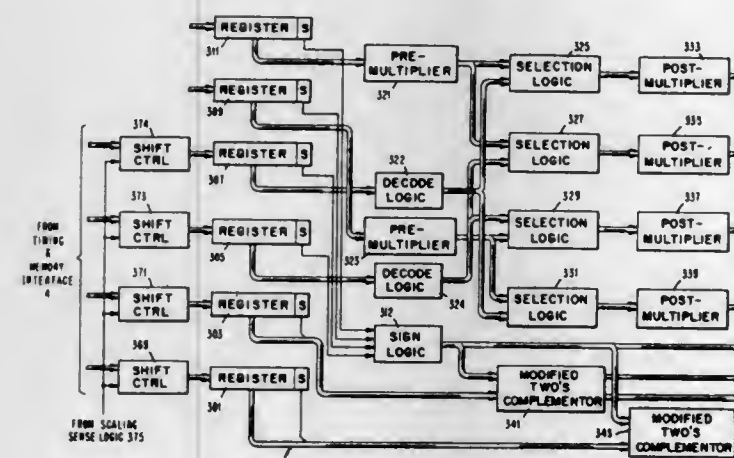
3,591,784 REAL TIME DIGITAL FOURIER ANALYZER

Joseph T. Cutter, Washington, D.C.; Don G. Freeman, Gaithersburg, Md., and Richard Van Blerkom, Rockville, Md., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of application Ser. No. 673,881, Oct. 9, 1967, now abandoned. This application Oct. 17, 1968, Ser. No. 768,474

U.S. Cl. 235-152

Int. Cl. G06f 7/38

25 Claims



A real time digital Fourier analyzer utilizing either the Cooley-Tukey or the Danielson-Lanczos algorithms consisting of particularly adapted hardware to facilitate the calculations of said algorithms. Specifically, the preferred embodiment utilizes hardware equally adapted to both algorithms with fixed point arithmetic, a look-ahead two's complementor, and an address generator employing three binary counters.

3,591,785 SIGNAL AVERAGING SYSTEM

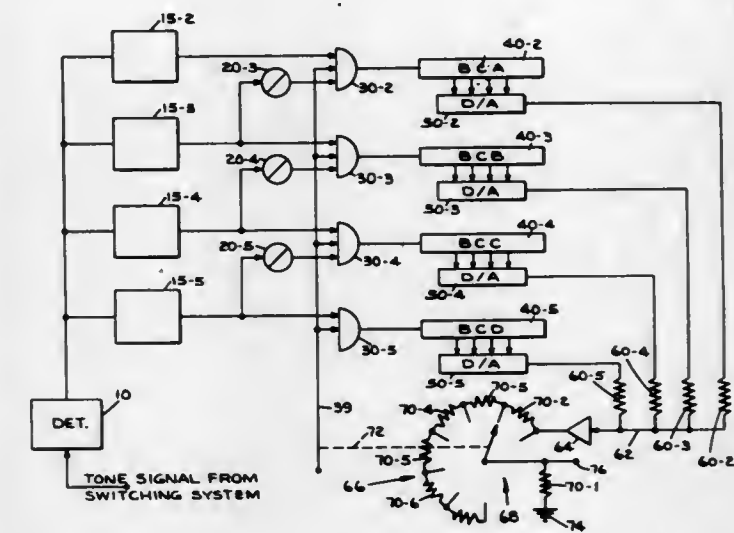
Kenneth M. Miller, Oak Park, Ill., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Nov. 19, 1968, Ser. No. 777,062
Int. Cl. H03k 13/175, 13/04

U.S. Cl. 235-154

9 Claims

A system for determining a representative value for the average or mean magnitude of a plurality of input signals of diverse magnitudes. The number of input signals received within each of a plurality of magnitude ranges are initially counted within a predetermined period of time, and an analog signal representative of each total count produced. Each analog signal is then normalized with respect to a different predetermined value of magnitude chosen to represent the magnitude of each input signal received within each mag-

nitude range. All of the adjusted analog signals are thereafter combined, with the resulting signal divided by the total



number of input signals initially received by the system so as to provide a representative, weighted value for the average magnitude of all of the input signals.

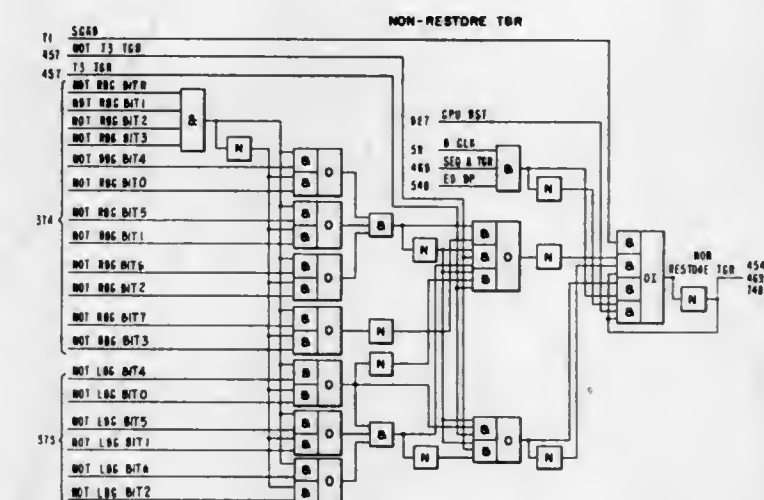
3,591,786 PREDICTED ITERATION IN DECIMAL DIVISION

Robert A. Nelson, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of application Ser. No. 445,325, Apr. 5, 1965, now abandoned. This application Jan. 13, 1967, Ser. No. 609,243

U.S. Cl. 235-160

Int. Cl. G06f 7/44

12 Claims



Decimal divide apparatus capable of performing divide iterations in accordance with either the restoring technique (wherein the sign of each partial dividend is made to conform to the sign of the previous partial dividend) or the non-restoring technique (wherein each successive partial dividend is utilized unaltered). For each iteration, the technique that is likely to be more efficient is selected. The selection is based upon the high-order digits of the divisor and the partial dividend and the sign of the partial dividend.

3,591,787 DIVISION SYSTEM AND METHOD

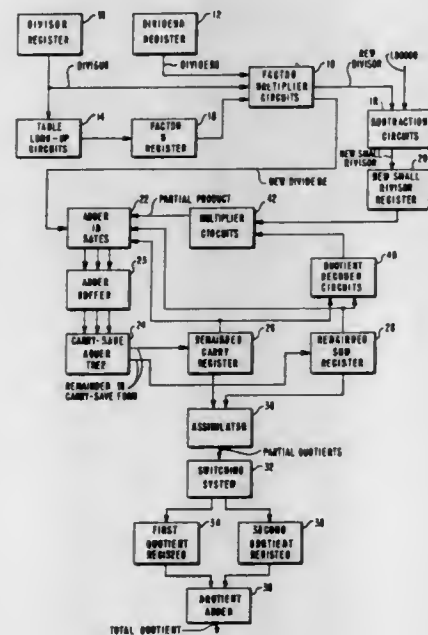
Charles V. Freiman, Los Altos, and Chung Chian Wang, Stanford, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 29, 1968, Ser. No. 701,267
Int. Cl. G06f 7/39, 7/38

U.S. Cl. 235-164

9 Claims

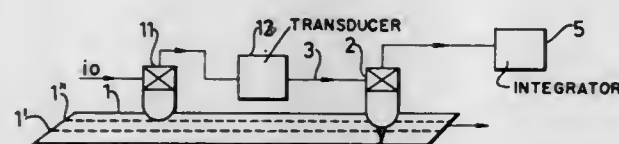
A system and method for digital division employing a composite of table lookup and iteration techniques. A stored logic table is used which generates a factor M which when

multiplied against the divisor, provides a new divisor in a predetermined range close to unity in value. Both the divisor and the dividend are then multiplied by the factor M, the capacity of the table lookup determining the maximum difference of the new divisor from unity. The arrangement is such that, depending upon the difference between the new divisor and unity, a selected number of new partial quotient digits is directly determined from a selected number of digits in newly generated partial remainders. By generating quotient digits in successive groups, only a few iterations are



needed to divide one long number by another. Successive division steps entail merely the generation of new partial products, and derivation of the difference of these partial products from the previous partial remainder. By arranging the significant portion of the new divisor to be a negative quantity in a preferred form of system, only adder circuits need be employed. A high speed, high capacity binary digital division system utilizing these techniques is further arranged to utilize carry-save adder circuits to utilize carry and sum quantities without introducing carry propagation delays, and otherwise minimize operating cycle time.

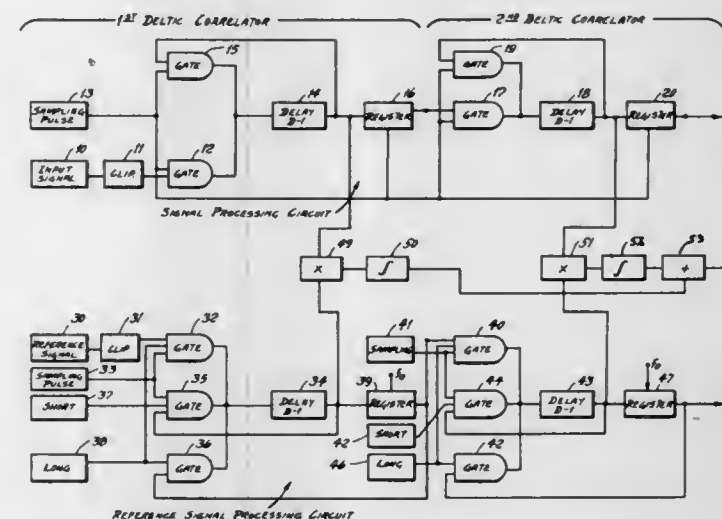
3,591,788
APPARATUS FOR DETERMINING THE CORRELATION BETWEEN TWO ELECTRICAL SIGNALS
Gunnar Brodin, Bergvagen 14, Saltsjö-Duvnas, Sweden
Filed Sept. 27, 1967, Ser. No. 670,978
Int. Cl. G06g 7/19
U.S. Cl. 235-181 9 Claims



Apparatus for obtaining ordinates on a correlation function of two electrical signals, including, a ferromagnetic recording medium and an electromagnetic pickup head movable relative to one another, the ferromagnetic recording medium having recorded thereon a first of the two signals and the magnetic pickup head having included in its magnetic circuit a Hall element; a control current supply means for passing a control current through the Hall element at right angles to the magnetic field in the pickup head and proportional to the second of the two signals, including, a magnetic recording head associated with the recording medium to record the second signal a predetermined period of time

ahead of the detection of the first signal by the pickup head or a second magnetic pickup head, adapted to detect the second signal from a parallel track on the recording medium, having a second Hall element in its magnetic field, a constant current input means for passing a current through the second Hall element perpendicular to the magnetic field through the second Hall element, an output connected to the Hall element to receive an output voltage from the second Hall element orthogonally with respect to the second pickup head's magnetic field and the constant current and a transducer for converting the output of the said second Hall element to a proportional current and feeding such current to the input of the first Hall element; a first Hall element output means to receive a voltage from the first Hall element orthogonally to the magnetic field through the first Hall element and the control current to the first Hall element; and an integrator system connected to the first Hall element output, such as a low-pass filter or an operational amplifier and a control circuit for resetting the amplifier output to zero and varying the integration period, for integrating such output and displaying the output of the integrator as an indication or a recordation. The time delay interval may be varied by varying the relative speed between the recording medium and a pickup head, two pickup heads, or a pickup and a recording head, as the case may be, or by varying the distance between a pickup head and a recording head or two pickup heads, respectively.

3,591,789
EXTENDED APERTURE DELTIC CORRELATOR
David Hoffman, Hillsdale, N.J.; Roman Sadowy, Jr., New York, N.Y., and Budd B. Adams, Springfield, Va., assignors to the United States of America as represented by the Secretary of the Navy
Filed Jan. 22, 1969, Ser. No. 793,041
Int. Cl. G06f 15/34; G06g 7/19
U.S. Cl. 235-181 3 Claims



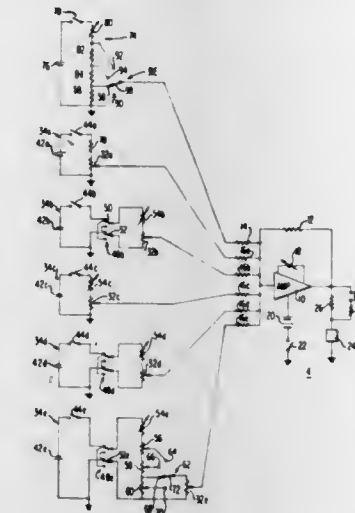
There are disclosed arrangements for extending the aperture of Deltic correlators which involve (1) cascading the delay line loops each of which has a time delay approximately equal to the maximum sampling period, and (2) increasing the sampling period by making it a multiple of the basic sample period.

3,591,790
COMPUTER DEVICE WITH INTERCHANGEABLE PARAMETER SCALING
John H. Couture, 80 Hadley Road, South Burlington, Vt.
Filed May 7, 1968, Ser. No. 727,299
Int. Cl. G06g 7/48
U.S. Cl. 235-193 19 Claims

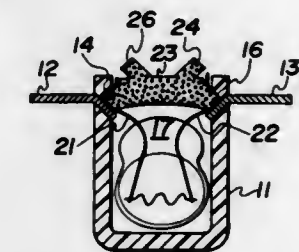
There is disclosed herein a portable electronic computer device of simplified construction and low cost useful to solve a wide range of engineering and other mathematical problems. The device includes an operational amplifier connected as a summer and related input circuitry including input potentiometers, and reciprocal and scale-expanding or

multiplier switches together with a series of removable interchangeable parameter scale cards designed to provide

wardly beyond the side of the base of the device, and further swinging the frame from the intermediate position to an open position with the frame upstanding from one side of the base.

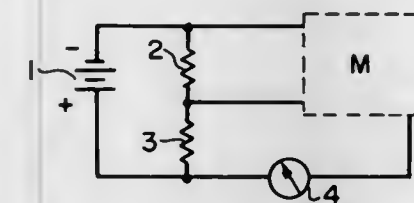


3,591,793
PANEL LIGHT ASSEMBLY
Jack D. McKim, P.O. Box 149, Del Mar, Calif.
Filed Dec. 23, 1968, Ser. No. 786,017
Int. Cl. H01r 13/50
U.S. Cl. 240-8.16 1 Claim



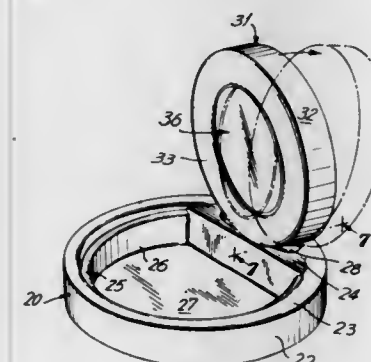
proper scaling and interrelationship for a plurality of dependent and independent variables in a wide range of problems.

3,591,791
PRECISION ANALOG COMPUTER FOR MULTIPLYING AND DIVIDING
Loebe Julie, New York, N.Y., assignor to Julie Research Laboratories, Inc., New York, N.Y.
Filed May 7, 1969, Ser. No. 822,505
Int. Cl. G06g 7/16
U.S. Cl. 235-195 5 Claims



An analog computer, which divides or multiplies, utilizes a circuit module which may be a repeated unit. One form of the module includes an operational amplifier and a transfer ratio device. The transfer ratio device may be a linear voltage divider. One, or more, modules are used with a voltage dividing network and a null indicating device to form the analog computer.

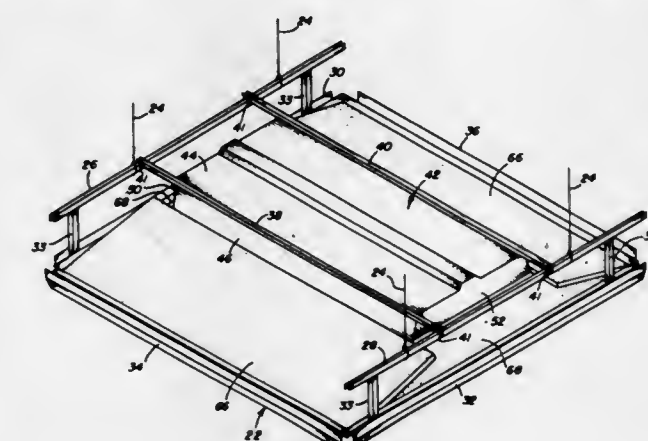
3,591,792
MAKEUP ACCESSORY
Alfred H. Soltan, 6789 Clyde St., Forest Hills, N.Y.
Filed Nov. 29, 1968, Ser. No. 779,979
Int. Cl. F21v 33/00
U.S. Cl. 240-4.2 10 Claims



A makeup accessory comprising a base and a frame carrying a mirror mounted on the base, a bracket comprising pairs of pivoted members which permit pivoting the frame of the device mounting the frame to the base from a closed position over the base to an intermediate position extending out-

A panel light assembly having two embodiments, one of which employs a translucent receptacle-filter, which is colored for filtering having horizontally extending electrical contacts extending beyond the outside surface and in proximity to first and second recesses in the inner surface of the receptacle, the receptacle-filter being dimensioned for receiving a lamp having pliable leads extending toward the top of the receptacle-filter and a resilient wedge member dimensioned for a press fit within the recesses pressing the flexible leads of the lamp against the electrical contacts; a second embodiment wherein a base is provided with first and second electrical contacts passing therethrough being dimensioned for receiving the pliable leads of a lamp thereon and a cap-filter which is translucent and utilized as a filter dimensioned for receiving the lamp thereon and having recesses dimensioned for a press fit around the ends of the electrical contacts thereby pressing the pliable leads against the electrical contacts.

3,591,794
CEILING HAVING LAMPS AND SOUND ABSORBING AND LIGHT REFLECTING SURFACE
Paul D. Dail, 800 S. Sunset, Apt. 270, West Covina, Calif., and Howard A. Busby, 6365 Lambda Drive, San Diego, Calif.
Filed July 17, 1968, Ser. No. 745,595
Int. Cl. F21s
U.S. Cl. 240-9 9 Claims



A suspended ceiling for a building which includes a plurality of modules, each including a frame, the frame being arranged in a common horizontally extending plane. At least certain of the frame carry elongated lamp fixtures which are supported by the fixed ceiling and above the frame sections. Sound absorbing light-reflecting panels have their lower ends carried by the said certain frames. These panels extend upwardly and terminate substantially at the light emitting surface of the lamp fixtures. Two of these panels are elongated, and, depending upon the width of the light fixtures, relative to the width of the module, the two panels are disposed at angles between approximately 158° and 163° with respect to the plane of the light emitting surface.

3,591,795 LANTERN

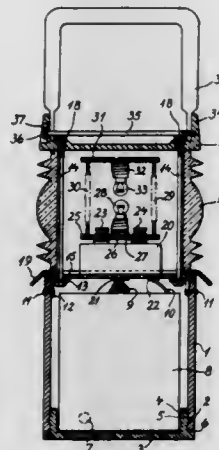
Per Neesbye-Hansen, Kobmagergade 22, Copenhagen K, Denmark

Filed Oct. 10, 1968, Ser. No. 766,400

Int. Cl. F211 7/00

U.S. Cl. 240—10.66

6 Claims



A lantern including a battery holder portion and a bulb holder portion which interfit at respective coaxial bearing surfaces so as to permit one portion to be turned relative to the other about the common axis of the bearing surfaces, each of the bearing surfaces being at least in part constituted by cooperating locking means to enable the two portions to be interfitted with a snap action to thereby hold the two relatively rotatable portions against separation in the axial direction unless a predetermined minimum separating force is applied. The two portions when assembled cooperate at the said bearing surfaces to enclose a hermetically sealed space for a battery, the battery holder portion being provided with projections or recesses for holding the battery against rotation relative to the battery holder portion, whereby when the battery is inserted, a contact thereon located eccentric to the common axis of the cooperating bearing surfaces can be engaged and disengaged with a contact on the bulb holder portion by relative rotation of said portion and the battery holder portion.

3,591,796

EMERGENCY ELECTRIC LIGHTING INSTALLATIONS
John Scott Netherwood Barker, Southampton, England, assignor to Bardic Systems Limited, Northam, Southampton, England

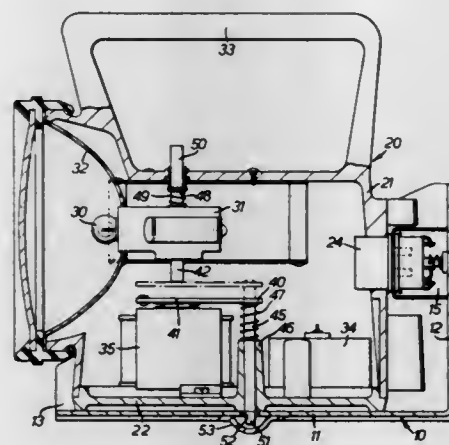
Filed Oct. 4, 1968, Ser. No. 765,193

Claims priority, application Great Britain, Oct. 5, 1967, 45,601/67

Int. Cl. F21v 9/04

U.S. Cl. 240—37.1

3 Claims



A portable handlamp incorporating a rechargeable battery is removably mounted in a bracket to form an emergency electric lighting installation. It incorporates a transformer

and rectifier arranged to trickle charge the battery from a supply, and the transformer acts on an armature secured to a bolt to lock the lamp in the bracket so long as the supply is maintained, but to switch on the light and release the lock if the supply fails.

3,591,797 VEHICLE LAMPS

Harris Vernon Hicks, Lichfield, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

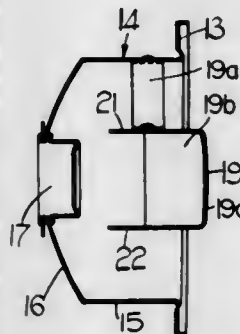
Filed Feb. 1, 1968, Ser. No. 702,461

Claims priority, application Great Britain, Feb. 6, 1967, 5565/67

Int. Cl. F21v 13/10

U.S. Cl. 240—46.47

4 Claims



A vehicle lamp including a lens, a reflector, and a light source. The reflector includes areas from which it is undesirable that light is reflected, and in order to prevent reflection from these undesirable areas there is provided a shield which is associated with the light source. The shield is nonreflective, and is such that it prevents light from the light source impinging on the undesirable areas of the reflector. Moreover, the shield prevents any light emanating from the lamp which has not first been reflected from the reflector. In addition, the light source has electrical connections made thereto by way of an insulated lead and a conductive braid, the electrical return path of the light source being through the braid. The braid and the supply lead have female connectors at their ends, the female connectors being of different sizes so that external connections to the lamps cannot be made in such a manner that the braid becomes the supply lead.

3,591,798 LIGHTING FIXTURE

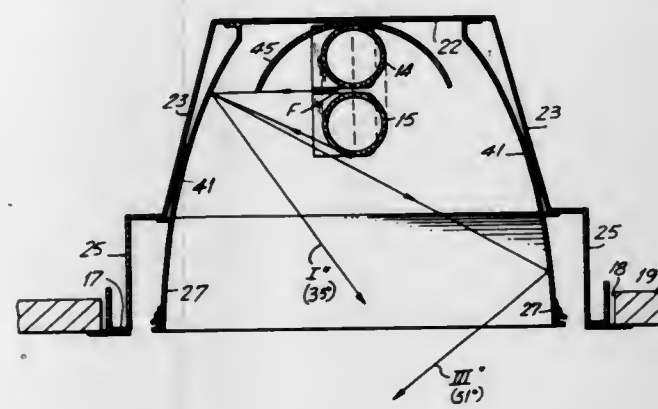
Noel S. Florence, Cranford, N.J., assignor to Lightolier Incorporated, Jersey City, N.J.

Filed Nov. 4, 1968, Ser. No. 772,903

Int. Cl. H05b 33/02

U.S. Cl. 240—51.11

5 Claims



A lighting fixture comprising a pair of parallel vertically aligned fluorescent lamps positioned midway between two elongated specular reflecting surfaces each of which is substantially parabolic in curvature. The reflecting surfaces are arranged with respect to the lamps so that the major portion

of the illumination provided by the fixture will be projected therefrom at an angle greater than 30° with respect to the vertical so as to minimize the veiling reflections effect to a viewer whose working surface is illuminated by such fixture.

3,591,799 SWITCH MECHANISM FOR TRACKS

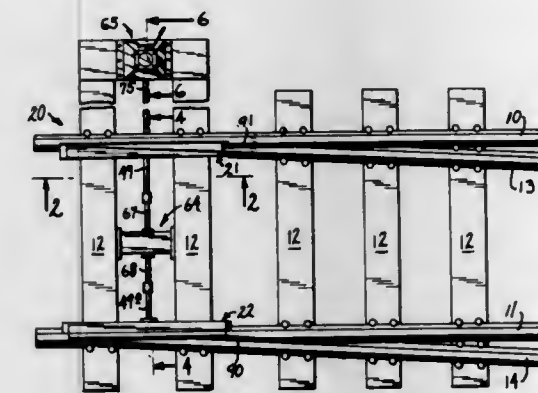
Harold L. Lica, 813 W. 7th St., Winona, Minn.

Filed Dec. 5, 1968, Ser. No. 781,398

Int. Cl. E01b 7/08

U.S. Cl. 246—433

8 Claims



Switch mechanism associated with a vehicle supporting pair of main tracks and a pair of side tracks which has a pair of housings adapted to mount a pair of track portions at the juncture of the pair of main and side tracks. The track portions are mounted in their respective housings for generally horizontally disposed vertical movements between operative and inoperative positions. Cam means is mounted in the housings for movement thereof longitudinally of the track portions and means within the housing imparts simultaneous movements to the cam means in directions longitudinally of the track portions and to the track portions to move the track portions vertically into position to allow the vehicle to travel along the pair of main tracks or alternately switch the vehicle to the pair of side tracks.

3,591,800 ATOMIC OR MOLECULAR BEAM RESONATOR HAVING FIELD CONCENTRATING MEANS FOR THE SECOND STATE SELECTOR

Peter Kartaschoff, Neuchatel, and Pierre-Etienne Debely, Neuchatel, both of, Switzerland, assignors to Laboratoire Suisse De Recherches Horlogeres, Neuchatel, Switzerland

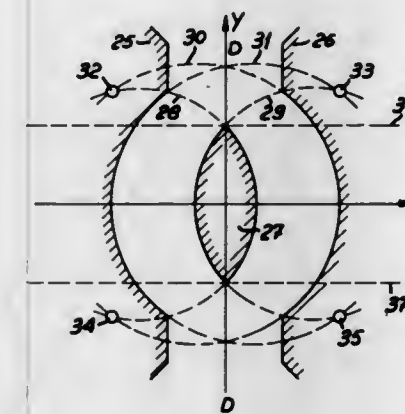
Filed Feb. 25, 1969, Ser. No. 802,094

Claims priority, application Switzerland, Apr. 19, 1968, 5866/68

Int. Cl. G01n 27/78; H03b 3/12

U.S. Cl. 250—41.3

4 Claims



Disclosed herein is an atomic or molecular beam resonator having a source for producing the beam, a first and second state selector separated by an interaction zone, means for generating an oscillating field in the interaction zone, and a

3,591,801 DOUBLE BEAM OPTICAL ABSORPTION PHOTOMETER HAVING SAMPLE AND REFERENCE CHAMBERS POSITIONED ALONG A SINGLE OPTICAL AXIS

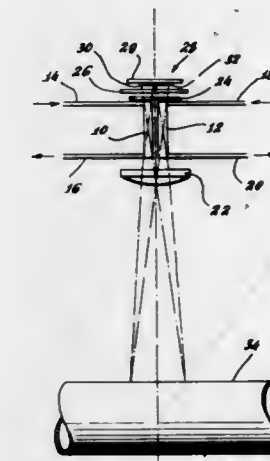
Emmet S. Watson, Ridgefield, Conn., assignor to Picker Corporation

Filed Mar. 21, 1968, Ser. No. 714,906

Int. Cl. G01n 21/26

U.S. Cl. 250—43.5

18 Claims



A simple, high performance double beam optical absorption photometer for use in chemical analysis instruments is described. Two small cylindrical chambers for sample and reference liquids are positioned side by side and along a single optical axis. Collimated ultraviolet radiation from a single source is passed lengthwise through both chambers and the relative absorption of sample and reference liquids sensed by a dual photodetector. A Wheatstone bridge circuit containing the photodetector elements is excited by a feedback power supply and provides linear absorbance readout.

3,591,802 METHOD OF MAKING A COLOR RADIOGRAPH, AND A FLUORESCENT SCREEN AND LIGHT SENSITIVE MATERIAL USED THEREFOR

Mataichi Tajima, Ashigara-Kamigun, Kanagawa, Japan, assignor to Fuji Shashin Film Kabushiki Kaisha, Ashigara-Kamigun, Kanagawa, Japan

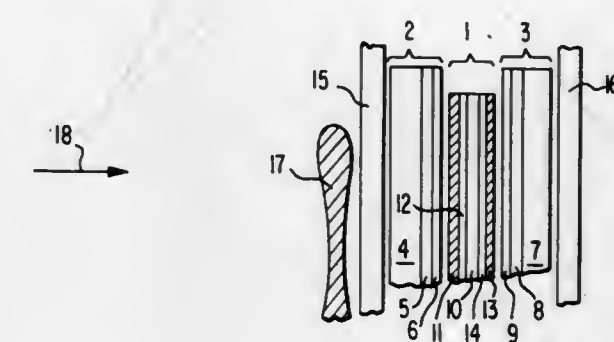
Filed May 16, 1966, Ser. No. 550,501

Claims priority, application Japan, May 18, 1965, 40/28807

Int. Cl. G03b 41/16; H01j 1/62

U.S. Cl. 250—65

10 Claims



A fluorescent screen for producing improved color radiographs comprising at least two color filter materials having different spectroscopic characteristics and a fluorescent material associated with the filter material, the filter materials being interposed between the fluorescent material and the film on which the radiograph will be produced.

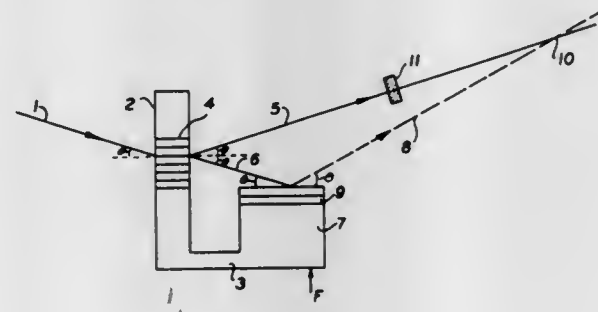
By passing radiation through an object and impinging the radiation on the fluorescent material, it is caused to fluoresce. The fluorescent material is correlated with the filters so that each filter passes radiation in a separate nonoverlapping portion of the spectrum. The filtered radiation is then passed onto the photographic color film.

3,591,803 METHOD OF OBTAINING X-RAY INTERFERENCE PATTERNS

Nathan Spielberg, Hartsdale; Dominick J. DeBietto, Briarcliff Manor, and Ralph S. Levitt, Ossining, all of, N.Y., assignors to U.S. Phillips Corporation, New York, N.Y.
Continuation of application Ser. No. 653,221, July 13, 1967, now abandoned. This application Oct. 16, 1969, Ser. No. 867,987

Int. Cl. G01n 23/20
U.S. Cl. 250-65

4 Claims



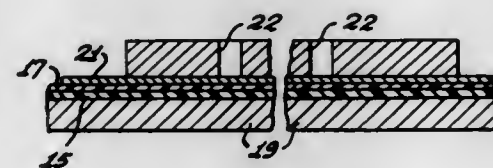
A method of obtaining X-ray interference patterns in which a crystal exhibiting the Borrmann effect, i.e., anomalously high transmission of X-rays by means of diffraction yielding a forward diffracted and a reflected diffracted ray, is employed and subsequently one of these rays is Bragg reflected causing it to converge with and interfere with the other ray.

3,591,804 MAGNETICALLY ATTRACTIVE MARKING DEVICE AND HOLDING MEMBER FOR X-RAY FILM HOLDER

John L. Minasian, 2319 W. Magnolia Blvd., Burbank, Calif.
Filed Aug. 1, 1968, Ser. No. 749,352

Int. Cl. G03b 17/24, 41/16
U.S. Cl. 250-67

10 Claims



An X-ray apparatus including a film holder or cassette in basically conventional form with markers on the cover plate of the cassette for producing identifying images on the negative, the markers comprising strips of magnet material with identifying stencil letters cut therein. The magnets are held in place by strips of metal glued in selected locations to the cover plate. An alternative form of the marker has rubber of a contrasting color filling the letter spaces.

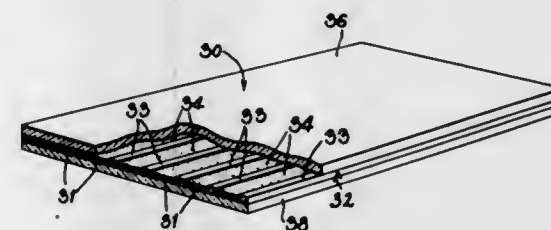
3,591,805 THIN LAYER CHROMATOGRAPHIC PLATE HAVING PREADJUSTED SPECTRAL TRANSMISSIVITY AND EMISSIVITY AND PREADJUSTED OPAQUE AND NONOPAQUE INTERVALS

Dietmar M. Schoeffel, Hillsdale, N.J., assignor to Schoeffel Instrument Corp., Westwood, N.J.
Continuation-in-part of application Ser. No. 705,863, Feb. 25, 1968, now abandoned, and Continuation-in-part of application Ser. No. 710,402, Mar. 4, 1968, now abandoned. This application Feb. 20, 1969, Ser. No. 801,126

Int. Cl. G01n 21/20

U.S. Cl. 250-71 R

12 Claims



A chromatographic plate wherein the spectral transmission is preadjusted and which is provided with preadjusted transparent and opaque intervals.

3,591,806 MULTICRYSTAL TOMOGRAPHIC SCANNER FOR MAPPING THIN CROSS SECTION OF RADIOACTIVITY IN AN ORGAN OF THE HUMAN BODY

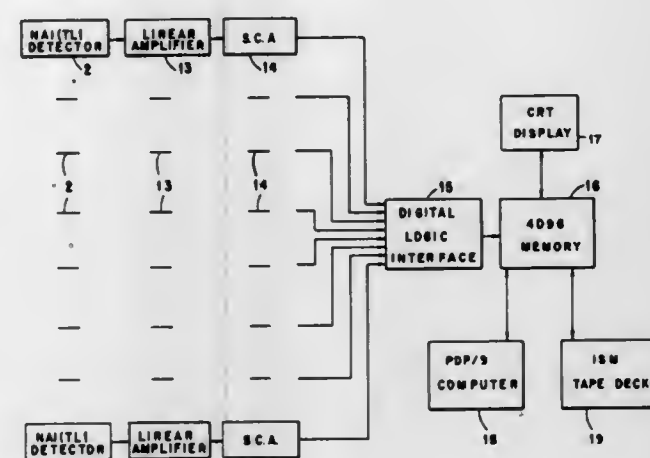
Aaron B. Brill; James A. Patton; Jon J. Erickson, and Paul H. King, all of Nashville, Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 17, 1970, Ser. No. 20,287

Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 S

10 Claims



A multicrystal tomographic scanner is utilized for mapping thin slices or cross sections of radioactivity in an organ of the human body which has been injected or ingested with a suitable radioisotope. A plurality of radiation detectors are arranged in a cylindrical monoplanar array with each detector focused in such a manner that the fields of view of all of the detectors intersect at a common point, and the detectors are driven mechanically such that this common point of the detectors is caused to move in a rectilinear raster of about 8 inches square. The distribution of radioactivity measured by the detectors due to the amount of radioisotope within the area being scanned is stored in a computer memory and reproduced on an oscilloscope display, as the section is being examined.

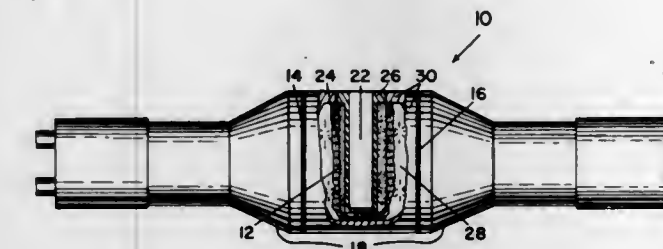
3,591,807 PHOTON DETECTOR UTILIZING A WELL-TYPE SCINTILLATION CRYSTAL

Charles W. Mays, Salt Lake City; Ray D. Lloyd, Murray, and David R. Atherton, Salt Lake City, all of, Utah
Filed Sept. 6, 1966, Ser. No. 577,441

Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 R

2 Claims



A novel photon detector, the preferred embodiment comprising a scintillating crystal having a uniquely oriented counting chamber disposed transversely within the scintillating crystal, the crystal having a plurality of planar faces uniformly spaced from the counting chamber to accommodate a plurality of photomultiplier tubes. The mentioned novel photon detector has unexpected and surprising capability of achieving uniform counting rate independent of sample position or sample volume and shape.

3,591,808 DEVICE FOR DIAGNOSIS WITH RADIOACTIVE ISOTOPES

Rudolf Prag, Marloffstein, and Edgar Tschunt, Erlangen, both of, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Dec. 24, 1968, Ser. No. 786,583

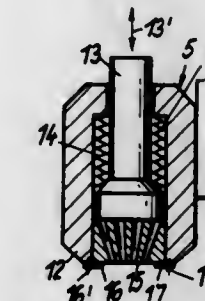
Claims priority, application Germany, Jan. 5, 1968, P 16 16

111.8

Int. Cl. G01t 1/20

U.S. Cl. 250-71.5

2 Claims



An apparatus for isotope diagnosis has a measuring device for determining the distribution of radioactive substances in a body from rays emitted by these substances. The device includes an element sensitive to these rays and located in a housing made of a material which does not transmit the rays. The ray-sensitive element has a surface receiving the rays and covered by a collimator which can be pushed into the housing. One collimator may be exchanged for other collimators of different lengths, the length of the housing being at least equal to that of the longest collimator plus the length of the ray-sensitive element. The invention is particularly characterized in that the ray-sensitive element is also movable in the direction of the longitudinal axis of the housing. The ray-sensitive element and the collimator are joined and the surface of the collimator which receives the incoming rays is located in an opening of the screening housing.

3,591,809 FLUIDIC RADIATION SENSOR VARYING THE VISCOSITY OF A FLUID STREAM

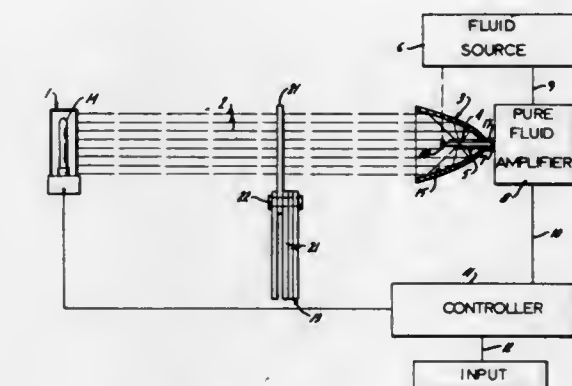
Richard N. Laakaniemi, Milwaukee, and Paul H. Sorenson, New Berlin, both of, Wis., assignors to Johnson Service Company, Milwaukee, Wis.

Filed Jan. 27, 1969, Ser. No. 793,997

Int. Cl. G01j 5/38

U.S. Cl. 250-83 R

10 Claims



This disclosure includes a fluidic sensor establishing a fluid signal related to the level of radiant energy impressed on the sensor. The sensor is a capillary tube mounted at the focal point of a reflector into which the radiant energy field is directed. The output of the capillary tube is a signal stream related to the temperature of the tube. The output is connected to a fluid amplifier. A filter is shown between the source of radiant energy and the reflector to select the frequency or frequency band within the total radiation spectrum which is passed from the source to the reflector.

3,591,810 TEMPERATURE MONITORING APPARATUS USING A PHOTOSCHROMIC HEAT SENSOR

Geoffrey Jackson, Harpenden, England, assignor to Hawker Siddeley Dynamics Limited, Hatfield

Filed Apr. 15, 1969, Ser. No. 816,261

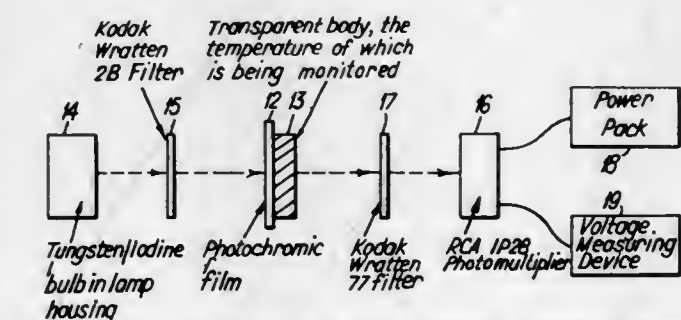
Claims priority, application Great Britain, Apr. 18, 1968,

18429/68

Int. Cl. G01t 1/16

U.S. Cl. 250-83

8 Claims



A temperature sensor is described in which the temperature-responsive element is a photoschromic compound. This compound, in film form, is irradiated by activating and monitoring radiation of appropriate wavelengths. The activating radiation induces a change in the extent to which the monitoring radiation is transmitted by the photoschromic compound. The amount of this change is temperature-dependent, thereby giving the required temperature responsiveness.

3,591,811

GAMMA FLUX DETECTOR AND METHOD OF MANUFACTURE THEREOF

Ross Bisbee Shields, Deep River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada

Filed Nov. 29, 1968, Ser. No. 779,761

Int. Cl. G01t 1/16

U.S. Cl. 250—83.3

7 Claims



A gamma flux detector comprising an emitter of zirconium or a zirconium alloy which is insulated from say a nickel chromium alloy collector by means of an oxidized coherent layer of the emitter material. The detector is manufactured by placing the emitter with the oxidized surface layer thereon in an oversize tube of the collector material and reducing the oversize tube to form the collector.

3,591,812

NEUTRON-GENERATING TARGETS

Jacques Detaint, Grenoble, France, assignor to Commissariat A L'Energie Atomique, Paris, France

Filed Aug. 26, 1968, Ser. No. 755,433

Claims priority, application France, Sept. 15, 1967, 121,146

Int. Cl. G21g 3/04

U.S. Cl. 250—84.5

1 Claim

Neutron-generating targets are made up of a layer of a hydride mixture of at least two metals of two different groups, one of which increases in volume during the chemical hydriding reaction and the other decreases in volume.

ERRATA

For Classes 250—231, 250—237, 290—004, 290—031, 307—010, 307—031, 307—087, 307—088, 307—106, 307—141, 307—202, 307—225, 307—232, 307—237, 307—247, 307—251, 307—255, 307—293, 310—003, 310—008 see:
Patent Nos. 3,591,841 thru 3,591,862

3,591,813

LITHIUM NIOBATE TRANSDUCERS

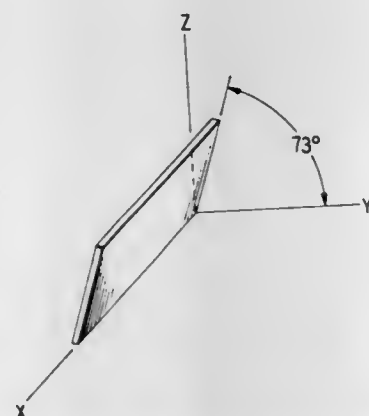
Gerald A. Coquin, Berkeley Heights; Allen H. Meitzler, Morristown, and Arthur W. Warner, Jr., Whippany, all of, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Feb. 28, 1969, Ser. No. 803,280

Int. Cl. H01v 7/00

U.S. Cl. 310—9.5

7 Claims



The specification describes ultrasonic transducers made from single crystal lithium niobate. Five crystal orientations are given for which transducer characteristics are especially favorable.

3,591,814

COMPOUND REED OSCILLATOR OR FILTER

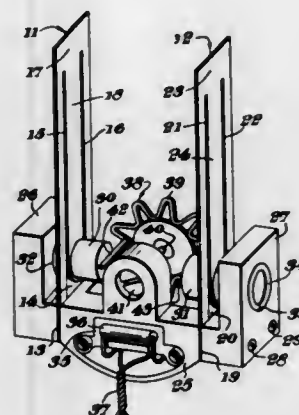
Cecil Frank Clifford, Newbridge Works, Bath, Somerset, England

Filed June 6, 1969, Ser. No. 831,189

Int. Cl. H02k 33/02

U.S. Cl. 310—25

9 Claims



An electromechanical oscillator or filter made up of one, or a pair of, primary reeds supported at one end for mechanical oscillation, each primary reed being slotted so as to form a secondary reed lying in the plane of the primary reed and having its free end adjacent the supported end of the primary reed. A pair of reeds may be constituted by the tines of a tuning fork. Each secondary reed is associated with a magnet and coil to enable mechanical oscillation to be maintained by a conventional electrical maintaining circuit. The secondary reeds may have magnetic members which cooperate with a wavy magnetic track on a driving wheel to provide a rotary drive.

3,591,815

MOVING COIL ELECTROMAGNETIC VIBRATORS

Peter Grootenhuis, London, and James Walter Gearing, St. Leonards-on-Sea, Essex, both of, England, assignors to Deritron Limited, London, England

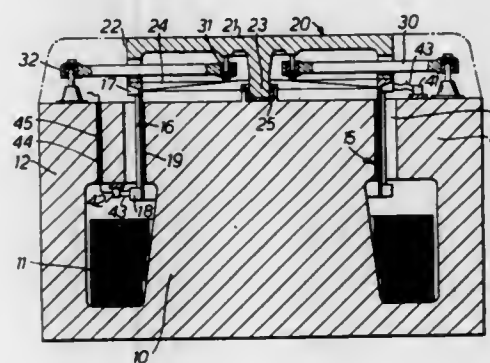
Filed June 10, 1969, Ser. No. 831,925

Claims priority, application Great Britain, June 11, 1968, 27658/68

Int. Cl. H02k 33/18

U.S. Cl. 310—27

7 Claims



In an electromagnetic vibrator a stationary magnet affords an annular or part annular airgap containing a moving conductor unit capable of vibratory movement about the axis secured to an output member to transmit torsional vibration to a load. Alternating current is passed through the conductor unit in directions substantially parallel to its axis. In one embodiment provision is made for vibratory movement both longitudinally along the axis and angularly about the axis.

3,591,816

SYNCHRONOUS MACHINE PROVIDED WITH COMB-SHAPED MAGNETIC POLES

Moriyoshi Sakamoto, Yokohama-shi; Yasuaki Kanda, Tokyo; Hiroaki Kitamura, Yokohama-shi, and Kenichi Hashizume, Yokohama-shi, all of, Japan, assignors to Tokyo Shibura Denki Kabushiki Kaisha, Horikawa-cho, Japan

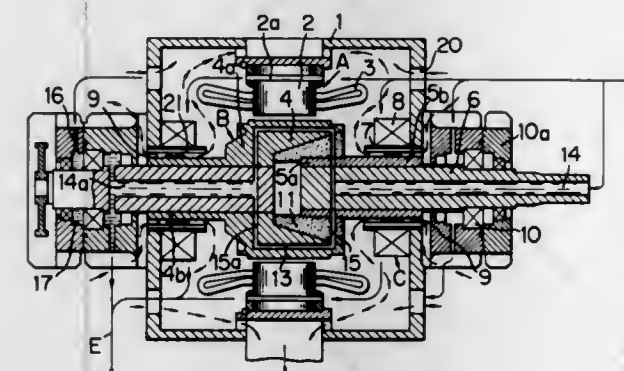
Filed Sept. 5, 1969, Ser. No. 855,645

Claims priority, application Japan, Sept. 9, 1968, 43/64311; 43/64312; 43/64313; 43/77251; 43/77252; 43/77253

Int. Cl. H02k 9/00

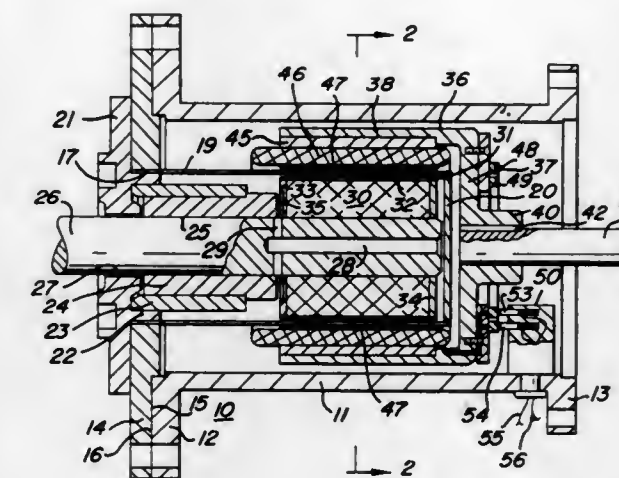
U.S. Cl. 310—58

6 Claims



A synchronous machine includes a stator with an exciting arrangement, a rotor having two interfitting, opposite magnetic pole yokes of comb-shaped configuration supported on two shafts. Each shaft is provided with cooling passages which operably communicate with the radial and longitudinal passages within the rotor. The rotor is also provided with nonmagnetic wedges which include axially disposed cooling holes connected with cooling passages within the rotor. Furthermore, synchronous machine is provided with a ventilating fan for circulating cooling air through the machine.

high intensity permanent magnetic material of metal or ceramic, with the other and outer component being electromagnetic with power supply, supporting bearings being



provided to retain alignment, and the inner and outer components being isolated to prevent fluid communication therebetween.

3,591,819

MULTIPLE-POLE ROTATING ELECTRICAL MACHINES

Nikolaus Laing, Hofener Weg 35-37, 7141 Aldingen, Germany

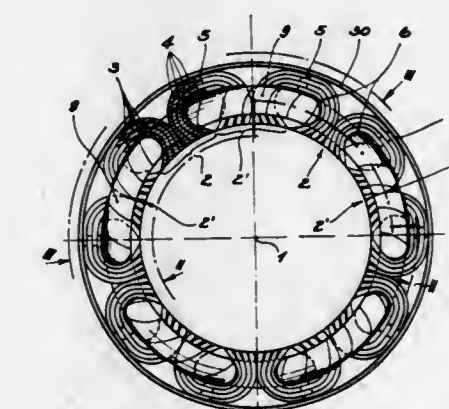
Filed Mar. 5, 1969, Ser. No. 804,630

Claims priority, application Switzerland, Mar. 7, 1968, 3430

Int. Cl. H02k 1/06

U.S. Cl. 310—217

8 Claims



3,591,817

HIGH SPEED MOTOR

August Kunzle, St. Gall, Switzerland, assignor to Heberlein & Co. AG., Wattwil, Canton of St. Gallen, Switzerland

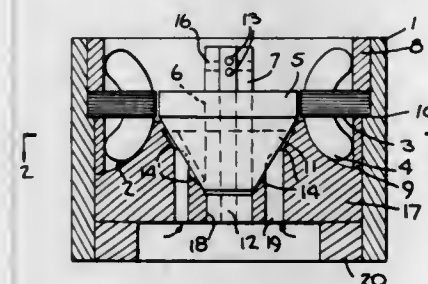
Filed Dec. 5, 1969, Ser. No. 882,666

Claims priority, application Switzerland, Dec. 6, 1968, 18230/68

Int. Cl. H02k 5/16

U.S. Cl. 310—90

7 Claims



A high speed rotary field motor with a single conical bearing wherein the rotor shaft bearing and journal are separate from the electrically and magnetically active parts of the motor.

3,591,818

DRIVE COUPLING

Garland L. Fulton, Wayne, Pa., assignor to Process Industries, Incorporated, Huntingdon Valley, Pa.

Filed Mar. 10, 1969, Ser. No. 805,430

Int. Cl. H02k 49/10

U.S. Cl. 310—104

6 Claims

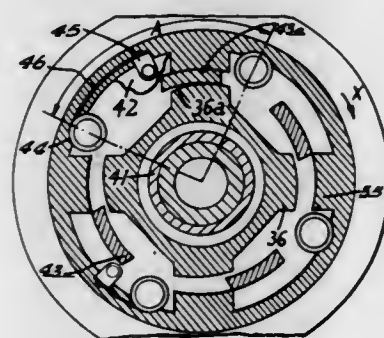
An electromagnetic responsive coupling for shafts and the like, one magnetic responsive component being of soft iron,

The poles of a multiple-pole rotating electrical machine take the form of discrete elements which can be so moved along the length of coil channels bounded by the poles that all the poles together form a pole ring in which at least every other pole is identical. The winding for a pole ring of this kind is embodied by one or more meandering continuous coils. To form the pole ring, a prefabricated winding comprising one or more meandering continuous coils is inserted into a channel bounded by one set of poles after which a further set of poles are pushed axially into contact with the first set to form a pole ring. These meandering coils can be used in axial split-casing motors. The meandering coils are produced in an apparatus having arms which move radially towards a center and which have at their ends grippers rotatable through 90°. As a final feature, annular lamination groups used in rotating electrical machines are produced from coiled metal strips.

3,591,820
BRUSH LIFTING GEAR FOR ELECTRICAL MACHINES
 Frederick R. Jones, Ilford, Essex, England, assignor to The Plessey Company Limited, Ilford, Essex, England
 Filed Aug. 15, 1969, Ser. No. 850,516
 Claims priority, application Great Britain, Aug. 16, 1968, 39213/68
 Int. Cl. H01r 39/42

U.S. Cl. 310-240

4 Claims

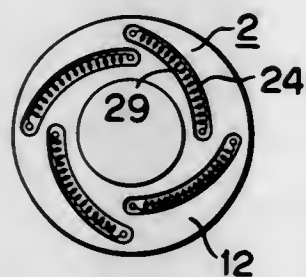


A rotary solenoid operable to lift the brushes off the commutator of an electrical machine is disclosed. The solenoid has radially inner and outer stationary pole pieces and an armature movable into the airgap between the pole pieces. The armature is provided with an auxiliary portion which bridges the airgap when the remainder of the armature has entered the airgap. The inner pole piece is shaped by a single angular machined cut.

3,591,821
ROTARY ANODE TYPE X-RAY GENERATOR HAVING EMITTING ELEMENTS WHICH ARE VARIABLY SPACED FROM THE CENTRAL AXIS OF CATHODE
 Yoshitaka Seki, Yokohama-shi, and Takeshi Muraki, Kawasaki-shi, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
 Filed Apr. 15, 1968, Ser. No. 721,243
 Claims priority, application Japan, Apr. 19, 1967, 42/24,545
 Int. Cl. H01j 35/06, 35/26

U.S. Cl. 313-55

3 Claims

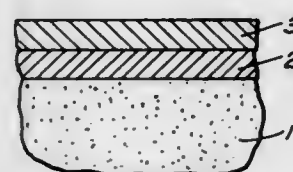


An X-ray generator comprises a cathode and a rotary anode mounted in opposite ends of an envelope. The cathode is provided with an electron emitting source in a desired doughnut-shaped region which is bounded by a minimum diameter circle and a maximum diameter circle, both of these circles being concentric with the rotary axis of said anode. The anode projects X-rays upon impingement thereof by an electron beam emitted from said electron emitting source. The electron emitting source is arranged on a line which connects the minimum and maximum diameter circles, whereby the electron beam from said electron emitting source is projected to the entire part of said X-ray radiating region by rotating said anode.

3,591,822
ELECTRIC DISCHARGE VESSEL ELECTRODE STRUCTURE OF PYROLYTIC CARBON DISCS
 Helmut Katz, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
 Filed Dec. 12, 1968, Ser. No. 783,328
 Claims priority, application Germany, Dec. 13, 1967, P 16 14 680.8
 Int. Cl. H01j 1/02, 1/38

U.S. Cl. 313-355

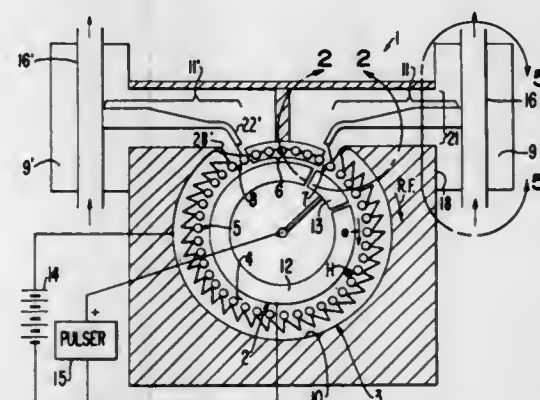
12 Claims



A high frequency power tube is provided with an electron gun in which the thermally heavy-duty electrodes and other parts thereof are provided as carbon bodies made of pyrolytic carbon interconnected in the form of discs which are coated with rhenium, and which for better conductivity are additionally coated with a metal of high electrical conductivity, preferably copper or silver.

3,591,823
WAVEGUIDE TO COAXIAL TO STRIPLINE TRANSITION FOR MATCHING TO SLOW WAVE CIRCUITS
 Andrew S. Wilczek, Old Bridge, N.J., assignor to Varian Associates, Palo Alto, Calif.
 Filed June 2, 1969, Ser. No. 829,639
 Int. Cl. H01j 25/34
 U.S. Cl. 315-39.3

7 Claims



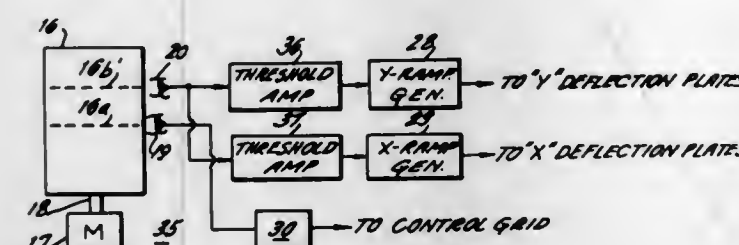
A microwave crossfield amplifier tube of circular format is disclosed. Transmission line transition sections are provided for impedance-matching the ends of a slow wave circuit to hollow rectangular waveguides axially directed of the tube. Each transition includes a T-bar connector inside the rectangular waveguide. The upright portion of the T-bar is connected to the end of the slow wave circuit via the intermediary of a section of coaxial line which tapers into a stripline portion which in turn is connected to the slow wave circuit.

3,591,824
DRIVING MEANS FOR CRT'S
 Richard B. Hanbicki, Princeton Junction, N.J., assignor to Madatron Inc., Rocky Hill, N.J.
 Filed Mar. 5, 1969, Ser. No. 804,643
 Int. Cl. H01j 29/52
 U.S. Cl. 315-22

7 Claims

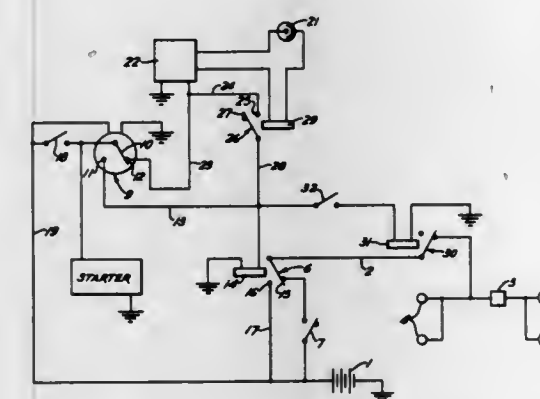
Apparatus for driving character-display tubes and the like, especially of the cathode-ray-tube type, providing circuitry for automatically centering symbols being displayed upon the CRT and for synchronously and accurately generating the

desired ramp signals in a simple and quite, inexpensive manner and which employs circuitry for controlling the time



3,591,825
CLOCK AND LIGHT-SENSITIVE LIGHT CONTROL SYSTEM FOR MOTOR VEHICLES
 Charles Keighley, Jr., R.D. #1 Box 489-X, Uniontown, Pa.
 Filed June 13, 1969, Ser. No. 833,082
 Int. Cl. B60g 1/08; H05b 37/02
 U.S. Cl. 315-82

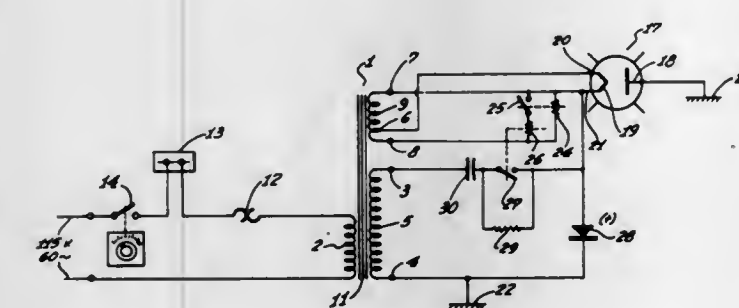
8 Claims U.S. Cl. 315-108



An electric line connects a battery with the lights of a motor vehicle and includes a normally closed switch, between which and the battery there is a manually operable switch. Electrically operated means are provided for opening the normally closed switch and connecting the lights to the battery directly. Connected with said means is a normally open switch operated by a photoelectric cell. A clock-actuated switch connects the battery with said means from dusk to dawn and with the normally open switch and the cell from dawn to dusk. While the cell is connected with the battery, it closes the normally open switch whenever the cell fails to receive enough illumination.

3,591,826
MICROWAVE OVEN POWER SUPPLY CIRCUIT HAVING HOT-WIRE RELAYS
 Benjamin V. Valles, Williamsport, Pa., assignor to Litton Precision Products, Inc., San Carlos, Calif.
 Filed Feb. 17, 1969, Ser. No. 799,715
 Int. Cl. H05b 41/36, 1/02
 U.S. Cl. 315-104

2 Claims U.S. Cl. 315-108

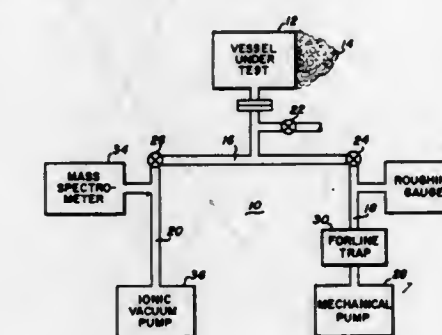


A microwave oven power supply circuit includes a transformer having a primary, high voltage secondary, and a

tapped low voltage secondary winding. The start side of the high voltage secondary winding is grounded and the other side of the high voltage secondary winding is connected in series with a capacitor, the normally open contacts of a second hot wire relay, and a diode to ground; with the negative polarity diode terminal facing ground. A magnetron includes an anode connected to ground and a filament connected in series between the tap on the low voltage secondary winding and one side of the low voltage secondary. A connection is made between the positive polarity diode terminal and the magnetron filament. The heater coil of a first hot wire relay is connected across the low voltage secondary winding. Additionally, a set of normally open contacts in the first hot wire relay and the heater coil of the second hot wire relay are connected in series across the low voltage secondary winding.

3,591,827
ION-PUMPED MASS SPECTROMETER LEAK DETECTOR APPARATUS AND METHOD AND ION PUMP THEREFOR
 Lewis D. Hall, Palo Alto, Calif., assignor to Andar/ITI, Inc., Sunnyvale, Calif.
 Filed Nov. 29, 1967, Ser. No. 686,609
 Int. Cl. H01j 17/22
 U.S. Cl. 315-108

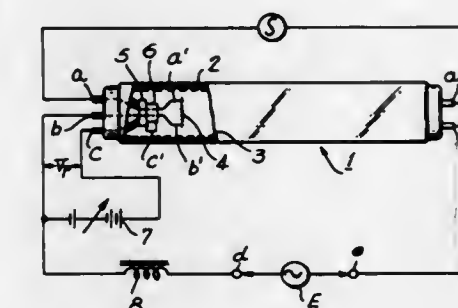
10 Claims



A mass spectrometer is connected to a vacuum system which includes a vacuum-pumping system and which is communicated with the vessel under test exposed to a suitable probe gas. The vacuum-pumping system consists of a first stage in the form of a mechanical roughing pump for reducing the system pressure to roughing pressure, and a second stage in the form of a high-vacuum pump which comprises an electronic getter-ion (sublimation) pump for pumping the chemically active nonnoble gases in combination with a Penning discharge chamber which houses discharge cathodes exposed to the deposit of the getter material from the getter-ion pump for pumping the noble gas.

3,591,828
DISCHARGE LAMP DEVICE AND ITS OPERATING APPARATUS
 Hiroshi Washimi, and Ryochi Imanka, both of Osaka, Japan, assignors to New Nippon Electric Company, Ltd., Osaka, Japan
 Filed Aug. 11, 1969, Ser. No. 848,991
 Claims priority, application Japan, Aug. 12, 1968, Aug. 21, 1968, 43/69334; 43/59766
 Int. Cl. H01j 17/22

18 Claims



In a high temperature discharge lamp such as an amalgam-containing fluorescent lamp, the electric potential or an

amalgam member is regulated by means of a voltage circuit having thermally sensitive elements to cause a part of the lamp discharge current to flow into the amalgam member for controlling the temperature of the same and hence the mercury vapor pressure within the discharge lamp, so that the light output of the discharge lamp is maintained, for a wider range of ambient temperature variations, substantially equal to the maximum value. When an AC voltage source is coupled to the amalgam member, the phase angle of the applied voltage to the lamp discharge current is selected to obtain favorable control.

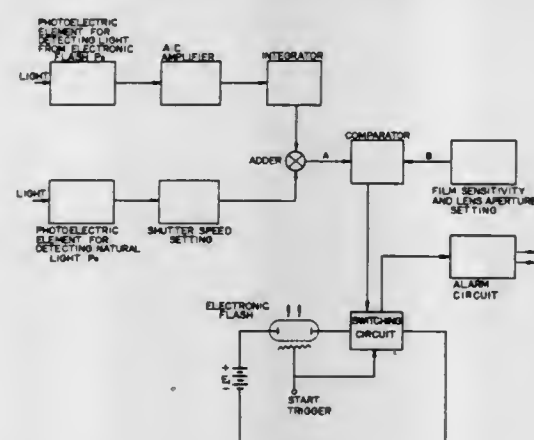
3,591,829 AUTOMATIC CONTROL DEVICE FOR ELECTRONIC FLASH

Tomoji Murata, and Sadao Yamaoka, both of Sakai, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Apr. 18, 1968, Ser. No. 722,287
Claims priority, application Japan, Apr. 20, 1967, June 27, 1967, Aug. 7, 1967, Aug. 21, 1967, 42/25351; 42/4112; 42/50649; 42/53637

Int. Cl. H01j 39/12; H05b 41/36
U.S. Cl. 315—151

5 Claims



A device for automatic control of the quantity of light from an electronic flash, by comparing the brightness of a photographic object with the quantity of light required for particular photographing conditions including the degree of lens aperture selected and the sensitivity of the film used. The brightness of the photographic object is measured as the sum of the natural light brightness and the brightness due to electronic flash, and as soon as the sum brightness thus measured reaches the required quantity of light, a stop signal is given. Thereby, the electronic flash is controlled, and at the same time signal is given for the sufficient brightness of the photographic object.

3,591,830 STARTING AND OPERATING CIRCUIT FOR GAS DISCHARGE LAMPS

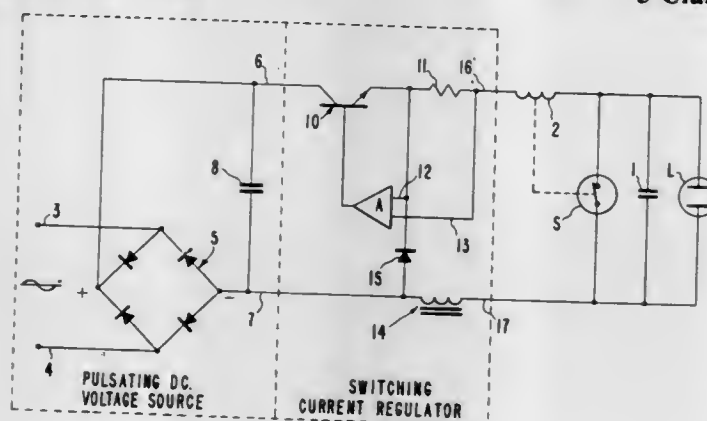
Samuel W. Woolsey, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Sept. 26, 1968, Ser. No. 762,933

Int. Cl. H05b 37/00, 39/00, 41/14

U.S. Cl. 315—290

5 Claims



A starting and operating circuit for a gas discharge lamp is disclosed as comprising a vacuum switch adapted to be con-

nected across a gas discharge lamp, a unidirectional conductor adapted to be connected across a direct current source, and an inductor, the vacuum switch, unidirectional conductor and inductor being connected in series circuit.

3,591,831 HARMONIC FILTER PROTECTION MEANS

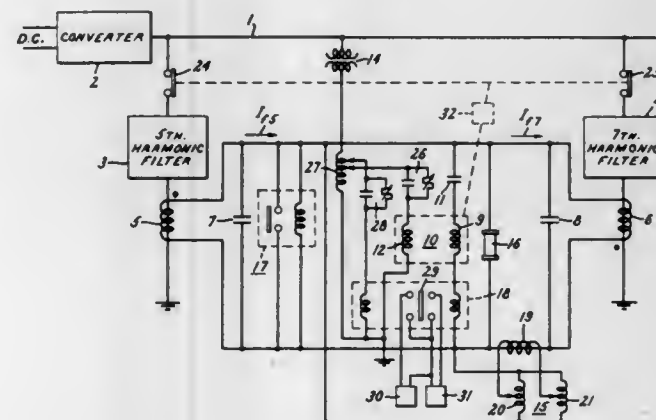
Andrew J. McConnell, Latham, N.Y., assignor to General Electric Company

Filed Oct. 23, 1969, Ser. No. 868,811

Int. Cl. H02h 3/38, 3/08

U.S. Cl. 317—12

10 Claims



A protection system and fault indicator for harmonic filters associated with high-voltage electric power lines. Residual fundamental-frequency currents passed by two such filters connected to the same line are compared in the current circuit of a power directional relay. The system is adjusted so that under normal operating conditions the net fundamental-frequency current in the current circuit of the relay is zero. If one of the two filters malfunctions, the resulting increase in its fundamental-frequency current actuates the relay in a sense that indicates which filter is in trouble.

3,591,832 ELECTRONIC OVERLOAD PROTECTION CIRCUITS

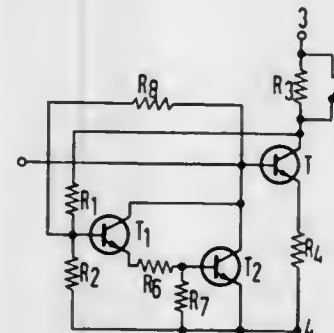
Horst Pelka, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Continuation of application Ser. No. 676,308, Oct. 18, 1967, now abandoned. This application May 18, 1970, Ser. No. 37,460

Int. Cl. H02h 3/08

U.S. Cl. 317—23

3 Claims



An electronic overload protection circuit arrangement for an output transistor stage having an electronic switch connected across the input of the stage and controlled from the output of the stage. A control input for the electronic switch is obtained from a potential divider that is itself connected in series with the load between the supply terminals of the stage.

3,591,833 PROTECTIVE MEANS FOR TRANSISTORIZED LOAD CIRCUIT

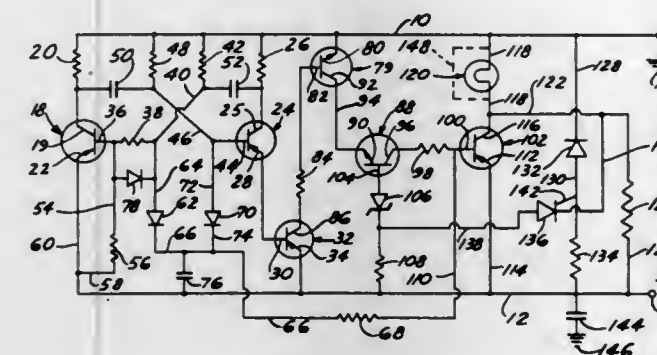
John F. Bolinger, Michigan, Ind., assignor to Meridian Industries, Inc.

Filed Apr. 10, 1969, Ser. No. 822,834

Int. Cl. H05b 39/00

U.S. Cl. 317—33

12 Claims



A transistorized switching circuit for flashers which includes a load switching transistor that is "turned off" in the event of a short in the load circuit. The switching transistor has associated first semiconductor means for controlling current flow and additional semiconductor means, generally in parallel with the first semiconductor means, for preventing the first semiconductor becoming conductive whenever a short occurs in the load circuit.

3,591,834 CIRCUIT BOARD CONNECTING MEANS

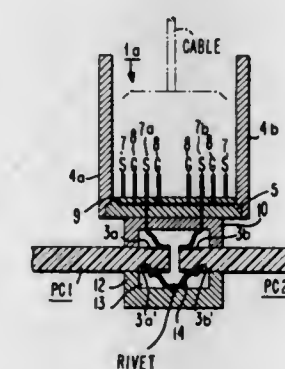
John T. Kollas, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,451

Int. Cl. H05k 1/04

U.S. Cl. 317—101 CC

7 Claims



Printed circuit boards having perimeter edge connectors on either side of the boards are interconnected to each other by means of a removable connector comprised of top and bottom members to establish connections respectively to the top and bottom surfaces of said boards, the top member further having facilities to enable cable connections to be established to an external source which may be any form of an input/output instrumentality or another circuit board at some other location.

3,591,835 METER BOX COVER ASSEMBLY WITH PROTECTIVE COVER PLATE

Clifford E. Sloop, 2230 10th St., Columbus, Ga.
Continuation-in-part of application Ser. No. 678,975, Oct. 30, 1967, now Patent No. 3,440,330. This application Feb. 14, 1969, Ser. No. 799,190

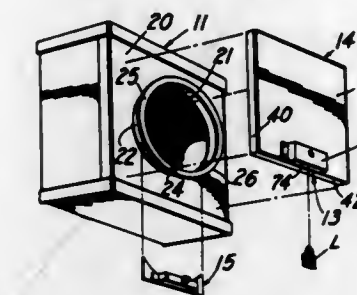
Int. Cl. H02b 9/00; H05k 5/03

U.S. Cl. 317—109

5 Claims

A meter box cover assembly for use with an electricity meter socket box when the electricity meter is removed and

which has an annular flange that fits against a corresponding flange on an electricity meter when it is in place. The cover assembly comprises a cover plate for insertion over the opening in the socket box and against the outer surface of the annular flange of the box, and a locking bracket extending from one edge of the cover plate and arranged to extend under and grip the rear surface of the flange of the socket box. A



slot is formed in the cover plate on the opposite side of the cover plate from the locking bracket and a keeper element is inserted about an arc of the flange and the cover plate is inserted over the keeper element. The portion of the keeper element protruding through the cover plate receives a lock, or similar fastening means, to prevent the cover assembly from being removed from the socket box or the socket box being illegally connected for use.

3,591,836 FIELD EFFECT CONDITIONALLY SWITCHED CAPACITOR

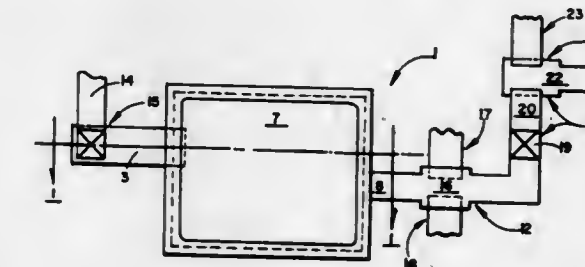
Robert K. Booher, Mission Viejo, and Robert W. Polkinghorn, Huntington Beach, both of Calif., assignors to North American Rockwell Corporation

Filed Mar. 4, 1969, Ser. No. 804,171

Int. Cl. H01l 19/00

U.S. Cl. 317—231

5 Claims



The semiconductor substrate area under a metal plate is induced to change from one type of conductivity to a different type of conductivity when a voltage in excess of the inversion threshold of the substrate is applied to the plate. A capacitor is produced which stores a charge proportional to the applied voltage between the metal plate and the induced region. The induced region is connected to an input electrode. When a voltage is applied to the input electrode the voltage on the fixed plate of the capacitor is boosted by an amount proportional to the applied voltage. When the voltage on the metal plate is reduced below the inversion threshold voltage the induced region reverts back to its original conductivity and the input electrode is isolated from the capacitor.

3,591,837 GLASS-SEALED ALLOYED SEMICONDUCTOR DEVICE

John L. Boyer, El Segundo, Calif., assignor to International Rectifier Corporation, Los Angeles, Calif.

Filed Feb. 6, 1968, Ser. No. 703,370

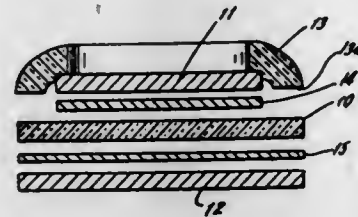
Int. Cl. H01l 1/04

U.S. Cl. 317—234 R

7 Claims

A semiconductor device is formed having a silicon wafer which is assembled between molybdenum expansion plates

with junction-producing solders between the interfaces of the plates and wafer. A glass ring is secured about the outer periphery of the upper expansion plate in an initial manufacturing step, the upper plate being smaller in diameter than the wafer. The combined upper plate and ring is placed in



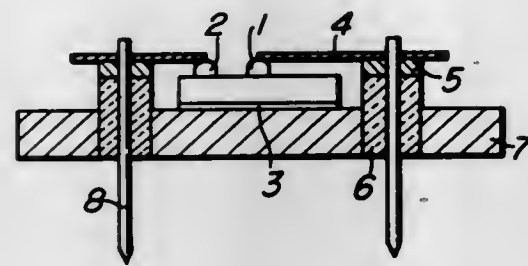
engagement with the upper surface of the wafer and, in single heating step, the outer periphery of the ring is fused to the exposed outer periphery of the wafer and the impurity containing solder is alloyed into the wafer to form one or more junctions.

3,591,838

SEMICONDUCTOR DEVICE HAVING AN ALLOY ELECTRODE AND ITS MANUFACTURING METHOD
Shohei Fujiwara, Takatsuki-shi; Gota Kano, Kyoto; Shunsuke Matsuoka, Takatsuki-shi, and Tsukasa Sawaki, Toyonaka-shi, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan
Filed Dec. 23, 1968, Ser. No. 786,005
Claims priority, application Japan, Dec. 28, 1967, No 43/4
Int. Cl. H01L 3/00

U.S. Cl. 317-234 R

6 Claims



In a semiconductor device a metal electrode film formed by an evaporated gold-chromium alloy containing 3 percent to 13 percent by weight of chromium can not only make low ohmic contact with the semiconductor substrate but can be connected to it mechanically firmly. The lead-tin eutectic alloy can be soldered satisfactorily to the metal electrode film without causing erosion even if the electrode film is dipped in a fused solder solution. The semiconductor device with such a gold-chromium alloy film has great industrial merit since the manufacturing steps, particularly the connection of external electrode lead wires, are greatly simplified.

3,591,839

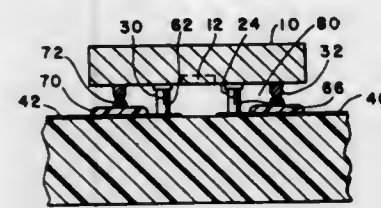
MICRO-ELECTRONIC CIRCUIT WITH NOVEL HERMETIC SEALING STRUCTURE AND METHOD OF MANUFACTURE
Arthur D. Evans, Saratoga, Calif., assignor to Siliconix, Inc., Sunnyvale, Calif.
Filed Aug. 27, 1969, Ser. No. 853,416
Int. Cl. H01L 3/00, 5/00, 7/00

U.S. Cl. 317-234

11 Claims

A semiconductor device wherein a semiconductor chip having an active element formed in a limited area is bonded to an insulating substrate with the chip spaced apart from the substrate and the active area hermetically sealed within the

region defined by the insulating substrate, the body of the chip and the sealing ring. Conductive lands formed on the surface of the substrate pass beneath an insulating ring which



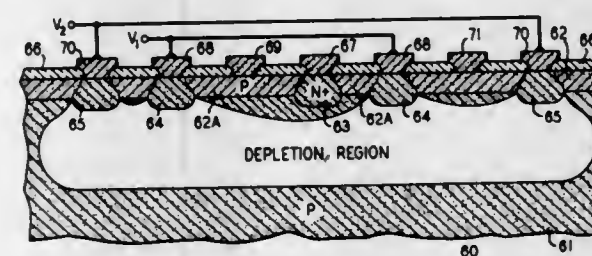
is part of the sealing structure. Contact pads formed on the semiconductor chip electrically contact the conductive lands for providing electrical contact to the required areas of the active device.

3,591,840

CONTROLLABLE SPACE-CHARGE-LIMITED IMPEDANCE DEVICE FOR INTEGRATED CIRCUITS
Vincent J. Gilinski, Murray Hill, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Continuation-in-part of application Ser. No. 786,228, Dec. 23, 1968. This application Oct. 27, 1969, Ser. No. 869,547
Int. Cl. H01L 19/00

U.S. Cl. 317-235 R

8 Claims



A self-isolating, gate-controllable, space-charge-limited impedance device is provided for use advantageously in combination with other devices in semiconductor integrated circuits. In the impedance device, space-charge-limited current between a plurality of spaced surface zones is controlled by applying a potential to a surface layer through one or more electrodes.

3,591,841

OPTICAL DEVICE FOR DETERMINING EXTENT OF MOVEMENT

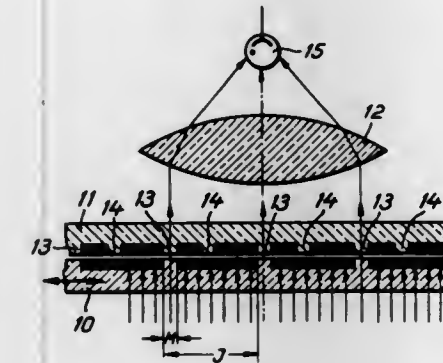
Knut Heltmann, Wetzlar; Eckart Schnelder, Berghausen, and Ludwig Leltz, Wetzlar, all of Germany, assignors to Ernst Leltz GmbH, Wetzlar, Germany
Filed Jan. 24, 1969, Ser. No. 793,711
Claims priority, application Austria, Jan. 29, 1968, A 882/68
Int. Cl. G01d 5/34

U.S. Cl. 250-231 R

8 Claims

An apparatus for measuring the linear or angular movement of an object being provided with two graduation carriers movable relative to one another; one of the carriers being connectable to the object to be measured, the other one being connectable to a reference body. The apparatus further comprises means for illuminating one of the graduation carriers, means for projecting an image of the illuminated carrier on the other carrier, photoelectric means for sensing the carriers, and electronic evaluation means for processing the signals from the photoelectric means so as to provide output signals usable for digital indication or for control purposes. The first of the two graduation carriers having linear graduations comprising transparent or reflective striplike marks, the ratio of the graduation interval to the mark width corresponding, in the direction of the relative movement, to the desired number of interval fractions per graduation interval, and the second graduation carrier having

one or a plurality of sensing fields the number of which is less than the desired number of interval fractions and which together form a combination of image patterns, each of these sensing fields having a plurality of striplike, light-permeable and light-impermeable portions of its surface area which are parallel with the marks of the first graduation carrier and



which are unequal inter se in such a way that, upon relative movement of the graduation carriers over a distance corresponding to a graduation interval, different combinations of image patterns are produced which correspond in number to the desired number of interval fractions per graduation interval.

3,591,842

GRID WITH GRADUATION MARKINGS SUCCEEDING IN NONEQUIDISTANT SPACES RELATIVE TO EACH OTHER

Gerhard Seewald, Altenmarkt (ALZ), Germany, assignor to Wenzler & Heidenhain, Traunreut near Traunstein, Germany

Filed Sept. 1, 1967, Ser. No. 665,009

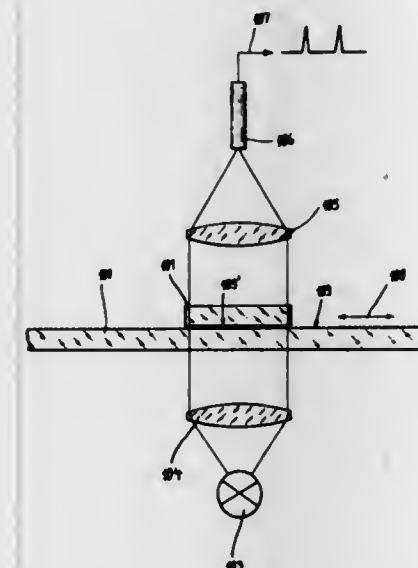
Claims priority, application Germany, Sept. 1, 1966,

W43,317

Int. Cl. H01J 5/16, 39/12; G08c 9/06

U.S. Cl. 250-237

6 Claims



A grid with graduation-markings of equal width relative to each other and succeeding in nonequidistant spacings, wherein the graduation-markings define center lines which follow each other in distances corresponding with a cycle of n graduation markings. The cycle has a period length of

$$\frac{n(n-1)}{k} + 1$$

units and wherein each full numbered multiple of a unit occurs as spacing between two graduation markings exactly k times.

3,591,843

DEVICE FOR STARTING ONE OR SEVERAL AIRCRAFT ENGINES AND FOR DRIVING ASSOCIATED AUXILIARY EQUIPMENT

Helmut Friedrich, Bremen, Germany, assignor to Vereinigte Flugtechnische Werke-Fokker GmbH, Bremen, Germany

Filed May 25, 1970, Ser. No. 40,993

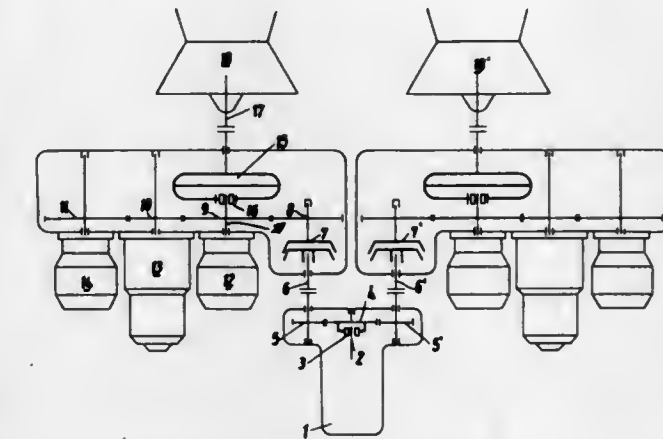
Claims priority, application Germany, June 3, 1969, P 19 28

235.0

Int. Cl. F02n 15/02

U.S. Cl. 290-4 R

6 Claims



A starting aggregate for one or several aircraft engines is coupled to auxiliary equipment for such an engine via gear means; controlled transmission means couple the engine to the gear means to be drivingly connected to the aggregate and to the auxiliary equipment. The system is constructed that, in case the engine has ignited and runs at a higher speed it may drive the auxiliary equipment also at the higher speed and may decouple from the aggregate. Cross-coupling between plural engines permits starting of one engine by another as well as driving of all auxiliary equipment by the latter engine.

3,591,844

ELECTRICAL APPARATUS FOR ROTATING A TURBOGENERATOR SHAFT

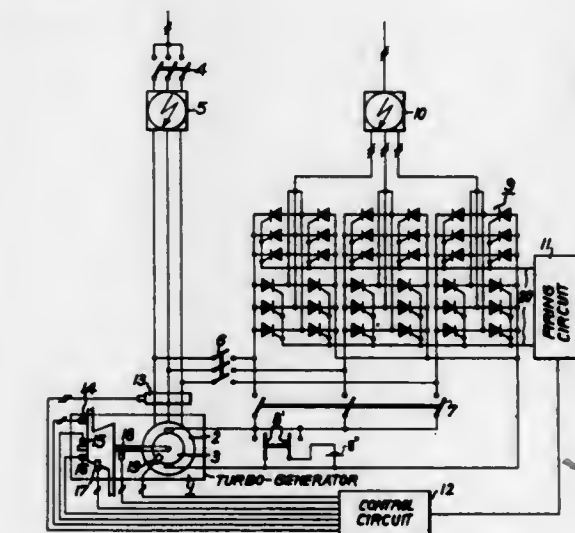
Gerhard Schonebeck, and Jurgen Koehn, both of Berlin, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Sept. 26, 1967, Ser. No. 670,587

Int. Cl. F02n 11/08

U.S. Cl. 290-31

6 Claims

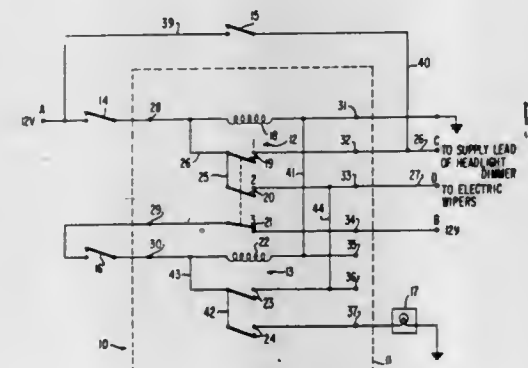


Electrical apparatus for rotating a turbogenerator or gas turbine shaft after it stops or before it starts. The apparatus comprises the generator of a turbogenerator plant used as an electric AC motor with lower frequency and electrically connected to an AC converter from normal to lower frequency. The speed of the motor (generator) may be varied, as desired, by controlling the power and frequency of the electricity supplied by the converter.

3,591,845
AUTOMATIC CONTROL CIRCUIT FOR HEADLIGHTS AND WINDSHIELD WIPERS OF MOTOR VEHICLES
 Cornelius E. Vanderpool, Jr., 7901 12th St. North, Petersburg, Fla., and Morton I. Broad, 1875 McCarley Road, Clearwater, Fla.

Filed Dec. 16, 1969, Ser. No. 885,592
 Int. Cl. H02g 3/00

U.S. Cl. 307-10

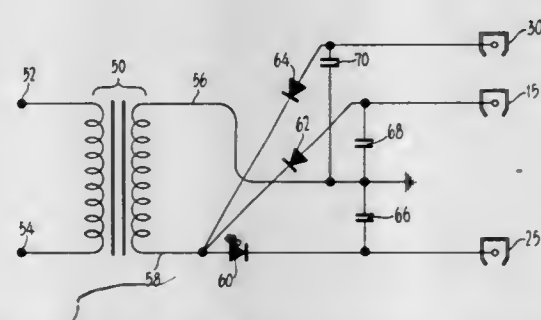


An auxiliary circuit adapted to be incorporated into the electrical wiring system of a motor driven vehicle is provided which automatically triggers the headlights to their lighted condition upon activation of the windshield wipers. The headlights are automatically turned off upon deactivation of the windshield wipers or placement of the ignition switch in the "off" position.

3,591,846
CORONA VOLTAGE SUPPLY FOR USE IN ELECTROSTATIC COPIER
 Detlef Schaffer, Wetzlar, Germany, assignor to The Singer Company

Filed Oct. 17, 1968, Ser. No. 768,263
 Claims priority, application Germany, Nov. 22, 1967, P 15 97 831.1

Int. Cl. H02j 1/00
 U.S. Cl. 307-31



A power supply is disclosed which provides a plurality of high-voltage DC outputs suitable for driving the corona voltage units located at the charging, developing, and transferring stations of an electrophotographic copying apparatus. Each of the outputs is electrically isolated from the others by means of individual rectifying and isolating diodes to prevent voltage fluctuations appearing at any one of the outputs from being communicated to and adversely affecting the voltage at any of the other outputs.

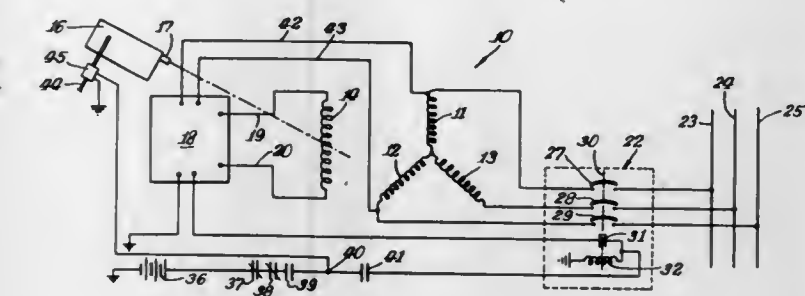
3,591,847
PARALLEL OPERATION OF AC GENERATORS
 Richard M. Donnell, and John D. Hamilton, both of Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Sept. 27, 1968, Ser. No. 763,070
 Int. Cl. H02j 3/00

U.S. Cl. 307-87
 Means for connecting an AC generator driven by a prime mover to an AC power transmission line and operating the generator or generators on the power line. Each generator is connected to the power line by first bringing the generator

5 Claims

up to approximately synchronous speed, with the generator field deenergized, and then connecting the generator winding to the power line. The power line voltage pulls the generator into synchronism, and the generator field is then energized.



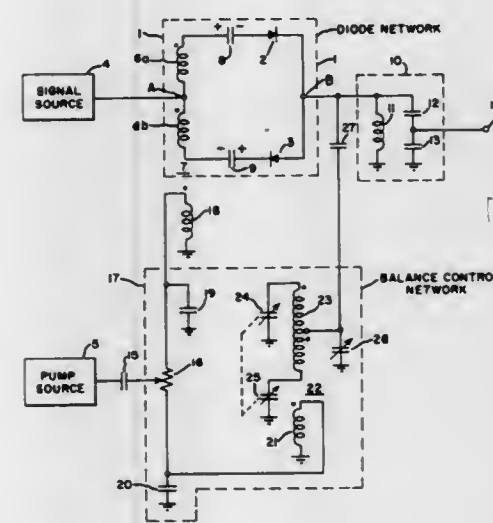
Means is also provided automatically to prevent connection of the generator to the power line until a certain generator speed is reached, and automatically to disconnect the generator from the power line in the event the prime mover is shut down.

3,591,848
PARAMETRIC AMPLIFIER EMPLOYING SELF-BIASED NONLINEAR DIODES
 James C. Otto, Scottsdale, Ariz., assignor to General Electric Company

Filed July 25, 1968, Ser. No. 747,702
 Int. Cl. H03f 7/04

U.S. Cl. 307-88.3

5 Claims



A parametric device that may be employed as an amplifier or frequency converter relative to a given input signal, exhibiting a high input impedance for use with a high impedance signal source. The device includes a pair of nonlinear diodes connected in a balanced circuit configuration and biased in the backward direction by application of a pump signal. A balance control arrangement is provided to compensate for diode and circuit nonuniformities.

3,591,849
VARIABLE TIMING MEANS FOR CAPACITIVE DISCHARGE IGNITION SYSTEM
 David T. Cavi, Menomonee Falls, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

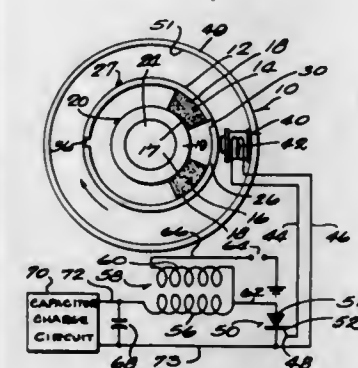
Filed June 20, 1969, Ser. No. 835,070
 Int. Cl. H03k 3/64

U.S. Cl. 307-106

15 Claims

Disclosed herein is a pulse generator for triggering a capacitor discharge ignition system. The pulse generator includes a rotor having a hub and a spaced concentric outer ring with magnets located in the space between the hub and the outer ring. The outer ring is provided with a variable reluctance zone located between the magnets. In some embodiments, the rotor induces two voltage pulses of different magnitudes in an adjacently located pickup coil during one

revolution. The second voltage pulse triggers the ignition circuit within a low engine speed range and the first voltage pulse triggers the ignition circuit at speeds above the low

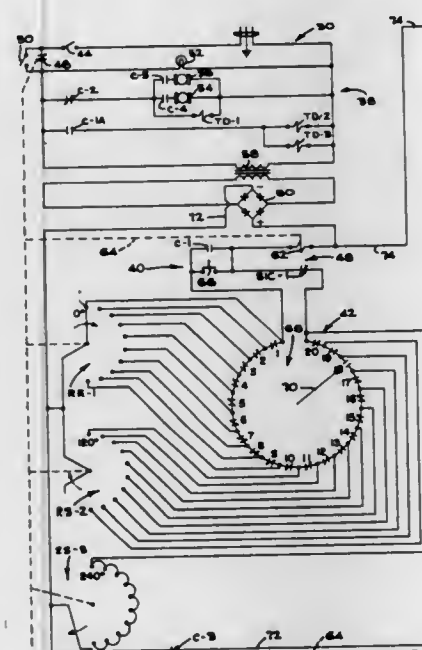


speed range. The desired time lag between the voltage pulses and thus the desired timing advance is obtained by selection of the appropriate angular spacing between the magnets, and by selection of the location of the variable reluctance zones.

3,591,850
IRRIGATION CONTROL SYSTEM
 Carl E. Holm, Pleasanton, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed June 27, 1969, Ser. No. 837,023
 Int. Cl. H01h 7/00

U.S. Cl. 307-141



A control system for opening and closing multiple irrigation valves. At desired time intervals a repeating timer actuates a stepping relay which drives pairs of rotary switches that sequentially energize independent pairs of conductors in a five-conductor control cable assembly. Voltage and polarity discriminating control plugs are employed to tap the control cable at each valve to be actuated.

3,591,851
STRUCTURE FOR PROVIDING A CONTROL SIGNAL IN RESPONSE TO A LOW AMPLITUDE SHORT DURATION SIGNAL VARIATION
 Robert W. Drushel, Farmington, Mich., assignor to Ex-Cell-O Corporation, Detroit, Mich.

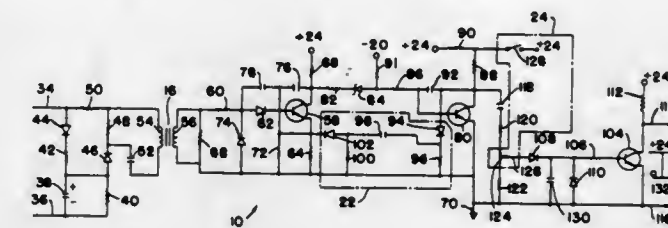
Filed Oct. 3, 1966, Ser. No. 583,875
 Int. Cl. H02h 7/20

U.S. Cl. 307-202

4 Claims

A highly sensitive and completely stable circuit for and method of detecting low amplitude, short duration direct current signal variations associated with sparking between an electrode tool and a conducting workpiece in an electrochemical machining process or the like and substantially

immediately producing a control signal in response to a predetermined detected signal level is disclosed. The structure includes a polarity discriminating sensing circuit for initially detecting the signal variations, an amplifier circuit for providing an amplified and stabilized signal substantially immediately on sensing a signal variation of the proper polarity and output circuit for providing an output signal in response



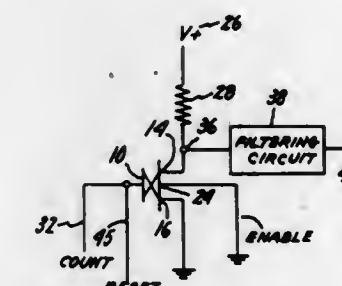
to a selected portion of the amplified and stabilized signal, including means for selecting the level of the selected signal portion operable to provide the output signal, means for cutting off the amplified and stabilized signal when the selected level is below a predetermined minimum and means responsive to a number of amplified and stabilized signals, which have a level below the selected level received in a predetermined time for providing an output signal.

3,591,852
NONVOLATILE FIELD EFFECT TRANSISTOR COUNTER
 Arthur C. M. Chen, Schenectady, N.Y., assignor to General Electric Company

Filed Jan. 21, 1969, Ser. No. 792,486
 Int. Cl. H03k 25/02

U.S. Cl. 307-225

14 Claims



Conductor-insulator semiconductor field effect transistors characterized by a nonuniform charge in the insulator under a large voltage bias at room temperatures are employed as nonvolatile counters wherein the count per stage is controlled by the amplitude and/or pulse width of large voltage count pulses applied to the transistor. The charge switching characteristic produces a generally cumulative time-voltage shift in the transistor transfer characteristic and the transistor switches from a substantially nonconductive state to a stable conductive state after a predetermined number of count pulses have effected a shift in the transfer characteristic to a constantly applied DC bias. The transistor then can be reset to a different switching count for identical applied count pulses by a variation in the amplitude and/or period of the reset voltage applied to the transistor gate electrode. Preferably the transistors are cascaded to produce a nonvolatile, highly accurate counter having a minimum number of semiconductor devices per stage.

3,591,853
FOUR PHASE LOGIC COUNTER
 Denis Brain Jarvis, Eastleigh, England, assignor to U.S. Philips Corporation

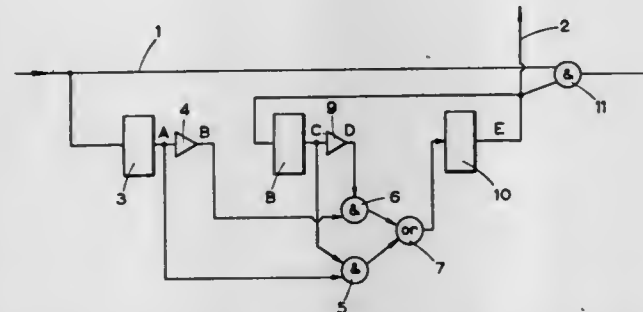
Filed Feb. 14, 1969, Ser. No. 799,419
 Claims priority, application Great Britain, Feb. 16, 1968, 7758/68

U.S. Cl. 307-225

3 Claims

A divide by two counter using four phase logic is provided in which the counter consists of a pair of half-shift register

stages. The first half-shift register stage contains the countin line for the logic signal. Each of said first and second stages is followed by an inverter; the outputs of which supplies a first and second AND gate. The outputs of said first and second stages also respectively supply said second and first AND



gates; the combined outputs of the two AND gates supply a third half shift register stage. The output of said third half-shift register stage forms an output of the counter which is also fed back to the second half-shift register stage at the same time supplies an output to a third AND gate which is also connected to the countin line to provide the countout.

3,591,854

SIGNAL PHASE AND MAGNITUDE MEASUREMENT CIRCUIT

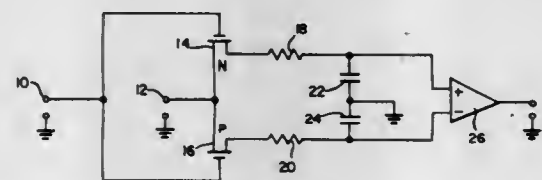
Charles N. Cole, Daytona Beach, Fla., assignor to General Electric Company

Filed Dec. 30, 1968, Ser. No. 787,833

Int. Cl. H03k 5/20

U.S. Cl. 307-232

5 Claims



A known reference signal is gated through N and P field effect transistors in a push-pull configuration by a measured signal of the same frequency but approximately 90° out of phase to a pair of capacitors across the transistors. The capacitors acquire a charge proportional to the deviation from 90° which is applied to a differential amplifier. If both signals are in phase and the reference is used as the gating signal, an output proportional to the magnitude of the measured signal is achieved.

3,591,855

COMPLEMENTARY FIELD-EFFECT TRANSISTOR BUFFER CIRCUIT

Jack Allen Dean, Flemington, and Robert Charles Heuner, Bound Brook, both of, N.J., assignors to RCA Corporation

Filed Apr. 17, 1969, Ser. No. 816,964

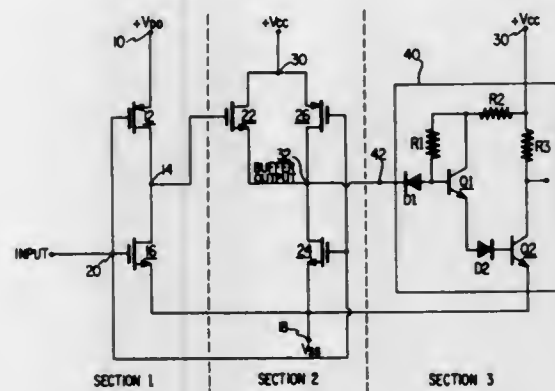
Int. Cl. H03k 5/08

U.S. Cl. 307-237

14 Claims

A buffer circuit to interface between a complementary field-effect transistor (FET) circuit operated at a first voltage level and a load circuit operated at a second voltage level having a lower value than said first voltage level. The buffer includes an input stage and an output stage. The output stage includes two transistors of opposite conductivity connected in parallel to clamp the buffer output point to the positive terminal of the second power supply and a third transistor to clamp the buffer output point to the negative terminal of the second supply. The input stage includes a complementary in-

verter operated at the first voltage level which in response to output signals from the FET circuit generates complementary



3,591,861
PIEZO-ELECTRIC MEASUREMENT TRANSDUCER
WITH AMPLIFIER

Hans Conrad Sonderegger, Sulz-Rickenbach, Switzerland, assignor to Messrs Kistler Instrument AG, Winterthur, Switzerland

Continuation of application Ser. No. 462,196, June 8, 1965.

This application May 9, 1968, Ser. No. 728,082

Int. Cl. H01v 7/00

U.S. Cl. 310-8.1

6 Claims



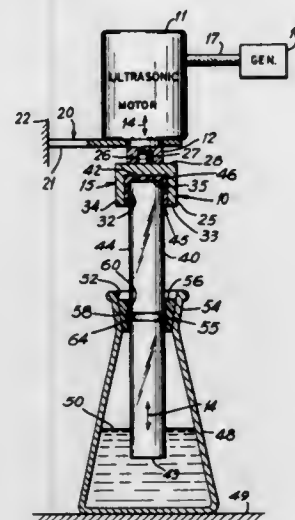
This invention relates to a piezoelectric assembly having a amplifier and a piezoelectric transducer of similar dimensions coupled together with a mechanical connector.

3,591,862
ULTRASONIC MOTOR TRANSMISSION SYSTEM
Ronald H. Winston, New York, N.Y., assignor to Ultrasonic Systems, Inc., Farmingdale, N.Y.

Filed Jan. 12, 1970, Ser. No. 2,146

Int. Cl. H01v 7/00, 9/00

21 Claims



The invention covers a system for driving transmission members, particularly made from glass and of a relatively small diameter, at an ultrasonic rate in which the transmission member is coupled to a base member by means of an epoxy, swaging, or a combination thereof. In addition an ultrasonic motor system including an ultrasonic motor, and transmission assembly for use with a receptacle is also disclosed.

DESIGNS

JULY 6, 1971

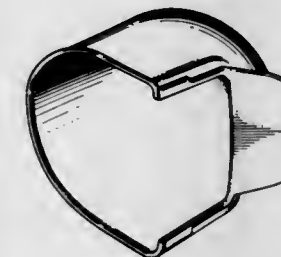
221,045
EAR EMBRACING HEARING AID
OR SIMILAR ARTICLE
Barkman C. McCabe and John R. Foss, Los Angeles, Calif., assignors to Burglar Blast, Inc., Los Angeles, Calif.

Filed Oct. 30, 1969, Ser. No. 19,850

Term of patent 14 years

Int. Cl. D2-03

U.S. Cl. D2-259

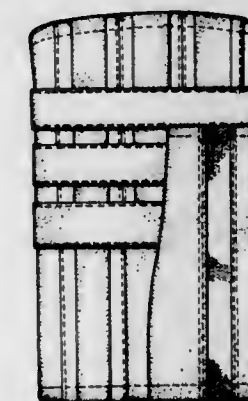


221,046
PROTECTIVE MITT
Daniel Gold, 6740 De Gaspe Ave., Montreal 327, Quebec, Canada
Filed Nov. 28, 1969, Ser. No. 20,306

Term of patent 14 years

Int. Cl. D2-07

U.S. Cl. D2-361



221,047
BUCKLE CASING FOR A SAFETY BELT
Michel Tixier, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt, and Automobiles Peugeot, Paris, France

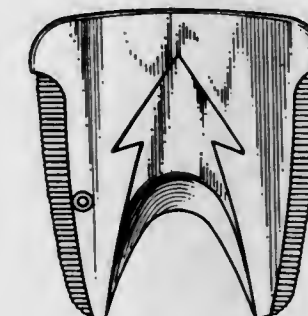
Filed Sept. 19, 1969, Ser. No. 19,212

Claims priority, application France Mar. 19, 1969

Term of patent 14 years

Int. Cl. D2-08

U.S. Cl. D2-408



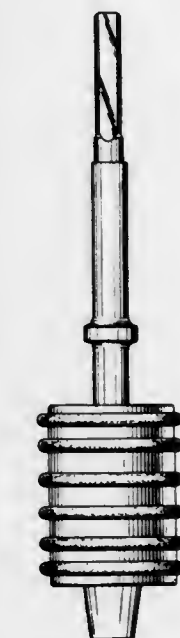
221,048
STOP ROTATION MECHANISM ATTACHMENT
Thomas G. Bixby, Valparaiso, Ind., assignor to Phillips Drill Company, Inc., Michigan City, Ind.

Filed Sept. 16, 1969, Ser. No. 19,157

Term of patent 14 years

Int. Cl. D8-02

U.S. Cl. D8-70

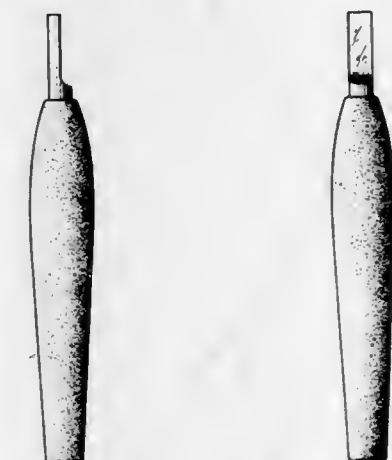


221,049
SHARPENER FOR ICE SKATE BLADES
Michael J. Marotta, 85 Plymouth Road, Manhasset, N.Y. 11030
Filed Oct. 27, 1969, Ser. No. 19,749

Term of patent 14 years

Int. Cl. D8-02; D7-03

U.S. Cl. D8-91



221,050

HANDBAG FRAME

Karl H. Nos, 58 Steinhilmer Str.,
6453 Seligenstadt, Hesse, Germany
Filed Sept. 2, 1969, Ser. No. 18,948
Claims priority, application Germany Mar. 26, 1969
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—125



221,051

KEY BLANK

Kiyoshi Kato, 20 Sango Iouri 2-chome,
Moriguchi, Japan
Filed Mar. 9, 1970, Ser. No. 21,778
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—136

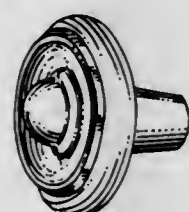


221,052

DRAWER KNOB

Lawrence McCain, Beverly Hills, and Raymond Tintary,
Covina, Calif., assignors to Ajax Hardware Manufac-
turing Corp., City of Industry, Calif.
Filed Nov. 3, 1969, Ser. No. 19,913
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—144



221,053

PENDANT-TYPE DRAWER PULL

Lawrence McCain, Beverly Hills, and Raymond Tintary,
Covina, Calif., assignors to Ajax Hardware Manufac-
turing Corp., City of Industry, Calif.
Filed Nov. 3, 1969, Ser. No. 19,915
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—169



221,054

DOOR KNOCKER

Ade Bethune, Newport, R.I., assignor to Terra-Sancta
Creations, Inc., Philadelphia, Pa.
Filed Apr. 8, 1970, Ser. No. 22,320
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—177



221,055

PROTECTIVE CAP FOR ELECTRICAL OUTLET

Henry Nakagawa, San Carlos, Calif. (% Prodeco, 521
Marine View Ave., Belmont, Calif. 94002), and
Richard D. Low, % R. D. Low Associates, P.O. Box
1636, San Mateo, Calif. 94401
Filed Dec. 5, 1969, Ser. No. 20,371
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—184



221,056

SHOWER CURTAIN HOLDER

Charles Minoff, Rockaway Park, N.Y., assignor to William
L. Imersheim and Charles Imersheim, Valley Stream,
N.Y.
Continuation-in-part of design application Ser. No. 13,281,
Aug. 26, 1968. This application Sept. 19, 1969, Ser.
No. 19,211

Term of patent 14 years
Int. Cl. D8—03; D9—99
U.S. Cl. D8—248

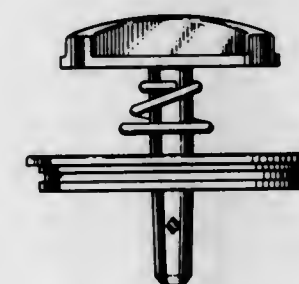


221,057

HOOD LATCH UNIT

Robert L. Townsend, Sherman Oaks, Calif., assignor to
A. C. Stearns Co.
Filed Oct. 30, 1969, Ser. No. 19,853
Term of patent 14 years
Int. Cl. D8—04

U.S. Cl. D8—265

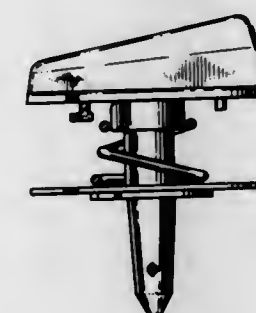


221,058

HOOD LATCH UNIT

Robert L. Townsend, Sherman Oaks, Calif., assignor to
A. C. Stearns Co.
Filed Oct. 30, 1969, Ser. No. 19,854
Term of patent 14 years
Int. Cl. D8—04

U.S. Cl. D8—265

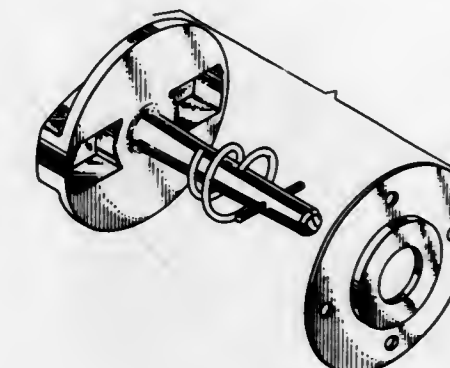


221,059

HOOD LATCH UNIT

Robert L. Townsend, Sherman Oaks, Calif., assignor to
A. C. Stearns Co.
Filed Oct. 30, 1969, Ser. No. 19,855
Term of patent 14 years
Int. Cl. D8—04

U.S. Cl. D8—265

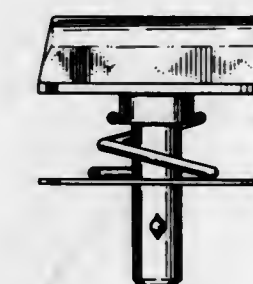


221,060

HOOD LATCH UNIT

Robert L. Townsend, Sherman Oaks, Calif., assignor to
A. C. Stearns Co.
Filed Oct. 30, 1969, Ser. No. 19,857
Term of patent 14 years
Int. Cl. D8—04

U.S. Cl. D8—265



221,061

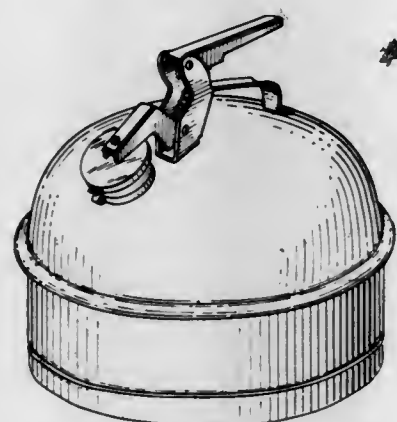
**COMBINED BOTTLE AND DISPLAY
CARTON THEREFOR**

Roger Alan Ford, London, England, assignor to Charles
Mackinlay & Company, Limited, Edinburgh, Scotland
Filed Oct. 3, 1969, Ser. No. 19,416
Claims priority, application Great Britain Aug. 8, 1969
Term of patent 14 years
Int. Cl. D9—01

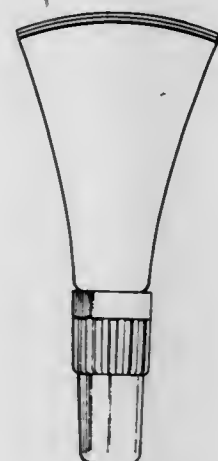
U.S. Cl. D9—12



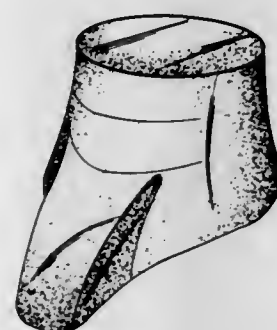
221,062
SAFETY CONTAINER FOR VOLATILE LIQUIDS
 Charles K. Huthsing, Jr., Libertyville, Ill.
 (1685 Shermer Road, Northbrook, Ill. 60062)
 Filed Jan. 29, 1970, Ser. No. 21,144
 Term of patent 14 years
 Int. Cl. D9—07
 U.S. Cl. D9—175



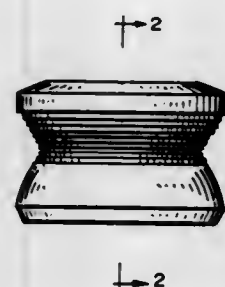
221,063
SQUEEZE TUBE/DISPENSER
 Donald Simmonite, Hertford, and Keith Tattersall, Hunsdon, England, assignors to T. J. Smith & Nephew Limited, Kingston-upon-Hull, England
 Filed Dec. 16, 1969, Ser. No. 20,520
 Claims priority, application Great Britain June 17, 1969
 Term of patent 14 years
 Int. Cl. D9—99
 U.S. Cl. D9—194



221,064
COMBINED MEASURING CUP AND COVER FOR A BOTTLE CAP
 Phillip F. Warren, Old Bridge, N.J., assignor to Richardson-Merrell Inc., New York, N.Y.
 Filed Sept. 24, 1969, Ser. No. 19,279
 Term of patent 14 years
 Int. Cl. D9—99
 U.S. Cl. D9—261



221,065
CONTAINER CAP
 David Donaldson, Wilmington, Del., assignor to Container Corporation of America, Chicago, Ill.
 Filed Apr. 9, 1969, Ser. No. 16,643
 Term of patent 14 years
 Int. Cl. D9—02
 U.S. Cl. D9—284



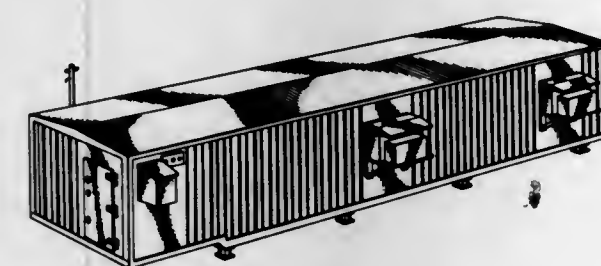
221,066
BUILDING
 Jerrold W. Ross, Rte. 1, Box 48, Ridgefield, Wash. 98642
 Filed June 18, 1969, Ser. No. 17,753
 Term of patent 14 years
 Int. Cl. D25—04
 U.S. Cl. D13—1



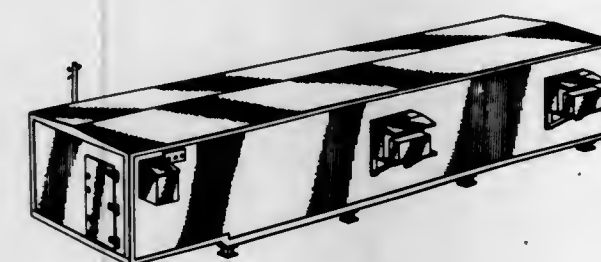
221,067
BUILDING
 Jack R. Butz, Tulsa, Okla., assignor to John K. Selby, Tulsa, Okla.
 Filed Nov. 24, 1969, Ser. No. 20,257
 Term of patent 14 years
 Int. Cl. D25—04
 U.S. Cl. D13—1



221,068
TELEPHONE EXCHANGE APPARATUS
 Nobuo Yasuhara, Kudamatsu, and Yasuyuki Tanaka and Masamitsu Seki, Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Filed Apr. 2, 1970, Ser. No. 22,207
 Term of patent 14 years
 Int. Cl. D25—04
 U.S. Cl. D13—1



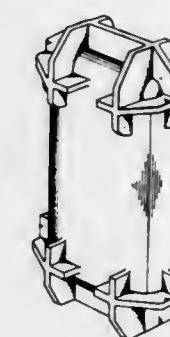
221,069
TELEPHONE EXCHANGE APPARATUS
 Nobuo Yasuhara, Kudamatsu, and Yasuyuki Tanaka and Masamitsu Seki, Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Filed Apr. 2, 1970, Ser. No. 22,210
 Term of patent 14 years
 Int. Cl. D25—04
 U.S. Cl. D13—1



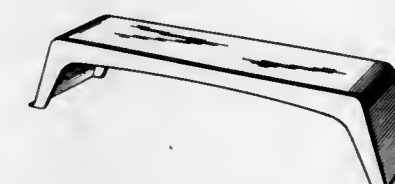
221,070
STEERING HANDLE
 Richard A. Munter, Mora, Minn., assignor to Boatel Company, Inc., Mora, Minn.
 Filed Jan. 22, 1970, Ser. No. 21,031
 Term of patent 14 years
 Int. Cl. D12—14
 U.S. Cl. D14—30



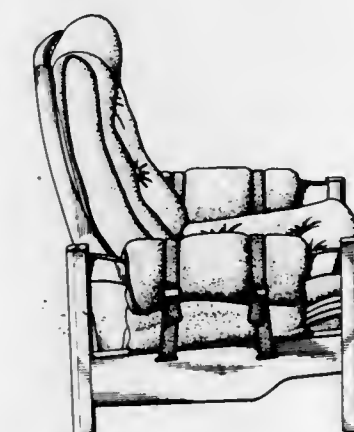
221,071
END CUSHIONING COVER FOR PACKAGES OR THE LIKE
 William E. Jolin, Jr., Cortland, N.Y., assignor to SCM Corporation
 Filed Nov. 13, 1969, Ser. No. 20,055
 Term of patent 14 years
 Int. Cl. D9—04
 U.S. Cl. D9—254



221,072
BENCH OR SIMILAR ARTICLE
 Knut Arenhold, Kehl am Rhine, Germany, assignor to Melude S.A., Fribourg, Switzerland
 Filed May 28, 1969, Ser. No. 17,393
 Claims priority, application Switzerland Feb. 14, 1969
 Term of patent 14 years
 Int. Cl. D6—01
 U.S. Cl. D15—11



221,073
CHAIR
 Stapleton Long, Morristown, Tenn., assignor to The Berkline Corporation, West Springfield, Mass.
 Filed Jan. 21, 1970, Ser. No. 21,021
 Term of patent 14 years
 Int. Cl. D6—01
 U.S. Cl. D15—11



221,074
INSECT TRAP OR SIMILAR ARTICLE
 John S. Levey, 12160 Victory Blvd.,
 Los Angeles, Calif. 91606
 Filed Jan. 19, 1970, Ser. No. 20,984
 Term of patent 14 years
 Int. Cl. D22—09

U.S. Cl. D22—19



221,075
WATER SOFTENER CABINET
 William Jackson Marsh, Garden Grove, Calif., assignor
 to Robert Marsh Enterprises, Inc., Santa Ana, Calif.
 Filed Dec. 29, 1969, Ser. No. 20,667
 Term of patent 14 years
 Int. Cl. D23—01

U.S. Cl. D23—3



221,076
VALVE MEMBER
 Gilbert Schwartzman, New York, N.Y., assignor to
 Dab-O-Matic Corporation
 Filed Feb. 6, 1968, Ser. No. 10,465
 Term of patent 14 years
 Int. Cl. D23—01

U.S. Cl. D23—19



221,077
TABLE FAN
 Petrus Joannes Stut, Drachten, Netherlands, assignor to
 United States Phillips Corporation
 Filed Oct. 30, 1969, Ser. No. 19,844
 Claims priority, application Switzerland May 8, 1969
 Term of patent 14 years
 Int. Cl. D23—04

U.S. Cl. D23—155



221,078
PIPE
 Peter H. Seckel, Upper Montclair, and Franklin Dick,
 New York, N.Y., assignors to Dart Industries, Inc.,
 Los Angeles, Calif.
 Filed Apr. 30, 1970, Ser. No. 22,728
 Term of patent 14 years
 Int. Cl. D23—01

U.S. Cl. D23—45



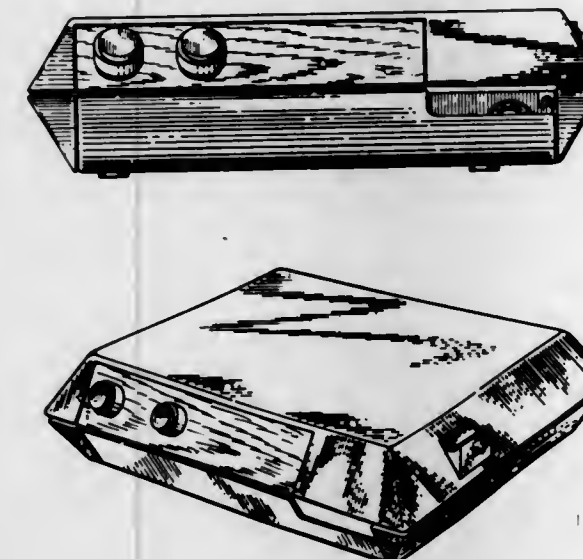
221,079
INTERDENTAL STIMULATOR
 Joseph C. Muhler, Indianapolis, Ind., assignor to
 Plastek Company, Sturgis, Mich.
 Filed Mar. 14, 1969, Ser. No. 16,250
 Term of patent 14 years
 Int. Cl. D24—03; D28—01

U.S. Cl. D24—1



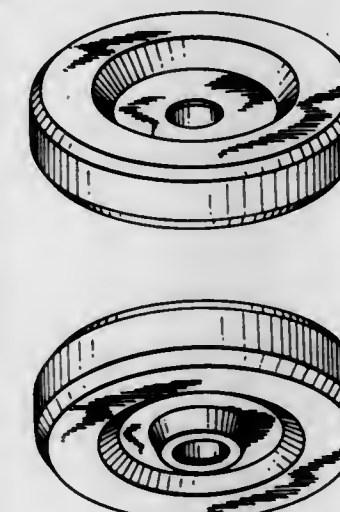
221,080
DENTAL ULTRASONIC UNIT
 Morison S. Cousins, Plainview, N.Y., assignor to
 Cavitron Corporation
 Filed Oct. 10, 1969, Ser. No. 19,506
 Term of patent 14 years
 Int. Cl. D24—03; D7—06

U.S. Cl. D24—1



221,081
RECTIFIER
 Robert D. Kahn, Rockville Centre, N.Y., assignor to
 Fedtro, Inc., Rockville Centre, N.Y.
 Filed Aug. 18, 1969, Ser. No. 18,726
 Term of patent 14 years
 Int. Cl. D13—99, 02

U.S. Cl. D26—1



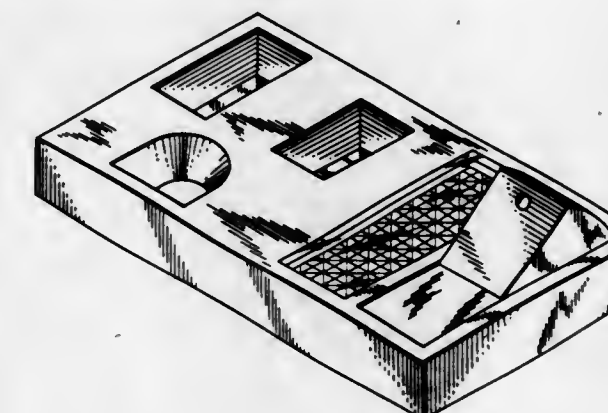
221,082
MALFUNCTION DETECTOR
 Paul E. Brefka, Southborough, Mass., assignor to
 Tyco Laboratories, Inc., Waltham, Mass.
 Filed Nov. 7, 1969, Ser. No. 19,980
 Term of patent 14 years
 Int. Cl. D10—11; D13—03

U.S. Cl. D26—1



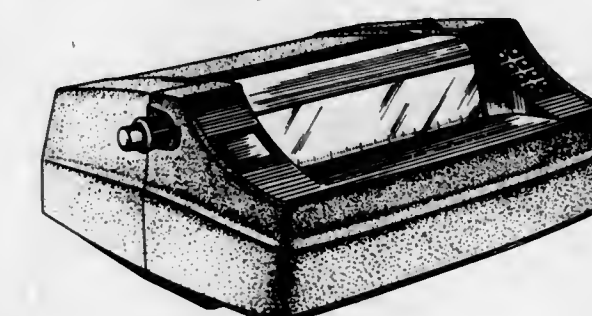
221,083
ELECTRIC OUTLET UNIT
 Robert D. Kahn, Rockville Centre, N.Y., assignor to
 Fedtro, Inc., Rockville Centre, N.Y.
 Continuation-in-part of design application Ser. No. 16,784,
 Apr. 16, 1969. This application Feb. 10, 1970, Ser.
 No. 21,371
 Term of patent 14 years
 Int. Cl. D13—03

U.S. Cl. D26—1



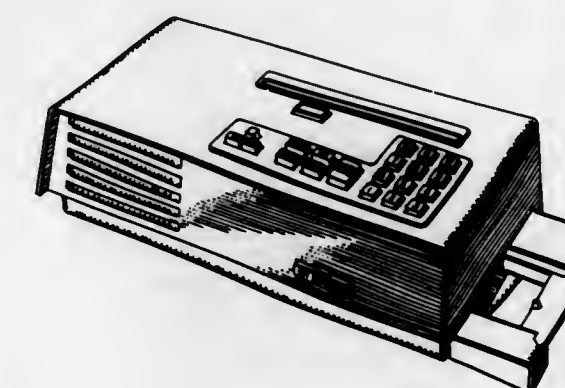
221,084
ELECTRONIC IMPACT DATA PRINTER
 Gregory F. Fossella, Marshfield, Mass., assignor to Nortec
 Computer Devices, Inc., Ashland, Mass.
 Filed Nov. 26, 1969, Ser. No. 20,287
 Term of patent 14 years
 Int. Cl. D14—02

U.S. Cl. D26—5



221,085
PORTABLE DATA RECORDER
 Gunther W. Newman, Phoenixia, N.Y., assignor to
 Varifab, Inc., Greenwich, Conn.
 Filed Mar. 10, 1970, Ser. No. 21,833
 Term of patent 14 years
 Int. Cl. D14—02

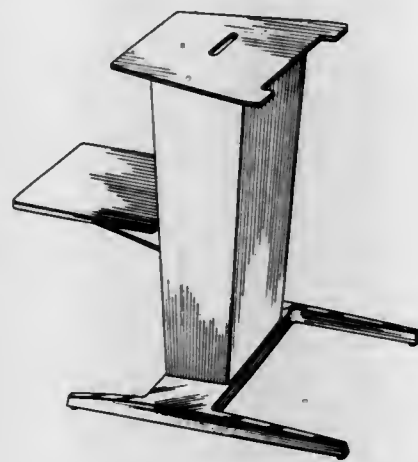
U.S. Cl. D26—5



221,086

STAND FOR A COMPUTER PRINTER
 Gregory F. Fossella, Marshfield, Mass., assignor to Nortec Computer Devices, Inc., Ashland, Mass.
 Filed Nov. 26, 1969, Ser. No. 20,283
 Term of patent 14 years
 Int. Cl. D6—01

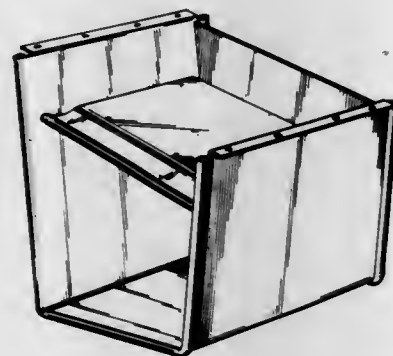
U.S. Cl. D33—3



221,087

BOOK BOX FOR STUDENT DESK
 Roy E. Jennings, Temple, Tex., assignor to Royal Seating Corporation, Cameron, Tex.
 Filed Sept. 24, 1969, Ser. No. 19,270
 Term of patent 14 years
 Int. Cl. D6—01

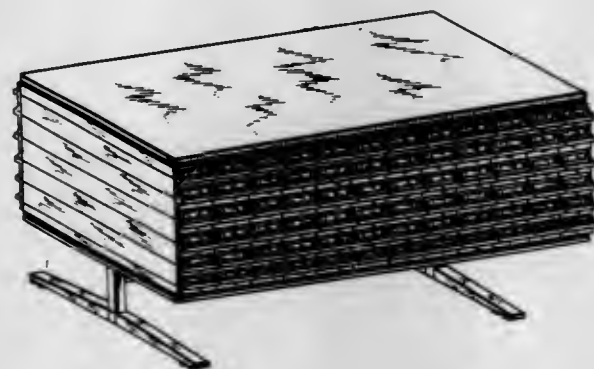
U.S. Cl. D33—11



221,088

FILING CABINET
 Charles M. Huck, New Brunswick, N.J., assignor to Estey Corporation, Red Bank, N.J.
 Original design application Sept. 25, 1968, Ser. No. 13,713, now Patent No. 215,307. Divided and this application Sept. 18, 1969, Ser. No. 19,204
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D33—19



221,089

CONSOLE CABINET
 Harry Bergman, Glencoe, Ill., assignor to Butler Specialty Company, Chicago, Ill.
 Filed Oct. 16, 1969, Ser. No. 19,585
 Term of patent 14 years
 Int. Cl. D6—01

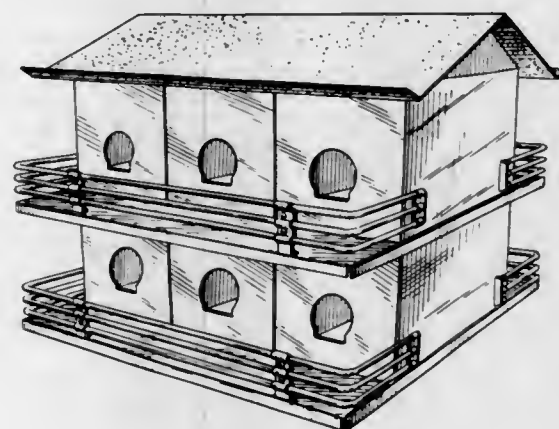
U.S. Cl. D33—19



221,090

PURPLE MARTIN BIRD HOUSE
 Arthur E. Vail, Griggsville, Ill., assignor to Trio Manufacturing Company, Griggsville, Ill.
 Filed Feb. 5, 1970, Ser. No. 21,276
 Term of patent 14 years
 Int. Cl. D30—01

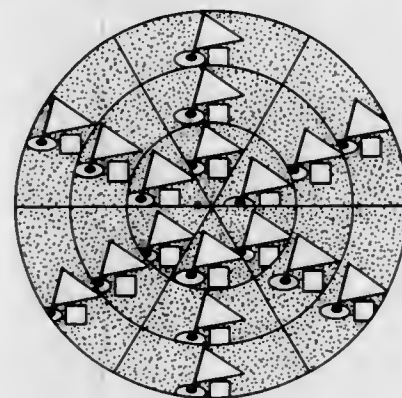
U.S. Cl. D30—3



221,091

GAME BOARD
 Frank C. Nowicki, 1144 Dionne, St. Paul, Minn. 55113
 Filed Apr. 27, 1970, Ser. No. 22,643
 Term of patent 14 years
 Int. Cl. D21—01

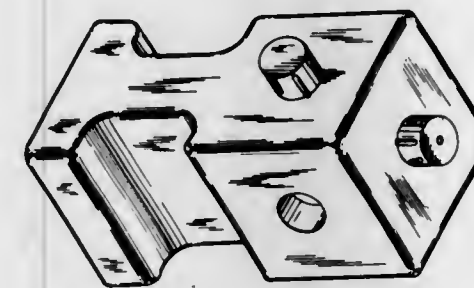
U.S. Cl. D34—5



221,092

COMPONENT FOR A MULTI-PIECED BLOCK TOY OR THE LIKE
 Robert Daenen, Erembodegem, Belgium, assignor to Dart Industries, Inc., Los Angeles, Calif.
 Filed Aug. 8, 1969, Ser. No. 18,587
 Term of patent 14 years
 Int. Cl. D21—02

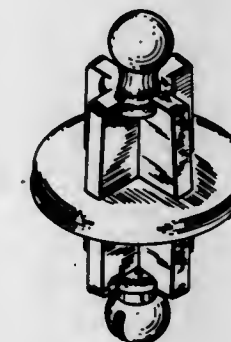
U.S. Cl. D34—15



221,093

ACCESSORY FOR TOY TOP
 Anthony D. Miller, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
 Filed Mar. 25, 1970, Ser. No. 22,045
 Term of patent 14 years
 Int. Cl. D21—02

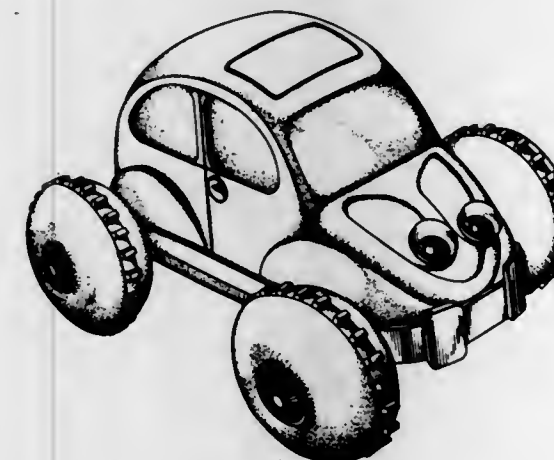
U.S. Cl. D34—15



221,094

TOY AUTOMOBILE
 Donald Greenwood, Akron, Iowa, assignor to Cragstan Industries, Inc., New York, N.Y.
 Filed Mar. 30, 1970, Ser. No. 22,100
 Term of patent 14 years
 Int. Cl. D21—02

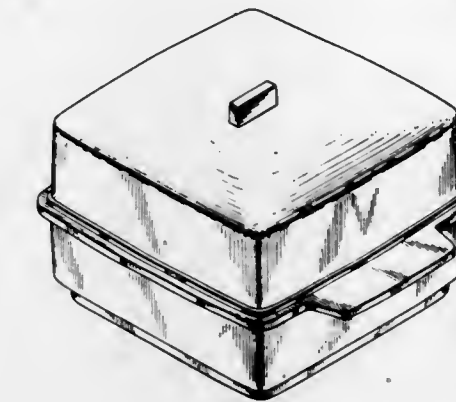
U.S. Cl. D34—15



221,095

ELECTRICAL FOOD STEAMER
 Malen Z. Tevovitz, Monroe, Conn., assignor to Sperry Rand Corporation, New York, N.Y.
 Filed May 28, 1970, Ser. No. 23,193
 Term of patent 14 years
 Int. Cl. D7—02

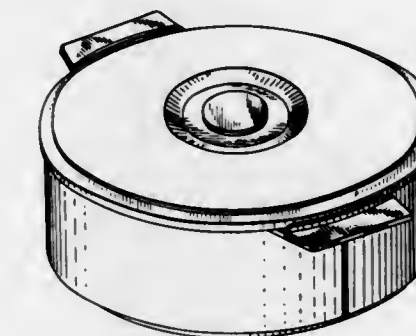
U.S. Cl. D44—1



221,096

ELECTRICAL FOOD WARMER
 Malen Z. Tevovitz, Monroe, Conn., and Manfred K. Hegemann, Nyack, N.Y., assignors to Sperry Rand Corporation, New York, N.Y.
 Filed May 28, 1970, Ser. No. 23,194
 Term of patent 14 years
 Int. Cl. D7—02

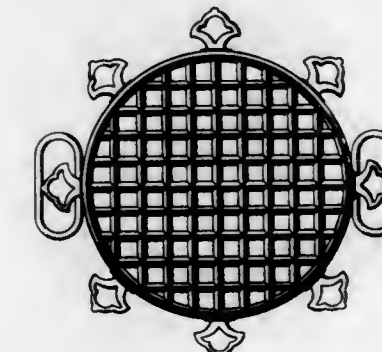
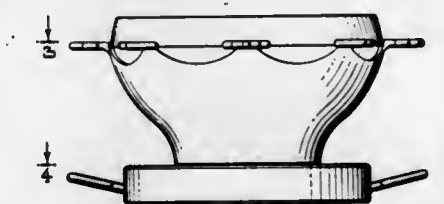
U.S. Cl. D44—1



221,097

HIBACHI
 Joseph B. Stier, Brooklyn, N.Y., assignor to Styson Inc., New York, N.Y.
 Filed May 14, 1970, Ser. No. 22,985
 Term of patent 14 years
 Int. Cl. D7—02

U.S. Cl. D44—1

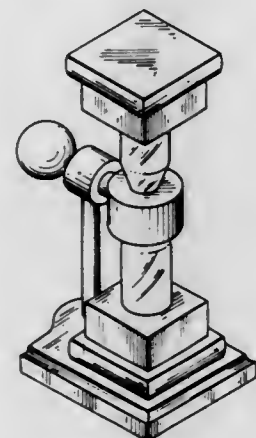


**221,098
TIMER**

Mel Appel, Livingston, and Martin Schnur, Fort Lee, N.J., assignors to Gemco-Ware Inc., Freeport, Long Island, N.Y.

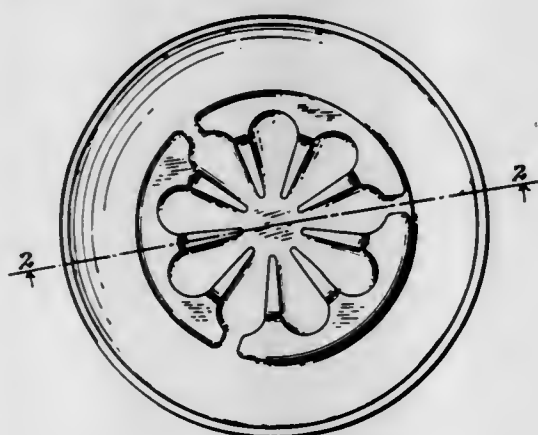
Filed Apr. 15, 1970, Ser. No. 22,442
Term of patent 14 years
Int. Cl. D10-05

U.S. Cl. D42-7

**221,099
SAUCER**

Pat Alparone, 2894 Mission St., San Francisco, Calif. 94110
Filed Oct. 20, 1969, Ser. No. 19,618
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-9

**221,100**

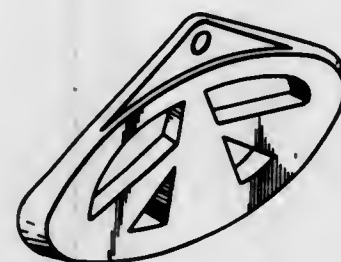
DINNER PLATE OR SIMILAR ARTICLE
Michael J. Szymanski, Camillus, N.Y., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Oct. 15, 1969, Ser. No. 19,564
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-15

**221,101
PENDANT**

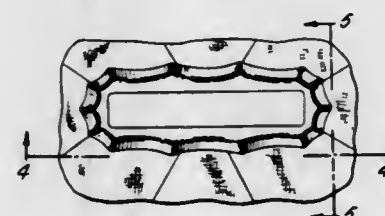
Thomas G. Pacitti, 220 Mountain St., Philadelphia, Pa. 19148
Filed Aug. 17, 1970, Ser. No. 24,537
Term of patent 14 years
Int. Cl. D11-01

U.S. Cl. D45-17

**221,102**

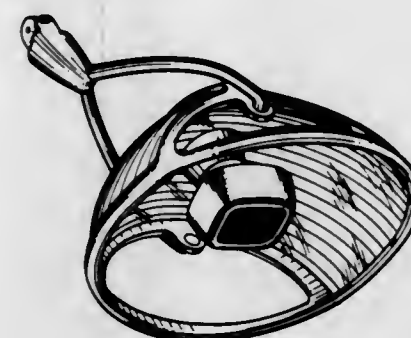
UMBRELLA CAP AND COVER
Heinz Weber, Hilden, Germany, assignor to Telesco Brophy Limited, Montreal, Quebec, Canada
Continuation-in-part of design application Ser. No. 20,258, Nov. 24, 1969. This application July 29, 1970, Ser. No. 24,206
Claims priority, application Germany Sept. 5, 1969
Term of patent 14 years
Int. Cl. D3-03

U.S. Cl. D88-3

**221,103**

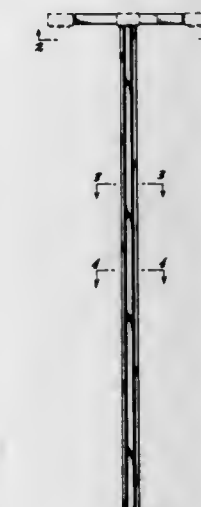
DENTAL OPERATING LIGHT
Daryl Raymond Beach and Sadayasu Ota, Kyoto, Japan, assignors to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan
Filed Mar. 13, 1970, Ser. No. 21,895
Claims priority, application Japan Dec. 19, 1969
Term of patent 14 years
Int. Cl. D26-02

U.S. Cl. D48-20



**221,104
LIGHT STANDARD OR SIMILAR ARTICLE**
Robert W. Selden, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed Oct. 20, 1969, Ser. No. 19,635
Term of patent 14 years
Int. Cl. D26-03

U.S. Cl. D48-31



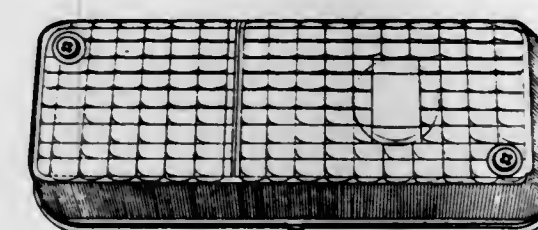
**221,105
FRONT PANEL FOR TRANSOM LIGHT FOR BOATS OR THE LIKE**
Donald E. Stewart, Grand Rapids, Mich., assignor to Attwood Corporation, Lowell, Mich.
Filed Sept. 11, 1969, Ser. No. 19,102
Term of patent 14 years
Int. Cl. D12-99; D26-02

U.S. Cl. D48-32



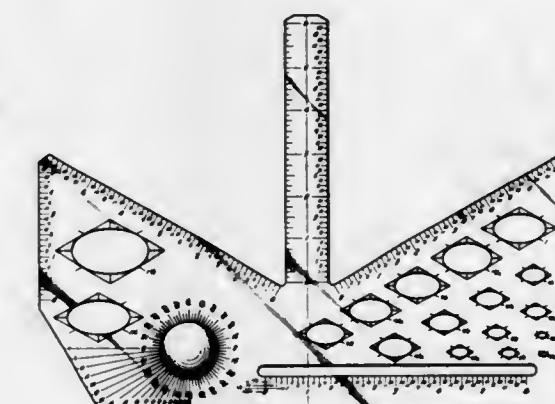
**221,106
FRONT LAMP FOR AUTOMOBILES**
Michel Tixier, Billancourt, France, assignor to Regie National des Usines Renault, Billancourt, Hauts-de-Seine, France
Filed Oct. 31, 1969, Ser. No. 19,874
Term of patent 14 years
Int. Cl. D12-99

U.S. Cl. D48-32



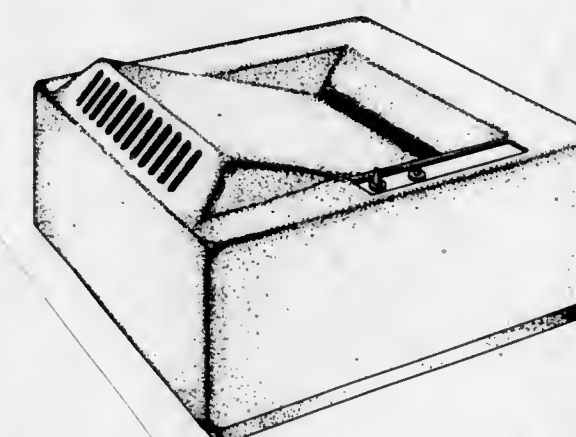
**221,107
DRAFTING INSTRUMENT FOR DRAWING SCALED ORTHOGRAPHIC VIEWS AND AXONOMETRIC VIEWS**
David D. Miller, 259 S. Robertson Blvd., Beverly Hills, Calif. 90213
Filed Jan. 13, 1970, Ser. No. 20,905
Term of patent 14 years
Int. Cl. D10-08

U.S. Cl. D52-6



**221,108
PAPER SHREDDER**
Stanley E. Case, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed Mar. 5, 1970, Ser. No. 21,749
Term of patent 14 years
Int. Cl. D15-05

U.S. Cl. D55-1



**221,109
OTOSCOPE**

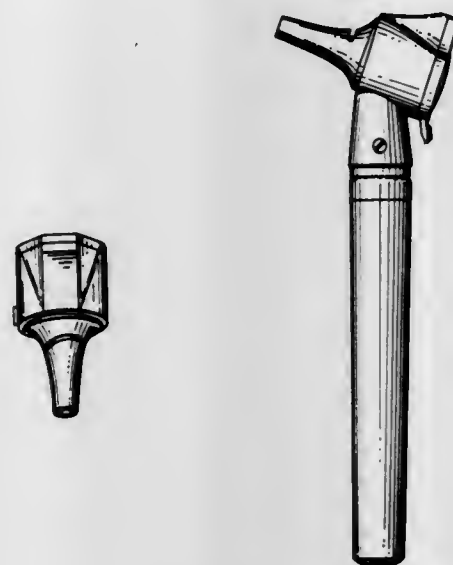
Helmut A. Heine, Herrsching, Upper Bavaria, Germany, assignor to Optotechnik G.m.b.H., and Propper Manufacturing Company, Inc.

Filed June 12, 1970, Ser. No. 23,464

Term of patent 14 years

Int. Cl. D24-02; D16-08

U.S. Cl. D57-1



221,110

DUCK BOAT OR THE LIKE

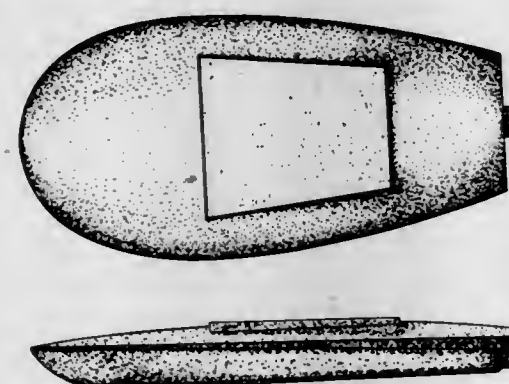
Melton E. Valentine, Jr., 2823 Mayview Road, Raleigh, N.C. 27607

Filed Sept. 5, 1969, Ser. No. 19,036

Term of patent 14 years

Int. Cl. D12-06

U.S. Cl. D71-1



221,111

PROJECTION CABINET

Jerry T. Melton, Tampa, Fla., assignor to Televue, Inc., Tampa, Fla.

Filed Feb. 24, 1970, Ser. No. 21,577

Term of patent 14 years

Int. Cl. D16-03

U.S. Cl. D61-1



221,112

COMBINED LAMP AND DOUBLE GRILL

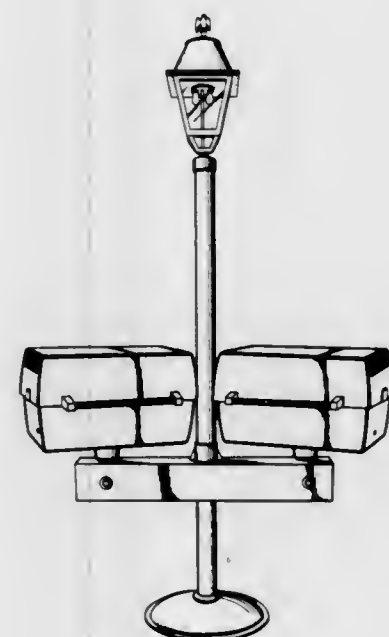
Peyton L. Gunnels, Columbus, Ga., assignor to W. C. Bradley Co., Columbus Iron Works Division, Columbus, Ga.

Filed Jan. 19, 1970, Ser. No. 20,971

Term of patent 14 years

Int. Cl. D7-04

U.S. Cl. D81-10



221,113

STAND FOR UNDERWATER DRAINAGE APPARATUS

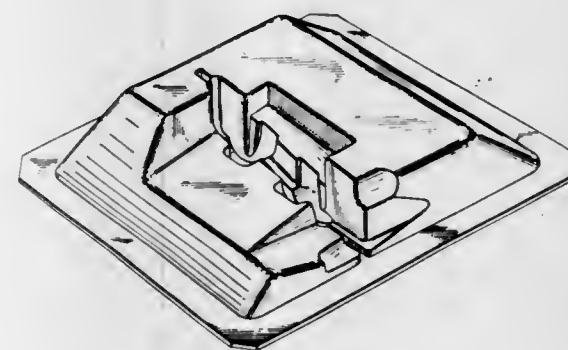
Leonard Kurtz, Woodmere, Edward Hallstein, Smithtown, Robert Bidwell, Melville, and Sidney Mishkin, Great Neck, N.Y., assignors to Deknatel Inc., Queens Village, N.Y.

Filed Feb. 18, 1970, Ser. No. 21,484

Term of patent 14 years

Int. Cl. D24-02

U.S. Cl. D83-1



**221,114
COMB**

Arthur Rogovin, 245 Rumsey Road, Yonkers, N.Y. 10701

Filed June 17, 1970, Ser. No. 23,524

Term of patent 14 years

Int. Cl. D28-03

U.S. Cl. D86-8



221,115

PONYTAIL RING

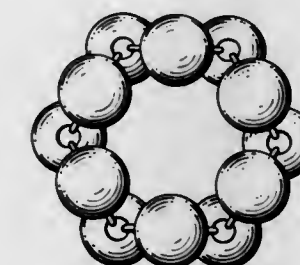
Nathan L. Solomon, P.O. Box 550, Englewood, N.J. 17631

Filed Apr. 3, 1968, Ser. No. 11,284

Term of patent 14 years

Int. Cl. D3-99

U.S. Cl. D86-10



221,116

HEATER HOUSING FOR HAIR CURLERS OR SIMILAR ARTICLE

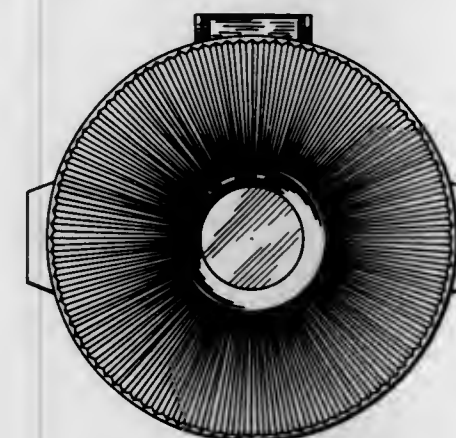
Henry J. Talge, Kansas City, and Marvin W. Litman, Prairie Village, Kans., assignors to The Songrand Corporation

Filed Mar. 31, 1970, Ser. No. 22,143

Term of patent 14 years

Int. Cl. D28-03

U.S. Cl. D86-10



**221,117
TRAVEL KIT**

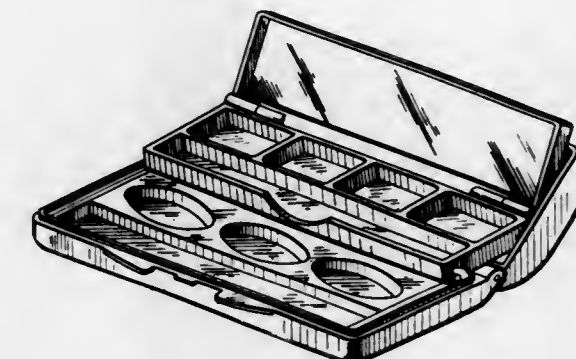
Arthur S. Jacobs, Stamford, Conn., assignor to Valve Corporation of America, Greenwich, Conn.

Filed Apr. 6, 1970, Ser. No. 22,250

Term of patent 14 years

Int. Cl. D3-99

U.S. Cl. D86-10



**221,118
KEY TAG**

Ernest Henry Chambers, 28a Hall St., Moonee Ponds, Victoria, Australia

Filed Sept. 10, 1969, Ser. No. 19,092

Term of patent 14 years

Int. Cl. D3-99; D8-03

U.S. Cl. D87-8



221,119

BICYCLE CHAIN GUARD

Viktor Schreckengost, Cleveland Heights, Ohio, assignor to The Murray Ohio Manufacturing Co., Nashville, Tenn.

Filed June 24, 1970, Ser. No. 23,647

Term of patent 14 years

Int. Cl. D12-14

U.S. Cl. D90-5

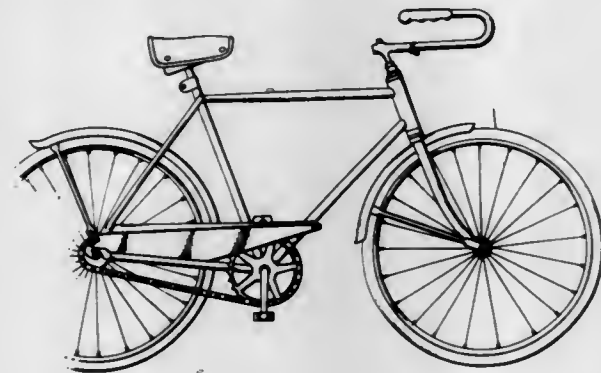


**221,120
BICYCLE**

Viktor Schreckengost, Cleveland Heights, Ohio, assignor to The Murray Ohio Manufacturing Co., Nashville, Tenn.

Filed Aug. 20, 1970, Ser. No. 24,613
Term of patent 14 years
Int. Cl. D12—11

U.S. Cl. D90—8



**221,121
SAFETY RAZOR**

Jose Bassat Jerusalem, Barcelona, Spain, assignor to Bassat S.A., Barcelona, Spain

Filed Oct. 13, 1969, Ser. No. 19,524
Claims priority, application Spain Apr. 11, 1969
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D95—3



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 6TH DAY OF JULY, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Abbott, Don W., to Recorded Sales Visual Presentations, Inc. System for selectively controlling multiple operations. 3,591,734, Cl. 179-100.2
- Abbott, Harold W., to General Electric Company. Color television demodulator. 3,591,707, Cl. 178-5.4
- Abbott, Thomas I.; Smith, Donald A.; and Cunningham, Robert H., to Eastman Kodak Company. Lithographic element and novel polymers contained therein. 3,591,386, Cl. 96-114.
- Abel, Edward Peter: See—
Brust, David Philip; Minsk, Louis Morton; and Abel, Edward Peter, 3,591,387.
- Abercrombie, Lawrence W.; Saaty, Nabil N.; and Sayigh, Adnan A. R., to Upjohn Company, The. High density cellular polyurethane elastomer. 3,591,532, Cl. 260-2.5
- Abermeth, Hubert: See—
Keylwert, Hans; and Abermeth, Hubert, 3,590,790.
- Acheson Industries, Inc.: See—
Ough, Thomas D., 3,591,097.
- Ackerman, Bernard, to Electro-Catheter Corporation. Catheters. 3,590,822, Cl. 128-404.
- Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki Kaisha. Attack and decay circuitry for electronic musical instrument. 3,591,702, Cl. 84-1.26
- Adams, Budd B.: See—
Hoffman, David; Sadowy, Roman, Jr.; and Adams, Budd B., 3,591,789.
- Adams, Clark E.; and Kimberlin, Charles N. Jr., to Esso Research and Engineering Company. Two-stage desulfurization utilizing hydrogen in the second stage reaction. 3,591,489, Cl. 208-211.
- Adams, Thomas F. Vertically adjustable loading deck for transport containers. 3,591,246, Cl. 312-306.
- Adams, Vincent A.: See—
Foley, Francis H., Jr.; and Adams, Vincent A., 3,590,699.
- Adaptronics, Inc.: See—
Barron, Roger L., 3,591,778.
- Aday, Roy W., Jr.; and Lu, Maoyeh, to Beckman Instruments, Inc. Torque isolating mounting structure. 3,591,288, Cl. 356-74.
- Adcraft Mfg. Co.: See—
Wallace, Frank J., 3,590,665.
- Addison, George T., to Coal Industry (Patents) Limited. Cutters for mineral mining machines. 3,591,235, Cl. 299-1.
- Addressograph-Multigraph Corporation: See—
Gammeter, Harry F., 3,590,733.
- Admiral Corporation: See—
Johnson, Roy V., 3,590,596.
- Adrian, Philip R., to Fruit Harvesting Co., Inc. Guide with energy-absorbing baffles. 3,590,981, Cl. 198-72.
- Ahren, Bengt Johan Anders, to Saab Aktiebolag. Fluid ejector particularly for cushion levitated devices. 3,591,084, Cl. 239-224.
- Aichhorn, Johann; Rietzler, Erich; and Kress, Dieter, to Mapal Dr. Kress KG. Reamer with replaceable cutting blade. 3,591,305, Cl. 408-161.
- Aijala, Sulo A., to Intricate Machine & Engineering Inc. Means for mounting a hand saw in a retreating or sharpening machine. 3,590,664, Cl. 76-43.
- Ainsworth, Donald; and Blewett, Trevor, to Vallance & Co. (Morley) Limited. Method for continuously mixing powders and oils. 3,591,145, Cl. 259-6.
- Air Factors, Inc.: See—
Lambert, Robert R., 3,590,546.
Lambert, Robert R., 3,590,719.
- Air Products and Chemicals, Inc.: See—
Culp, John E., Jr.; and Schwartz, Howard E., 3,591,157.
Geist, Jacob M.; Paul, Roy A.; and Thorogood, Robert M., 3,590,475.
- Air Reduction Company: See—
Carden, Douglas D., 3,591,090.
- Air Reduction Company, Incorporated: See—
Leeds, Morton W., 3,591,511.
Leeds, Morton W., 3,591,512.
- Airheart, Franklin B., to Airheart Products, Inc. Closed loop caliper type disc brake and support means therefor. 3,590,961, Cl. 188-73.4
- Airheart Products, Inc.: See—
Airheart, Franklin B., 3,590,961.
- Aisin Seiki Company Limited: See—
Yamaguchi, Hiroji; Murakami, Noboru; and Hirozawa, Koichiro, 3,590,663.
- Akamatsu, Hiroo; Takechi, Saburo; and Ichimori, Masuo, to Omron Tateisi Electronics Co. (Tateisi Denki Kabushikikaisha). Automatic flushing device for toilet facilities. 3,590,397, Cl. 4-100.
- Akamatsu, Takashi: See—
Kenmochi, Hirohito; Kanda, Tatsuo; Hotta, Seiji; and Akamatsu, Takashi, 3,591,610.
- Akashi, Goro: See—
Kono, Yuichi; Akashi, Goro; and Fujiyama, Masaaki, 3,591,414.
- Akesson, Karl Gustav Bertil; and Noreason, Nils Gunnar, to Broderna Akessons Maskinfabrik AB. Arrangement in an apparatus having a stationary and a movable press platen, particularly an injection molding machine. 3,590,436, Cl. 18-30.
- Akiyama, Hideaki: See—
Kakiuchi, Tokusaburo; and Akiyama, Hideaki, 3,591,267.
- Aktiebolaget Bofors: See—
Olsson, Tore Bertil Reinhold; and Nilsson, Ake Valentin, 3,591,713.
- Aktiebolaget Svenska Precisionsverktyg: See—
Eriksson, Alf A. A., 3,590,630.
- Aktiengesellschaft Brown, Boveri & Cie: See—
Kaser, Alfred, 3,591,306.
Wunsch, Alfred, 3,591,313.
- Al, Rene Jan, to Dow Chemical Company, The. Curable polyepoxides produced by metal hydride or alkoxide catalyst. 3,591,554, Cl. 260-47.
- Albinger, Harry, Jr.: See—
Marble, Chester B.; and Albinger, Harry, Jr., 3,591,737.
- Alburn, Harvey E.: See—
Fenichel, Richard L.; Grant, Norman H.; and Alburn, Harvey E., 3,591,574.
- Alcoa of Great Britain Limited: See—
Webb, Cyril J., 3,590,545.
- Aldrich Chemical Company, Inc.: See—
Hopps, Harvey Byron; and Biel, John Hans, 3,591,594.
- Allais, Andre, to Roussel-UCLAF. Novel carbonates. 3,591,612, Cl. 260-397.45
- Allemand, Pierre: See—
Bonnel, Bernard; Allemand, Pierre; and Versmece, Pierre, 3,591,542.
- Allen, Dillis V. Helical drive. 3,591,241, Cl. 305-8.
- Allen, George, to Cardinal Container Corporation. Erectable and collapsible drawer receiving cabinet. 3,591,245, Cl. 312-258.
- Allen, Rudolph. Mechanically programmable marine transport cargo handling and stowage system. 3,591,023, Cl. 214-14.
- Alley, Raymond L., to American Warming & Ventilating, Inc., The. Fire damper latch. 3,591,221, Cl. 292-230.
- Allied Chemical Corporation: See—
Ameen, Jameil; Horner, Charlie A., Jr.; and Harrison, Floyd A., 3,591,641.
Beckham, Leland J., 3,591,359.
Schonberg, Elliott A.; Thomson, Charles B.; and Bacha, John, 3,591,445.
Twilley, Ian C.; and Lazarus, Stanley D., 3,591,625.
- Allis-Chalmers Manufacturing Company: See—
Mirus, Ferdinand, 3,590,928.
- Allmanna Svenska Elektriska Aktiebolaget: See—
Andreassen, Jostein, 3,591,433.
- Alps Electric Co., Ltd.: See—
Ohkita, Masao, 3,591,750.
- Alside, Inc.: See—
Epstein, George; and Mollman, Robert E., 3,590,541.
- Alsop, Michael J., to Eastman Kodak Company. Photographic elements and processes employing photosensitive polymers. 3,591,377, Cl. 96-35.1
- Altman, Joseph H., to Eastman Kodak Company. Process for making positive-working relief plate. 3,591,378, Cl. 96-35.1
- Alton, Ahdor H.; and Kohn, Mitchell I., to Gulton Industries, Inc. Proportioning temperature control apparatus. 3,591,077, Cl. 236-69.
- Aluminum Company of America: See—
Schrecker, Howard Dale; and Heffner, Robert Edwin, 3,591,037.
- Alvarez, Francisco, to Syntex Corporation. Process for preparing alpha-acyloxy ketone steroids. 3,591,582, Cl. 260-239.55
- Amalgamated Dental Company Limited, The: See—
Denereaz, Andre, 3,591,370.
- Ameen, Jameil; Horner, Charlie A., Jr.; and Harrison, Floyd A., to Allied Chemical Corporation. Production of dialkyl ethers of polyalkylene glycols. 3,591,641, Cl. 260-615.
- American Air Filter Company, Inc.: See—
Byers, Thomas W.; and Rivers, Richard D., 3,590,562.
- American Associated Companies: See—
Swenson, Gerald G., 3,591,237.
- American Can Company: See—
Fietzer, Ivan A.; and Hanseter, Ronald Alois, 3,591,120.

- Mooring, Alexander Walker; and Simmons, Harley Earl, 3,591,038.
- American Crucible Products, Co.: See—
Tutthill, Fred E., 3,591,741.
- American Cyanamid Company: See—
Cantrall, Margot Louise; Sassiver, Martin Leon; and Shepherd, Robert Gordon, 3,591,693.
- Ellenbogen, Leon; and Highley, Derek Rowland, 3,591,678.
- American Home Products Corporation: See—
Fenichel, Richard L.; Grant, Norman H.; and Alburn, Harvey E., 3,591,574.
- Jones, Robert C.; and Edgren, Richard A., 3,591,688.
- Kim, Dong H.; and Santilli, Arthur A., 3,591,589.
- Lefebvre, Yvon, 3,591,583.
- American Optical Corporation: See—
Harris, George J., 3,590,811.
- American Packaging Corporation, The: See—
Watts, Ridley, Jr.; and Berry, John F., 3,590,434.
- American Specialty Foods, Inc.: See—
Baker, William H., 3,590,993.
- American Standard, Inc.: See—
Hollander, Milton; Buell, Victor; and Judelson, Norman B., 3,590,392.
- Hollander, Milton B.; Buell, Victor P.; and Judelson, Norman B., 3,590,393.
- Snyder, Robert L., 3,591,353.
- American Warming & Ventilating, Inc., The: See—
Alley, Raymond L., 3,591,221.
- Amerock Corporation: See—
Dargene, Carl J., 3,590,419.
- Ametek, Inc.: See—
Luger, Julian; and Summers, Stanley E., 3,591,127.
- AMF Incorporated: See—
Gianese, Goffredo, 3,590,550.
- Hollenton, Frank, 3,590,975.
- Hooper, Harry Allison; Hollenton, Frank; and Brackmann, Warren Arthur, 3,591,044.
- Rudd, Wallace C., 3,591,757.
- Stanford, Arthur, 3,590,977.
- Amos, Lynn G.; Moses, Hal L.; and Small, Donald A., to Corning Glass Works. Means for switching wall attachment fluidic devices. 3,590,842, Cl. 137-81.5.
- AMP Incorporated: See—
Carnes, Roy W.; Marasso, Fred D.; and Rademacher, Robert E., 3,590,978.
- Collier, John Covell; and William, David Rickards, 3,591,773.
- Felty, Paul John; and Rosengren, Herbert, 3,590,481.
- Amsellem, Claude Jacques. Method of treatment of surfaces, especially metallic, and the parts treated by this method. 3,591,472, Cl. 204-140.
- Amsted Industries Incorporated: See—
Woodburn, James, 3,590,904.
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- Yamaguchi, Hiroji; Murakami, Noboru; and Hirozawa, Koichiro, to Aisin Seiki Company Limited. Hydraulic pressure control means for automatic fluid speed change mechanism. 3,590,663, Cl. 74-867.
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- Yamaoka, Sadao: See—
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174 : 3,591,429	3,591,745	235-61.11 : 3,591,074	250 : 3,591,155	525 : 3,591,600	525 : 3,591,600
175 : 3,591,430	3,591,746	235-61.11 : 3,591,075	250 : 3,591,156	525 : 3,591,601	525 : 3,591,601
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152-12 : 3,590,897	3,591,748	235-61.11 : 3,591,077	250 : 3,591,158	525 : 3,591,603	525 : 3,591,603
352 : 3,590,898	3,591,749	235-61.11 : 3,591,078	250 : 3,591,159	525 : 3,591,604	525 : 3,591,604
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178 : 3,591,434	3,591,752	235-61.11 : 3,591,081	250 : 3,591,162	525 : 3,591,607	525 : 3,591,607
187 : 3,591,435	3,591,753	235-61.11 : 3,591,082	250 : 3,591,163	525 : 3,591,608	525 : 3,591,608
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310 : 3,591,438	3,591,756	235-61.11 : 3,591,085	250 : 3,591,166	525 : 3,591,611	525 : 3,591,611
396 : 3,591,439	3,591,757	235-61.11 : 3,591,086	250 : 3,591,167	525 : 3,591,612	525 : 3,591,612
439 : 3,591,440	3,591,758	235-61.11 : 3,591,087	250 : 3,591,168	525 : 3,591,613	525 : 3,591,613
498 : 3,591,441	3,591,759	235-61.11 : 3,591,088	250 : 3,591,169	525 : 3,591,614	525 : 3,591,614
159-6 : 3,590,899	3,591,760	235-61.11 : 3,591,089	250 : 3,591,170	525 : 3,591,615	525 : 3,591,615
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86 : 3,591,445	3,591,766	235-61.11 : 3,591,095	250 : 3,591,176	525 : 3,591,621	525 : 3,591,621
122 : 3,591,446	3,591,767	235-61.11 : 3,591,096	250 : 3,591,177	525 : 3,591,622	525 : 3,591,622
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3,591,174	3,590,832	3,591,180	3,591,836	3,591,694	3,590,652
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3,590,608	3,591,067	3,591,614	3,591,038	3,591,210	3,591,068
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3,590,634	3,591,085	3,591,627	3,591,165	3,591,214	3,591,088
3,590,645	3,591,086	3,591,632	3,591,207	3,591,359	3,591,130
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3,590,687	3,591,110	3,591,731	3,591,364	3,591,854	3,591,167
3,590,697	3,591,115	3,591,733	3,591,398	3,591,237	3,591,175
3,590,700	3,591,121	3,591,749	3,591,424	3,591,835	3,591,208
3,590,719	3,591,125	3,591,772	3,591,438	3,590,925	3,591,224
3,590,732	3,591,126	3,591,775	3,591,532	3,591,078	3,591,225
3,590,738	3,591,127	3,591,777	3,591,543	3,591,133	3,591,241
3,590,749	3,591,141	3,591,787	3,591,547	3,591,250	3,591,255
3,590,754	3,591,142	3,591,793	3,591,584	3,591,255	3,591,269
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3,591,416	3,591,687	3,590,489	3,590,725	3,590,434	3,591,108
3,591,442	3,591,718	3,591,009	3,590,758	3,590,457	3,591,132
3,591,455	3,591,735	3,591,009	3,590,768	3,590,463	3,591,138
3,591,492	3,591,737	Re.27,153	3,590,776	3,590,490	3,591,153
3,591,493	3,591,751	3,590,396	3,590,808	3,590,495	3,591,157
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3,591,639	26 : 3,590,483	3,590,455	3,590,831	3,590,539	3,591,196
3,591,712	3,590,491	3,590,462	3,590,841	3,590,541	3,591,227
3,591,716	3,590,513	3,590,471	3,590,845	3,590,582	3,591,231
3,591,717	3,590,526	3,590,520	3,590,860	3,590,588	3,591,245
3,591,728	3,590,594	3,590,525	3,590,863	3,590,624	3,591,308
3,591,729	3,590,595	3,590,528	3,590,891	3,590,636	3,591,331
3,591,753	3,590,612	3,590,548	3,590,901	3,590,685	3,591,343
3,591,756	3,590,613	3,590,549	3,590,937	3,590,733	3,591,367
3,591,785	3,590,640	3,590,566	3,590,989	3,590,795	3,591,369
18 : 3,590,438	3,590,655	3,590,638	3,591,003	3,590,801	3,591,401
3,590,507	3,590,660	3,590,695	3,591,005	3,590,805	3,591,430
3,590,564	3,590,681	3,590,699	3,591,010	3,590,814	3,591,437
3,590,577	3,590,689	3,590,718	3,591,013	3,590,824	3,591,447
3,590,653	3,590,724	3,590,737	3,591,017	3,590,843	3,591,458
3,590,658	3,590,746	3,590,787	3,591,018	3,590,874	3,591,462
3,590,840	3,590,747	3,590,815	3,591,035	3,590,877	3,591,465
3,590,876	3,590,751	3,590,822	3,591,043	3,590,905	3,591,466
3,590,884	3,590,759	3,590,829	3,591,044	3,590,954	3,591,467
3,590,941	3,590,779	3,590,847	3,591,054	3,590,956	3,591,505
3,591,197	3,590,802	3,590,851	3,591,070	3,590,965	3,591,563
3,591,230	3,590,820	3,590,912	3,591,071	3,590,970	3,591,574
3,591,292	3,590,838	3,590,931	3,591,076	3,590,982	3,591,589
3,591,427	3,590,853	3,591,063	3,591,106	3,591,015	3,591,592
3,591,585	3,590,854	3,591,099	3,591,113	3,591,032	3,591,644
3,591,686	3,590,867	3,591,179	3,591,118	3,591,073	3,591,645
3,591,689	3,590,938	3,591,190	3,591,177	3,591,080	3,591,650
3,591,734	3,590,955	3,591,219	3,591,194	3,591,112	3,591,651
3,591,740	3,590,960	3,591,274	3,591,249	3,591,122	3,591,668
3,591,833	3,590,966	3,591,298	3,591,253	3,591,221	3,591,675
3,591,847	3,590,979	3,591,325	3,591,256	3,591,276	3,591,688
19 : 3,590,391	3,590,986	3,591,345	3,591,277	3,591,293	3,591,692
3,590,607	3,590,987	3,591,354	3,591,279	3,591,300	3,591,742
3,590,786	3,590,990	3,591,358	3,591,295	3,591,315	3,591,769
3,590,947	3,591,002	3,591,360	3,591,319	3,591,320	3,591,771
20 : 3,590,691	3,591,012	3,591,363	3,591,340	3,591,321	3,591,776
3,590,957	3,591,024	3,591,393	3,591,349	3,591,402	3,591,818
3,591,050	3,591,079	3,591,396	3,591,353	3,591,405	3,591,825
3,591,623	3,591,083	3,591,432	3,591,362	3,591,406	3,591,826
3,591,653	3,591,136	3,591,443	3,591,374	3,591,422	44 : 3,590,439
3,590,461	3,591,139	3,591,445	3,591,376	3,591,426	3,590,898
3,590,562	3,591,184	3,591,471	3,591,377	3,591,436	3,591,357
3,590,871	3,591,189	3,591,491	3,591,378	3,591,473	3,591,408
3,590,911	3,591,201	3,591,499	3,591,379	3,591,478	45 : 3,591,152
3,590,951	3,591,205	3,591,501	3,591,381	3,591,483	47 : 3,590,804
3,590,620	3,591,211	3,591,511	3,591,382	3,591,504	3,590,842
3,590,837	3,591,216	3,591,512	3,591,385	3,591,509	3,591,183
3,590,921	3,591,220	3,591,515	3,591,386	3,591,510	3,591,294
3,591,488	3,591,246	3,591,517	3,591,387	3,591,516	3,591,341
3,591,489	3,591,247	3,591,529	3,591,389	3,591,534	3,591,553
3,591,660	3,591,261	3,591,540	3,591,411	3,591,548	3,591,556
3,591,671	3,591,291	3,591,568	3,591,449	3,591,580	3,591,676
3,591,744	3,591,302	3,591,581	3,591,461	3,591,643	3,591,806
23 : 3,590,453	3,591,307	3,591,604	3,591,479	3,591,679	48 : 3,590,405
3,590,642	3,591,328	3,591,611	3,591,480	3,591,741	3,590,448
3,590,677	3,591,350	3,591,617	3,591,482	3,591,741	3,590,458
3,590,767	3,591,355	3,591,624	3,591,484	3,590,834	3,590,472
3,590,780	3,591,419	3,591,629	3,591,486	3,590,974	3,590,479
24 : 3,590,521	3,591,460	3,591,636	3,591,503	3,591,147	3,590,584
3,590,554	3,591,587	3,591,649	3,591,514	3,591,335	3,590,628
3,590,762	3,591,596	3,591,656	3,591,523	3,591,494	3,590,648
3,590,765	3,591,601	3,591,669	3,591,527	3,591,507	3,590,726
3,590,807	3,591,681	3,591,680	3,591,549	3,591,621	3,590,798
3,590,835	3,591,851	3,591,697	3,591,552	3,591,859	3,590,800
3,590,887	27 : 3,590,523	3,591,719	3,591,572	3,590,775	3,590,818
3,590,935	3,590,637	3,591,725	3,591,575	3,591,025	3,590,828
3,591,316	3,590,643	3,591,755	3,591,609	3,591,135	3,590,870
3,591,392	3,590,678	3,591,780	3,591,628	3,591,200	3,590,873
3,591,418	3,590,740	3,591,789	3,591,677	3,590,390	3,590,875
25 : 3,590,432	3,590,743	3,591,798	3,591,678	3,590,395	3,590,896
3,590,437	3,590,785	3,591,805	3,591,693	3,590,399	3,590,899
3,590,641	3,591,150	3,591,813	3,591,696	3,590,400	3,590,919
3,590,664	3,591,191	3,591,823	3,591,704	3,590,411	3,590,922
3,590,694	3,591,260	3,591,824	3,591,707	3,590,467	3,590,923
3,590,705	3,591,280	3,591,840	3,591,711	3,590,475	3,590,926
3,590,707	3,591,400	3,591,855	3,591,746	3,590,481	3,591,046
3,590,708	3,591,441	35 : 3,590,398	3,591,754	3,590,506	3,591,051
3,590,811	3,591,539	3,591,140	3,591,757	3,590,519	3,591,109
3,590,850	3,591,799	36 : 3,590,407	3,591,759	3,590,534	3,591,129
3,590,895	28 : 3,590,401	3,590,412	3,591,761	3,590,575	3,591,204
3,590,918	3,590,692	3,590,431	3,591,762	3,590,617	3,591,238
3,590,924	29 : 3,590,532	3,590,450	3,591,763	3,590,618	3,591,239
3,590,932	3,590,668	3,590,460	3,591,768	3,590,619	3,591,240
3,590,942	3,590,684	3,590,477	3,591,781	3,590,622	3,591,252
3,591,041	3,590,727	3,590,480	3,591,782	3,590,650	3,591,431
3,591,055	3,590,734	3,590,498	3,591,786	3,590,656	3,591,485
3,591,078	3,590,752	3,590,499	3,591,791	3,590,742	3,591,495
3,591,133	3,590,855	3,590,500	3,591,792	3,590,744	3,591,513
3,591,250	3,591,048	3,590,510	3,591,803	3,590,881	3,591,520
3,591,255	3,591,161	3,590,529	3,591,831	3,590,890	3,591,538
3,591,269	3,591,206	3,590,535	3,591,834	3,590,908	3,591,554
3,591,283	3,591,266	3,590,540	3,591,852	3,590,936	3,591,562
3,591,289	3,591,330	3,590,560	3,591,862	3,590,959	3,591,570
3,591,348	3,591,334	3,590,592	37 : 3,590,402	3,591,036	3,591,655
3,591,403	3,591,508	3,590,598	3,590,657	3,591,037	3,591,699
3,591,409	3,591,630	3,590,615	3,590,728	3,591,053	3,591,783
3,591,464	3,591,684	3,590,626	3,591,151	3,591,064	49 : 3,590,497

49 : 3,590,518	51 : 3,591,119	53 : 3,590,423	55 : 3,590,470	55 : 3,590,812	55 : 3,591,120
3,590,816	3,591,124	3,590,553	3,590,552	3,590,857	3,591,181
3,591,332	3,591,333	3,591,023	3,590,571	3,590,900	3,591,236
3,591,667	3,591,434	3,591,123	3,590,572	3,590,909	3,591,299
3,591,807	3,591,440	3,591,154	3,590,593	3,590,910	3,591,322
50 : 3,591,790	3,591,451	3,591,234	3,590,623	3,590,914	3,591,470
51 : 3,590,508	3,591,625	3,591,290	3,590,688	3,591,019	3,591,594
3,590,609	3,591,641	3,591,535	3,590,753	3,591,020	3,591,670
3,590,948	3,591,661	54 : 3,590,603	3,590,755	3,591,045	3,591,743
3,590,975	3,591,703	3,590,991	3,590,773	3,591,069	3,591,745
3,590,977	3,591,778	3,591,182	3,590,783	3,591,090	3,591,809
3,590,978	53 : 3,590,414	55 : 3,590,416	3,590,796	3,591,116	3,591,849
3,591,027					

Design Patents

6 : 221,045	6 : 221,093	17 : 221,089	27 : 221,070	36 : 221,076	36 : 221,114
221,052	221,099	221,090	221,091	221,078	39 : 221,119
221,053	221,107	18 : 221,048	34 : 221,064	221,080	221,120
221,055	9 : 221,095	221,079	221,088	221,081	40 : 221,067
221,057	221,096	19 : 221,094	221,098	221,083	42 : 221,101
221,058	221,117	20 : 221,116	221,115	221,085	44 : 221,054
221,059	10 : 221,065	25 : 221,082	35 : 221,110	221,097	47 : 221,073
221,060	12 : 221,111	221,084	36 : 221,049	221,100	48 : 221,087
221,074	13 : 221,112	221,086	221,056	221,108	53 : 221,066
221,075	17 : 221,062	26 : 221,105	221,071	221,113	221,104

U.S. GOVERNMENT PRINTING OFFICE: O—1971

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PATENT OFFICE NOTICES

Certificates of Correction for the Week of July 13, 1971

Re. 26,559	3,550,851	3,561,871	3,568,860
3,278,685	3,550,859	3,562,184	3,569,812
3,402,032	3,551,353	3,562,302	3,569,933
3,462,994	3,551,366	3,562,359	3,570,054
3,473,605	3,551,514	3,562,544	3,570,793
3,473,644	3,553,036	3,562,577	3,571,773
3,474,356	3,553,318	3,562,910	3,571,817
3,514,700	3,553,926	3,563,241	3,572,175
3,510,194	3,554,611	3,563,426	3,572,202
3,511,168	3,554,791	3,563,460	3,572,485
3,517,285	3,554,939	3,563,514	3,573,227
3,519,624	3,556,062	3,563,660	3,573,318
3,523,097	3,556,318	3,563,772	3,573,374
3,528,038	3,556,322	3,563,958	3,573,477
3,533,067	3,556,397	3,563,991	3,573,492
3,536,736	3,557,178	3,564,256	3,573,527
3,538,074	3,557,872	3,564,275	3,573,719
3,538,730	3,557,919	3,564,348	3,573,942
3,539,646	3,558,472	3,564,489	3,574,174
3,539,784	3,558,615	3,564,967	3,574,185
3,542,765	3,558,712	3,565,123	3,574,236
3,542,790	3,558,944	3,565,244	3,574,518
3,542,802	3,559,688	3,565,651	3,574,650
3,543,858	3,559,735	3,565,944	3,574,892
3,543,882	3,559,774	3,565,955	3,574,910
3,544,709	3,559,803	3,565,975	3,575,135
3,545,214	3,560,199	3,566,060	3,575,151
3,545,675	3,560,528	3,566,328	3,575,173
3,546,443	3,560,537	3,566,843	3,575,482
3,547,646	3,560,598	3,567,333	3,575,685
3,547,852	3,560,649	3,567,770	3,575,780
3,548,076	3,560,991	3,568,044	3,576,686
3,548,830	3,561,409	3,568,255	
3,549,532	3,561,776	3,568,479	
3,549,954	3,561,821	3,568,627	

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JUNE 15, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-22-70
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-01-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	2-17-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	4-09-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-12-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	10-01-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	1-20-70
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	5-01-70
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	3-02-70
PHYSICS, GROUP 280—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	2-17-70
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	6-23-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	5-01-70
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	3-02-70
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	3-03-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	7-09-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	3-03-70

Expiration of patents: The patents within the range of numbers indicated below expire during June 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 161.

Patents..... Numbers 2,679,645 to 2,682,657, inclusive
Plant Patents..... Numbers 1,282 to 1,287, inclusive

PATENTS

GRANTED JULY 13, 1971

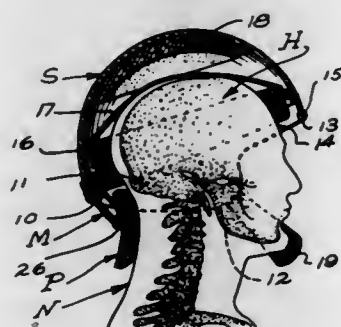
GENERAL AND MECHANICAL

3,591,863
HELMET

Harry E. Rickard, Phoenix, Ariz., assignor to Luzette O. Sparin, Los Angeles, Calif., a part interest
Filed May 19, 1969, Ser. No. 825,542
Int. Cl. A63b 71/10

U.S. Cl. 2-3

7 Claims



The combination of a safety helmet engageable over a wearer's head, a chinstrap fixed to the helmet and engageable with the wearer's chin to maintain the helmet engaged over the wearer's head, an elongate, vertically extending neck pad engageable with the back of the wearer's neck and shaped to conform to the wearer's neck when the wearer's head is tipped and neck is flexed backwardly a predetermined extent and to provide support to the cervical portion of the wearer's spine and occipital portion of the wearer's skull, and mounting means to secure the pad to the helmet and including a hanger fixed to and extending between the pad and the rear portion of the helmet and a pivot bearing carried by the rear portion of the helmet to occur rearward of the pad between the ends thereof and engageable with said pad when the head is tipped back and the lower rear portion of the helmet is moved downwardly and forwardly.

3,591,864

NONFOG GOGGLES

Jon Ivor Allsop, 4314 16th St. #12, Lubbock, Tex.
Filed May 27, 1969, Ser. No. 828,294
Int. Cl. A61f 9/02

U.S. Cl. 2-14 K

1 Claim



Nonfogging goggles for skiers or the like that includes a pair of spaced apart lenses having a dead air space therebetween and a dehumidifier in the form of a tightly woven wire mesh portion made of a flexible metal of high thermoconductivity.

3,591,865

METHOD OF PRODUCING A BRIEF-TYPE UNDERGARMENT

Karl E. Senser, Riverside, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed Nov. 5, 1969, Ser. No. 874,260
Int. Cl. A41b 9/02

U.S. Cl. 2-224

2 Claims

A brief for men and boys characterized in that it is formed of substantially a single blank cut from a tubular fabric, one

section of tubing disposed between two spaced transverse cuts providing two identical garments. The blank is so cut from such a section as to yield a swatch so shaped that it may



form a supplemental reinforcing seat portion, although not required. The invention consists of the novel garment and also its method of fabrication.

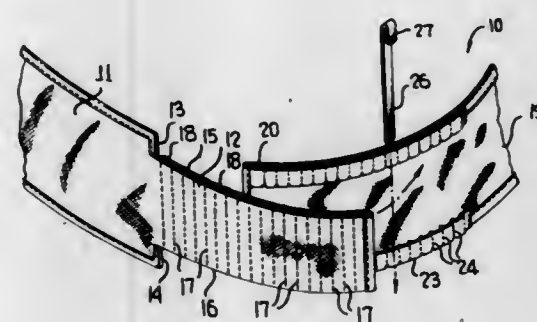
3,591,866

ADJUSTABLE BAND CONNECTION

Lee Jensen, 1402 Manufacturers Road, Chattanooga, Tenn.
Filed Dec. 9, 1969, Ser. No. 883,478
Int. Cl. A41f 9/02

U.S. Cl. 2-321

1 Claim



An adjustable connection for a body-encircling band to permit the band to be adjusted to fit bodies of varying sizes and useful with any type of body-encircling band such as a pelvic belt, girdle or the like. The adjustable ends of the band are provided with a plurality of pockets which are aligned and have a metallic stay extending therethrough to lock the bands together.

3,591,867

SEAT AND FOOT ADAPTOR FOR TUBS AND SHOWERS

Albert A. Bernstein, 49 Cranberry Street, Brooklyn, N.Y.
Filed Nov. 18, 1969, Ser. No. 877,612
Int. Cl. A47k 17/00

U.S. Cl. 4-1

5 Claims

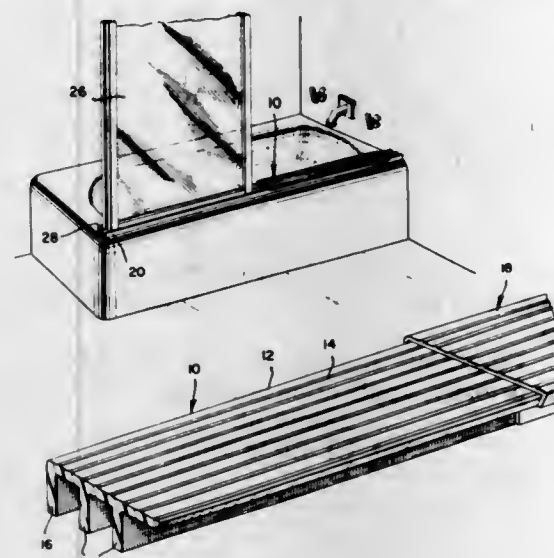
The invention relates to a track cover and is comprised of a flat portion having a plurality of downwardly extending elongated walls running the length of the flat portion. The distance between each of the downwardly extending walls is approximately that distance between the door tracks of a

JULY 13, 1971

GENERAL AND MECHANICAL

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sliding door which is disposed on the upper edges of the bathtub a resilient fastening means may be provided which is



adapted to fit between a downwardly extending leg and a fixed leg on the track of the tub to secure the front portion in position covering the tracks.

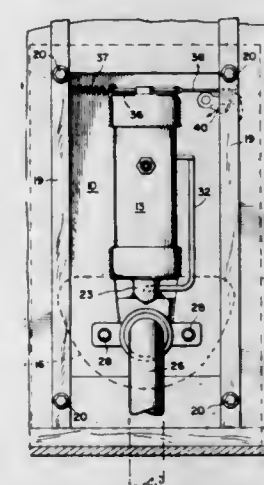
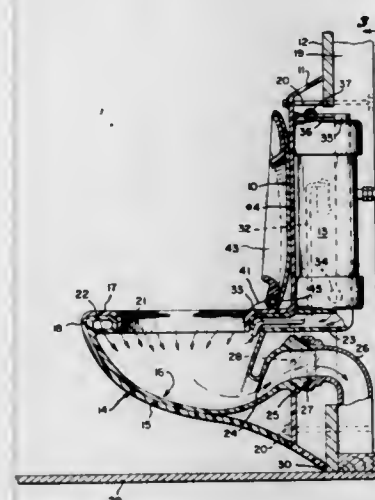
3,591,868

COMMODE STRUCTURE

Walter K. Owens, P.O. Box 5641, Pensacola, Fla.
Filed June 5, 1969, Ser. No. 830,713
Int. Cl. E03d 11/02, 11/18

U.S. Cl. 4-14

3 Claims



A substantially all-plastic commode of simplified construction suitable for boats, homes or commercial installations. The commode is wall-mounted with a very compact pressure flushing tank recessed into the wall behind a shallow housing member. A minimum number of components are employed.

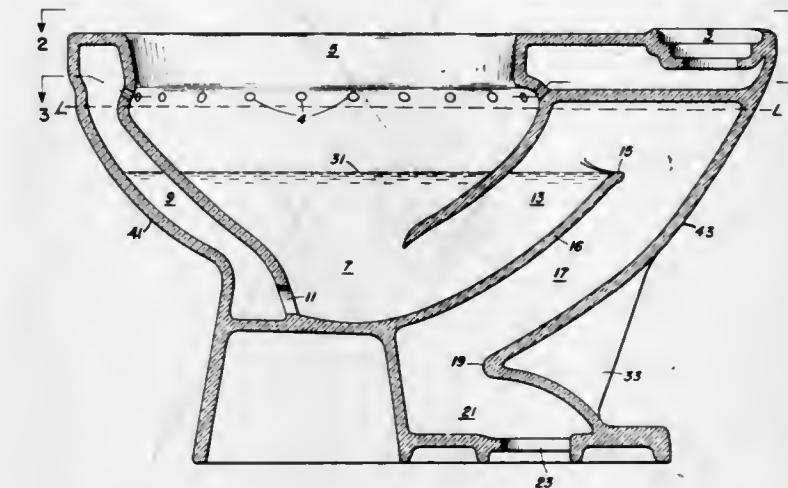
3,591,869

TOILET BOWL (REVERSE TRAP BOWL)

Franklin Keith Manning, New Orleans, La., assignor to American Standard Inc., New York, N.Y.
Filed Mar. 4, 1969, Ser. No. 804,208
Int. Cl. E03d 11/02, 11/18

U.S. Cl. 4-69

12 Claims



Covers a toilet bowl of the reverse trap type which is about one-seventh lighter in weight than other such bowls and may be made by joining only two parts together. The bowl includes jet, up-leg, down-leg and horizontal passageways in which the jet and up-leg passageways are inclined at equal but opposite angles and the up-leg and down-leg passageways are parallel to each other and separated by a thin wall providing the normal weir of the bowl.

3,591,870

SANITARY DISPOSABLE RECEIVER FOR LIQUID AND SOLID WASTES

Gordon A. Friesen, Bethesda, Md., and Reavis Sproull, Richmond, Va., assignors to Gordon A. Friesen International Inc., Washington, D.C.
Continuation-in-part of application Ser. No. 604,017, Dec. 22, 1966, now Patent No. 3,475,767. This application Nov. 14, 1968, Ser. No. 775,653
Int. Cl. E03d 13/00

U.S. Cl. 4-110

29 Claims



A sanitary disposable receiver for liquid and solid wastes, particularly for human wastes, is disclosed. The receiver is in the form of a sheet capable of being formed into a bag or pouch, which comprises a substrate of unbleached, non-porous, highly hydrated paper, preferably kraft paper, coated on at least one side with a hydrophobic surfactant. A tissue paper outer layer is glued, at its periphery, to the substrate such that an air space is left between two layers. The material of which the pouch is made can be made in sheets, rolls, or ready-formed.

3,591,871

PORTABLE LAVATORY

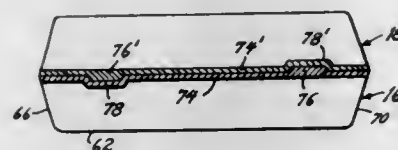
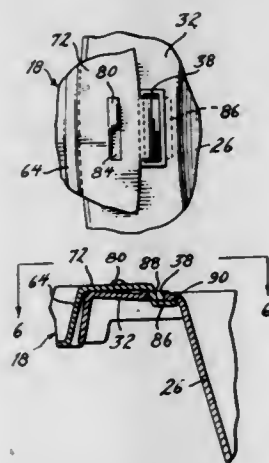
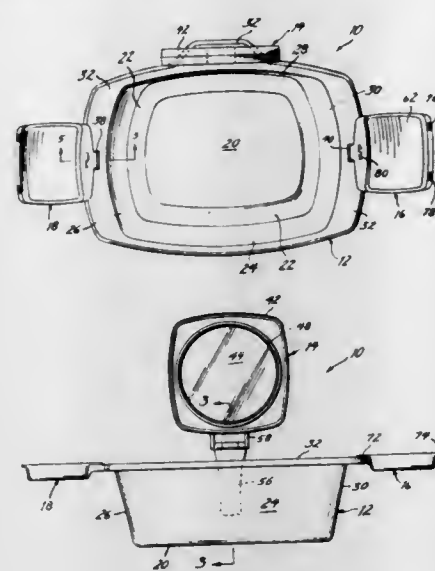
Herbert A. Segal, c/o Samson Plastics, Inc., 28 Fellowship Road, Cherry Hill, N.J.
Filed Dec. 30, 1969, Ser. No. 889,199
Int. Cl. A47k 1/04

U.S. Cl. 4-166

8 Claims

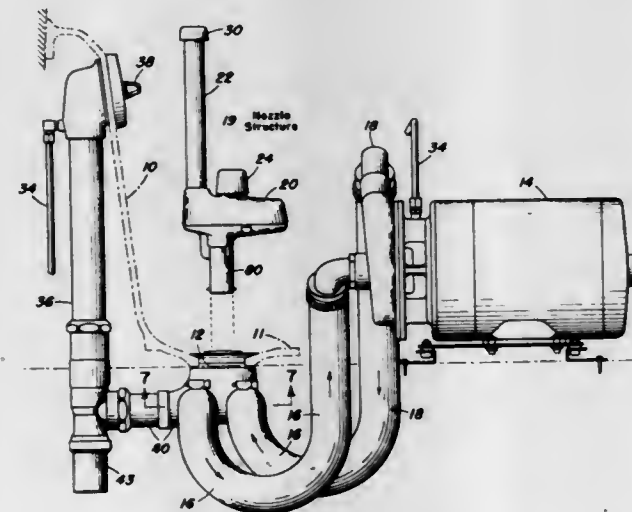
A portable lavatory comprising a free-standing wash basin,

a mirror, a soap dish, and means for removably retaining said



mirror and soap dish on said wash basin.

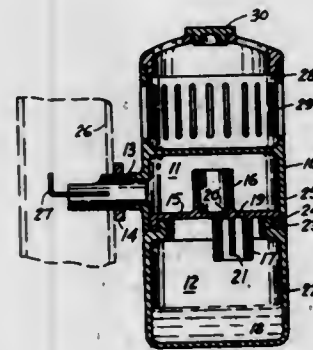
3,591,872
WHIRLPOOL APPARATUS FOR BATHTUB
Guillermo J. Vanegas, and Byron Martin Veath, both of Louisville, Ky., assignors to American Standard Inc., New York, N.Y.
Filed Jan. 22, 1969, Ser. No. 793,021
Int. Cl. A47k 3/10
U.S. Cl. 4-178 14 Claims



A hydrotherapeutic apparatus for use with a conventional bathtub. The apparatus produces an active whirlpool stream

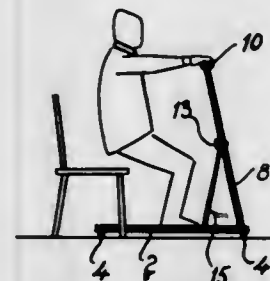
within the bathtub. The apparatus includes a pump, located in a remote point, having a conduit means coupled to the normal drain of the bathtub, for receiving water from the bathtub via the drain, raising the water pressure and for reapplying the withdrawn water under pressure through the same drain. A unitary nozzle apparatus may be inserted into the drain of the bathtub whenever whirlpool action is desired and this unitary structure includes means for feeding air for venturi action into the nozzle structure for "bubbling" the water emitted through the nozzle.

3,591,873
TOILET DISPENSER
Robin Cheng, 108 Evelyn Street, Sylvania, New South Wales, Australia
Filed June 2, 1969, Ser. No. 829,445
Claims priority, application Australia, June 3, 1968, 38689/68
Int. Cl. E03d 9/02
U.S. Cl. 4-225 4 Claims



A toilet dispenser which is connected to a cistern flush pipe for dispensing disinfecting or cleansing material into the liquid passing into the said flush pipe, said dispenser having first and second chambers one of which provides a chamber in which liquid passing through the dispenser collects a charge of dissolved material from the other chamber.

3,591,874
STRUCTURAL AIDS FOR INVALIDS
Niel Anthony O'Kennedy, Yevay, Church Road, Ballybrack, Ireland
Filed June 18, 1969, Ser. No. 834,449
Int. Cl. A61g 7/10; A47c 7/50
U.S. Cl. 5-81 9 Claims

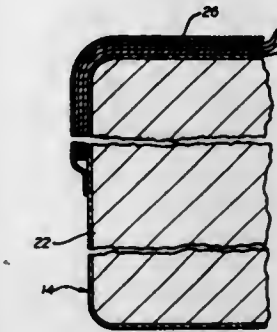


A structural aid for an invalid, said structural aid comprising a frame supporting a bar or other member which is adapted to be gripped by an invalid when in a seated position, the frame being so constructed that the force applied by the invalid in raising himself from the seated to a standing position serves to stabilize the frame against movement in response to said force.

3,591,875
DISPOSABLE MATTRESS COVER FOR BASSINET OR CRIB
Fred W. Zipf, III, and William A. Lutz, both of Rumson, N.J., assignors to Blessings, Inc., Bound Brook, N.J.
Filed Mar. 5, 1969, Ser. No. 804,431
Int. Cl. A47g 9/00
U.S. Cl. 5-335 12 Claims

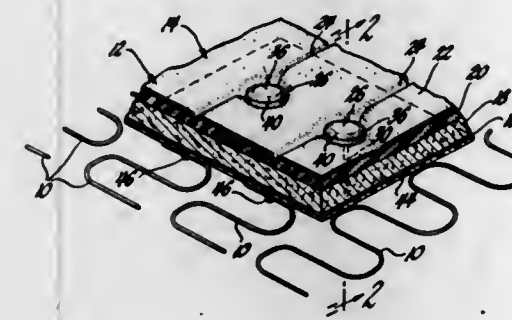
A mattress cover made of a length of thin waterproof plastic sheet material which covers a bassinet mattress with a

water-pervious sheet across the top of the plastic sheet having edge portions bonded to the plastic. Plies of cellulose wadding may be used between the water-pervious sheet and the plastic to provide additional cushioning and/or absor-



bency. Parts of the plastic extend under the mattress to hold the cover in place. One modification is tubular for receiving the mattress and another has diagonal slits near the corners of the cover so that the mattress corners can be put through the slits to hold the cover on the mattress.

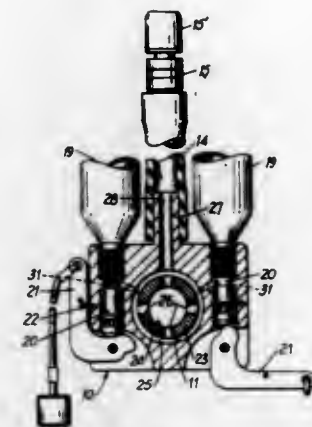
3,591,876
SEAT BUTTON ASSEMBLY
Henry G. Swindlehurst, St. Clair Shores, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Dec. 16, 1969, Ser. No. 885,451
Int. Cl. A47c 31/02
U.S. Cl. 5-356 6 Claims



A panel of a vehicle seat is supported on the seat springs and a wire or nylon net coated with plastisol or impregnated in a layer of plastisol is secured to the seat springs underneath the panel. A seat button includes a base and a stem, with the stem having an outwardly tapering head at the free end thereof joined to the stem by an annular shoulder. The largest diameter of the head is greater than the normal diameter of an opening or mesh of the net. The stem of the button is inserted through the panel from any point on the outer surface of the panel in alignment with the extent of the net to force the tapered head through a random selected opening of the net or such opening and plastisol layer. The plastisol returns the opening to normal size and locates the net strands defining the opening or such strands and plastisol layer underlying the shoulder to secure the button to the panel.

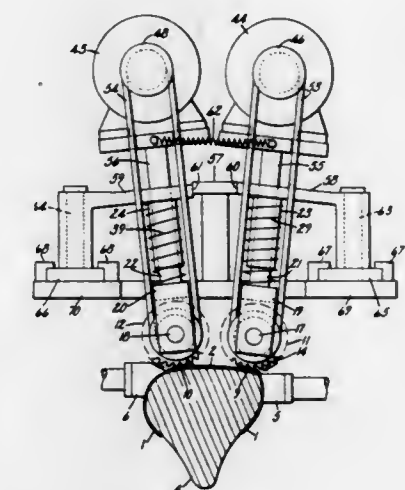
3,591,877
COMBINATION ORAL AND CARTRIDGE INFLATOR FOR LIFE PRESERVER VEST
Manfred Schuler, Newport Beach, Calif., assignor to AMF Incorporated, Jersey City, N.J.
Filed July 14, 1969, Ser. No. 841,270
Int. Cl. B63c 9/24
U.S. Cl. 9-320 4 Claims

The oral inflator, pressure relief valve, and multiple in-



single location on the life preserver vest.

3,591,878
SHOE LASTING MACHINES
Anton Muhlbach, Frankfurt am Main; Gerhard Lauckhardt, Frankfurt am Main, and Rudi Fichtner, Ober Horgern, all of Germany, assignors to USM Corporation, Boston, Mass.
Filed Dec. 2, 1969, Ser. No. 881,509
Claims priority, application Germany, Dec. 3, 1968, P 18 12 461.3
Int. Cl. A43d 21/00
U.S. Cl. 12-8.3 11 Claims



A shoe lasting machine having a rotary wiper movable lengthwise along the margin of a shoe bottom for progressively wiping an upper margin inwardly over an insole on a last fixed against movement.

3,591,879
METHOD OF ATTACHING INSOLES
Peter L. Stapleton, Leicester, England, assignor to USM Corporation, Flemington, N.J.
Division of Ser. No. 670,598, Sept. 26, 1967. Filed June 13, 1969, Ser. No. 871,223
Int. Cl. A43d 9/00; A43b 13/38
U.S. Cl. 12-142 2 Claims

A novel method of temporarily locating an insole on a last bottom. The insole comprises discrete forepart and heel portions joined by an extensible portion, the forepart and heel portions each having locating holes therein to facilitate posi-

tioning of the insole on the last. Preferably, the forepart and heel portions are joined by means of extensible material such

together by adhesive, with any reinforcement components which may be required therebetween, a marginal portion of the assembled outer and lining is skived, the skived marginal



as polyurethane foam interposed between overlapped margins of the two portions.

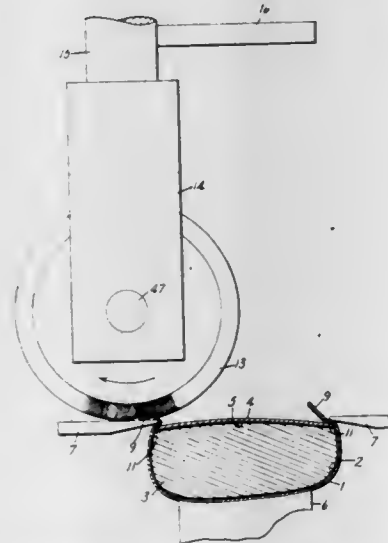
3,591,880 SHOE LASTING AND SKIVING MACHINE AND METHOD

Anton Muhlbach, Frankfurt am Main, and Rudi Fichtner, Ober Horgern, both of, Germany, assignors to USM Corporation, Flemington, N.J.

Filed May 27, 1969, Ser. No. 828,237
Claims priority, application Austria, May 31, 1968, A 5261
Int. Cl. A43d 7/00, 29/00

U.S. Cl. 12-145

9 Claims



A shoe-lasting machine having a device for skiving the margin of a partially lasted shoe upper supported by wipers in an intermediate supporting and clamping position. The wipers are included in heads which transfer the shoe between a pulling unit and a skiving device.

3,591,881 SHOE UPPER ASSEMBLIES

Raymond Charles White, Soundwell; Ivor Evans, deceased, late of Union Works, and Jose Veronica Evans, administratrix, Cossington, all of, England, assignors to Soundwell Investments Limited, Soundwell, Gloucestershire, England

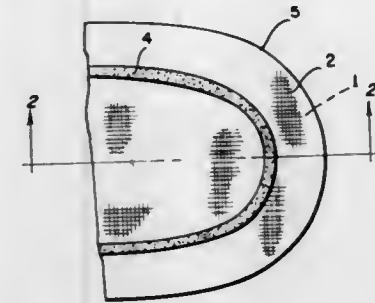
Filed Nov. 7, 1968, Ser. No. 774,605
Claims priority, application Great Britain, Nov. 10, 1967, 51196/67

Int. Cl. A43d 00/00

U.S. Cl. 12-146

13 Claims

A method of preparing shoe upper assemblies wherein an outer and a lining of a shoe upper assembly are secured



portion is folded to form a finished folded edge, which forms the top line of a finished shoe, and heat and pressure are then applied to the assembly to consolidate the bond between the various constituent parts of the assembly.

3,591,882 CHEMICAL MANUFACTURE

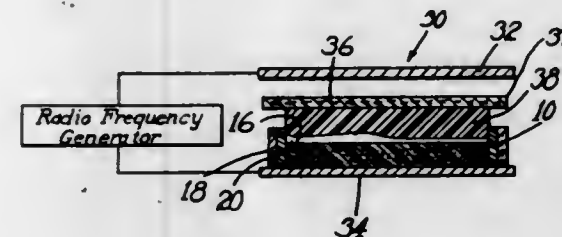
Ralph E. Pearsall, Gloucester, Mass., assignor to USM Corporation, Boston, Mass.

Filed Aug. 21, 1969, Ser. No. 851,796

Int. Cl. A43d 00/00; A43b 13/38

U.S. Cl. 12-146

8 Claims



A flexible polyvinyl chloride foam member is provided with a permanent profile or shape by use of compressive pressure and radio frequency heating.

3,591,883 TWO-STAGE LAWN SWEEPER

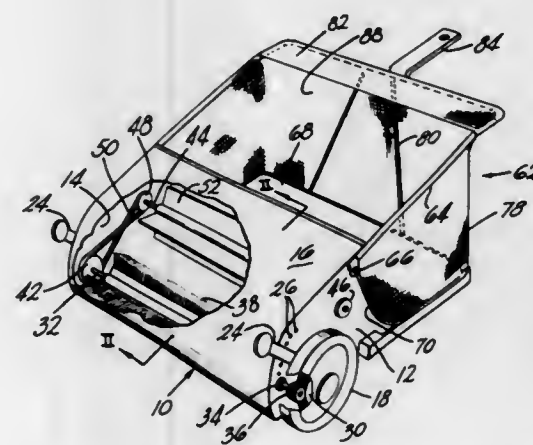
William H. Armstrong, and Jack L. Ponkey, both of Birmingham, Mich., assignors to Yard-Man Incorporated, Jackson, Mich.

Filed Mar. 10, 1969, Ser. No. 805,584

Int. Cl. E01h 1/04

U.S. Cl. 15-79

5 Claims



A sweeper of the type commonly known as a lawn sweeper utilizing a rotating pickup brush for removing leaves, grass cuttings and debris from a lawn, and throwing the matter swept from the lawn into an impeller, which in turn transfers the sweepings into a hopper. The resultant dual or two-stage transferral of the sweepings from the lawn to the hopper provides improved operating characteristics and improved distribution of the sweepings within the hopper.

3,591,884 MACHINE FOR POINTING CERAMIC TILES OR THE LIKE SLABS

Richard Grueb, 7061 Schlichten-Schorndorf, Im Bruehl, Germany

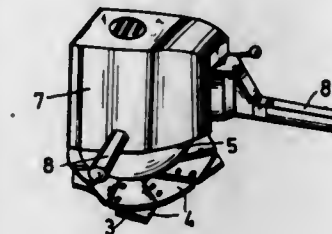
Filed May 14, 1969, Ser. No. 824,624

Claims priority, application Germany, July 4, 1968, P 17 84 061.8

Int. Cl. E01c 19/42

U.S. Cl. 15-98

7 Claims



Pointing tiles or the like slabs by means of a machine for pressing a filling material between the tiles, leveling the joining surfaces between the tiles and washing the level surfaces and tiles with wet wood powder; said machine comprising drive means and associated shaft for rotation of a plate at a speed of between 55 and 110 revolutions per minute, the underside of the plate being provided with resilient slanted readily exchangeable steel blades of equal size which are spread evenly over sectorlike areas of the plate and which are completely covered on the side facing the material to be processed with felt or plastics material pads wetted before use and having a thickness of from 5 to 15 mm.

3,591,885 NONCONTAMINATING SWABS

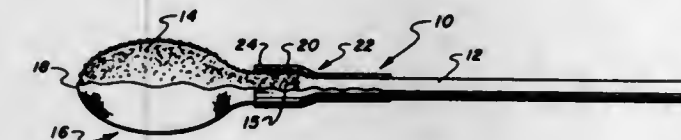
Martin Fritzen, Jr., Northridge, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Dec. 16, 1968, Ser. No. 784,055

Int. Cl. H471 13/16

U.S. Cl. 15-210

3 Claims



An absorbent swab is disclosed which consists of a wad of fibrous material on at least one end of the swab with an envelop or sock of woven porous fabric surrounding and entrapping the wad thereby preventing egress of absorbent material through the fabric. The woven sock is secured to the handle of the swab with a length of heat shrinkable synthetic polymeric material or the sock may be fused to the applicator stick by a heating process.

3,591,886 DIP STICK WIPER ATTACHMENT

William J. Denver, 601 Nicholson St., Joliet, Ill.

Filed Mar. 14, 1969, Ser. No. 807,261

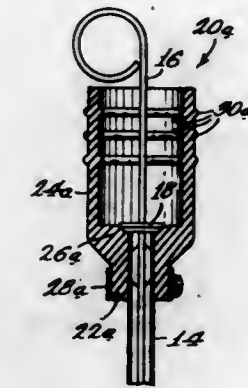
Int. Cl. G01f 15/12

U.S. Cl. 15-210 B

5 Claims

A dip stick wiper attachment for the conventional dip stick guide pipe of a liquid reservoir, consisting essentially of a tubular pliant wiper member having a first portion slipped over the upper end of the guide pipe, a cup portion of large internal diameter extending above the pipe and a shoulder between said portions located at approximately the upper end of the pipe, and a hose clamp securing said first portion to the pipe. The pliant cup is manually squeezable into engagement with the dip stick as it is withdrawn from the reservoir to wipe the stick clean, and upon release flexes outwardly to accommodate normal unrestricted subsequent passage of the dip stick through the pipe to and from the

reservoir for purposes of liquid level measurement. The pliant cup is always at hand to serve a wiping function and it insures automatic return to the reservoir of the fluid wiped



from the stick. Also, by virtue of its large diameter, the cup accommodates the normal appurtenances on the upper end of the dip stick so that no change is required in either the dip stick or the guide pipe originally supplied with the reservoir.

3,591,887 WINDSCREEN WASHER DEVICE

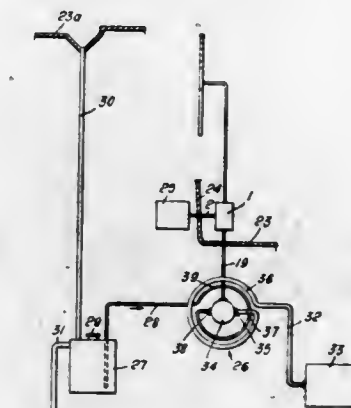
James Edward Keddie, 1 Freeland Road, Bromley, Kent, England

Filed Feb. 13, 1969, Ser. No. 799,006

Int. Cl. A471 1/02

U.S. Cl. 15-250.02

10 Claims



A windscreen washer assembly including a rotary positive displacement pump driven from the wiper spindle and feeding washing fluid to a washing fluid applying device mounted on the wiper arm. Preferably the blade support is hollow and includes apertures through which the washing fluid can be applied to the windscreen from the leading side of the blade support. conveniently hot or cold water can be applied by manipulation of a selector valve.

3,591,888 ELECTRICALLY OPERATED VACUUM CLEANER EQUIPPED WITH AUTOMATIC FILTER-CLEANING MEANS

Chuji Takeda, Toyonaka-shi; Katsuo Sawada, Suita-shi; Shigeyuki Asanari, Suita-shi, and Tetsuya Nakamura, Osaka, all of, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 22, 1969, Ser. No. 887,055

Claims priority, application Japan, Dec. 27, 1968, Dec. 27, 1968, Oct. 24, 1969, Oct. 24, 1969, Oct. 24, 1969, Oct. 24, 1969, 43/772; 43/785; 43/787; 44/86673; 44/102709; 44/102710; 44/102711; 44/102712

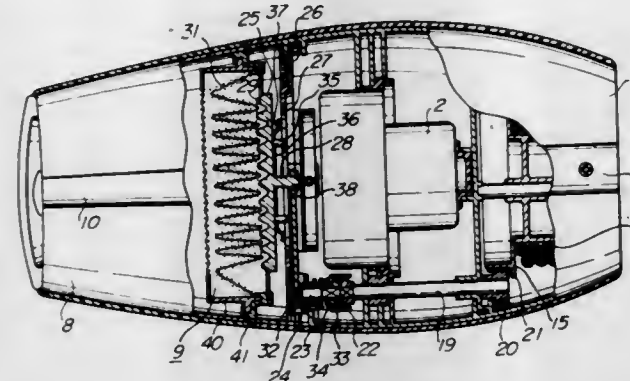
Int. Cl. A471 9/20

U.S. Cl. 15-323

10 Claims

An electrically operated vacuum cleaner having automatic filter-cleaning means, said means comprising a filter-cleaning member adapted to be driven by the rotation of cord takeup

means transmitted through power-transmitting means, the movement of the filter-cleaning member being utilized to



apply deflection and impact to the filter for removing dusts therefrom.

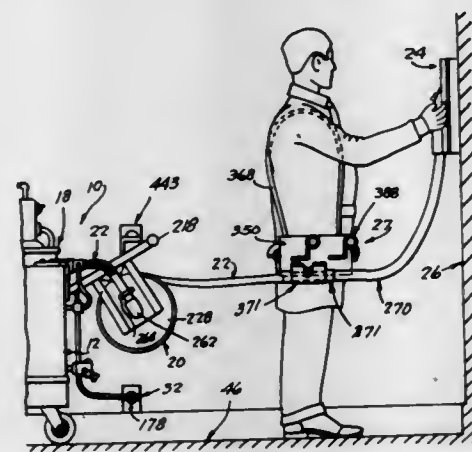
3,591,889 MOBILE WALL-, CEILING-, AND FLOOR-WASHING APPARATUS

John A. Wisner, 5207 Tilbury Way, Baltimore, Md.
Continuation-in-part of application Ser. No. 560,281, June 24, 1966, now Patent No. 3,464,081.

This application Aug. 29, 1969, Ser. No. 854,209
Int. Cl. A47I 7/00

U.S. Cl. 15-321

26 Claims



Wheel-mounted wall-, ceiling-, and floor-washing apparatus including a frame supporting a plurality of tanks each containing a liquid under pressure, and liquid vacuum cleaning means; a wall-engageable porous cleaning element; conduit means connecting, respectively, each tank and said liquid cleaning means in communication with said wall-engageable means; valve means connected in each conduit means to selectively control fluid flow through the wall-engageable means to a wall to be cleaned and operable to apply suction thereon to remove excess liquids from the wall therethrough.

3,591,890 APPARATUS FOR HEAT SHRINKING TUBING ABOUT OBJECTS

Arnold P. Le Vasseur, Lakeville, and Randolph P. Roen, St. Paul, both of, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 2, 1968, Ser. No. 726,184
Int. Cl. B29c 17/00, 27/00

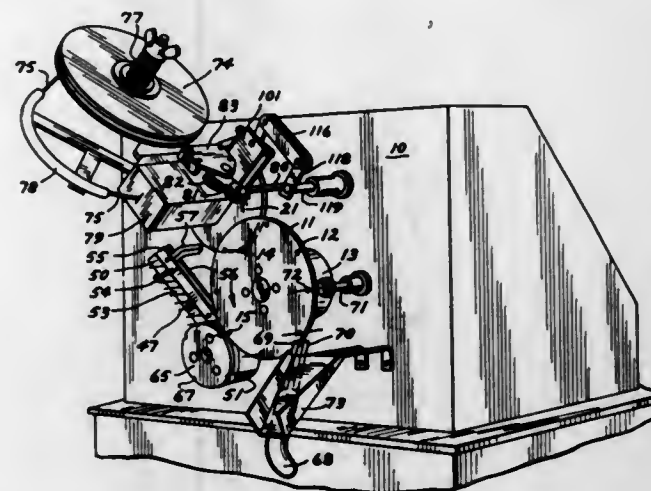
U.S. Cl. 18-4 R

9 Claims

A process is taught for fixing shrinkable tubing about objects. The process includes cutting a section from an advanced end of shrinkable tubing, conveying the discrete section sequentially and in spaced and oriented condition to an object-receiving station, inserting an object therein, and shrinking the tube section about the object. Tube section encompassed objects formed by this process are also taught.

Apparatus arrangements are also set forth; and these in-

clude an indexing holder assembly of tube section holders, an indexing body assembly of mandrels adapted to receive cut sections of shrinkable tubing and transfer them into tube section holders of the holder assembly, an indexing selector feed



mechanism for conveyance of objects into position for insertion into tube sections hold by the indexing holder assembly, plus means to shrink sections of tubing about objects therein, and then means to eject tube-encompassed objects from the indexing holder assembly.

3,591,891 APPARATUS FOR THE PRODUCTION OF PRESSINGS

Hans Luhn, Dresden, Germany, assignor to VEB Kombinat Fortschritt, Dresden, Germany

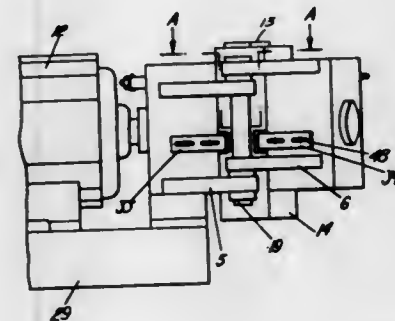
Filed Sept. 23, 1968, Ser. No. 766,016

Claims priority, application Germany, Mar. 25, 1968, WP 12 g/1 31 047

Int. Cl. B29f 3/02; B29f 5/00; B02c 7/10

U.S. Cl. 18-12

15 Claims



An apparatus for the production of pressings from bulk material in powder, piece, swarf or fiber form, in which the bulk material is fed to rotating working elements, wherein two similar disc dies (1, 2) having conical surfaces (15, 16) in the region of a ring are rotatably mounted by means of shafts (10, 11) opposite to one another in similarly mutually opposite machine bodies (3, 4) in such manner that the axes of the shafts (10, 11) intersect at an obtuse angle, preferably greater than 150°, and the disc dies (1, 2) come into contact with one another on a common generatrix of their conical surfaces (15, 16) and roll on one another on rotation in the same direction, while a feed device (13) and a discharge device (14) are associated with the disc dies (1, 2) and the machine bodies (3, 4) are connected with one another by elements which produce a force-operated engagement.

3,591,892 APPARATUS FOR MAKING NET STRUCTURES

Theodore H. Fairbanks, West Chester, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Filed Aug. 12, 1969, Ser. No. 849,805

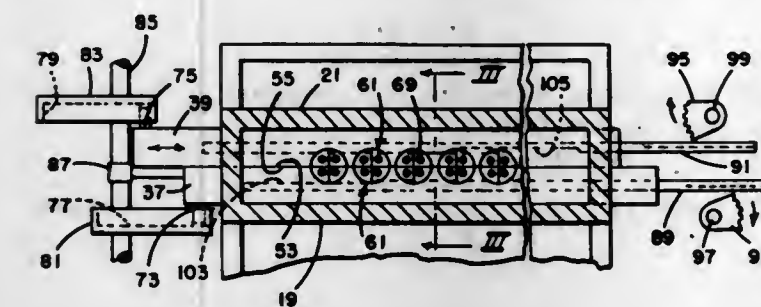
Int. Cl. B29f 3/06

U.S. Cl. 18-13

3 Claims

Apparatus for making netlike structures in which groups of strands are extruded along opposite sides of a common plane

and are shifted in directions generally parallel to such common plane alternately with the movement of streams from



certain of such groups from one side of the common plane to the other thereof.

3,591,893 MOLD-CARRYING APPARATUS FOR MULTISTATION INJECTION-MOLDING MACHINES FOR THE FORMATION OF FOOTWEAR IN GENERAL

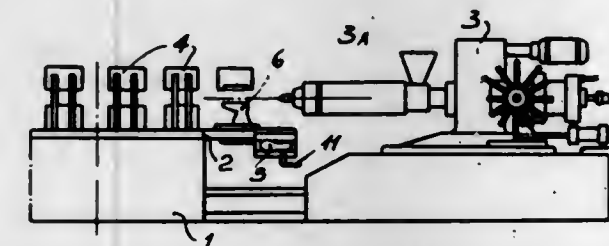
Dino Vicini, Milan, Italy, assignor to MAS-Hydraulic and Vulcanizing Co., S.r.l., Milan, Italy

Filed Dec. 16, 1968, Ser. No. 783,903

Claims priority, application Italy, Jan. 30, 1968, 12/60 A/68
Int. Cl. B29h 7/08

U.S. Cl. 18-4 P

4 Claims



This disclosure relates to a mould-carrying apparatus to be fitted to a multistation injection moulding machine for the moulding of articles of natural or synthetic resin, and particularly for the moulding of footwear, said apparatus comprising a support pin projecting from the front entrance of each of the dies of said moulding machine, a multipositionable sleeve member rotatably mounted on said pin, a plurality of plates fast with the said peripheral rim of said sleeve member, guide means on each of said plates and arranged to extend parallel to the axis of said sleeve and said pin, a plurality of moulds provided with support plates and slide guides, each of said moulds being engaged with one of said plates the arrangement being such that, in at least one of the positions which said sleeve may assume, said plates are in relation with the lower internal horizontal plane of said dies, locking means being provided for releasably locking said support plates with the respective plates secured to said moulds.

3,591,894 APPARATUS FOR MAKING NET STRUCTURES

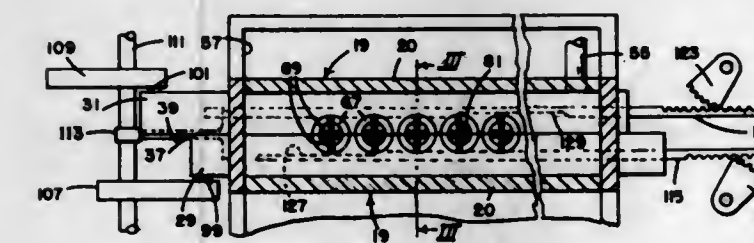
Theodore H. Fairbanks, Liverpool, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Filed Aug. 12, 1969, Ser. No. 849,947

Int. Cl. B29f 3/06

U.S. Cl. 18-13

4 Claims



Apparatus for making netlike structures wherein groups of strands of paired groups of strands are periodically shifted to provide different pairs of such groups. Means are also in-

cluded in such apparatus for rotating each paired group of strands about an axis between the groups of each such pair, with the strands in each such group nearest to such axis being rotated only 180° while the remaining strands on each such group are turned through an angle of at least 360°.

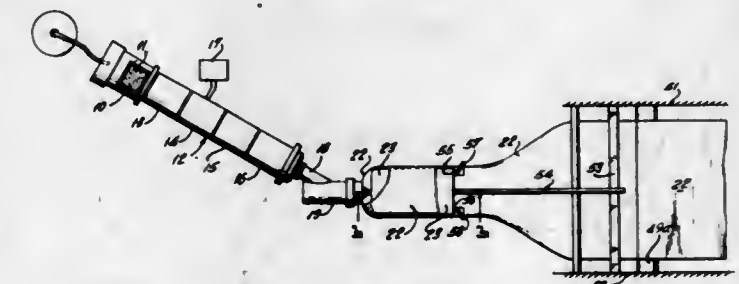
3,591,895 PRECISION CONTROL OF PLASTIC SHEET MANUFACTURE

Thomas M. Britt, Red Bank, and Peter Vanden Basch, Waldo, both of, N.J., assignors to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 682,675, Nov. 13, 1967, which is a Continuation of application Ser. No. 417,332, Dec. 10, 1964, now abandoned. Divided and this application Apr. 11, 1969, Ser. No. 840,871
Int. Cl. B29d 23/04

U.S. Cl. 18-14 S

9 Claims



A system for making plastic sheets including a tube extruder and slitting means wherein the extruder is provided with cooling means and air supply means for supporting the extruded tube relative to the appropriate guiding surfaces.

3,591,896 MACHINE FOR MOLDING AND SECURING ON PLASTIC TUBES END WALLS HAVING THREADED-CLOSURE NECKS

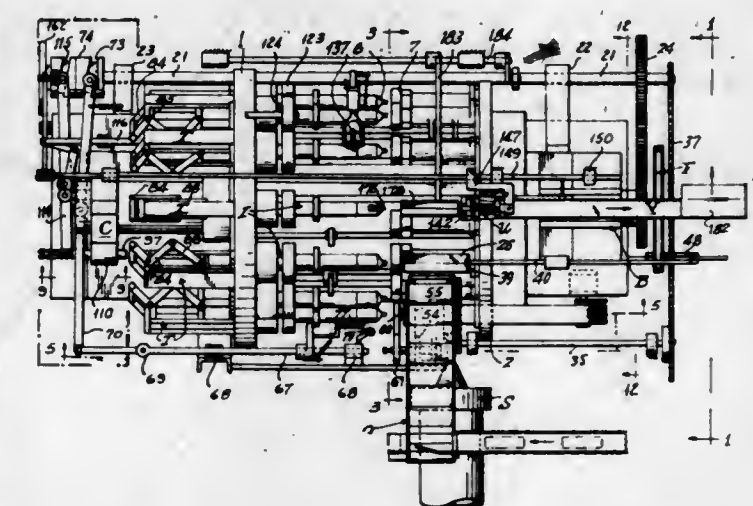
Richard A. Tartaglia, Essex Fells, N.J., assignor to Peerless Tube Company, Bloomfield, N.J.

Filed Nov. 12, 1969, Ser. No. 875,972

Int. Cl. B29c 17/00

U.S. Cl. 18-19 TE

15 Claims



At one station a mandrel carried by a turret has slid thereon a preformed thermoplastic tube; at another station a slug is die-cut from a strip of heat-softened thermoplastic material and simultaneously pressed into one end of said preformed tube; at another station at cavity die on the turret is moved laterally into alignment with a die on said mandrel and the soft slug is molded between the dies under constantly applied pressure generated by a locked toggle and spring combination to form an end wall for said tube having an exteriorly screw-threaded neck; at another station the toggle is unlocked and the mandrel die is withdrawn while said tube is held in the cavity die; at another station the mandrel is auto-

matically rotated with the completed tube thereon to unscrew the neck from the second-mentioned die, and finally the tube is pulled automatically off the mandrel.

3,591,897

RUNNERLESS MOLD FOR AUTOMATED INJECTION-MOLDING OF THERMOSET MATERIALS

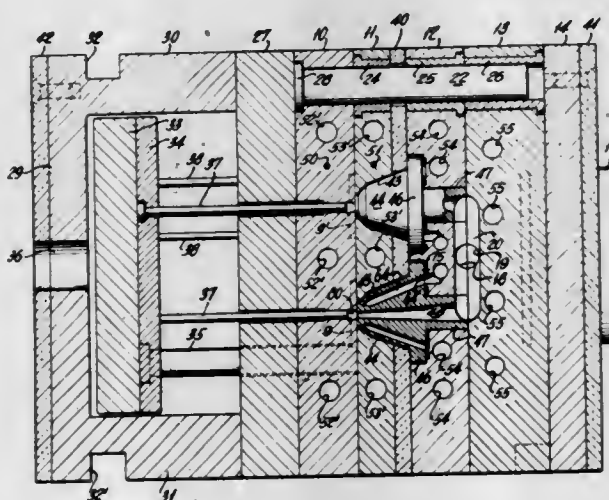
Henry A. Perras, Easthampton, Mass., assignor to Osley & Whitney, Inc., Westfield, Mass.

Filed Nov. 1, 1968, Ser. No. 772,773

Int. Cl. B29f 1/08

U.S. Cl. 18—30 HM

13 Claims



The invention contemplates a mold system primarily useful for thermoset plastics, in the context of producing multiple parts with injection-molding machines. The mold comprises mechanically separable parts or subassemblies for purposes of opening and closing the mold; the mold also comprises thermodynamically isolated regions or zones whereby curing heat is supplied to the mechanically separable parts which define the mold cavity, and cooling or lesser heat is provided for the sprue and runner system to assure non-curing conditions for injected plastic that has yet to reach the cavity regions. The sprue-and-runner-system includes a specially cooled secondary sprue associated with each independent mold cavity.

3,591,898

MOLDING OF ALL-PLASTIC SHOT SHELL CASES

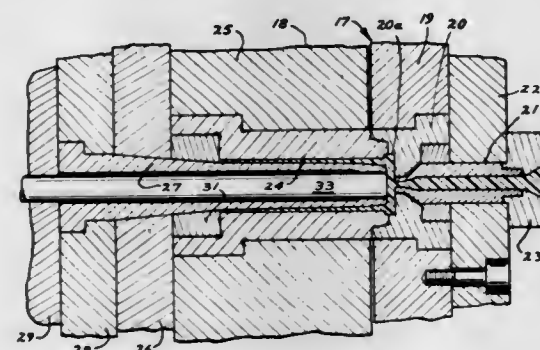
Duane S. Stenmo, Rush City, Minn., assignor to Herter's, Inc., Waseca, Minn.

Filed Sept. 22, 1969, Ser. No. 859,943

Int. Cl. B29c 1/14

U.S. Cl. 18—42 D

2 Claims



The molding of all-plastic shot shell cases wherein the case has a base wall with substantially smooth inside and outside surfaces and the case sidewall which has a smooth interior surface and a smooth or striated or slightly corrugated outer surface is integral therewith; gating the plastic into the mold at the center of the base wall and causing the plastic to flow first to all portions of the periphery of the base wall and then progressively along all portions of the longitudinal case sidewall, the mold ejecting the case by a sleeve bearing against the open end of the case sidewall to loosen the case

from the mold core and an ejector pin within the core completing ejection of the case from the cavity.

3,591,899

RUB APRON

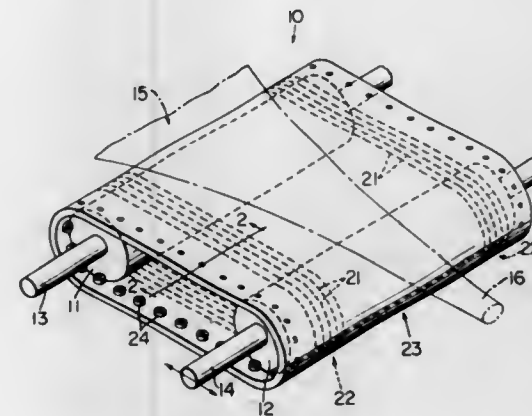
Glenn W. Bowling, Greenville, S.C., assignor to Dayco Corporation, Dayton, Ohio

Filed Apr. 28, 1969, Ser. No. 819,580

Int. Cl. D01g 15/66

U.S. Cl. 19—153

8 Claims



A substantially tubular rub apron for textile machines comprising substantially inextensible opposed end portions and a comparatively extensible central portion wherein such portions cooperate to enable the apron to be easily installed on associated rollers as well as assure the apron moves about its rollers in a true manner.

3,591,900

BELT ADJUSTER

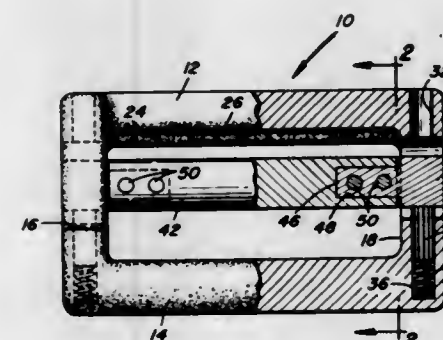
George M. Brown, St. Petersburg, Fla., assignor to Sauna International, Inc., Miami, Fla.

Filed June 30, 1969, Ser. No. 837,393

Int. Cl. A44b 11/10, 11/16

U.S. Cl. 24—196

3 Claims



A belt adjuster provided with spaced parallel, offset fixed bars. A third reciprocating bar is disposed between the fixed bars and cooperates with one of the fixed bars to grip therebetween a looped end portion of a belt. The cooperating bars are purposely of noncomplimentary geometries to provide at least two lines of applied gripping pressure. The other of said fixed bars is offset with respect to the cooperating bars so that a moment of forces urges the looped end portion to bear against a rounded edge bearing surface of the crossbar to provide additional gripping pressure.

3,591,901

AUTOMATIC LOCK SLIDER FOR SLIDE FASTENERS

Stanley G. Kedzierski, Saegertown, Pa., assignor to Textron Inc.

Filed Aug. 18, 1969, Ser. No. 855,447

Int. Cl. A44b 19/30

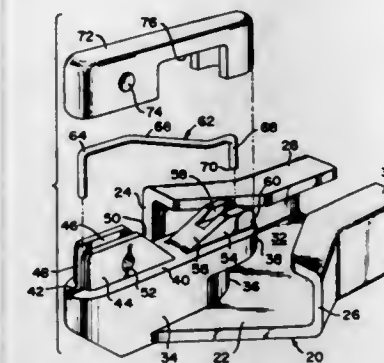
U.S. Cl. 24—205.14

13 Claims

An automatic lock slider for a slide fastener including a slider body slidably mounted upon the fastener, a pull tab on the slider, and a wire spring locking member held in a pair of

grooves upon the slider body and biased to an operative position whereby the slider is automatically locked against move-

the cavity which, when removed, forms a passage for the powder to be compressed, and a third part which, when the



3,591,902

TWO-TONGUE BUCKLE ASSEMBLY

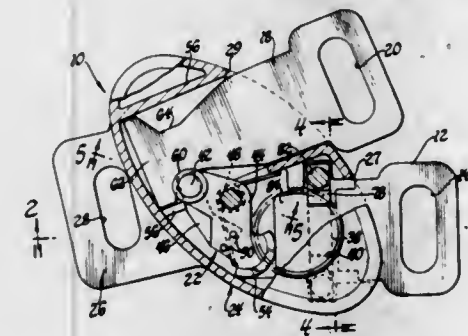
Thomas E. Lohr, Warren, Mich., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Dec. 18, 1969, Ser. No. 886,306

Int. Cl. A44b 19/00; B60r 21/10

U.S. Cl. 24—205.17

17 Claims



A two-tongue buckle assembly including a housing into which first and second tongues may be inserted. A first latch means including an elongated latch bar is biased upwardly by a spring toward the latched position and is movable downwardly by a pushbutton to the unlatched position to coact with the first tongue when inserted therein to retain the first tongue in the latched position. A second latch means is included and comprising a support member rotatably connected to the housing and having an arcuate upturned flange on one end for abutting engagement with the first tongue and having a movable latch member supported by a resilient leaf spring at the other end. The resiliently supported latch member is moved by the support member into the path of the second tongue by the first tongue being inserted into the housing and engaging the upturned flange of the support member to rotate the support member so that the latch member movably supported thereon is in the path of the second tongue for latching engagement therewith. The second tongue is therefore retained in the latched position only when the first tongue is inserted into the housing and into the latched position.

3,591,903

ISOSTATIC PRESS WITH MULTIPART MOLD

Arnold G. Bowles, Warren, Pa., assignor to National Forge Company, Irvine, Pa.

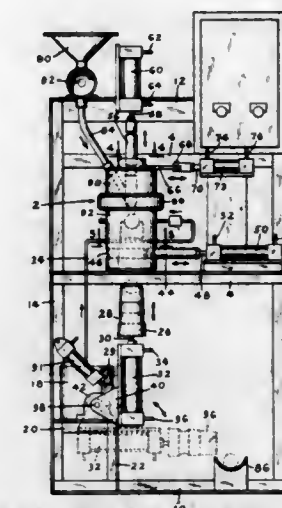
Filed Oct. 15, 1969, Ser. No. 866,513

Int. Cl. B28b 3/00

U.S. Cl. 25—45

6 Claims

A multipart mold for an isostatic press, the mold including an elastomeric container having a cavity for receiving a powder to be isostatically compressed, the container having a first part mounted in fixed position in a fluid pressure chamber, a second part extending through the container to



3,591,904

POMPON MANUFACTURING METHOD AND APPARATUS

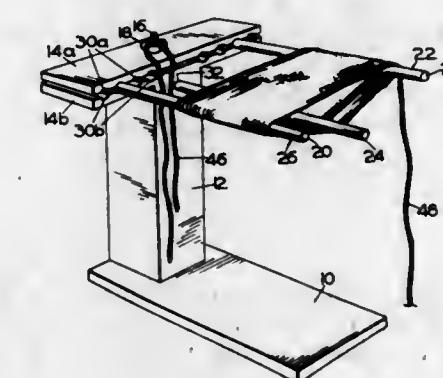
Victor Rosene, 6720 N. E. Roselawn Ave., Portland, Oreg.

Filed June 30, 1969, Ser. No. 837,399

Int. Cl. D04d 7/06

U.S. Cl. 28—2

3 Claims



Pompon manufacturing apparatus comprises a support and three spindles. The spindles are mounted in outwardly extending, parallel relation with two of the spindles being in a first plane and the third spindle in a laterally offset plane. The third spindle is detachable from the support. Yarn is wound around all three spindles. The detachable spindle is removed from the resulting yarn loops. The loops are tied centrally. The ends then are cut to form the pompon.

3,591,905

PROCESS FOR MANUFACTURING CAPACITORS IN MULTIPLE

Gilbert James Elderbaum, 3381-A 7th Ave., San Diego, Calif.

Filed June 13, 1969, Ser. No. 832,963

Int. Cl. H01g 13/00

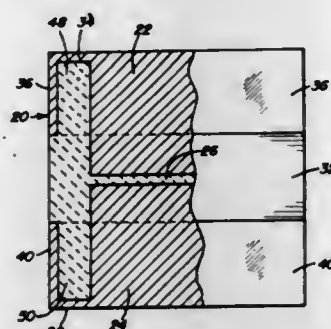
U.S. Cl. 29—25.42

10 Claims

The process consists in applying electric current conducting material to the sides of a sheet of dielectric material, at least one side being provided with a plurality of recesses juxtaposed, but isolated, from the conducting material on the other side.

The process further consists in employing a fluid containing the electric current conducting material, an ingredient which adheres to the dielectric material and to the conducting material when heated, and including a combustible carrier. After the fluid is applied to the opposite sides of the

dielectric sheet, the assembly is subjected to heat to oxidize the combustible carrier and cause the conducting material to



adhere to the sheet. Thereafter, the sheet is severed in a manner to form capacitors in units.

3,591,906

METHOD FOR THE INSTALLATION OF GUIDE RAILS AND ROLLER ELEMENTS OF A ROLLER SLIDING BEARING ARRANGEMENT

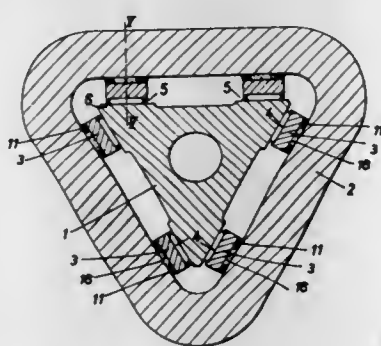
Hans-Jurgen Leiber, Tramelan, Switzerland, assignor to Kummer freres S. A. Fabrique de machines, Tramelan Canton of Berne, Switzerland

Filed June 24, 1969, Ser. No. 836,096
Claims priority, application Switzerland, Aug. 29, 1968, 12,930/68

Int. Cl. B23p 11/00

U.S. Cl. 29—148.4 A

8 Claims



There is disclosed an improved method for the installation of guide rails and roller elements of a roller sliding bearing arrangement for two body members which are to be displaceably mounted at one another, wherein a predetermined preloading is to be provided for such roller elements, and wherein both of the body members are temporarily fixedly retained with the aid of a mounting device in a desired position with respect to one another. The inventive method contemplates the formation of a hollow space which is closed throughout its entire periphery between each guide rail and the neighboring portion of one of the body members. The dimension of the space between the contact surface of each guide rail and the oppositely situated contact surface of the other of the body members is adjusted, while taking into account the diameter of the roller elements to be used and the desired preloading to which said roller elements should be subjected during operation. Thereafter, each hollow space is filled with a suitable casting resin, with the body members and guide rails thusly adjusted. The casting resin is then permitted to harden and after having hardened, the roller elements are inserted.

3,591,907

SHRINK FIT FABRICATION METHOD FOR FLUID INJECTORS

James L. MacMunn, Canoga Park, Calif., assignor to North American Rockwell Corporation

Division of Ser. No. 584,214, Oct. 4, 1966, Pat. No. 3,508,712. Filed Apr. 9, 1969, Ser. No. 828,410

Int. Cl. B23p 15/26

U.S. Cl. 29—157 C

2 Claims

A method for fabricating a fluid injector having a circular boss containing fluid exit passageways extending from a main

body, comprising providing an annular peripheral groove on the boss, shrink-fitting a ring by thermal steps on the boss



peripheral surface outwardly from the annular groove and bridging the groove, thus forming a fluidtight manifold therewith in communication with the exit passageways.

3,591,908

METHOD OF MAKING SHEET MATERIAL HEATING AND HUMIDIFYING DEVICE

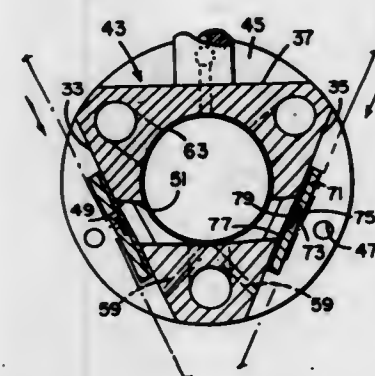
Carl R. Pepmeier, Fredericksburg, Va., assignor to FMC Corporation, Philadelphia, Pa.

Filed June 5, 1969, Ser. No. 830,667

Int. Cl. B21d 53/02; B23p 15/26

U.S. Cl. 29—157.3 R

1 Claim



A method of making a steam chest for use in a laminating apparatus for concomitantly heating and humidifying traveling sheet materials immediately prior to laminating of the same.

3,591,909

METHOD OF MAKING COMPOSITE DRIVE WHEEL

John Bebbington, Jr., and Edward Cozzarlin, both of Ithaca, N.Y., assignors to Borg-Warner Corporation, Chicago, Ill.

Division of Ser. No. 678,832, Oct. 30, 1967, Pat. No. 3,469,465. Filed Apr. 2, 1969, Ser. No. 840,865

Int. Cl. B21d 53/28; B21h 5/00; B21k 1/30; B23p 15/14; B29d 15/00

U.S. Cl. 29—159.2

2 Claims



Composite sprocket and drive wheel devices are disclosed herein to provide illustrations of this invention. These wheels

include a circular plate body which is stamped and provided with radially extending segments along the periphery thereof. The segments are formed into tooth roots and a plastic toothed rim is molded thereover.

3,591,910

METHOD OF MANUFACTURE OF WIRE FIN AND TUBE HEAT EXCHANGER

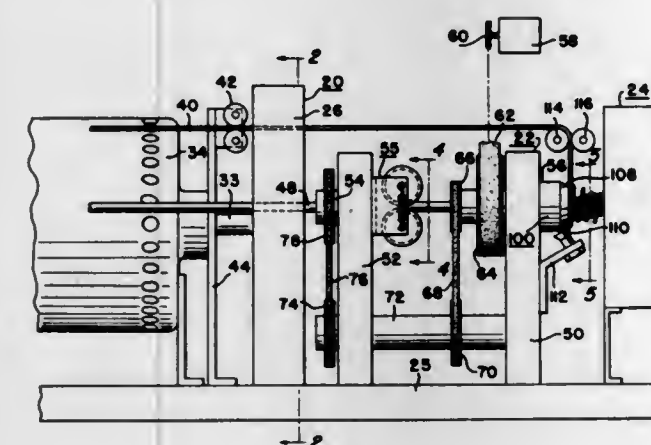
Byron L. Brucken, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 501,991, Oct. 22, 1965, Pat. No. 3,482,298. Filed Oct. 22, 1969, Ser. No. 868,516

Int. Cl. B23p 15/16

U.S. Cl. 29—202 D

6 Claims



In the preferred form, a machine for making a heat exchanger by wrapping wire on the periphery of a tube including a tube-rotating head assembly adapted to rotate the tube and advance it in an axial direction. A winding spindle head encircles the advancing tube and rotates with respect to the tube to form continuous loops on the tube having a portion bent around the tube and a portion located radially outwardly of the tube.

3,591,911

MACHINE AND METHOD FOR MOUNTING ELECTRICAL COMPONENTS ON A PRINTED CIRCUIT BOARD

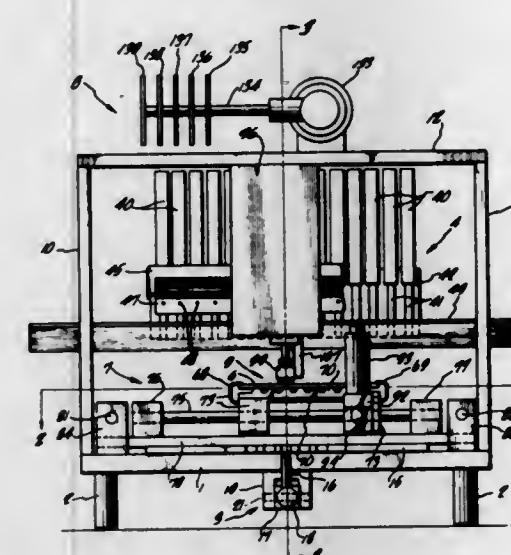
Sandor Goldschmied, Anaheim, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Continuation of application Ser. No. 589,071, Oct. 24, 1969, now abandoned. This application July 14, 1969, Ser. No. 863,397

Int. Cl. H05k 13/04, 3/30

U.S. Cl. 29—203

44 Claims



A machine and method are disclosed for inserting the leads of electrical components through holes in a printed circuit board. Included in the machine are assemblies for selecting one of a variety of different kinds of components and select-

ing the location on the circuit board at which the selected component leads are to be inserted. Preparatory to insertion, the leads of the selected component are straightened, cut, and chamfered on a component block assembly. The circuit board is mounted on a backplate having longitudinal grooves with inwardly sloping sidewalls that bend the leads after insertion through the circuit board.

3,591,912

APPARATUS FOR PLACING AEROSOL VALVE ASSEMBLIES IN AEROSOL CONTAINERS

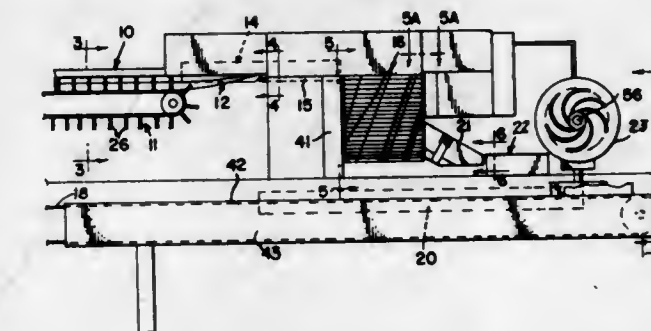
George E. Leonard, Davenport, Iowa, assignor to The Kartridge Pak Co., Davenport, Iowa

Filed Sept. 26, 1968, Ser. No. 762,780

Int. Cl. B23p 19/04; B23q 7/00

U.S. Cl. 29—208 B

13 Claims



An apparatus for placing aerosol valve assemblies into aerosol containers which comprises mechanism for feeding aerosol valve assemblies which are mounted in closure caps to a placing head with the assemblies properly spaced and the dip tubes brought into downwardly extending relation relative to the closure caps, the placing head comprising a beltlike endless conveyor arranged with a run thereof traveling in a vertical plane closely adjacent to a vertically disposed plate member and having a generally spiral groove for receiving and confining the dip tube as the cap portion of the valve assembly is advanced horizontally in a guide channel across the top of the plate and lowered in a vertical path along the side of the grooved belt so as to guide the free end of the dip tube into the mouth of a container which has been advanced along the bottom of the vertical belt run in timed relation with the travel of the placing belt and the mouth thereof aligned with the bottom end of the groove. The apparatus also includes a device for centering the cap on the mouth of the container and a pressure-applying wheel for seating the cap on the rim defining the container mouth.

3,591,913

RECIPROCATING AND OSCILLATING TOOLPLATE MACHINE

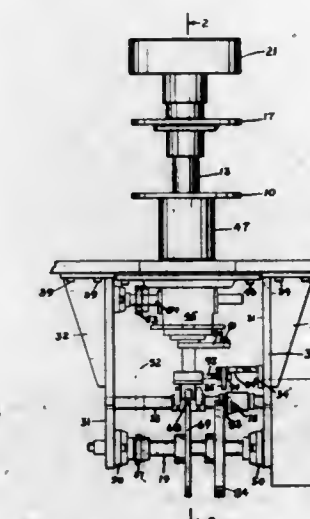
James W. Lewis, 410 Pasadena Drive, Erie, Pa.

Filed Nov. 14, 1968, Ser. No. 775,713

Int. Cl. B23p 19/04; B23q 7/10

U.S. Cl. 29—208

14 Claims



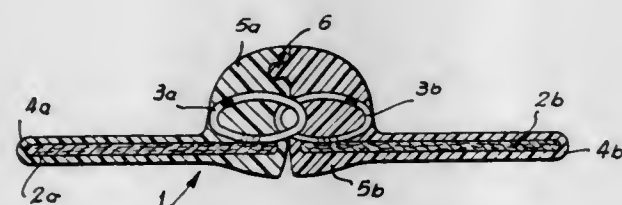
A machine for handling articles of manufacture such as small components at high rates of speed. The machine has an

indexing plate, a fixed plate, and a moving plate that oscillates horizontally and reciprocates vertically. The several plates are supported on a cabinet housing which contains the index mechanism and the oscillating-reciprocating mechanism, placement heads, probes and other devices may be supported on the oscillating plate. The fixed plate may carry receptacles to receive articles from suitable feeders. The articles may move from the receptacles by the placement heads or other devices to fixtures supported on the indexing plate. Parts are fed into the machine to stationary tracks supported on the fixed plate, picked up by placement heads, oscillated to position over the fixtures and loaded vertically. The several plates are supported on a column. A raceway supported on the column in which electrical power, air and vacuum may be supplied to the machine.

3,591,914

METHOD AND APPARATUS FOR MAKING FLUIDTIGHT SLIDE FASTENER

Helmut Heimberger, Essen, Germany, assignor to Opti-Holding A.G., Glarus, Switzerland
Division of Ser. No. 651,269, July 5, 1969, Pat. No. 3,490,109. Filed Apr. 21, 1969, Ser. No. 817,983
Int. Cl. B29d 5/00; B21f 45/18; B21d 53/54
U.S. Cl. 29—408 10 Claims

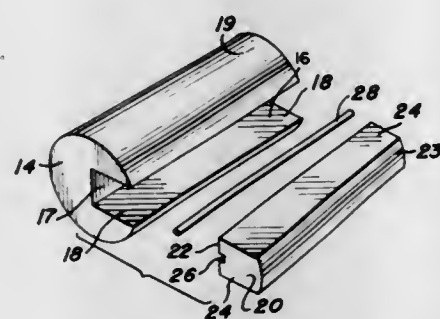


A method and apparatus for making a slide fastener whose halves consist of continuous filaments, of helicoidal or meandering configuration, by extrusion of a sealing material about the interlocked coupling elements so that they are almost completely imbedded in respective sealing strips of elastomeric material which meet in the plane of symmetry of the fastener and are provided with complementary elongated formations extending over the full length of each strip, these formations yieldably interlocking upon closure of the fastener and being also in mating engagement with a projection and recess, respectively, of an associated slider.

3,591,915

METHOD OF MAKING ORIFICE STRUCTURE

John A. Roberts, North Chelmsford; Peter R. Roberts, Groton, and Lee B. Danzey, Canton, all of Mass., assignors to Brunswick Corporation
Filed May 12, 1969, Ser. No. 823,823
Int. Cl. B23p 17/00
U.S. Cl. 29—417 26 Claims



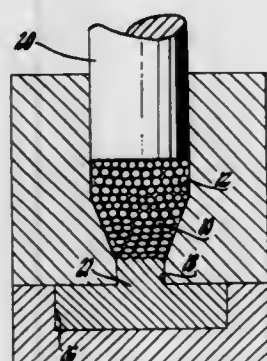
An orifice structure has one or more passages capable of controlling the amount of fluid that flows therethrough with the passage having an effective diameter ranging from 5 mils to 1 micron. The thickness of the orifice structure is at least 10 times greater than the effective passage diameter and the wall thickness of the structure is at least 5 times greater than the effective passage diameter. A general method of provid-

ing the orifice structure is to constrictively reduce the cross section of two or more material portions with a sacrificial element inserted therebetween which is also reduced in cross section. During constriction the portions are integrated into a homogenous material. After constriction the structure is cut to preselected lengths and shapes and the sacrificial element is removed therefrom. When two or more sacrificial elements are used in a parallel relationship then two or more parallel passages can be provided.

3,591,916

LOW ENERGY FORMING OF METALS

James T. Arthur, Harper Woods, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Aug. 28, 1969, Ser. No. 853,769
Int. Cl. B22f 3/24
U.S. Cl. 29—420.5 7 Claims



A method of forming bulk metallic articles with relatively little energy input is disclosed. A molten solution of a metal alloy conditionable to exhibit enhanced plasticity is quenched in a manner and at a rate effective to produce pellets having a nonequilibrium, uniform cast structure which on mechanical working bond together and recrystallize to form a homogeneous mass having a fine grain structure required for enhanced plasticity. The mass is then formed at a temperature immediately below the phase transformation temperature of the alloy with relatively little energy input into an article of predetermined configuration.

3,591,917

PROCESS FOR JOINING SURFACES

Chester S. Shira, Canoga Park, and Ralph E. Nugent, Santa Susana, both of Calif., assignors to North American Rockwell Corporation
Filed Oct. 9, 1968, Ser. No. 766,098
Int. Cl. B23k 31/02, 35/38
U.S. Cl. 29—494 7 Claims

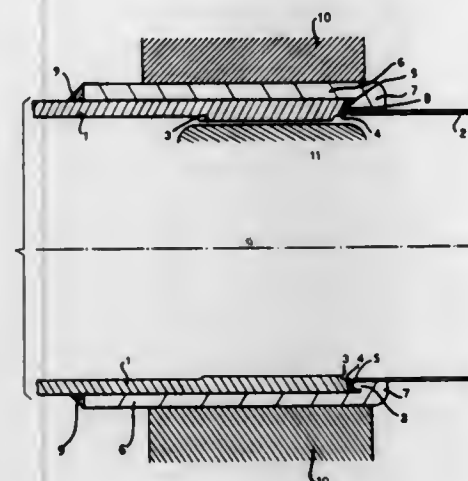


A method for joining refractory and reactive surfaces to themselves or to other surfaces by depositing a layer of a titanium-indium alloy between the joinable surface, and heating under vacuum to evaporate the indium to leave a layer of titanium joining the surfaces. Also, a method for joining the surfaces with the alloy by resistance bonding of said surfaces.

3,591,918

METHOD OF PRODUCING A SEALING TIGHT JOINT BETWEEN TWO TUBES MADE OF DIFFERENT MATERIALS, AND JOINT PRODUCED BY THE METHOD

Jean-Andre Bernard, Barga, and Adamo-Renato Fararoni, Ranco, both of Italy, assignors to European Atomic Energy Community, Euratom, Brussels, Belgium
Filed Apr. 5, 1968, Ser. No. 719,066
Claims priority, application Belgium, Apr. 19, 1967, 42549
Int. Cl. B21d 39/04; B23p 11/02, 19/04
U.S. Cl. 29—516 4 Claims

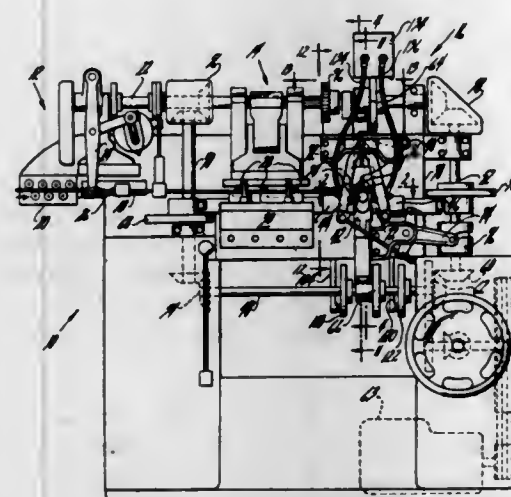


A method of producing a sealing tight joint between two tubes one of which has a greater wall thickness than the other. The thinner tube has a collar formed on it which will engage a circumferential groove in the end of the thicker tube when placed in end-to-end relationship. A sleeve is slid over the two tubes, this sleeve having an inwardly extending flange which engages the collar and holds it near the end of the thicker tube. After welding the collar in place, the thicker tube is worked so as to expand it axially so that the grooved end tightly engages the collar.

3,591,919

FOUR-SLIDE MACHINE WITH THREE REAR MOTION DEVICES FOR PRODUCING BEARINGS AND THE LIKE

Erman V. Cavagnero, Torrington, Conn., and Joseph F. Loftus, Springfield, Ohio, assignors to Torin Corporation, Torrington, Conn.
Division of Ser. No. 721,672, Apr. 16, 1968. Filed June 8, 1970, Ser. No. 44,472
Int. Cl. B21d 9/05; B21l 3/00
U.S. Cl. 29—564 9 Claims



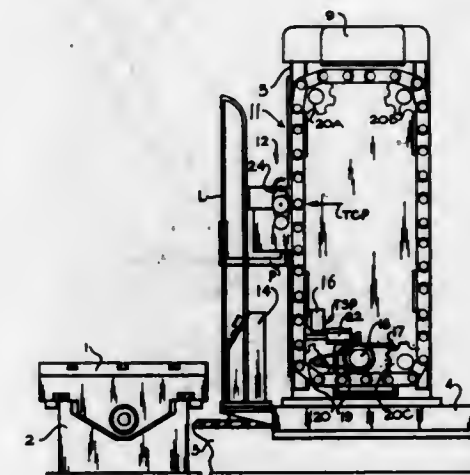
A high-production machine of the vertical four-slide type for intermittently advancing strip stock, severing blanks therefrom, forming the same into bearing races and welding the end portions thereof together. The machine has a projecting

horizontal mandrel with three work stations therealong respectively for preforming, forming, and preheating and/or welding. A cutoff anvil, transfer pins, broaching tools, and an expandable mandrel section are provided all with rear motion drive action and a welding mechanism is adapted for both preheat and weld operation adjacent the expandable mandrel section. A bearing race discharge track extends from the welding station to an induction furnace.

3,591,920

TOOL CHANGE MECHANISM WITH MAGAZINE POSITIONING MEANS

Wallace E. Brainard, New Berlin, and Erich F. Drechsler, Milwaukee, both of Wis., assignors to Kearney & Trecker Corporation, West Allis, Wis.
Filed Aug. 13, 1968, Ser. No. 752,242
Int. Cl. B23q 3/157
U.S. Cl. 29—568 10 Claims

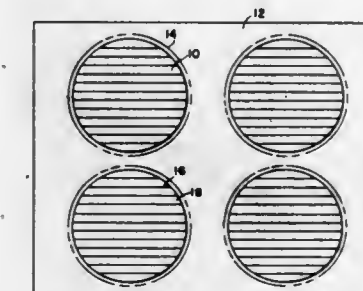


A magazine for storing heavy tools fixedly mounted at the rear of an automatic tape control machine tool, having means for the tape control of selected tools and the presentation of each selected tool to the vicinity of the vertically movable toolhead wherever it has stopped after one cycle of machining operation, and a simple unitarily moving tool changer for receiving the selected tool at the rear of the machine tool, carrying it to the front of the machine tool and exchanging it for the tool in the spindle that is projecting from the front of the machine tool incident to another cycle of machining operation.

3,591,921

METHOD FOR MAKING RECTIFIER STACKS

David F. Cosper, Dallas, Tex., assignor to Varo Inc.
Filed Sept. 30, 1968, Ser. No. 763,787
Int. Cl. B01j 17/00; H01l 7/66
U.S. Cl. 29—583 5 Claims



A method for making rectifier stacks is disclosed wherein a plurality of wafers of semiconductor material, each of which has a PN junction formed therein, are bonded together to form a stack with the PN junction and the wafers substantially parallel. Parallel, spaced-apart cuts are made through the stack substantially normal to the PN junctions of the wafers dividing the stack into a plurality of slices, each of

which has a plurality of substantially parallel series-connected PN junctions therein. Each slice is mounted on a mounting plate and parallel cuts are made through each of the slices substantially normal to the PN junctions cutting each slice into a plurality of stacks of die of the desired junction area. Electrical connection is then made to each end of the stack of die to form a rectifier stack which provides an equivalent function to a group of series-connected individual rectifiers.

3,591,922

FABRICATION OF ELECTRICAL SOLDER JOINTS USING ELECTRODEPOSITED SOLDER

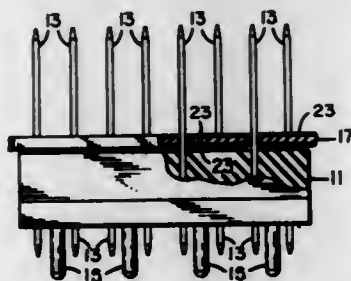
Munson H. Pardee, Clinton; Richard D. Turi, Utica; Richard L. Butler, Richfield Springs, and Edward C. Zaccaroli, Utica, all of, N.Y., assignors to Sperry Rand Corporation, New York, N.Y.

Filed Dec. 5, 1968, Ser. No. 781,455

Int. Cl. H05k 3/30

U.S. Cl. 29—626

4 Claims



The present device provides a common-connection element such as a bus bar whereupon solder has been electrodeposited and which has been formed to fit over backboard wiring prongs in such a fashion as to come in contact with certain of said prongs. The combination of the bus bar and the backboard wiring prongs is then heated to a point that the solder melts and the prongs become sufficiently hot to draw the solder, or cause a capillary action between the melted solder on the common-connection element and the prongs, thereby causing the solder to build fillets around each of the respective prongs coming in contact with the common-connection element.

3,591,923

HANDLE ATTACHMENT

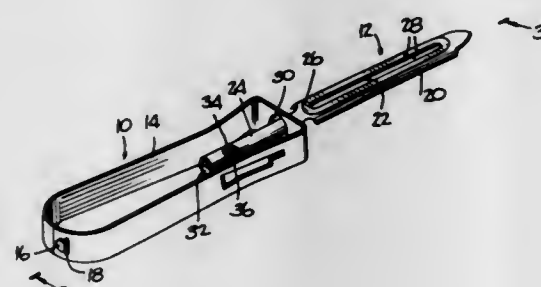
Robert J. Rose, Harwinton, Conn., assignor to The Turner & Seymour Mfg. Co., Torrington, Conn.

Filed July 31, 1968, Ser. No. 749,196

Int. Cl. B25g 3/12

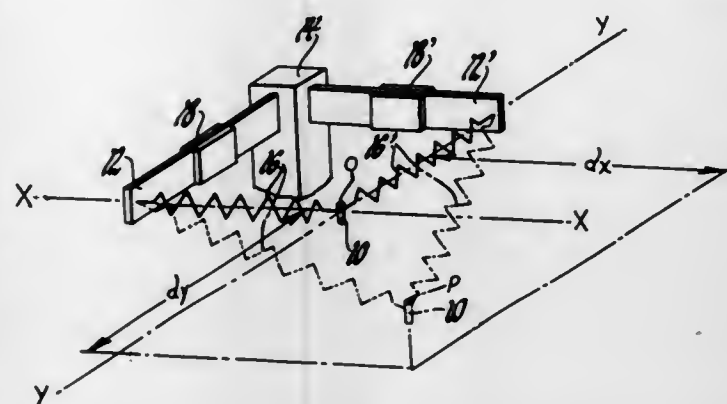
U.S. Cl. 30—340

7 Claims



A vegetable peeler wherein the blade shank extends into an enlarged opening in the handle and the shank tip is affixed to the handle by means of a yoke which is cut from the side of and is bent inwardly of the handle to engage the shank.

3,591,924
DISPLACEMENT TRANSDUCER
Alan D. Berg, Washington, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 10, 1969, Ser. No. 805,746
Int. Cl. B43l 13/20
U.S. Cl. 33—1 M
3 Claims



The distance of an object from the intersection of a plurality of mutually perpendicular reference axes is determined by measuring the bending strain on a plurality of cantilever beams each mounted perpendicular to a different one of the reference axes and each connected from its free end to the object by a different one of a plurality of tensioned springs.

3,591,925

LINE ANGLE DEGREE LEVEL INSTRUMENT

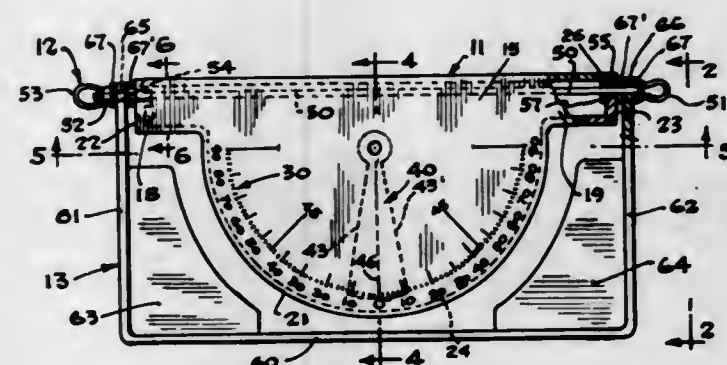
Frank Dupin, 3170 Grandview Ave., Waukegan, Ill.

Filed Aug. 5, 1969, Ser. No. 847,594

Int. Cl. G01c 9/00

U.S. Cl. 33—207 A

10 Claims



A line angle degree level instrument comprising a protractor body section having a protractor scale with a pendulum-type indicator arm and a rigid support rod extending the length of the body section with eyelet means at each end for attaching a flexible line and a detachable frame member for pivotally supporting the protractor body section adjacent the opposite ends of the supporting rod.

3,591,926

LIGHT BEAM ALIGNING METHOD AND APPARATUS

James R. Trice, Jr., Arlington County, Va., assignor to Contractors Automated Devices, Incorporated, Arlington, Va.

Filed Feb. 8, 1968, Ser. No. 704,024

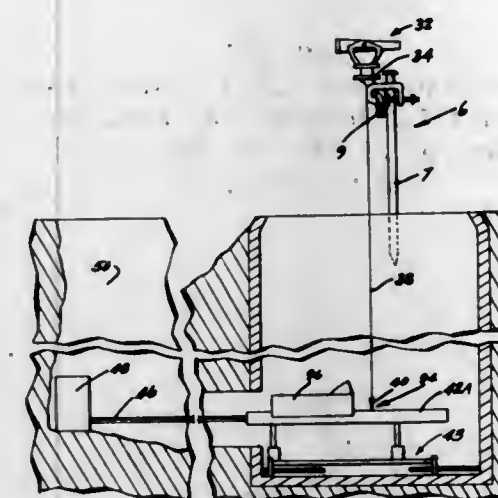
Int. Cl. G01c 15/00, 1/00

U.S. Cl. 33—46

16 Claims

This disclosure relates to an apparatus and method of aligning articles and obtaining their subgrade such as sewer pipes in a straight line and at a particular grade. The apparatus comprises a sighting means supporting apparatus which is attachable to a support means across a ditch such as a batter board and which positions the sighting means over the central portion of a manhole. The sighting means supporting apparatus has a measuring means and a vertical aligning means to position a light source a predetermined distance directly below the sighting means. The apparatus further comprises a collimated light source, preferably a laser beam, in a housing

which contains a light source alignment means. A supporting structure for the light source is provided, which supporting structure has an adjustable means used in supporting the structure in the inside of a manhole or large pipe whether horizontal or vertical. The supporting structure also contains



a two-point means for roughly and finely adjusting the horizontal and vertical position of the light source. Means are also provided for setting the grade or dip of the light source when the light source is properly aligned in the proper vertical plane at the proper depth.

3,591,927

SECONDARY DRYER FOR VENEER AND LIKE MATERIAL

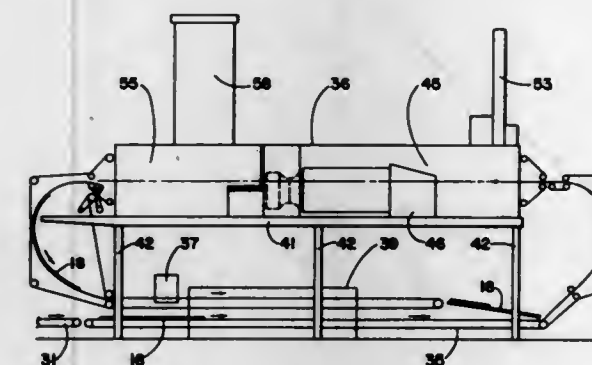
Henry W. Schuette, and Albert H. Barnes, both of Portland, Oreg., assignors to Moore Dry Kiln Company of Oregon, North Portland, Oreg.

Division of Ser. No. 810,996, Mar. 27, 1969, Pat. No. 3,545,094. Filed July 20, 1970, Ser. No. 56,299

Int. Cl. F26b 19/00

U.S. Cl. 34—66

4 Claims



A secondary dryer for wood veneer and similar sheet material having widely varying initial moisture content for completing the drying of that portion of material ("redry") which is underdried after initial passage through a primary dryer. The secondary dryer is arranged in a closed loop configuration, provided by an endless conveyor belt carrying the material in a vertically disposed elliptical path through an overhead drying chamber, so that underdried material is automatically recycled therethrough by the conveyor until the desired degree of final moisture content is achieved.

3,591,928

CONTINUOUS FLUIDIZATION-TYPE POWDER DRYING PLANT AND METHOD OF USE

Jiyuichi Nara, 2-7-8 Higashi-ooi, Shinagawa-ku, Tokyo, Japan

Filed June 18, 1969, Ser. No. 834,325

Claims priority, application Japan, June 27, 1968, 43/44759

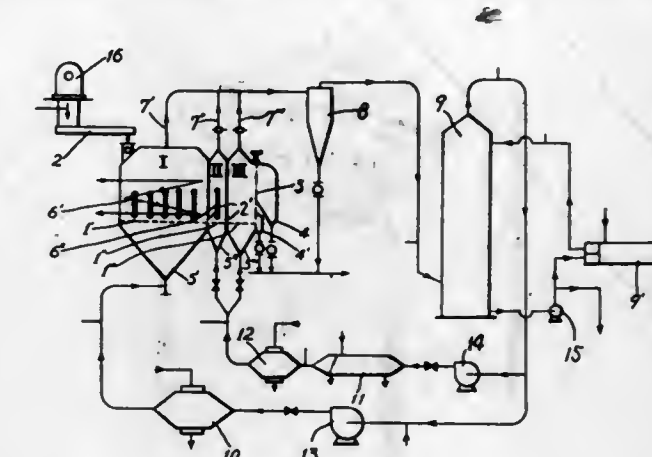
Int. Cl. F26b 3/08

U.S. Cl. 34—10

3 Claims

A continuous fluidization-type powder drying plant having a plurality of drying columns transversely parallelly con-

nected thereto, said plant being of the structure in which a plurality of fluidization-type powder drying columns are connected and disposed parallelly at the same height, said columns have porous plates respectively on the same horizontal level, the neighboring columns of said columns communicate with each other only through the gaps between the upper sides of said porous plates and the lower ends of the sidewalls partitioning two drying columns, a first drying



column is provided on one side of the upper portion thereof with a moist powder feeder, a last drying column is provided on the dried powder outlets respectively, any of said drying columns is selectively provided therein with heat exchangers, the heated gas communication chamber of said first column is supplied under pressure with a gas of relatively high humidity, and the other drying columns are provided with a means for feeding a gas of relatively low humidity.

ERRATUM

For Class 33—385 see:
Patent No. 3,592,004

3,591,929

APPARATUS FOR PREHEATING PULVERIZED MATERIAL SUCH AS CEMENT RAW MATERIALS

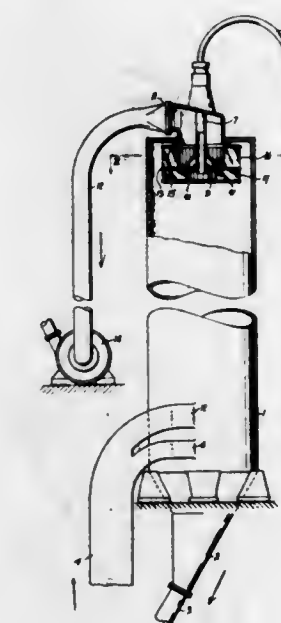
Zdenek Zaccal, Horni Mostenice, and Petr Nemecek, Prerov, both of, Czechoslovakia, assignors to Prerovske strojirny, narodni podnik, Prerov, Czechoslovakia

Filed July 24, 1969, Ser. No. 844,335

Int. Cl. F26b 17/18; F27b 7/20

U.S. Cl. 34—57 E

6 Claims



There is provided equipment for preheating pulverized material, such as raw cement materials, to be sintered in a kiln wherein the preheating is performed by dispersing the material by rotary means, while subjecting the same to hot gases recovered from the kiln.

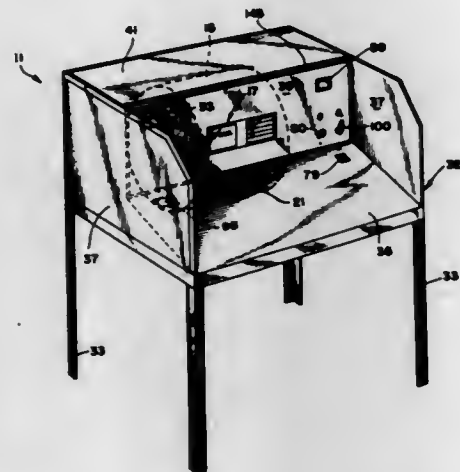
3,591,930

INSTRUCTIONAL APPARATUS

James A. Little, and Henry H. Bruce, 1060 Cerrillos Road, both of Santa Fe, N. Mex.
Filed Nov. 14, 1968, Ser. No. 775,751
Int. Cl. G09b 7/06

U.S. Cl. 35-9 R

3 Claims



An automatic, electrically controlled teaching machine may be easily programmed by an instructor who may write problems on program cards and secure the latter to a program drum. The teaching machine may be provided with means for operating the same in either a teaching or testing mode. In the teaching mode, the student progresses from one question to the next question only in response to a correct answer choice. In the testing mode, the student progresses from question to question in response to any answer choice, right or wrong, and the test is automatically graded.

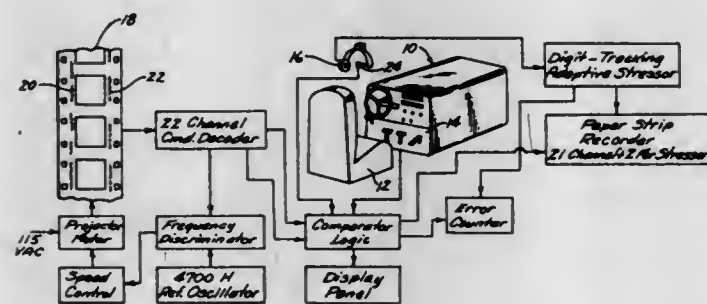
3,591,931

ADAPTIVE AUDITORY PATTERN RECOGNITION SYSTEM FOR DRIVER TRAINING AND TESTING EQUIPMENT

Donald H. Schuster, Ames, Iowa, assignor to Iowa State University Research Foundation, Ames, Iowa
Continuation-in-part of application Ser. No. 655,045, July 21, 1967, now Patent No. 3,523,374, dated Aug. 11, 1970. This application Oct. 30, 1969, Ser. No. 872,695
Int. Cl. G09b 9/02

U.S. Cl. 35-11

9 Claims



A driver trainer simulator involving a movie film for portraying a series of driving situations projected on a screen in view of a driver station on a driver trainer unit, the movie film being encoded with electrical signals which correspond to successive driving situations on the film and are compared with signals received from the driving controls of the driver trainer upon being operated by a student, an instantaneous display panel for indicating the correctness of the response by the student to each of the successive driving situations and a permanent magnetic-recording means for storing the comparative information. An adaptive stressor unit having an audio unit may be simultaneously used to provide secondary auditory perceptual loading on the student. An auditory pattern recognition device including an audio pickup may be provided to receive the audible responses from the student in

response to the sound patterns from the stressor unit. An indicator is provided for indicating correct and incorrect audible responses as compared with the audible responses from the audio unit of the stressor unit. The recognition device indicator may be coupled to the stressor unit to control the rate of loading of the auditory signals on the student.

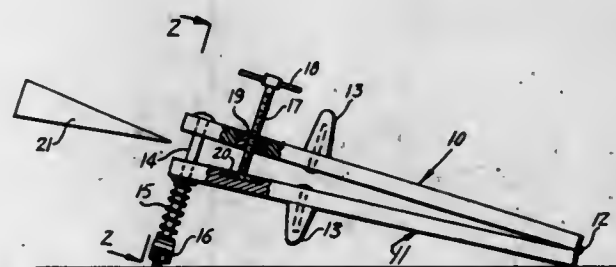
3,591,932

SCIENTIFIC EDUCATIONAL APPLIANCE

Hiram F. Young, 13232 Mount Whitney, Reno, Nev.
Filed Apr. 25, 1969, Ser. No. 819,341
Int. Cl. G09b 23/06

U.S. Cl. 35-19

5 Claims



A pair of hingedly connected plate members are equipped with handles so that pupils can attempt to separate the same against the force of springs. The hand screw or other force multiplier is provided with the assembly to emphasize to the pupils the efficiency of such devices in comparison to manual power.

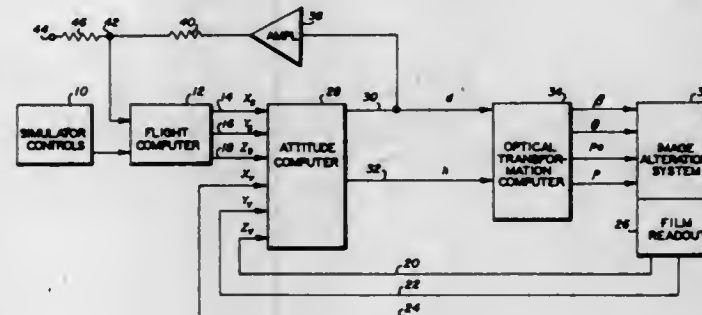
3,591,933

VISUAL SYSTEM COMPUTER

William C. Ebeling, Binghamton, N.Y., assignor to Singer-General Precision, Inc., Binghamton, N.Y.
Filed Dec. 16, 1968, Ser. No. 784,041
Int. Cl. G09b 9/08; B64g 7/00

U.S. Cl. 35-12

7 Claims



The disclosed embodiment of the present invention is intended to be employed with a flight simulator and the like which utilizes a visual system having a defined envelope, such as a motion picture system with distortion optics to provide translational visual excursions from the imagery of the photographed scenes and an apparent change in perspective of the projected image. The invention is a method of and means for eliminating a cumulative position error derived from the computed position of the flight simulator with respect to the position of the filmed flight path, such that the translational limits of the visual system will not be exceeded. The computed position of the flight simulator is derived from manipulation of the controls by an operator of the simulator. Generally, a quantity proportional to computed lateral position of the simulator from the filmed flight path is employed as an imperceptible "washout" term in the control of the visual system that will tend to neutralize the cumulative position error.

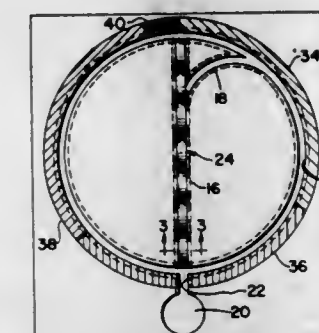
3,591,934

TEACHING AID

Edgar W. Harrington, 130 Ipswich Road, Topsfield, Mass.
Filed Nov. 28, 1969, Ser. No. 880,575
Int. Cl. G09b 23/04

U.S. Cl. 35-34

8 Claims



A teaching aid is provided for use in instructing students with respect to certain mathematical concepts and particularly to illustrate the mathematical constant π . A board is provided with a circular track and a diametrical track connected therewith. A flexible or articulated slide having a length corresponding to that of the diametrical track is mounted to be moved selectively from the circular track to the diametrical track. The board is provided with color-coded arcuate bands demonstrating the relationship between the diameter and circumference, the slide being used to determine how many times the length of the slide may be contained without overlapping in traversing the circular track.

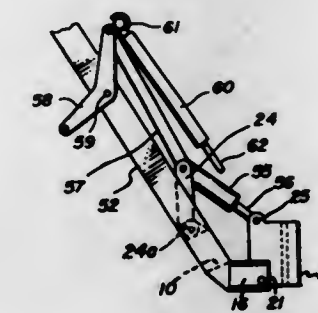
3,591,935

EARTH MOVING EQUIPMENT

Mark H. Bremmer, 145 Garland St., and Albert R. Hiller, 145 Holland St., both of Denver, Colo.
Filed July 22, 1968, Ser. No. 746,594
Int. Cl. E02f 3/85

U.S. Cl. 37-117.5

3 Claims



A lever gudgeon and connector block between earth-contacting mechanism and the lifting arms of a prime mover permits the earth-contacting mechanism to be pivoted at different angles both horizontally and vertically to such lifting arms for performing various operations without moving the prime mover, which block extends between the lifting arms providing a lever with extensive mechanical advantage and, also, permits horizontal, diagonal, and vertical pivoting of the earth-contacting equipment as attachments to the lifting arms without binding or impingement thereof.

3,591,936

SUBMARINE CUTTER DREDGER

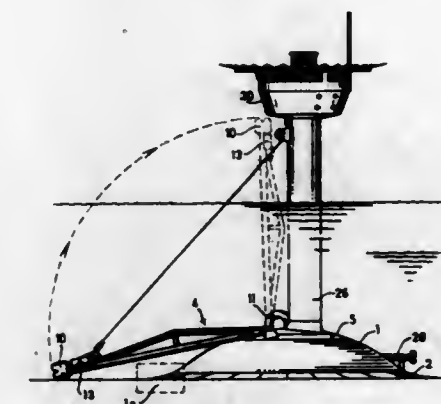
Wouter Van Guens, Menton, France, assignor to Koninklijke Maatschappij tot het uitvoeren van openbare werken "Adriaan Volker" N. V., Rotterdam, Netherlands
Filed Jan. 15, 1969, Ser. No. 791,261
Int. Cl. E02f 3/88, 9/04

U.S. Cl. 37-56

4 Claims

A submersible dredge including a dome-shaped body to rest on the bottom of a waterway and having a vertical air shaft to atmosphere. The dome is formed in part by a rotatable

annular mounting to which one end of a ladder is pivotally mounted, and on the other end of the ladder is a soil digging tool forward of one end of a suction tube. A driving motor for the tool is mounted on the ladder at the tool, above the inlet end of the suction tube, the latter being connected to a pump within the body. Two oppositely disposed sets of legs are provided to propel the dredge on the bottom of a waterway, the sets being operated alternately and each comprising three legs including one pair which are vertically movable and horizontally shiftable together, the other leg being in effect a prop.



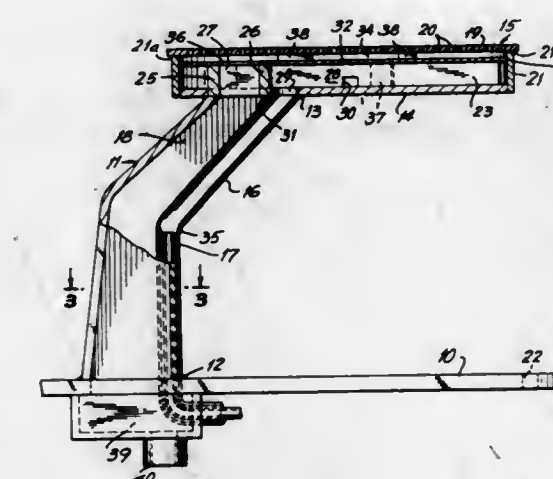
3,591,937

BUCK FOR PRESSING MACHINES

Sam Goldstein, New York, N.Y., assignor to Sam Goldstein, Inc.
Filed July 9, 1969, Ser. No. 840,391
Int. Cl. D06f 71/00, 71/34

U.S. Cl. 38-17

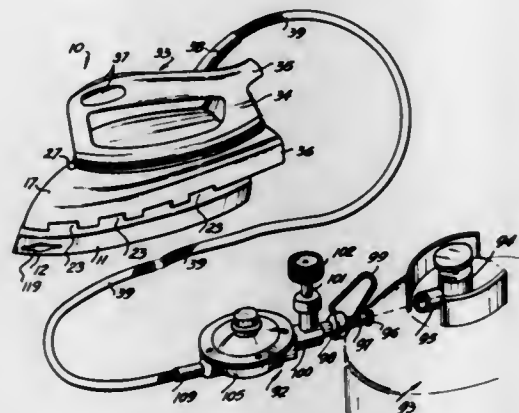
4 Claims



The invention provides a lower member or buck of a garment pressing machine which is so constructed that adequate space is provided for turning of a jacket or coat whose shoulders and parts about the armholes are being pressed, the buck being cantilevered on a curved or angularly shaped post which is constructed of heavy steel plate and is hollow, the post housing the stem supply and its return, as well as including a passage for cooling air leading from the perforated top plate of the buck to a connection to a vacuum pump. The upper member of the buck is constructed to provide a space for the entry of heating steam from within the post and also a connection between the space immediately below the perforated top plate and the air passage in the post, re-enforcements being provided to enable the top member to withstand the shock and pressure of the usual head of the pressing machine. In the preferred construction, the post is of approximately triangular cross section and tapered upwardly, a tubular steam and condensate return forming a vertex of the triangle.

3,591,938 GAS-HEATED FLATIRON

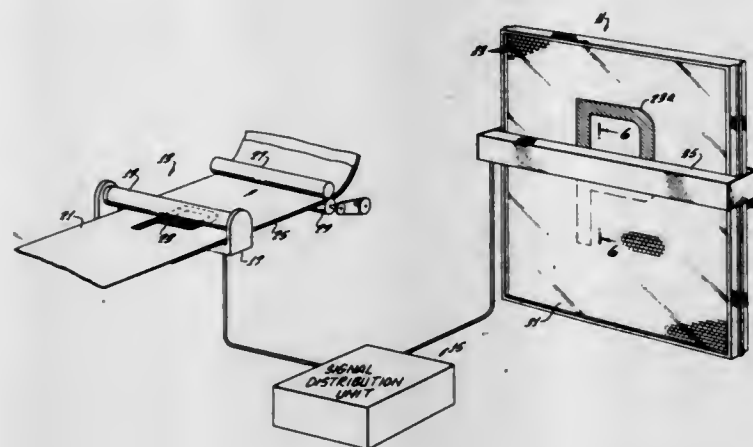
Gustavo Rivas Arbulo, Montevideo, Uruguay, assignor to Tem Sociedad Anonima, Montevideo, Uruguay
Filed Nov. 4, 1969, Ser. No. 873,918
Claims priority, application Brazil, Oct. 4, 1968, 204 546
Int. Cl. D06f 75/02, 75/08
U.S. Cl. 38—82 14 Claims



A gas-heated flatiron having a soleplate on which a cover shell is mounted which is separated into a main chamber and a rear chamber spaced apart by a heat-insulating cross partition, the main chamber supporting a housing for a heat-radiating infrared ray emitting flame plate connected to the rear chamber through a gaseous combustion mixture feeding pipe facing a nozzle housed in said rear chamber. The nozzle being connectable to a gas supply source and the rear chamber being open to atmosphere so that injection of gas and entrained air is injectable into said gaseous combustion mixture feeding pipe. Said nozzle is accessible from outside and thereby interchangeable without having to disassemble the flatiron.

3,591,939 BISTABLE DISPLAY DEVICE WITH SEQUENTIAL ACTUATOR

Errol G. Payne, Irvine, and Charles D. McGregor, Tustin, both of, Calif., assignors to Peripheral Data Machines, Inc., Santa Ana, Calif.
Filed Aug. 4, 1969, Ser. No. 847,341
Int. Cl. G09f 9/40
U.S. Cl. 40—28 4 Claims



A display board comprising a mosaic of bistable magnetic elements is swept by a linear array of electromagnets pulsed selectively to form an image. Each magnetic element is a sealed humped duct containing magnetic powder pulled to the rear of the duct by a common magnetic erasing bar. Means are also disclosed for optically converting an image into electric pulses which are used to drive the electromagnets to reproduce that image upon the display board.

3,591,940 SUPPORTING FRAME

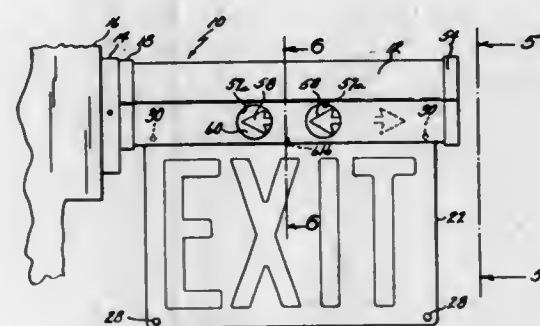
John W. Slemmons, 19142 Glen Albyn, Orange, Calif.
Filed Mar. 19, 1969, Ser. No. 808,591
Int. Cl. G09f 7/18 3 Claims



Two opposite edges of a collapsible sheet such as a poster are releasably clamped to previously sized frame members. A spring member also previously sized is wedged between the frame members to force the members apart. As a result, the poster is suspended under tension between the frame members. In other embodiments, the poster may be suspended with only one clamped edge and without the spring member.

3,591,941 LIGHT FIXTURE

Joseph L. Jaffe, Jr., Shaker Heights, Ohio, assignor to Perfecite, Inc., Cleveland, Ohio
Filed Jan. 26, 1968, Ser. No. 700,799
Int. Cl. G09f 13/18 10 Claims



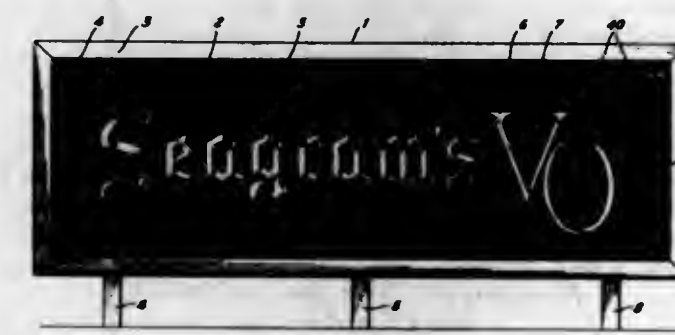
A light fixture and especially a light fixture of the type comprising an exit-indicating light, a restroom-indicating light or the like, and comprising a housing having an open end, and adapted for mounting on a supporting surface. The fixture has panel means with indicia thereon such as the words "Exit" or "Restroom" or the like, with the housing having a removable powerpack, either a fluorescent powerpack or incandescent powerpack, slidably supported on rails in the housing, for illuminating the housing and panel means. The powerpack has an end cover secured thereto which closes the open end of the housing when the powerpack is disposed in operative position in the housing. When the powerpack is in operative position in the housing, an electric plug on the powerpack coacts with an electric socket mounted in the housing, for connecting the powerpack to a source of current. Replacement of the powerpack or components thereof can be readily made by merely grasping the end cover on the powerpack and sliding the powerpack from the housing.

3,591,942 REPRODUCTION OF PICTURES

Earl C. Van Swearingen, 5714 Swiftwood Parkway, Cape Coral, Fla.
Filed Aug. 3, 1967, Ser. No. 662,560
Int. Cl. G09f 7/00 15 Claims

A pictorial illustration is printed in several colors one of which is a daylight activated fluorescent material backed by a

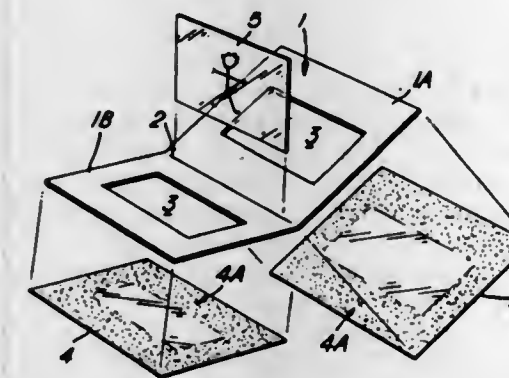
reflective layer so as to enhance the brilliance of the daylight



activated daylight fluorescent material.

3,591,943 MOUNTINGS FOR PHOTOGRAPHIC TRANSPARENCIES

Bertram Edward Charles Green, Moat House, Badwell Ash, Bury St. Edmunds, Suffolk, England
Filed May 26, 1969, Ser. No. 827,611
Claims priority, application Great Britain, May 28, 1968, 25,545/68
Int. Cl. G09f 1/10 6 Claims



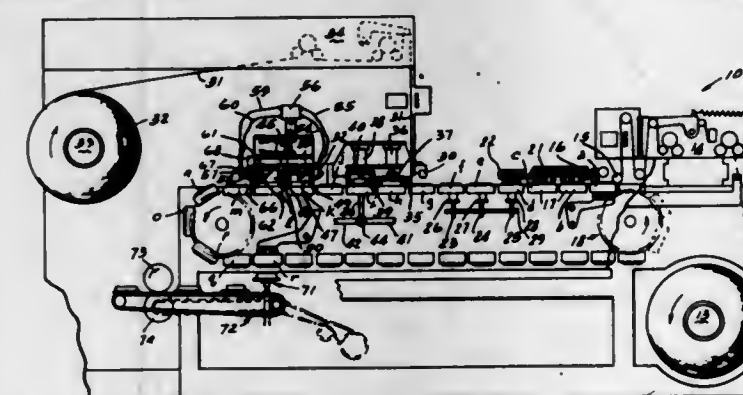
The described invention relates to means for protectively mounting photographic transparencies and similar specimens for viewing or projection and resides basically in providing for two protective transparent sheets, on each side of the transparency itself, and spaced therefrom.

ERRATA

For Classes 43—15, 43—56, 43—58, 46—25, 46—33, 46—87, 46—149, 46—175, 49—70, 49—91, 49—139, 49—227, 49—410, 49—504, 51—55, 51—105, 51—268, 52—67, 52—73, 52—309, 52—475, 52—648, 52—693, 52—716, 52—657, 53—3, 53—214, 53—26, 53—55, 53—159, 53—186 see:
Patent Nos. 3,591,970 thru 3,592,003

3,591,944 METHOD AND APPARATUS FOR DETECTION OF LEAKS IN SEALS OF PACKAGES

Burdsal G. Wilcox, Oakland, Calif., assignor to Safeway Stores, Incorporated, Oakland, Calif.
Filed Mar. 3, 1969, Ser. No. 803,798
Int. Cl. B65b 31/02, 57/00; G01m 3/34
U.S. Cl. 53—22 35 Claims



A machine for forming and testing sealed packages from heat-sealable packaging materials employs an apparatus for

forming individual packaging trays for receiving the product to be packaged from a first continuously fed web of heat-sealable flexible packaging material. A second continuously fed web of heat-sealable packaging material is directed along a path parallel to the path of the first web and is partially heat sealable thereto to package the product. After partial sealing, each of the serially connected train of packages is connected in fluid communication with means for evacuating the ambient atmosphere therefrom and replacing the ambient atmosphere with a preservative atmosphere. The package is then sealed to prevent escape of the preservative atmosphere and transported along the machine, still in the package train, to automatic inspection apparatus.

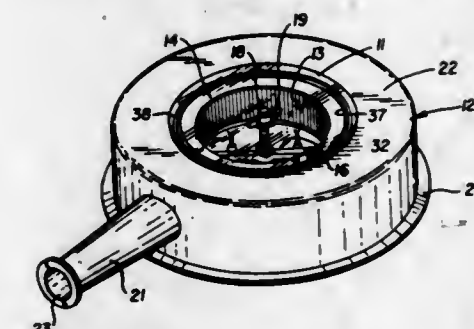
The inspection apparatus provides a first section for detecting leaks in the individual packages and a second section for marking defective packages. The sensing section includes a pressure chamber for each individual package and means for sensing gas of the preservative atmosphere or a tracer gas portion of the preservative atmosphere should the inspected package be leaking such gas and to develop a control signal when gas leakage is detected. The marking section includes apparatus for marking a defective package received from the sensing section. An electrical control circuit extends between the sensing and the marking section to provide operative control of the marking apparatus at a delayed time which permits the travel of a package from the sensing section of the packaging machine to the marking section of the machine.

After inspection, the packages are separated and the unmarked packages are then prepared for shipment while the marked packages are diverted so that their products may be repackaged. Inasmuch as the packages may be scuffed or in other ways have the integrity of their seals weakened or broken, for example the package material may be burned by labelling techniques, the packages are placed in an overwrap carton and the carton is subjected to another pressure test prior to sealing whereupon detection of the preservative atmosphere will signal that the carton contains a leaky package or packages. Cartons containing only sealed packages may then be further packaged for shipment and cartons containing leaky packages may be diverted for testing of the individual packages.

3,591,945 ENGINE AIR FILTER UNIT

Charles Eisler, 1009 Carr St., Lakewood, Colo.
Filed Mar. 27, 1969, Ser. No. 818,464
Int. Cl. B01d 46/24, 46/04 4 Claims

U.S. Cl. 55—274



A transparent component or cover for the air intake filters of internal combustion engines positioned to reveal working parts and operation of carburetors, etc. Inspection and servicing or replacement of the filter element and/or carburetor components is facilitated by configurations in which the transparent component is removable from the filter unit body. Seals are provided between the transparent component, the filter element and filter unit body for efficient useage.

3,591,946

FLUID-DEGASSING SYSTEM

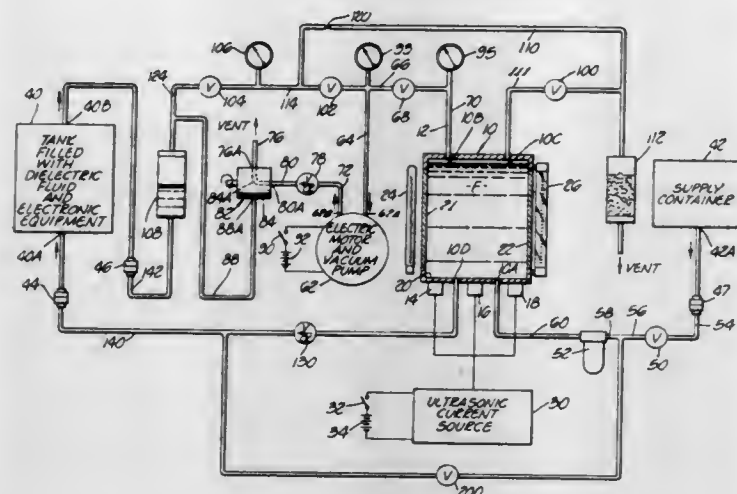
Wallace Dawson Loe, Lakeside, Calif., assignor to Loe Industries

Filed Nov. 26, 1968, Ser. No. 779,074

Int. Cl. B01d 19/00

U.S. Cl. 55—189

6 Claims



The system removes gases and moisture from dielectric fluids such as, for example, insulating oils normally used to provide electrical insulation between electrical components in a tank filled with such dielectric fluid. Degassing occurs in a treatment reservoir into which the fluid is initially introduced and such degassing is accomplished using a combination of vacuum and ultrasonic vibration and also, in some instances, the fluid may be heated in the reservoir to a sufficiently high temperature to assure efficient liberation of moisture from the fluids. Special valving and connections between the treatment reservoir, the aforementioned tank and a supply container provides versatility and transfer of fluids under optimum conditions. For example, the fluid may be first introduced into the treatment reservoir from a supply container and then after treatment in the reservoir be transferred to the tank wherein the same serves as an insulating medium for electronic equipment; alternatively the fluid already in the tank may be treated by causing the same to enter the treatment reservoir for treatment after which the fluid is returned to such tank.

3,591,947

LIQUID BATH GAS-CLEANING APPARATUS

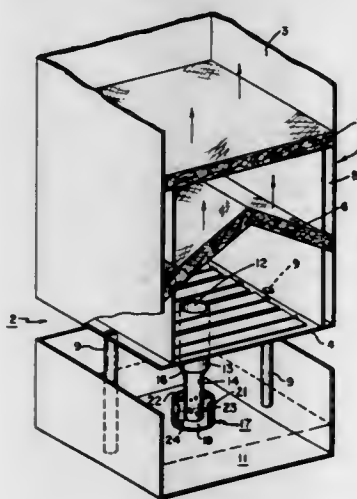
Robert W. Sexton, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed Apr. 19, 1968, Ser. No. 722,695

Int. Cl. B01f 3/04

U.S. Cl. 55—224

4 Claims



An improved liquid bath gas-cleaning apparatus including a gas-liquid contact tray having pivotally mounted slats ar-

ranged to pivot from a horizontal position transverse the gas flow path during low-volume gas flow operations to a vertical parallel position relative the gas flow path during high-volume gas flow operations.

3,591,948

HARVESTER FOR NUTS AND THE LIKE

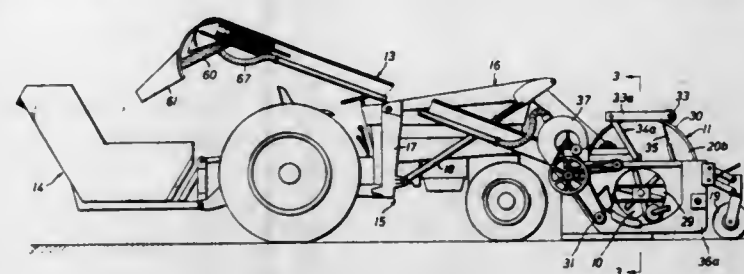
Berstrand L. Brumbaugh, Perry; Eugene P. Brumbaugh, Fort Valley, Ga., and Claude A. Riche, Thibodaux, La., assignors to Thomson Machinery Co., Thibodaux, La., by said Riche, a part interest

Filed July 10, 1968, Ser. No. 756,697

Int. Cl. A01d 51/00

U.S. Cl. 56—328 R

10 Claims



A harvester is disclosed that sweeps nuts and the like from the ground along with other debris, such as leaves and sticks, and separates the nuts from most of such debris before conveying the nuts to storage. The nuts, along with the debris picked up with them, are transferred into a cylinder having perforated sidewalls that is mounted for rotation around its longitudinal axis. The longitudinal axis of the cylinder is horizontal so that the nuts and debris are carried upwardly along an arcuate path by the upwardly moving sidewall of the cylinder. The inner surface of the cylinder has pockets in which the nuts collect. A stream of air is directed through the perforated sidewall of the cylinder to blow the debris upwardly away from the nuts into another airstream that carries the debris out of the cylinder. The nuts continue upwardly with the sidewall until they are blown away from the sidewall into a hopper positioned inside the cylinder. From the hopper, the nuts are transferred to a storage bin by a belt conveyor and a pivotally mounted chute having a perforated bottom. The chute is arranged so that transverse flights on the belt, which move the nuts with the belt, cause the chute to oscillate and bounce the nuts as they pass through the chute. This further cleans the nuts prior to their reaching the storage bin.

3,591,949

FRUIT-HARVESTING MACHINE

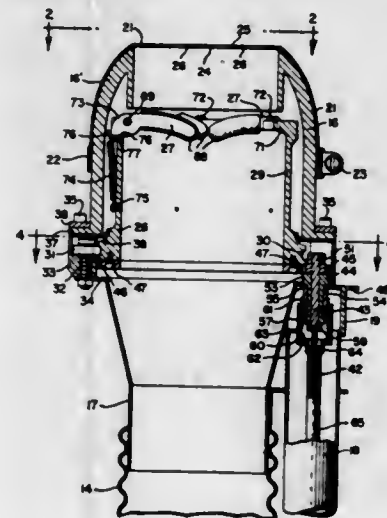
William E. Connery, Perdido Key, Fla., assignor to Chisholm-Ryder Company, Inc., Niagara Falls, N.Y.

Filed Apr. 17, 1969, Ser. No. 817,016

Int. Cl. A01g 19/08

U.S. Cl. 56—332

17 Claims



A harvesting machine for harvesting products such as oranges, or the like, including a picker head connected by

means of an elongated conduit to a collector box, a fan in communication with the collector box for evacuating the box and thus producing a suction in the conduit, an apertured flexible diaphragm on the picker head for providing sealing engagement with the product so as to permit the suction to exert a pulling force on the product, and a twister head including a plurality of resilient fingers mounted thereon, said twister head being mounted on said picker head and being rotated by a motor to cause said fingers to engage the product with a twisting force to thereby provide a combined pulling and twisting force on the product to sever it from the tree.

3,591,950

LOADING CAR WITH TAKEUP MEMBER OPERATING OUTSIDE THE VEHICLE TRACK

Ernst Weichel, Bahnhofstr. 1, 7326, Heilningen Kreis, Goppingen, Germany

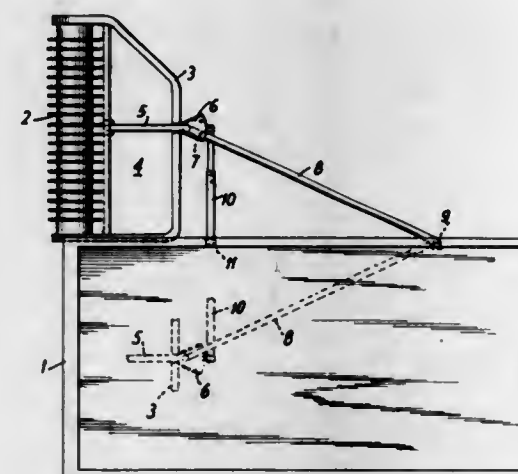
Filed Oct. 3, 1967, Ser. No. 672,487

Claims priority, application Germany, Oct. 4, 1966, W42,517

Int. Cl. A01d 89/00

U.S. Cl. 56—364

18 Claims



A tractor-drawn crop carrying vehicle has a load receiving surface, a conveyor duct discharging upwardly onto the receiving surface and having a width coextensive with that of the receiving surface, conveying means operable in a conveyor duct to move harvested material along the duct to the receiving surface, a crop receiving drum, a frame mounting the drum and a transverse conveyor device conveying material from the receiving drum to the conveyor duct. The frame is mounted on the vehicle for movement between a first position, in which the drum extends perpendicularly to the path of vehicle movement and completely to one side of the vehicle, and a second position, in which the drum also extends perpendicularly to the direction of vehicle movement but is retracted beneath the vehicle. Releasable bracing and locking means are provided for maintaining the frame and the drum in each of the two positions. Various auxiliary elements cooperate with the drum, the transverse conveyor device and the conveyor duct, and may include, for example, cutting means operable to sever the harvested material as it is moved laterally into the conveyor duct.

3,591,951

YARN PIECING APPARATUS FOR SPINNING FRAME

Yukio Urano, Nishinomiyashi, and Shin-ichi Hamabata, Yamato-Koriyama-shi, both of Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo-to, Japan

Claims priority, application Japan, Sept. 1, 1967, Feb. 1, 1968, April 1, 1968, April 1, 1968, April 1, 1968, April 1, 1968,

April 1, 1968, 42/56261, 43/6976, 43/26303, 43/26304,

43/21706, 43/21705, 43/21664

Filed Sept. 3, 1968, Ser. No. 756,961

Int. Cl. D01h 15/00

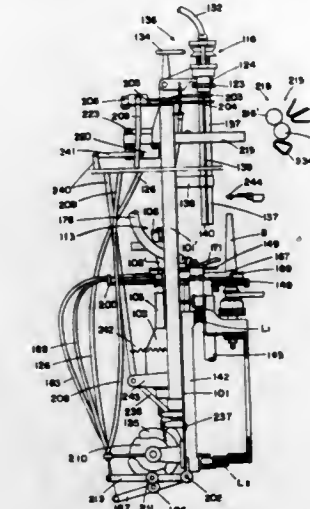
U.S. Cl. 57—34

11 Claims

This invention relates to an improved method and apparatus for piecing-up broken yarn ends in a spinning frame of the type including fiber drafting means, twisting spindles, and a vertically reciprocable ring rail.

The apparatus comprises a carriage mounted on the

spinning frame for movement therealong and carrying a supply of auxiliary yarn. The carriage has a portion movable up and down with the ring rail and carrying means for operatively engaging the free end of the auxiliary yarn with a ring traveller and also with a bobbin on the spindle for winding and twisting the yarn. The carriage also carries means for moving an intermediate portion of said yarn into engagement



with a broken yarn end or roving extending from the front drafting rolls into a flute; so that when the auxiliary yarn is severed adjacent the roving it will untwist and attach itself thereto to effect the piecing-up operation. In the preferred embodiment the carriage has means for automatically withdrawing a predetermined length of auxiliary yarn and storing it for subsequent release into a narrow passage where it is held under tension just prior to a piecing-up operation.

3,591,952

OPEN END SPINNING APPARATUS

Josef Ripka; Frantisek Hortlik; Jan Junek; Milan Marsalek, and Stanislav Kabele, all of Usti Nad Orlici, Czechoslovakia, assignors to Vyzkumny ustav bavlnarsky, Usti Nad Orlici, Czechoslovakia

Filed Aug. 8, 1969, Ser. No. 849,301

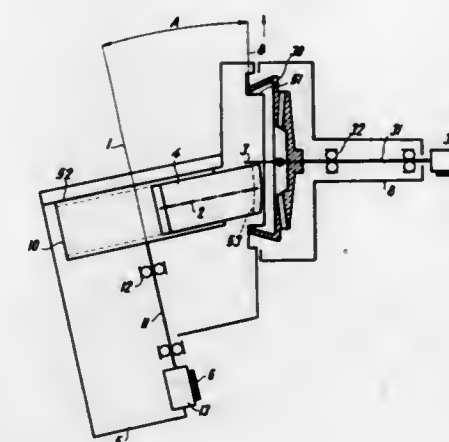
Claims priority, application Czechoslovakia, Aug. 10, 1968,

5820-68

Int. Cl. D01h 1/12

U.S. Cl. 57—58.95

10 Claims



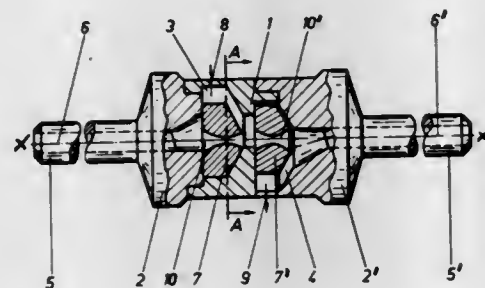
A spinning apparatus comprises a rotary spinning chamber mounted for rotation about a first axis and having in its interior an internal circumferential slip surface concentric with this first axis and onto which fibers to be spun are to be deposited. A carding roller is mounted for rotation about a second axis, and a fiber supply channel connects the carding roller with the interior of the spinning chamber to transmit fibers from the carding roller to the spinning chamber. The outlet opening of the supply channel is located in a plane paralleling the first axis of rotation of the spinning chamber and is so configured as to discharge fibers at right angles to this first axis onto an area of the slip surface which corresponds in outline at least substantially to the configuration of the outlet opening.

3,591,953

SPINDLE FOR FALSE TWISTING YARN

Ernst August Weinz, Idar-Oberstein, Germany, assignor to Ernst Fr. Weinz, Idar-Oberstein, Germany
 Filed Oct. 29, 1969, Ser. No. 872,049
 Claims priority, application Germany, Oct. 31, 1968, P 18 06 218.5

Int. Cl. D02g 1/06; D01h 7/92
 U.S. Cl. 57-77.3 5 Claims



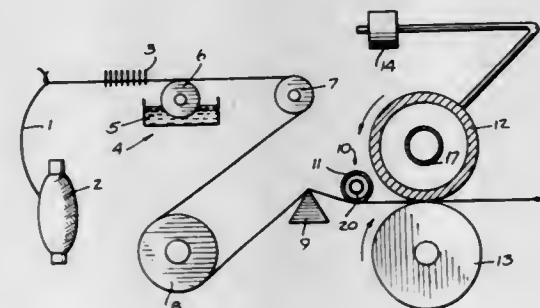
A spindle for false-twisting yarn comprising a rotatable body and yarn guides mounted in the body engaging said yarns. The guides are deflected under centrifugal action during rotation of the spindle to twist to yarn.

3,591,954

APPARATUS AND METHOD FOR PRODUCING A TEXTURED THREAD

Lajos Horvath, Kirchenweg 3, Wallisellen, and Hans Heinz Schafer, Schwerzenbacherstrasse 30, Fallanden, both of Canton of Zurich, Switzerland
 Filed June 16, 1969, Ser. No. 833,484
 Claims priority, application Switzerland, June 17, 1968, 8954/68

Int. Cl. D02g 1/00
 U.S. Cl. 57-140 R 10 Claims



Method of texturing yarns or threads wherein filaments or filament bundles of same are humidified while under controlled tension, are heated on one side and are cooled and pressed and then relaxed, and apparatus for performing such method.

3,591,955

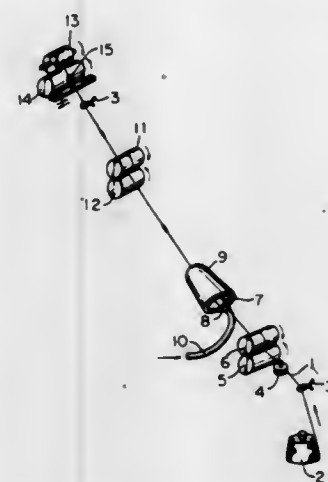
PROCESS FOR PRODUCING A SLUB YARN

Shiro Fujita, Tokyo; Jusuke Ushiki, Isezaki-shi; Nagao Nishizawa, Matsudo-shi; Selji Okawa, Warabi-shi; Kunio Sekiya, Matsudo-shi, and Hiroshi Kadowaki, Matsudo-shi, all of Japan, assignors to Nippon Rayon Co. Ltd., Tonouchi Uji-Uji-shi, Japan

Filed June 23, 1969, Ser. No. 835,553
 Claims priority, application Japan, June 27, 1968, 43/44691; 43/44692
 Int. Cl. D02g 1/16, 3/34

U.S. Cl. 57-157 7 Claims
 A process for producing slubs onto a multifilament yarn which comprises feeding the yarn into a hood receiving a jet

of compressed gas and withdrawing the yarn through a hole



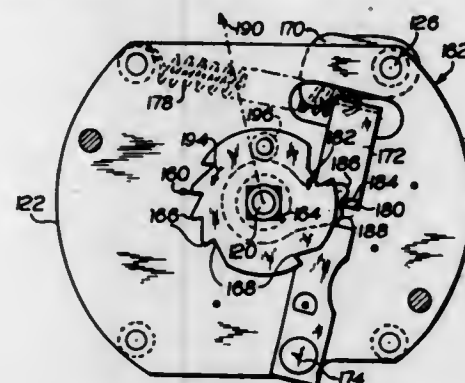
of the hood from the deflected stream of the gas at lower rate than the feed rate.

3,591,956

INTERVAL TIMER MECHANISM

James A. Draghi, Manchester, Conn., assignor to M. H. Rhodes Inc., Hartford, Conn.
 Filed May 9, 1969, Ser. No. 823,291
 Int. Cl. G04f 3/02

U.S. Cl. 58-21.13 12 Claims



An interval timer with an audible or electrical output has a springwound motor driving a control cam which governs the output mechanism, whereby to enable operation upon the completion of time intervals of irregular duration. A blocking member obstructs movement of the control cam follower to prevent any output if the mainspring is not fully wound.

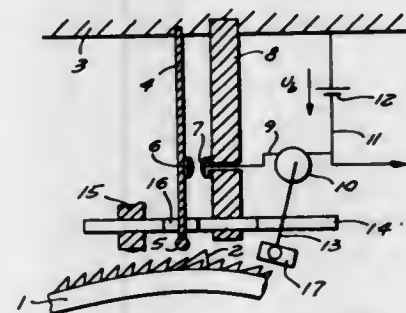
3,591,957

VOLTAGE MEASURING AND INDICATING ARRANGEMENT

Claus Christian Cobarg, Steinbach/Taunus, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany

Filed Dec. 6, 1968, Ser. No. 781,935
 Claims priority, application Germany, Dec. 8, 1967, P 15 91 859.9
 Int. Cl. G04b 47/06

U.S. Cl. 58-152 6 Claims



An arrangement for measuring the voltage of a battery to determine the state of charge of the battery when used to

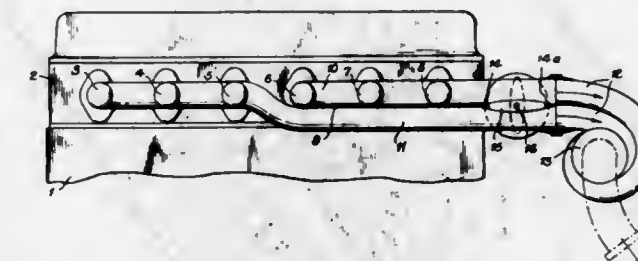
3,591,959

ENGINE EXHAUST GAS BRAKING

Heribert Kubik, Nurnberg, Germany, assignor to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Nurnberg, Germany

Filed July 29, 1969, Ser. No. 845,774
 Claims priority, application Austria, Aug. 7, 1968, A 7734/68
 Int. Cl. F02b 37/00; F02d 9/00

U.S. Cl. 60-13 4 Claims



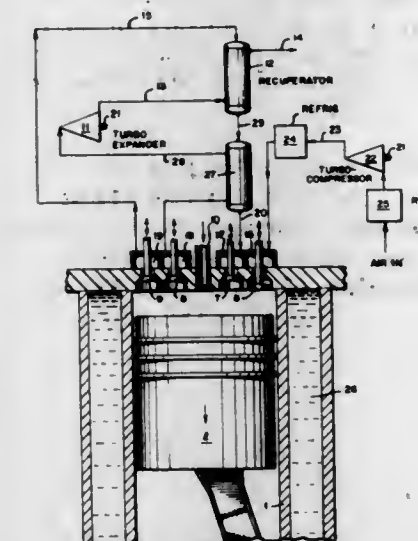
operate electrical clocks. A momentary contact switch actuated by the clock mechanism at regular time intervals, connects the battery to a voltage-measuring instrument. An indicating device associated with the instrument is held in place by a holding device, after the measurement has been taken. The indicating device becomes released and permitted to return to its initial position prior to the instant when a subsequent measurement is to be taken. The clock mechanism in the form of the hour wheel actuates the momentary constant switch.

3,591,958

INTERNAL COMBUSTION ENGINE CYCLE

William H. Nebgen, Woodside, N.Y., assignor to Treadwell Corporation, New York, N.Y.
 Continuation-in-part of application Ser. No. 844,776, July 25, 1969, now abandoned. This application June 24, 1970, Ser. No. 49,340

Int. Cl. F02b 37/00 14 Claims
 U.S. Cl. 60-13



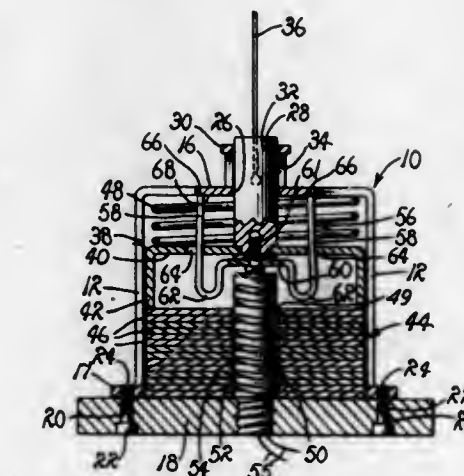
For an internal combustion engine brake, two exhaust pipes are connected to separate groups of cylinders, and an intake-air-supercharging turbine is joined to said pipes for being driven by the exhaust gases, a throttle valve is positioned between the cylinders and the turbine which is common to the pipes for bringing the pipes into gas-equalizing communication when the throttle valve closes off the turbine to brake the engine.

3,591,960

THERMOSTATIC ACTUATOR

T. O. Paine, Administrator of the National Aeronautics and Space Administration in respect to an invention; Lloyd J. Derr, 4624 Willa Lee Ave., LaCrescenta, Calif., and Robert A. Tobias, 1523 Harding Ave., Pasadena, Calif.
 Filed Aug. 19, 1969, Ser. No. 851,298

Int. Cl. G05d 1/00 8 Claims
 U.S. Cl. 60-23



An internal combustion engine cycle is described which comprises: a compression step conducted in an external booster compressor, preferably with cooled suction, such as a supercharger; a final compression step conducted within the cylinder; an external isobaric recuperative heat addition step in which the fully compressed air is heated, preferably to the temperature needed for autoignition of fuel; an isobaric or isochoric fuel injection heat addition step; an isentropic expansion step conducted within the cylinder; a further isentropic expansion step conducted in an external expander, such as the turbine of a supercharger; and finally an external isobaric recuperative heat rejection step.

Each cylinder of the internal combustion engine is provided with four valves, consisting of one set of hot and cold intake valves and one set of hot and cold exhaust valves. Externally compressed air is cooled and introduced into the cylinder through the cold intake valve, thus driving the piston down, and simultaneously cooling the engine elements. On the return stroke of the piston the air is further compressed to the high pressure desired for the succeeding working stroke, is discharged from the cylinder through the cold exhaust valve, is heated by exhaust heat recuperation, for example to autoignition temperature, and is reintroduced into the cylinder through the hot intake valve. Fuel is injected into the cylinder and burned, and gases expand in and are discharged from the cylinder through the hot exhaust valve at above ambient temperature and pressure, and are then cooled by doing external work, which constitutes at least a part of the power required for the compression of the cold air. The work of compression may be reduced by refrigerating the air at the suction of each compressor stage.

A thermostatic actuator for imparting displacement to mechanical linkages and the like, having particular utility aboard spacecraft and characterized by the utilization of a rectilinearly reciprocating, spring-biased output shaft operatively coupled with a stack of superimposed individual bimetal disc members and a selectively operable electric heater including a resistance coil associated therewith adapted to heat the stack for achieving distortion of the individual disc members and an elongation of the stack to cause the output shaft to be axially extended against the bias of the spring and a bimetal latch coupled with the shaft adapted to latch the shaft against axial extension, at a first temperature, and to release the shaft for an extending displacement at elevated temperatures, whereby the actuator is selectively driven by energizing the heater.

3,591,961

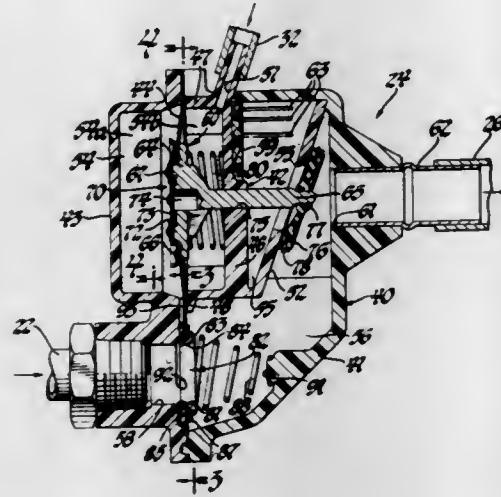
AIR PUMP FLOW CONTROL VALVE FOR ENGINE EXHAUST EMISSION CONTROL SYSTEM

Charles D. Woodward, and Arthur P. S. Hyde, both of Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 18, 1969, Ser. No. 886,254
Int. Cl. F01n 3/10

U.S. Cl. 60—30

7 Claims



An engine having an exhaust air injection system in which an engine-driven pump delivers air to the stream of exhaust gases as they are emitted from the combustion chamber and is equipped with a flow control valve which opens at high engine speeds to divert air from the exhaust air injection system prevent excessive exhaust system back pressure and resulting power loss.

3,591,962

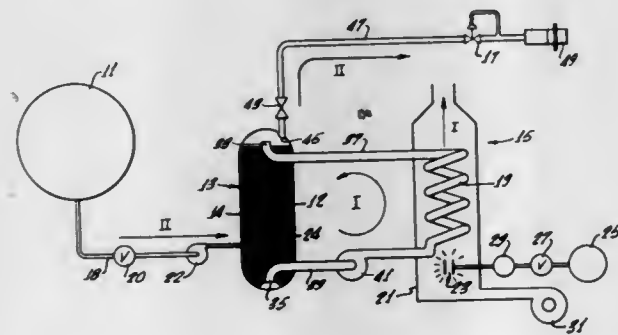
CRYOGENIC POWER SOURCE FOR STARTING JET ENGINES

Joseph A. Connell, Harbor City, Calif., assignor to Systems Capital Corporation

Filed May 26, 1969, Ser. No. 810,744
Int. Cl. F01k 25/00; F17c 9/02; F02n 17/00

U.S. Cl. 60—36

16 Claims



A method and apparatus for starting a gas turbine engine by vaporizing a cryogenic liquid such as liquid nitrogen, raising the resulting gas to a high temperature and pressure and applying the hot pressurized gas to the air-driven turbine starter of the gas turbine engine.

3,591,963

INFLATABLE SEAL FOR AIRCRAFT JET ENGINES

Gerhard Kopp, Munich, Germany, assignor to Entwicklungsring Sud GmbH, Munich, Germany

Filed June 13, 1969, Ser. No. 833,017

Claims priority, application Germany, June 18, 1968, P 17 51 550.3

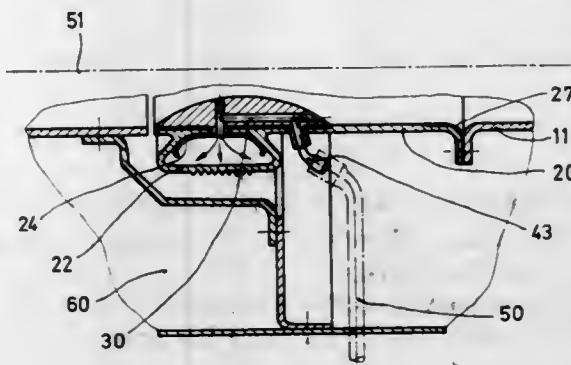
Int. Cl. F02c 7/20; F16j 15/46

U.S. Cl. 60—39.31

11 Claims

A sealing means for providing a seal between the intake of a jet engine and the receiving ring of an air intake duct mounted upon the airframe. The sealing means includes a

cylinder of flexible material, one end of which is secured to the intake duct. Formed integrally with the cylinder and located adjacent the end of the cylinder farthest from the engine is an inflatable annular tube. Located within the tube is a resilient flattening member which, upon deflation of the tube, expands to flatten the tube so as to facilitate installation



or removal of the engine. The interior of the tube is, through a directional flow control valve, in communication with the exhaust air chamber of the engine so that the exhaust gases will maintain the tube in an inflated condition. Disposed about a portion of the outer surface of the tube are a plurality of lands which enhance the sealing characteristics between the tube and the associated portion of the aircraft structure.

3,591,964

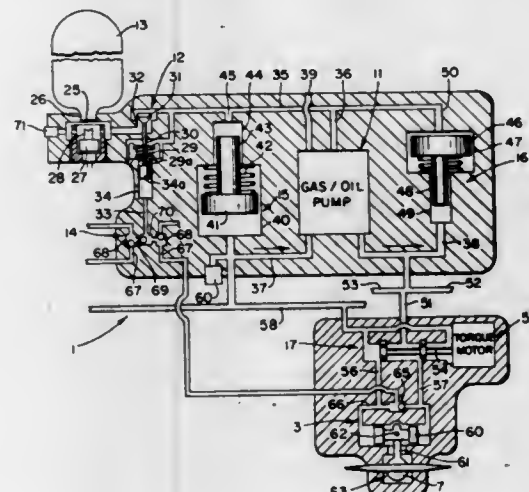
ACTUATION SYSTEM

Robert M. Salemka, Portage, Mich., assignor to Pneumo Dynamics Corporation, Cleveland, Ohio

Filed Mar. 12, 1969, Ser. No. 806,612
Int. Cl. F15b 1/02

U.S. Cl. 60—51

17 Claims



An actuation system which is operated by compressed fluid at a pressure determined by a pressure regulator responsive to the highest load signal acting on the system to vary the pressure in accordance with the actual output demands.

3,591,965

HYDRODRIVE

Gerhard Bobst, Oensingen; Kurt Christensen, Oberbuchsitzen, Switzerland; Ludwig Wagenseil, Vohringen, and Joachim Frank, Ulm-wiblingen, Germany, assignors to A. G. VonRoll, Gerlafingen, Switzerland and Constantin Rauch, KG, Ulm (Danube), Germany, part interest to each

Filed Nov. 14, 1969, Ser. No. 876,907

Claims priority, application Switzerland, Nov. 29, 1968, 17851/68

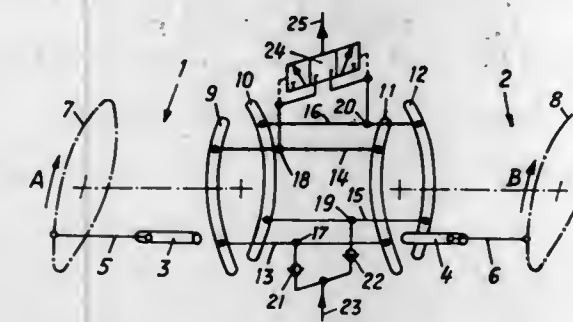
Int. Cl. F16d 31/02; F15b 15/18

U.S. Cl. 60—53 A

14 Claims

There is disclosed a hydrodrive including a fluid-circulating drive system comprising at least two hydrounits connected by connecting conduit means with one unit being operable as a hydropump and the other unit being operable

as a hydromotor. A feeding and flushing means is provided for feeding fluid media into and removing fluid media from said fluid-circulating drive system. At least one of the connecting conduit means between said hydrounits includes at



least two lines and said feeding and flushing means including a feeding connection communicating with one of said lines and a flushing connection communicating with the other of said lines.

3,591,966

FLUID-COOLING SYSTEM

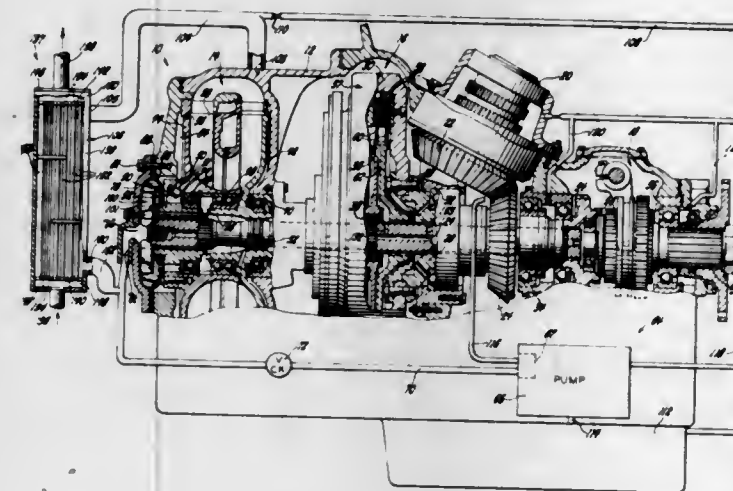
Nathaniel B. Kell, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 17, 1969, Ser. No. 885,886

Int. Cl. F16d 33/00

U.S. Cl. 60—54

6 Claims



A transmission having a torque converter drive and an alternate mechanical drive between the transmission input and output members where the torque converter, during converter drive operation, provides a centrifugal pressure head between the fluid inlet to the operating chamber and the fluid outlet from the operating chamber for the circulation of the torque converter operating fluid and lubricating fluid through the labyrinth path of a heat exchanger. An impeller mechanism, secured to the continuously rotating inner race of a one-way clutch, provides the means for forcing said fluid through the torque converter passages, and thence through the heat exchanger during direct or "lockup" drive when the torque converter is inoperative.

3,591,967

FEED SYSTEM FOR AN ION THRUSTER

Paine, T. O., Administrator of the National Aeronautics and Space Administration, with respect to an invention of, and Tommy D. Masek, 3788 Cloud Ave., La Crescenta, Calif.

Filed Sept. 5, 1968, Ser. No. 760,114

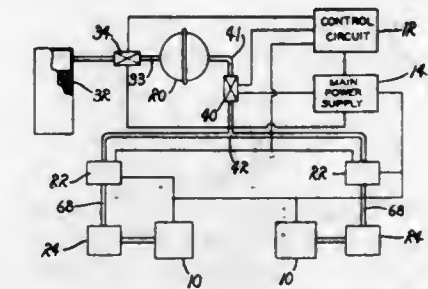
Int. Cl. F03h 1/05; H05h 1/00

U.S. Cl. 60—202

1 Claim

A system for delivering vaporized mercury to an electron bombardment ion engine characterized by a source of liquid

mercury, pressurized by Freon vapor for force-feeding liquid mercury to a mercury vaporizer operated at a temperature



and a pressure sufficient to deliver vaporized mercury at a constant, low-rate flow to an associated ion engine.

3,591,968

AFTERBURNER FUEL MANIFOLD QUICK FILL AND FLOW DISTRIBUTION APPARATUS

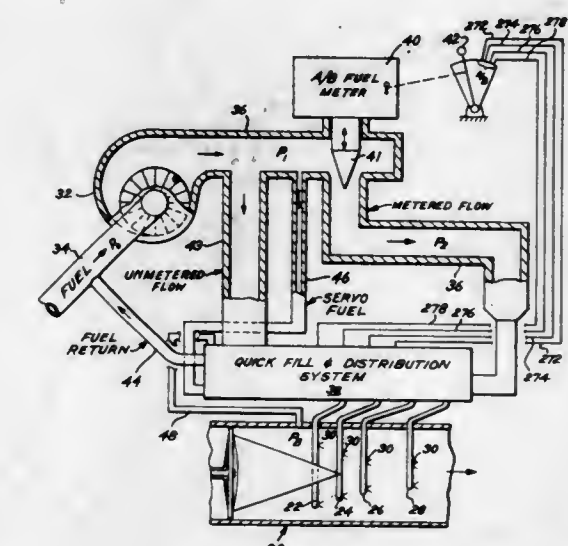
Samuel E. Arnett, South Bend, Ind., assignor to The Bendix Corporation

Filed Dec. 15, 1969, Ser. No. 884,860

Int. Cl. F02k 3/10

U.S. Cl. 60—243

10 Claims



A plurality of fuel flow controlling valves connected in parallel flow relationship each of which controls fuel flow to an associated one of a plurality of afterburner fuel manifolds. The plurality of valves is connected to separate pressurized fuel sources one of which is unmetered fuel and other metered afterburner fuel. Normally closed fuel shutoff valve means and flow sensing means upstream from the plurality of valves operate to establish a flow of unmetered fuel for manifold fill purposes and disestablish the unmetered fuel flow in response to a predetermined sensed flow signal. Each of the plurality of fuel flow controlling valves is dual flow controlling in that it occupies a first open position permitting fill fuel flow and blocking metered fuel flow and a subsequent second open position where such flow relationship is reversed. Afterburner control apparatus is connected to the plurality of valves to energize the same in a predetermined sequence.

3,591,969

EJECTOR PUMPING SYSTEMS

George V. Brereton, Sacramento; Robert J. Kuntz, Rancho Cordova; Charles J. O'Brien, Citrus Heights, and Roy G. Sjogren, Carmichael, all of, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

Filed Aug. 18, 1969, Ser. No. 842,912

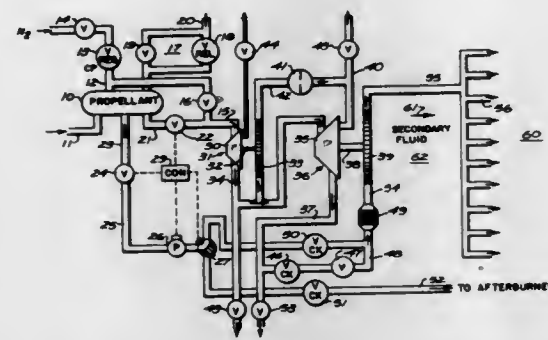
Int. Cl. F02k 9/02; F04d 25/02

U.S. Cl. 60—259

10 Claims

An ejector pumping system according to this disclosure includes an impeller pump driven by a turbine for pumping

monopropellant to a catalyst pack where the monopropellant



is decomposed to form exhaust gas. The turbine is driven by exhaust gas from the catalyst pack.

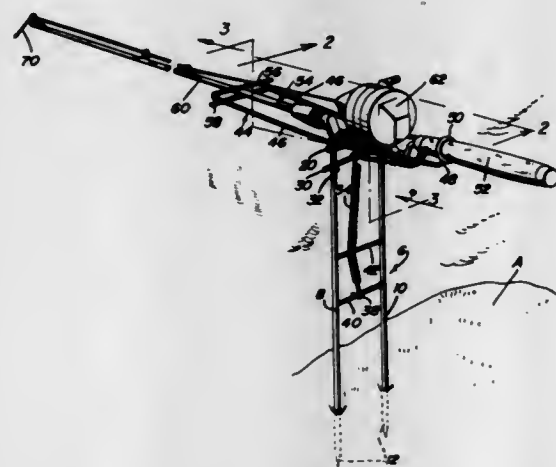
3,591,970

FISHING ROD HOLDER AND CATCHER
Donald W. Davenport, 109 Oakhill Place, North Little Rock, Ark.

Filed Aug. 18, 1969, Ser. No. 851,006
Int. Cl. A01k 97/00

U.S. Cl. 43-15

8 Claims



A portable bite-responsive fishing rod support is equipped with novel coordinating facilities and provides a structurally practical automatic fish catcher. A vertical frame provides a desirable ground-supported stand. A second complemental frame provides a fishing rod holder and is responsively cradled atop the stand. A spring-loaded trigger latch is released by a trip chain actuated by the tiltable rearward part of the rod holder. When the front end of the properly cocked holder is sprung the line is forcibly yanked and the fishhook is set in the mouth of the fish.

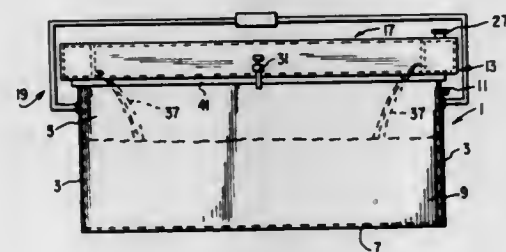
3,591,971

WATER AERATOR

Troy Tanner, 3104 Emogene St., Mobile, Ala.
Filed July 18, 1969, Ser. No. 842,995
Int. Cl. A01k 97/04

U.S. Cl. 43-56

2 Claims



An aerator for aerating water in a bait container, or the like comprising water reservoir permanently or removably

mounted on the rim of a bait container. Openings are provided in the walls of the water reservoir for applying a plurality of streams of water to the surface of the water in the bait container to produce aerating bubbles therein.

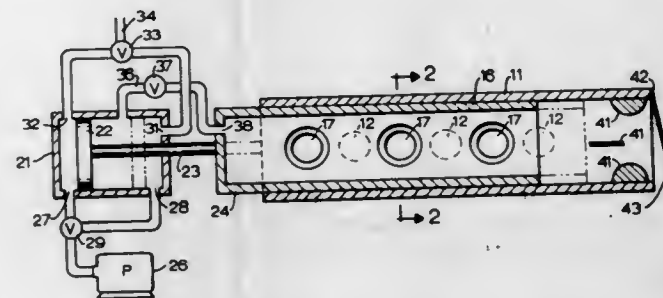
3,591,972

VERMIN EXTERMINATOR FOR SHIPBOARD USE AND FOR USE IN BUILDINGS, ETC.
Louis Michael Hess, 325 26th Ave. Apt. 302, San Francisco, Calif.

Filed Sept. 22, 1969, Ser. No. 859,772
Int. Cl. A01m 23/16

U.S. Cl. 43-58

4 Claims



A pair of interfitting tubes are formed with entrance holes which are aligned in one position for entry of vermin. The tubes may be moved relative to each other to close off entry. Water flushes vermin trapped in the tubes out the end and into the sea. The tubes may be round, square or rectangular, a smaller tube sliding longitudinally with a larger one.

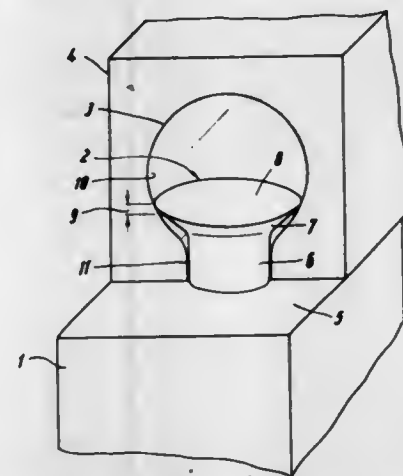
3,591,973

TOY BUILDING KIT

Artur Fischer, Althelmer Str. 219, Tumligen, Germany
Filed Mar. 5, 1970, Ser. No. 16,754
Claims priority, application Germany, Mar. 7, 1969, P 19 11 650.8
Int. Cl. A63h 33/08

U.S. Cl. 46-25

10 Claims



A toy building kit has several structural elements. Some of these have at least one undercut groove in an exposed surface and others have at least one coupling head provided on an exposed surface and matingly engageable with the undercut groove. Such coupling heads each comprise a first portion which projects from the respective structural element and which is provided on its free end remote from the structural element with a second portion resembling a section severed from a sphere in a plane which is at least substantially parallel to the general plane of the exposed face.

3,591,974

MUSICAL TELEPHONE TOY

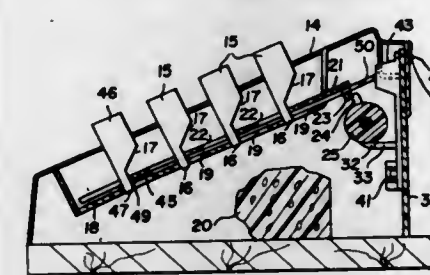
Ernest L. Thornell, East Aurora, N.Y., assignor to The Quaker Oats Company
Filed Mar. 7, 1969, Ser. No. 805,314
Int. Cl. A63h 33/30

U.S. Cl. 46-33

10 Claims

A toy telephone is made to simulate a pushbutton telephone, and the buttons are arranged to drive a music

unit. Also, a popup figure is arranged under a pivotal cradle for the receiver, and one of the buttons moves a cam that



releases a latch to allow the figure to pop up from under the cradle.

3,591,975

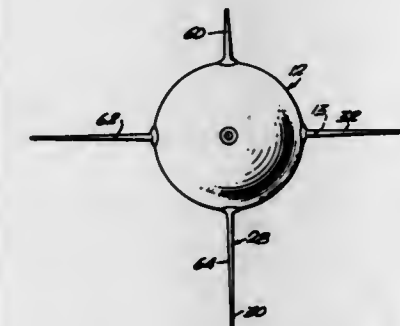
INFLATABLE TOY

Nemen M. Terc, 1006 Cherokee Road Apt. 11 G, Portsmouth, Va.

Filed Sept. 18, 1968, Ser. No. 760,545
Int. Cl. A63h 3/06

U.S. Cl. 46-87

6 Claims



An inflatable toy including a bulbous body of rubbery material adapted to be inflated as a balloon, the body comprising a caricature of a comic figure or satellite or the like and including attachable weight means for arrangement with respect to the body to cause a force substantially equal and opposite to the buoyant force of a lighter than air gas in the body so that the toy is substantially weightless.

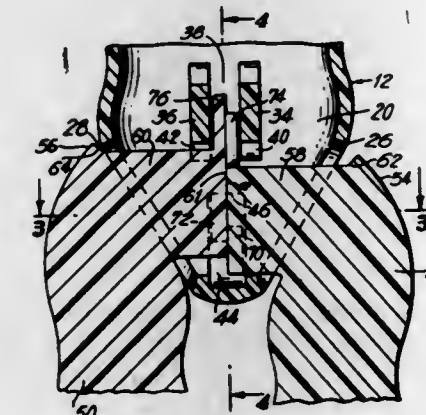
3,591,976

WALKING DOLL HAVING LEGS WITH INWARDLY DIRECTED SECTIONS FROM WHICH PROJECTIONS EXTEND FORWARDLY INTO A TORSO GROOVE FOR PIVOTAL MOUNTING OF THE LEGS

Robert K. Ostrander, 497 Prospect St., Maplewood, N.J.
Filed Nov. 18, 1968, Ser. No. 776,502
Int. Cl. A63h 11/00

U.S. Cl. 46-149

9 Claims



A hollow doll's torso has hip openings which receive in-turned portions atop the doll's legs. These portions mount the legs on the torso and have various radial protrusions. One protrusion, forward of the center of gravity of each leg when

the leg is vertical, engages a recess in the doll body to form a hinge about which the leg swings forwardly when the torso is erect. The remaining protrusions serve as motion stops and guides in conjunction with formations within the doll's torso. As the torso is rocked side-to-side and advanced, opposite legs alternately pivot forward to simulate walking.

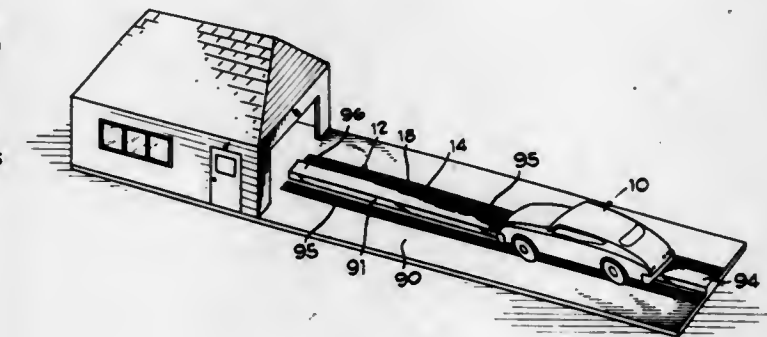
3,591,977

SOUND TOY

Harry Disko, Chicago, and Gunars Lictis, Lombard, both of, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Feb. 27, 1969, Ser. No. 802,920
Int. Cl. A63h 5/00

U.S. Cl. 46-175

8 Claims



Sound toys comprising toy vehicles having sound reproducing apparatus including a depending stylus extending from the underside thereof, and a track or path having a recorded sound strip along which the vehicles may be manually propelled. The recorded sound strip includes a plurality of closely spaced sound grooves bearing different sound messages and the stylus randomly cooperates with one of the sound grooves as the vehicle is operated along the track.

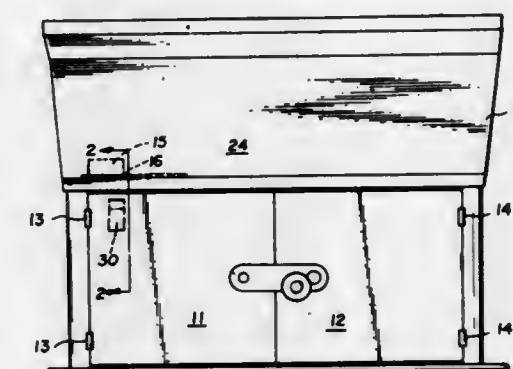
3,591,978

TOY WITH DOOR-ACTUATED SOUNDER

Theodore L. Bollman, West Falls, N.Y., assignor to The Quaker Oats Company
Filed Mar. 7, 1969, Ser. No. 805,313
Int. Cl. A63h 5/00

U.S. Cl. 46-175

5 Claims



A bellows sounder is operated by both opening and closing a door on a toy building. The sounder comprises a vibrating reed actuated by the closing of the bellows, and a cam on the door and a follower on the toy are arranged for moving the follower on both opening and closing of the door to expand the bellows which then close under spring pressure to generate the sound.

3,591,979

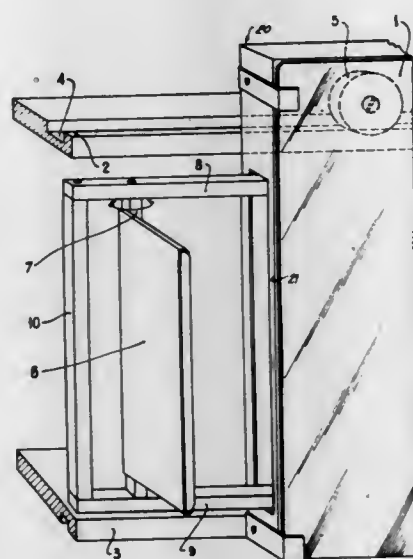
SLIDING DOOR WITH RETRACTABLE SWINGING LEAF

Hugo Laskarin Graber, Laprida St. No. 2051, Buenos Aires, Argentina

Filed Feb. 11, 1969, Ser. No. 798,280
Int. Cl. E06b 7/00

U.S. Cl. 49-70

4 Claims



A door for cabinets, cupboards and the like in which at least one sliding door element provided with a mirrored surface carries at least two sliding and swinging side leaves or door elements also provided with mirrored surfaces by means of beams slidably mounted on guides fixed to the rear portion of the door element at different heights so that the side leaves may slide from a fully extended position to a retracted position in which the side leaves are fully concealed behind the front portion of the door element while lying in one and the same plane whereby the thickness of the door element is maintained at a minimum and the extended position of the side leaves at a maximum.

3,591,980

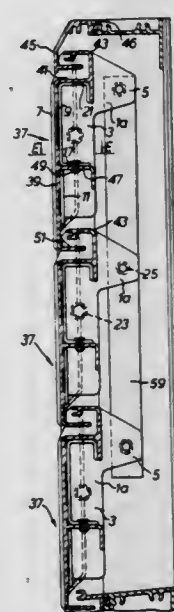
LOUVRE ARRANGEMENTS

Raymond Shu Kwok Cheng, Kowloon, Hong Kong, assignor to The Hong Kong Chiap Hua Mfg. Co. 1947 Ltd., Hong Kong, Japan

Filed May 1, 1969, Ser. No. 820,843
Claims priority, application Great Britain, Feb. 14, 1969, 8156/69
Int. Cl. E05f 17/00

U.S. Cl. 49-91

2 Claims



A louvre arrangement comprising a plurality of louvre boards each mounted at their ends by mounting members of

thermoplastic materials. The mounting members each including an integral projection, to engage in apertures in a frame of an aperture in a wall which the louvre arrangement is to obstruct, to form bearings about which the louvre boards can be pivoted, and also including an integral projection to form weather stripping to seal the gap between the respective mounting member and the frame.

3,591,981

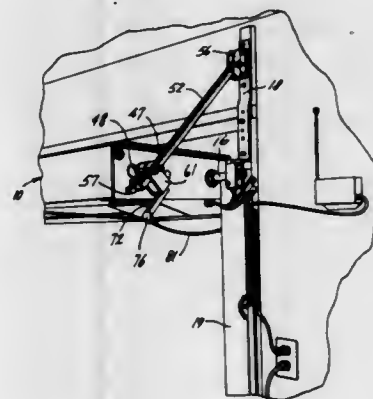
DOOR OPERATOR

John R. Law, Fraser, Mich., assignor to Tilt-A-Door Corporation, Detroit, Mich.

Filed Mar. 10, 1969, Ser. No. 805,567
Int. Cl. E05f 15/12

U.S. Cl. 49-139

12 Claims



A door operator for a canopy-type door including a small driving pinion normally maintained in meshing engagement with an elongated rack member. The driving pinion is preferably rotatably mounted on the door and the elongated rack is preferably pivotally mounted on the adjacent door frame. Resilient means normally maintain the pinion and rack in meshing engagement whereby the driving pinion, being of small diameter, effective functions as a restraining device to hold the door in a stationary position. Manually releasable means are provided for permitting disengagement of the rack and driving pinion to permit manual operation of the door.

3,591,982

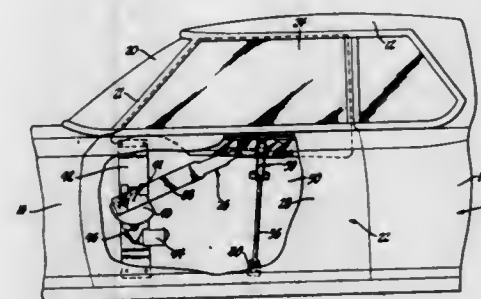
WINDOW REGULATOR

Wayne E. Nantau, Fraser, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 24, 1970, Ser. No. 22,190
Int. Cl. E05f 11/52

U.S. Cl. 49-227

5 Claims



A vehicle window regulator assembly includes a tubular guide fixed to the vehicle body and a lift arm pivotally mounted on the vehicle body and attached to a window panel and operable to move the window panel between raised and lowered positions. A guide follower unit grips the tubular guide at two vertically spaced locations and is connected to the window panel through a telescopic connection permitting the guide follower unit to extend down below the lower edge of the window panel in the raised position of the latter to increase the lateral stability thereof while assuming a

position generally above the lower edge of the window panel in the lowered position of the latter to permit increased downward movement of the window panel.

3,591,983

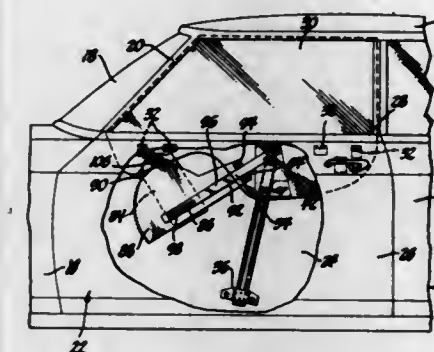
VEHICLE WINDOW PANEL INSTALLATION

Richard D. Hanson, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 30, 1970, Ser. No. 33,258
Int. Cl. E05f 11/52

U.S. Cl. 49-227

3 Claims



A window panel installation in a vehicle body having a window opening includes a fixed guide member defining a path of motion for the window panel, a follower guided by the guide member and a sash plate mounted on the follower for pivotal movement about an axis of the sash plate and having the window panel mounted thereon for limited universal movement. Pivotal movement of the sash plate relative to the guide member or of the window panel relative to the sash plate effects rotary adjustment of the window panel in its own plane while sequential or simultaneous pivotal movement of both the sash plate and window panel effects longitudinal adjustment of the latter. Transverse or lateral adjustment of the window panel is effected through rocking movement of the window panel relative to the sash plate transversely of the vehicle body.

3,591,984

SLIDING DOOR FITTING COMPRISING A CURSOR FOR GUIDING THE DOOR IN A GUIDE RAIL

Heinrich Lauterbach, Nurnberg, Germany, assignor to Trola-Kunststoffzeugnisse Gesellschaft Mit Beschränkter Haftung Und Co., Nurnberg, Germany

Filed June 3, 1969, Ser. No. 829,938
Claims priority, application Germany, June 22, 1968, P 17 59 934.7
Int. Cl. E05d 13/02

U.S. Cl. 49-410

6 Claims



A fitting for a sliding door having a cursor for guiding the door parallel to an undercut slot in a guide rail, the cursor

3,591,985

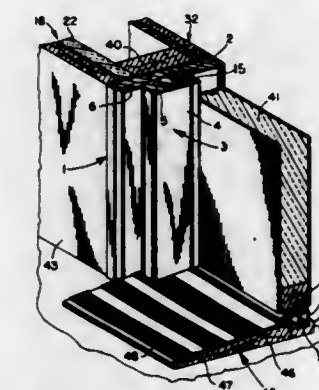
PLASTIC-SHEATHED DOOR FRAME

Cary J. Coppins, 13700 Fairhill Road, Cleveland, Ohio

Filed Sept. 30, 1969, Ser. No. 862,168
Int. Cl. E06b 1/08

U.S. Cl. 49-504

13 Claims



Plastic covering protects the normally exposed inner surface of a door frame from the weather and provides a decorative coating therefor which never needs painting. An additional plastic covering in the form of an elongated plastic extrusion member is attached to the back side of the door frame adjacent the exterior wall and has a rigid plastic strip or fin projecting therefrom covering the joint between the door frame and exterior wood sheeting to provide a drip cap along the top of the door frame and water seal around the entire periphery of the door frame. The plastic fin is offset with respect to its base portion to accommodate the difference in thickness between dry wall and plaster wall for use with either by proper positioning of the fin.

3,591,986

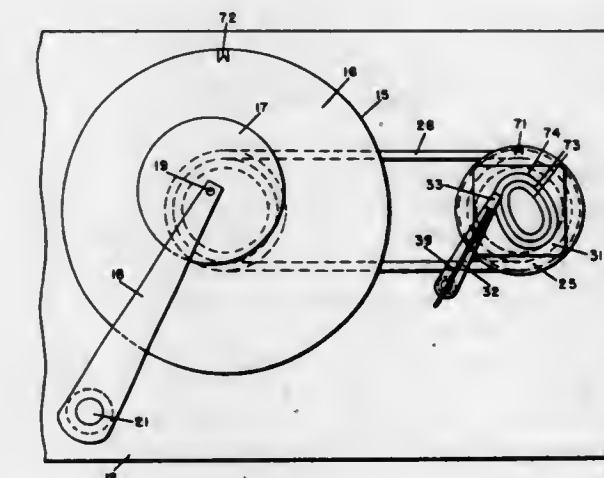
OPTICAL SURFACE GENERATING METHOD AND APPARATUS

Ronald Aspdin, Bedford, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Oct. 31, 1969, Ser. No. 873,046
Int. Cl. B24b 7/00, 9/00, 1/00

U.S. Cl. 51-55

20 Claims



A surface generating system wherein an optical lap is moved over the surface of an optical blank in a path having both circumferential and oscillating radial components. Con-

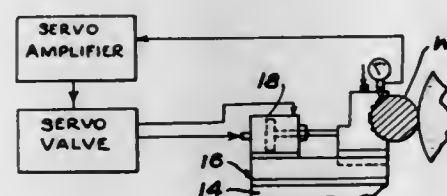
tinuous and selective variation in the amplitude of the radial component produces desired radially symmetric changes on the work surface and continuous and selective variation in the magnitude of the circumferential component corrects radial asymmetries initially present on the work surface.

3,591,987 WORK FOLLOWER RESTS

Gordon H. Porath, Brighton, Mich., assignor to The Babcock and Wilcox Company, New York, N.Y.
Division of Ser. No. 573,625, Aug. 19, 1966, Pat. No. 3,425,168. Filed Aug. 2, 1968, Ser. No. 749,878
Int. Cl. B24b 41/06

U.S. Cl. 51-105 R

8 Claims



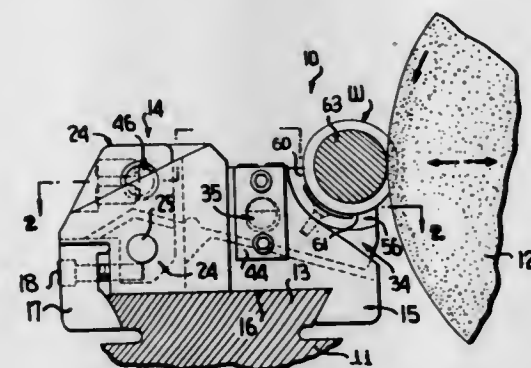
A follower rest which is brought into position adjacent but in spaced relation to the workpiece having a plurality of surfaces, each of which has at least one pressure pad therein. A restrictor is associated with each pressure pad and liquid is provided to each restrictor. When the workpiece is in position adjacent the follower rest and the work performing tool is brought into contact with the workpiece, liquid is supplied to each of the pressure pads and a film of liquid flows continuously at a low velocity between the adjacent surfaces of the follower rest and the workpiece in such a manner that the liquid dissipates its pressure a short distance from the pressure pad.

3,591,988 WORK REST

Ralph E. Price, Waynesboro, Pa., assignor to Litton Industries, Inc., Beverly Hills, Calif.
Filed July 8, 1969, Ser. No. 839,924
Int. Cl. B24b 5/00, 17/00

U.S. Cl. 51-105

29 Claims



This disclosure relates to a work rest for machine tools, and more particularly, for grinding machines, the work rest includes a base member having a work supporting member pivotally mounted thereon. The work supporting member has angularly spaced shoe portions for supporting a workpiece. The work supporting member is secured to the base member by an inner eccentric shaft adjacent to the work supporting member secures the work supporting member to a yoke which, in turn, is pivotally connected to the base member through a shaft. Adjustment of the inner eccentric shaft moves the support member in a near-vertical direction, and adjustment of the eccentric at the outer portion of the work supporting member moves the work supporting member in a near-vertical direction. A manually or hydraulically operated shoe mechanism may be included as an in-

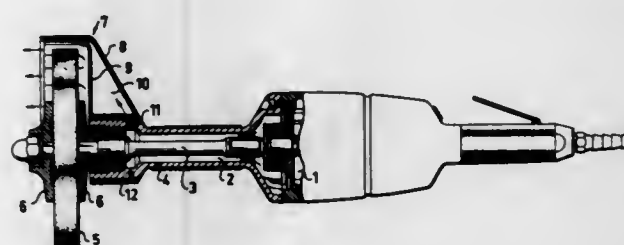
tegral part of the work rest to control the specific work supporting requirements when large diameters are to be ground or when more than one work rest is required.

3,591,989 HAND GRINDING MACHINES

Jorgen Granlie, Enkoping, Sweden, assignor to Aktiebolaget Bahco, Stockholm, Sweden
Filed Feb. 13, 1969, Ser. No. 798,955
Claims priority, application Sweden, Feb. 20, 1968, 2217/68
Int. Cl. B24b 55/04, 23/00

U.S. Cl. 51-268

5 Claims



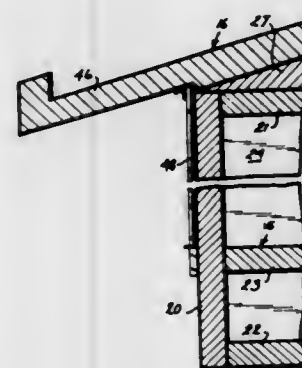
A grinding machine wherein a grinding wheel is rotated by a compressed air-driven motor and wherein sound dampening means is formed in a dust shield which surrounds part of the periphery of the grinding wheel and has an air-outlet passage formed between two peripherally extending parts of the dust shield.

3,591,990 COLLAPSIBLE HOUSING UNIT

William R. Bergstedt, 28 102 Ave. N.W., Coon Rapids, Minn., and Earl N. Juntunen, Esko, Minn.
Filed Oct. 16, 1969, Ser. No. 866,917
Int. Cl. E04b 1/344, 7/16

U.S. Cl. 52-67

8 Claims



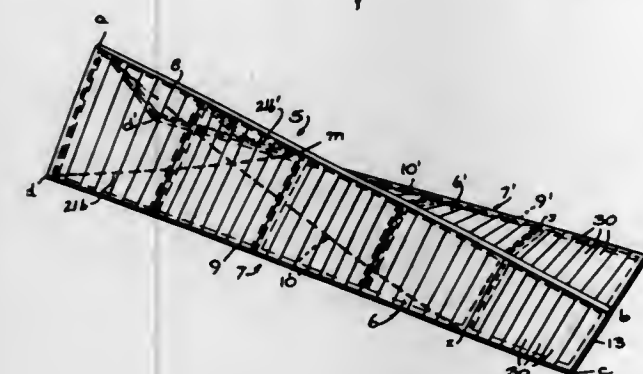
Two rigid, upstanding elongated sidewalls positioned in generally parallel relationship and movable between adjacent and spaced-apart positions, two foldable end walls affixed between the sidewalls at opposite ends thereof, a foldable floor affixed between the sidewalls and a roof having a central inverted V-shaped member with two outwardly projecting extensions thereof hinged to the central member so as to hang vertically downwardly adjacent the outer surfaces of the sidewalls in the collapsed position and to assume an overlying relationship to the sidewalls in the assembled position. A plurality of struts hinged between the outer surfaces of the sidewalls and the under surfaces of the projecting members of the roof to maintain the roof in an assembled position while the sidewalls are being moved from a collapsed position to the assembled position, the struts forming generally vertically decorative battens on the exterior of the sidewalls and holding the roof in place.

3,591,991 CANTILEVERED ROOF SECTION

Lev Zetlin, 89 Hamilton Drive, Roslyn, N.Y.
Filed June 17, 1969, Ser. No. 834,101
Int. Cl. E04b 1/32, 1/34, 7/14

U.S. Cl. 52-73

33 Claims



A prefabricatable structural element particularly suitable for use as a cantilevered roof structure capable of spanning large areas and including an elongated curved, preferably hyperbolic-paraboloid, surface member extending between a linear tension member and a linear compression member not sharing a plane common to the tension member. A tensioned flexible member such as a cable connected at one end thereof to a longitudinally spaced portion of the compression member engages the hyperbolic-paraboloid surface member at a plurality of predetermined locations intermediate the said tension and compression members. The tensioned flexible cable member conforms at least partly to the curvature of said surface member and cooperates with the surface member and with the linear tension and compression members so as to provide control over the deflection and flutter characteristics of the structure.

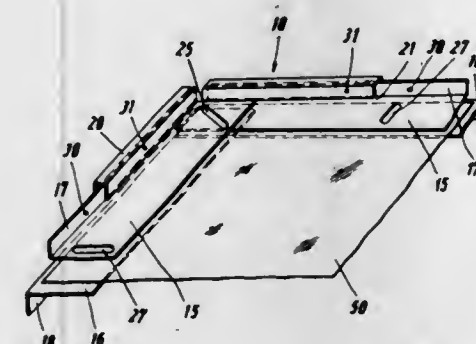
3,591,992 WINDOWLIKE STRUCTURAL ELEMENT, PARTICULARLY SUITABLE FOR COVERING HOTBEDS OR FOR THE ERECTION OF BUILDING STRUCTURES

Heinrich R. Pawlckl, Faha East, Bantry, Co. Cork, Ireland
Filed Aug. 22, 1969, Ser. No. 852,201
Claims priority, application Germany, Sept. 6, 1968
G 67 51 880

Int. Cl. E04c 2/38; E06b 2/54

U.S. Cl. 52-309

14 Claims



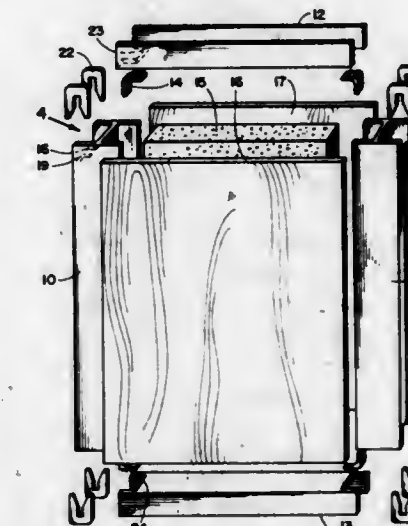
A windowlike structural element assembled of several profile parts in the mechanical assembly technique. The structural element comprises a frame in which a translucent, lightweight windowlike covering of glass or of a plastic material is inserted. Generally, the element includes horizontal and vertical frame portions, each consisting of flat section profiles having bent leg portions, the profiles being joined by a slide-on sleeve. The covering is mounted between the flat sections by fixing means serving to also secure the frame portions and flat sections. Several structural elements may be combined to form a wall or a building structure.

3,591,993 PREFABRICATED WALL UNIT CONSTRUCTION

Troy L. Reeves, St. George, Utah, assignor to Quality Control Builders and Manufacturing Inc., Van Nuys, Calif.
Filed July 18, 1969, Ser. No. 843,103
Int. Cl. E04b 2/16; E04c 2/10

U.S. Cl. 52-475

4 Claims



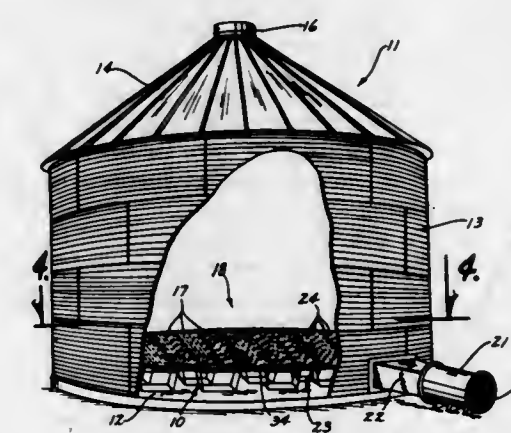
Prefabricated wall units are provided for ready connection in longitudinal alignment by clips receivable over shaped side columns when positioned adjacent to each other. Each unit includes top and bottom channels defining a frame with the columns and a suitable insulating filler. Side panels are provided to complete the prefabricated construction.

3,591,994 OPEN FLOOR SUPPORT

Vincent B. Steffen, New Hampton, Iowa 50659
Filed Dec. 23, 1968, Ser. No. 786,154
Int. Cl. E04h 7/34

U.S. Cl. 52-648

3 Claims



This invention relates to an open support for supporting the perforated floor of the grain-drying bin, the support having a base and a floor-receiving member substantially identical in outline, the base and floor-receiving member being horizontally disposed and vertically spaced, and a plurality of struts connecting the base to the floor-receiving member at the corners thereof.

3,591,995 TRUSS JOIST WITH CLAMP-CONNECTED WEB MEMBERS

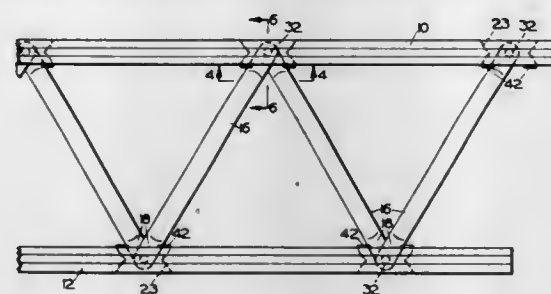
Arthur L. Troutner, Skyline Drive, Boise, Idaho
Filed June 13, 1969, Ser. No. 833,092
Int. Cl. E04c 3/292, 3/12

U.S. Cl. 52-693

12 Claims

A truss joist comprises upper and lower chords having in their opposed faces a staggered pattern of slots with inwardly projecting, reversely tapered end walls. A plurality of clamp connectors are disposed one in each slot. Each clamp con-

ector comprises an outer and an inner hollow case arranged back to back. The end walls of each case have a taper substantially matching the taper of the slot end walls. A plurality of web members are arranged diagonally between the chords with the ends of adjacent web members extending into the



inner case of each connector. Web member securing means secure the web members in the cases. Case securing means secure the cases of each pair to each other, while contemporaneously exerting clamping pressure against the inwardly tapered end walls of each slot.

3,591,996

MOLDING ATTACHMENT

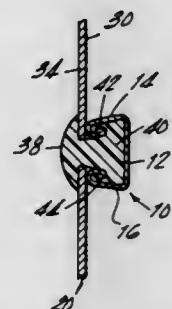
Victor Shanok, and Jesse Shanok, Brooklyn, both of, N.Y., assignors to Glass Laboratories Company, Brooklyn, N.Y.

Filed May 10, 1967, Ser. No. 637,378

Int. Cl. E04f 11/02

U.S. Cl. 52-716

1 Claim



This invention is concerned primarily with providing a novel method of attaching or blind fastening a strip of molding to a sheet of material, and the novel molding attachment produced thereby. Briefly, the method involves affixing the strip of molding to the sheet of material by means of a substance while in fluent form which will, when cooled, cured or set become a rigid composition. The liquid, or soft hardenable substance is forced through a bore or bores provided in a sheet of base material into a channel formed in the strip of molding, which molding channel confronts a surface of the base sheet, and when the substance is allowed to harden to a rigid consistency the molding and the sheet of material are anchored together thereby. The method is equally applicable for blind fastening of other articles.

3,591,997

ANTIRACKING SUPPORT BRACE FOR A BUILDING WALL

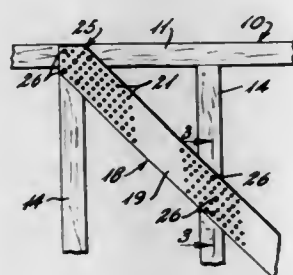
James D. Tennison, Jr., 1896 Overton Park Ave., Memphis, Tenn., and Jack C. Tennison, 510 W. Barton, West Memphis, Ark.

Filed June 19, 1969, Ser. No. 834,706

Int. Cl. E04b 2/70; E04c 3/292

U.S. Cl. 52-657

1 Claim



Apparatus applicable to the frame of a building and adapted to brace such frame and thereby stabilize and

strength such frame to prevent racking while permitting either exterior or interior siding to be applied. The apparatus includes a sheet metal channel member having multiple openings arranged in a pattern which will insure that several of such openings are in alignment with each portion of the frame that the brace crosses to permit multiple fasteners to connect the brace to each upright frame member as well as to the upper and lower plates of the frame.

3,591,998

METHODS AND APPARATUS FOR SECURING TOGETHER STICKS IN BUNDLES

Soren Elof Mauritz Sollerud, Norrköping, Sweden, assignor to Goran Gustaf Eriksson, Brabogarden Jursula, Aby, Sweden

Filed Sept. 23, 1969, Ser. No. 860,365

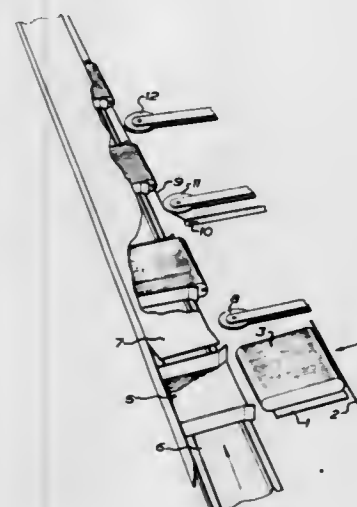
Claims priority, application Sweden, Sept. 26, 1968,

12959/68

Int. Cl. B65b 15/00

U.S. Cl. 53-3

7 Claims



A method and an apparatus by which sticks are secured together in bundles with the aid of a string which is placed in a recess formed in the stick ends. After the string has been placed in the recess the stick ends are deformed adjacent the recess to anchor the string therein. A continuous string can be used, whereby the bundles are mutually connected to each other.

3,591,999

WRAPPING MACHINE FOR SPHEROIDAL BODIES, PARTICULARLY CITRUS FRUIT

Aurelio Mingotti, Imola, Bologna, Italy, assignor to S.A.C.M.I. Cooperativa Meccanici Imola Società Cooperativa a responsabilità limitata, Imola, Bologna, Italy

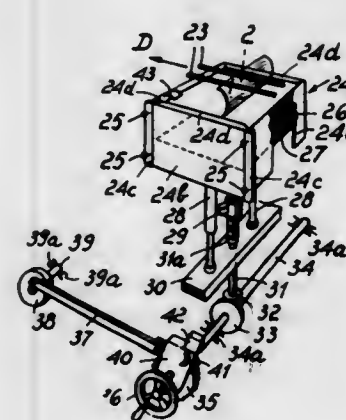
Filed Feb. 24, 1969, Ser. No. 801,309

Claims priority, application Italy, Mar. 15, 1968, 1565A/68

Int. Cl. B65b 11/4, 51/00

U.S. Cl. 53-214

5 Claims



This disclosure relates to a machine for wrapping spheroid bodies, particularly citrus fruit, which includes conveyor means for conveying said bodies above a hopper containing a

pile of sheets of wrapping paper, means for distributing glue onto said bodies and rotating said bodies before their arrival at said hopper, and a closure station for closing the ends of the cylindrical wrappings formed by the adhesive contact between each rotating body and a relative sheet of wrapping paper.

3,592,000

METHOD AND APPARATUS FOR PACKING OF OBJECTS

Erik Gunnar Kapare, Göteborg, Sweden, assignor to Billeruds Aktiebolag, Saffle, Sweden

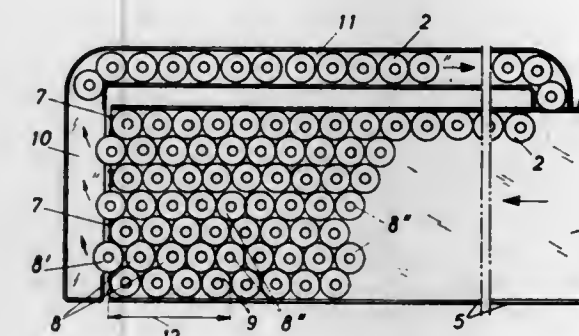
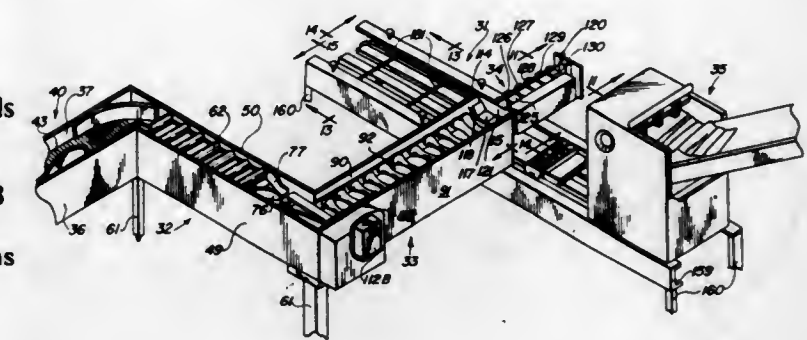
Filed Feb. 7, 1969, Ser. No. 797,454

Claims priority, application Sweden, Feb. 19, 1968, 2104/68

Int. Cl. B65b 21/06, 35/30

U.S. Cl. 53-26

9 Claims



of eggs into (ii) a series of holding chutes of equal number under the segments, (iii) means to drop the number of eggs, immediately after the last and nearest segment is rocked, into a container having a row of cells of equal number, and (iv) means to remove said row and advance another row into receiving position under the series of holding pockets.

3,592,002

DROP-THROUGH CASE PACKER

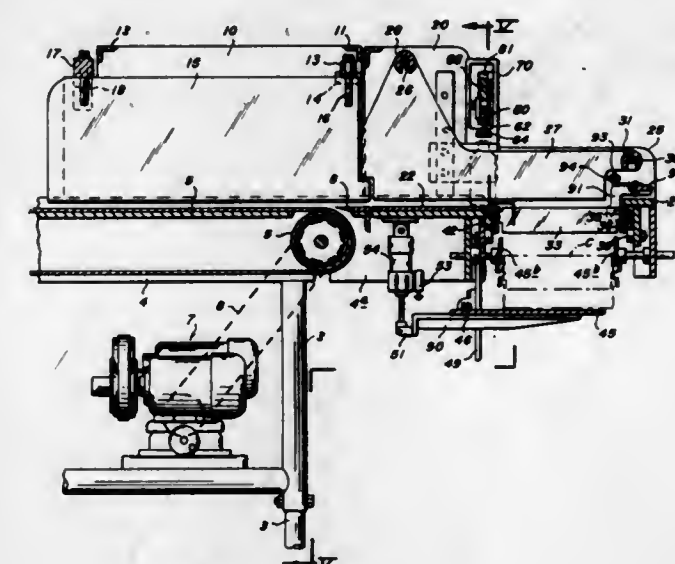
Frank P. Alduk, 116 Guadalcanal Road, New Castle, Pa.

Filed Feb. 3, 1969, Ser. No. 796,097

Int. Cl. B65b 5/08, 21/06, 35/44

U.S. Cl. 53-159

17 Claims



This invention relates to a method for packing bottles, cans or similar objects of essentially circular cross-sectional shape. The object of the invention is to pack the objects such that they require smallest possible space and at the same time support each other such that very stable packages are obtained. This has been achieved in that the objects in a store or store station are arranged in rows of alternating even and uneven number of objects. Rows of the greater number being situated along opposite transversal sides of a group of objects formed in said store. The main feature of the invention is to be seen wherein that the bottles are packed in the store, from which they are removed in predetermined groups for being commonly packed, according to a described packing pattern and that a momentarily front row of objects having a lower number of objects is allowed to pass out of the store and then is fed back to take their place once again upon a main conveyor feeding the object of the store. The invention also relates to a machine for carrying said method into effect and being for this purpose provided with stops in the store where the packing pattern is formed, these stops having between them openings through which only the momentarily front row of objects of an uneven number can pass out of the store.

3,592,001

AUTOMATIC EGG CARTON AND FLAT FILLING MACHINE

Elmer Gross, 412 S. See Gwun, Mount Prospect, Ill.; Arthur Schmitz, 1015 Arthur Ave., Park Ridge, Ill., and John H. Hribar, 4615 N. Newland Ave., Harwood Heights, Ill.

Continuation-in-part of application Ser. No. 519,503, Jan. 10, 1966, now abandoned. This application Nov. 26, 1969, Ser.

No. 880,291

Int. Cl. B65b 57/12, 35/36

U.S. Cl. 53-55

20 Claims

An egg-orienting and packing apparatus, including (a) an egg delivery mechanism for delivering a row of eggs moving longitudinally by rolling; (b) an egg-orienting section having an endless conveyor of rotating cylinders of such dimension that a single rolling egg may fit alone between a pair of cylinders, and at its downstream end a pair of springlike arms for pivoting each egg with its blunt end downstream; and (c) a transition section, normal to and at the downstream end of the orienting section having an endless conveyor of rotating concave spools, and, at its downstream end, a longitudinal

There is disclosed an apparatus for assembling and simultaneously dropping a caseload of containers into the top of an open carton. The device is in the form of an attachment to an existing machine of another type. Bottles, jars, cans or the like are arranged in rows or lanes between parallel guides located over and endless conveyor belt. They move from these lanes between other guides where the bottoms of the containers are supported only on rods carried in a drawerlike frame. When a caseload of containers so supported is positioned between these guides, the forward travel of additional containers is blocked and the drawerlike frame is moved sideways to remove the support from under the caseload and they drop through the frame into a carton positioned therebeneath to receive them. The loaded carton is discharged, the drawerlike frame returned to its starting position, and the restraint is removed from the succeeding containers so that the next caseload is assembled between the guides.

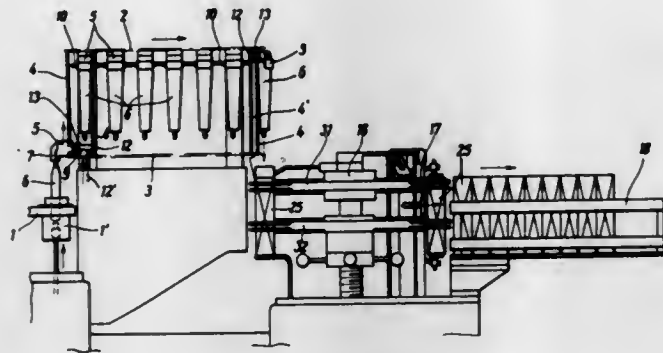
3,592,003

APPARATUS FOR THE PACKING OF FILLED TUBES
Albert Stichhan, Bergstrasse 62, 8550 Forchheim, Oberfranken, Germany

Filed July 22, 1969, Ser. No. 843,729
Int. Cl. B65b 39/12, 43/28

U.S. Cl. 53-186

26 Claims



The invention provides apparatus for packing filled tubes, such as toothpaste tubes, in individual rectangular boxes with the end closure fins of the tubes extending diagonally of the boxes. A tube conveyor includes tongs movable in a horizontal endless path and adapted to suspend the tubes by their fins. The tubes are received from a rotary table and transported to a packing station at which the erected boxes are presented by a compartmented wheel. The tongs lower the tubes individually into the boxes at the packing station.

3,592,004

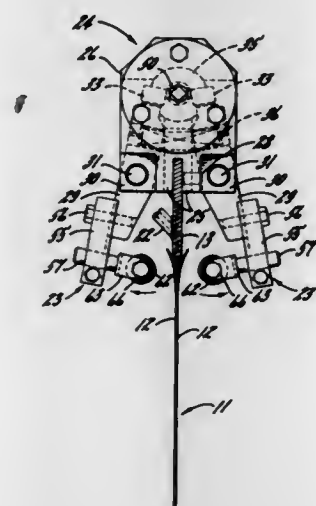
BAG-PRESSING MEMBERS FOR PACKAGING MACHINE

Robert F. Lense, Rockford, Ill., assignor to Riegel Paper Corporation, New York, N.Y.

Filed Aug. 22, 1969, Ser. No. 852,356
Int. Cl. B65b 43/36

U.S. Cl. 53-385

13 Claims



A machine for opening thin, flexible walled bags as the bags are advanced edgewise along a predetermined path in upright positions with the walls of each bag positioned face-to-face and with the upper end portions of the bags straddling a splitter bar. To force the walls of each bag apart, air is expelled through an orifice in the splitter bar and into the bag. In timed relation with the expelling of air into the bag, a pair of pressing members are moved into engagement with the upper end portions of the walls to press the walls against the splitter bar and prevent escape of the air. To move the pressing members into engagement with the bags, an air-operated actuator is mounted on the upper edge portion of the splitter bar and is connected to the pressing members.

3,592,005

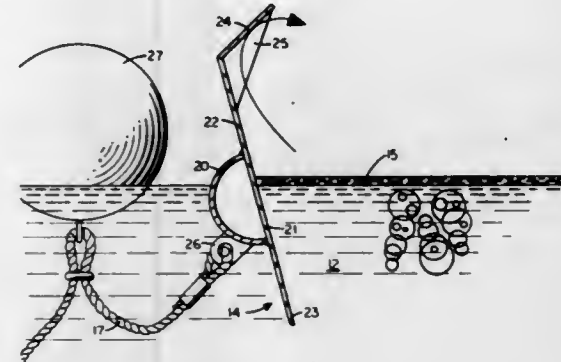
OIL BARRIER FOR OFFSHORE OIL RIGS

Eugene C. Greenwood, Newport Beach, Calif., assignor to Fre-Del Engineering Corporation, Santa Ana, Calif., a part interest

Filed Feb. 25, 1969, Ser. No. 801,985
Int. Cl. E02b 15/04

U.S. Cl. 61-1

10 Claims



A floating barrier is anchored in place in a generally circular shape around an offshore oil rig. The barrier consists of a plurality of rigid segments extending above and below the surface of the water and attached to each other by flexible couplings which permit movement in both horizontal and vertical planes. At each joint, a sheet of flexible material seals the joint from an interchange of oil and water from the inside of the barrier to the outside.

3,592,006

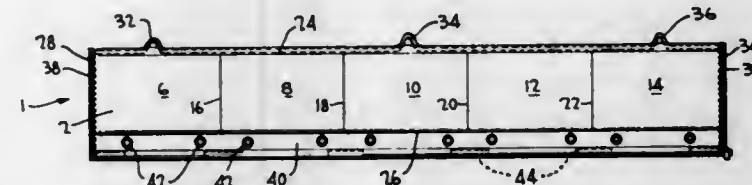
ISOLATION DEVICE

Arturo M. Crucet, Oklahoma City, Okla., assignor to Cerebro-Dynamics, Incorporated, Oklahoma City, Okla.

Filed Feb. 18, 1969, Ser. No. 800,201
Int. Cl. B63b 35/00

U.S. Cl. 61-1

11 Claims



A buoyant isolation device is provided which is capable of confining contamination (e.g. an oil slick) present upon the surface of a body of water while conforming in configuration to surface undulations. The device comprises a buoyant elongated flexible barrier which is provided with a plurality of closed fluid chambers. Through the use of a coupling element having a pair of slots which engage the barrier, contamination confined by the barrier may be readily concentrated prior to subsequent removal.

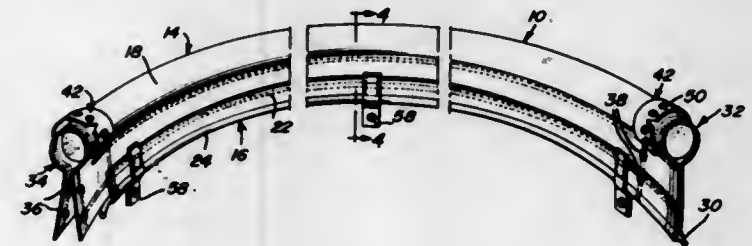
3,592,007

RETAINER FOR FLOATING DEBRIS

Carl E. Renner, 3824 Rachel, Port Arthur, Tex.
Filed Sept. 5, 1969, Ser. No. 855,530
Int. Cl. E02b 15/04

U.S. Cl. 61-1

8 Claims



A floating retainer for water carried debris of various types, including liquid debris such as oil from ships, offshore

drilling operations, and the like. The retainer includes an elongated vertically orientatable gathering skirt, the upper edge of which defines an elongated pocket for the reception of buoyant float material. The lower edge defines a ballast-receiving pocket. Interengaging male and female ends are provided in conjunction with joining collars for the tying together of two or more retainers.

3,592,008

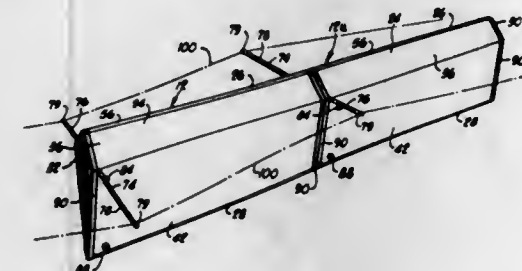
FLOTATION CONFINEMENT APPARATUS

Billie A. Trindle, 8712 S. Youngs, Oklahoma City, Okla.

Filed May 23, 1969, Ser. No. 827,411
Int. Cl. E02b 15/04

U.S. Cl. 61-1

1 Claim



A flotation confinement apparatus for disposition on a body of water which apparatus is particularly useful around offshore oil rigs and in cooperation with a shoreline to retain or to exclude oil or other undesirable matter until such matter can be removed or otherwise eliminated.

3,592,009

LIQUID STORAGE PIT WITH FLOATING COVER

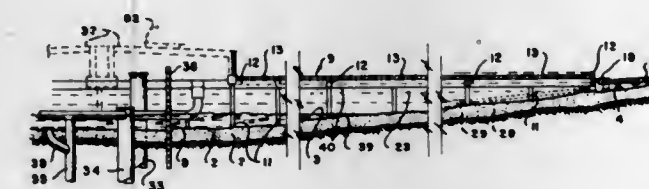
Teunis Glijnis, Alkmaar; Petrus J. Antonissen, The Hague, and Cornelis J. Kamp, The Hague, all of, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Filed Apr. 29, 1969, Ser. No. 820,165
Claims priority, application Great Britain, May 16, 1968, 23353/68

Int. Cl. B65g 5/00

U.S. Cl. 61-5

11 Claims



Means for storing liquids including a storage pit having an inclined wall and provided with a floating cover, said floating cover comprising a plurality of buoyant elements movably interconnected in a fluidtight manner.

3,592,010

MINERAL-WORKING EQUIPMENT

Joseph Gaskell, Wigan, England, assignor to Gullick Limited, Wigan, England

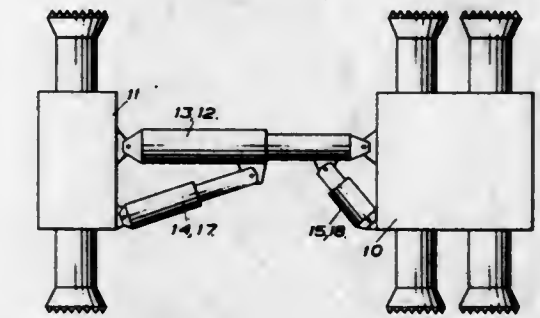
Filed Sept. 16, 1969, Ser. No. 858,417
Claims priority, application Great Britain, Oct. 3, 1968, 46880/68

Int. Cl. E21d 15/44

U.S. Cl. 61-45 R

7 Claims

A tool-supporting device for directing or maneuvering mineral-working or like equipment in relation to a mineral face or terrain to be mined or worked with the aid of such equipment, comprises two units, at least one of which is adapted to have a tool mounted on it. Each unit has jack means whereby it can be releasably secured between a floor and roof of a mineworking. Extensible means is provided



between the units, said extensible means being operative, using each unit as an abutment or anchorage, to move the other unit relatively thereto. The device also includes steering means between the units for directing such relative movement. In a preferred embodiment of the invention each unit

3,592,011

ROOF-SUPPORTING ASSEMBLY FOR HYDRAULIC ROOF-SUPPORTING SYSTEM

Friedrich-Alexander Brosowski, Castrop-Rauxel, Germany assignor to Klockner-Werke AG Duisburg, Germany

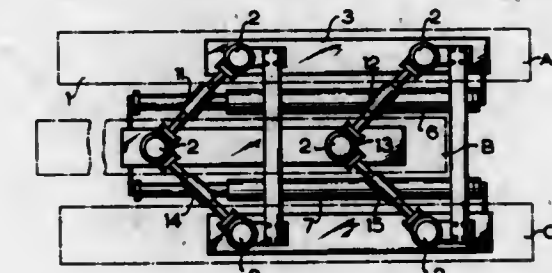
Filed May 1, 1969, Ser. No. 820,808

Claims priority, application Germany, July 1, 1968, P 17 58 448.4

Int. Cl. E21d 15/44

U.S. Cl. 61-45

3 Claims



This invention relates to a roof-supporting assembly for a hydraulic roof-supporting system for longwall faces, which roof-supporting assembly comprises three frames placed side by side of which either the two outer frames jointly or the frame in the middle can be advanced and wherein the frames are coupled by paired control cylinders operable in contrary directions for correcting the relative positions of the frames, the annular piston face in one of each pair of cylinders having the same effective cross-sectional area as the full piston face in the other cylinder and the chamber on the full piston face side in one control cylinder being connected to the chamber on the annular piston face side in the other cylinder for keeping the frames parallel.

3,592,012

LATERALLY REINFORCED OFFSHORE PLATFORM

George E. Mott, Metairie, La., assignor to Texaco Inc., New York, N.Y.

Filed Sept. 23, 1969, Ser. No. 860,285

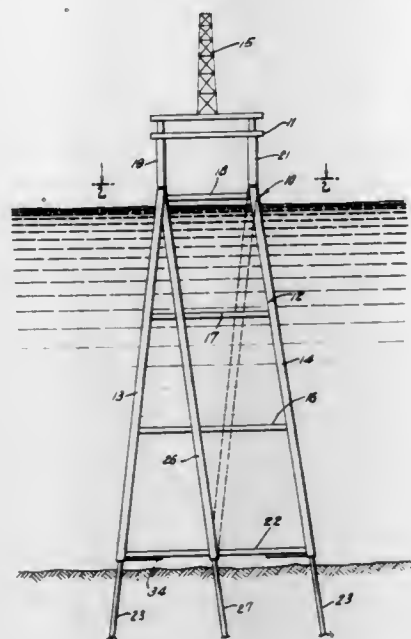
Int. Cl. E02b 17/00

U.S. Cl. 61-46

5 Claims

An offshore platform adapted to be fixedly positioned at the floor of a body of water. The deck-supporting structure or jacket includes three or more corner legs which extend to, and are fastened into the substratum by piles connected at the respective leg's lower ends. The jacket's upper end is adapted to adjustably or fixedly position a work deck above the water's surface, which deck accommodates the usual equipment such as derricks, draw works and the like, nor-

mally utilized in a well-drilling operation, the deck-supporting jacket is reinforced and stabilized against lateral displacement.



ing forces by a series of batter piles held in diagonally positioned pile guides disposed along the respective side faces of said support jacket.

3,592,013

TILTING JACK OFFSHORE PLATFORM

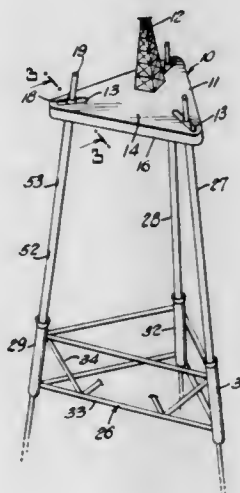
Ivo C. Pogonowski, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed June 24, 1969, Ser. No. 836,054

Int. Cl. E02b 17/00

U.S. Cl. 61-46.5

5 Claims



The invention relates to an offshore platform which includes a work deck having a derrick and other ancillary equipment, normally supported above the water's surface for drilling and producing an underwater well. The support member includes a plurality of elongated legs or columns which operably connect to the deck. Said legs are flared outwardly in a downward direction to define a broad base of substantially greater dimensions than the deck. The respective legs are anchored at their lower ends to the ocean floor and extend above the work deck. The latter can thereby be adjusted to a desired height above the water's surface, stabilized to a desired attitude, or lowered to the water's surface. Each leg is registered in a tiltable jack mechanism, which is in turn operably mounted to a mobile carriage whereby the leg upper end can be adjusted by either/or the tilting or longitudinal movement of said jacking mechanism.

3,592,014
PIPE-CONNECTING SYSTEM FOR THE REMOTE CONNECTION OF PIPE ENDS

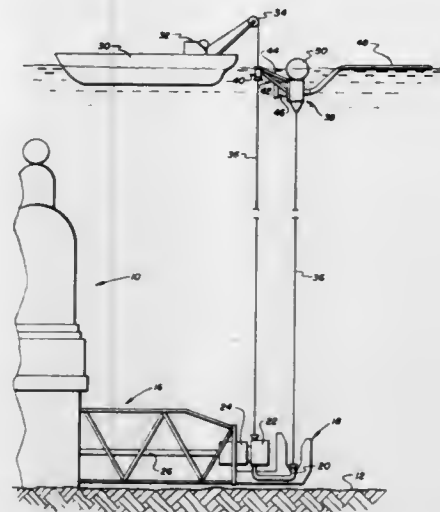
Walter Brown, Long Beach, Calif., and Donald E. Smith, Houston, Tex., assignors to North American Rockwell Corporation

Filed Sept. 4, 1969, Ser. No. 855,288

Int. Cl. F16l 1/00; E02b 3/16; F16l 35/00

U.S. Cl. 61-72.1

11 Claims



A pipe-connecting system for the remote connection of a pipe, such as a flowline, where the pipe is guided to an exact position at a remote location and connected, for example, to a pipe connector at a submerged sea station.

3,592,015

RECTIFICATION COLUMN WITH TWO COMPONENT CLOSED HEAT EXCHANGE CYCLE

Martin Strelch, Niedereschbach, Kreis Friedberg, and Heiner Tanz, Dornigheim (Main), both of Germany, assignors to Messer Griesheim GmbH, Frankfurt am Main, Germany

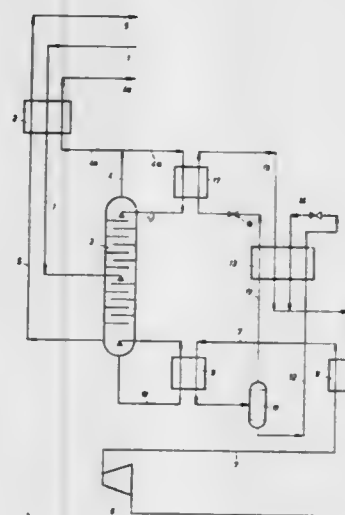
Filed Dec. 19, 1968, Ser. No. 785,213

Claims priority, application Germany, Dec. 21, 1967, P 16 19 728.7

Int. Cl. F25j 3/02, 3/06, 1/00

U.S. Cl. 62-28

11 Claims



A rectification process for separating mixtures of individual components whose boiling temperatures or vapor pressure curves are far apart wherein for the intensification of the rectification, the column adsorption layer is heated with a circulating gas and the column head is cooled with a circulating gas; is characterized by having as the circulating gas a multicomponent mixture consisting of at least two individual components, by means of which, after it is compressed, the column adsorption layer is heated, whereby the mixture is partially condensed, whereupon it is separated in a separator into a liquid phase with preponderantly difficulty

boiling components and into a vapor phase with preponderantly easily boiling components, whereupon the vapor phase through heat exchange is condensed with expanded and vaporizing liquid phase and cools the column head after expansion, and that finally after expansion to the suction pressure and mixing, the original multicomponents mixture is again prepared and conducted to the compressor.

3,592,016

XYLENE ISOMER SEPARATION WITH DIRECT CONTACT GASEOUS CARBON DIOXIDE REFRIGERANT

Bernard Ramsay Bligh, Norton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England

Filed July 24, 1967, Ser. No. 655,406

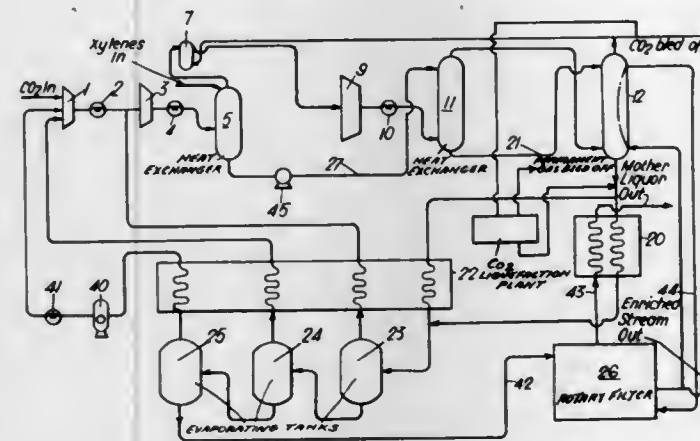
Claims priority, application Great Britain, Aug. 4, 1966,

34,979/66

Int. Cl. B01d 9/04

U.S. Cl. 62-58

10 Claims



A process for separating a crystallizable component from a liquid by chilling the liquid comprises dissolving in the liquid from the gas phase at an elevated pressure a substantial amount of a gas which is chemically inert to the liquid, chilling the liquid by evaporating at least part of the gas from the liquid at an initial temperature chosen so that crystals of the crystallizable component are formed thereby and separating at least part of the crystallizable component from the system.

3,592,017

PURGING ARRANGEMENT FOR REFRIGERATION SYSTEMS

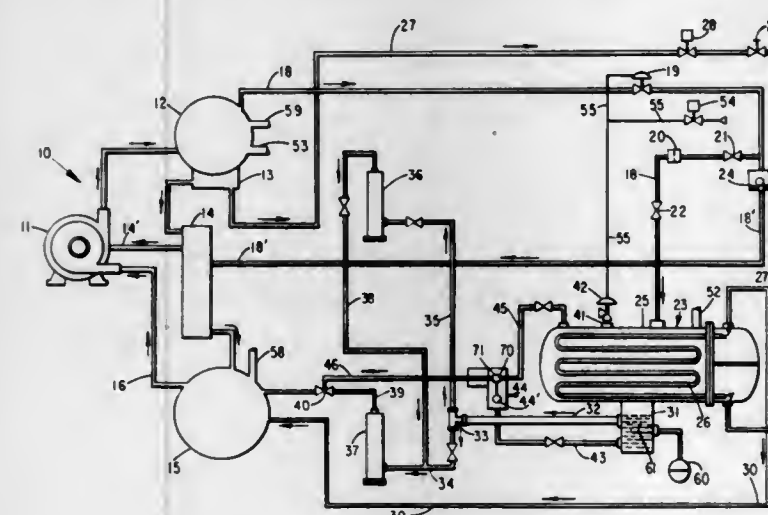
Martin H. Lipman, and Harland E. Rex, both of Dewitt, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 2, 1969, Ser. No. 863,134

Int. Cl. F25b 47/00

U.S. Cl. 62-85

7 Claims



A purging arrangement for a refrigeration system operable to remove noncondensable gases mixed with refrigerant vapor and water vapor from the system to condense the

water and refrigerant constituents, to separate condensed refrigerant vapor from condensed water vapor, and to recover a substantial amount of the condensed refrigerant vapor while venting the remaining noncondensables to the atmosphere. The arrangement includes a heat exchanger in which the mixture of noncondensable gases, refrigerant vapor, and water vapor is passed in heat transfer relation with liquid refrigerant to separate the noncondensable gases from the condensable constituents, refrigerant vapor and water vapor, by condensing the latter. The condensed refrigerant vapor is thereafter separated from the condensed water vapor. The noncondensable gases are discharged from the heat exchanger when a predetermined pressure differential exists between the heat exchanger and the condenser of the refrigeration system. Flow of the mixture from the system to the heat exchanger is prevented while the noncondensable gases are being discharged from the heat exchanger.

3,592,018

PILOT OPERATED AUTOMATIC EXPANSION VALVE

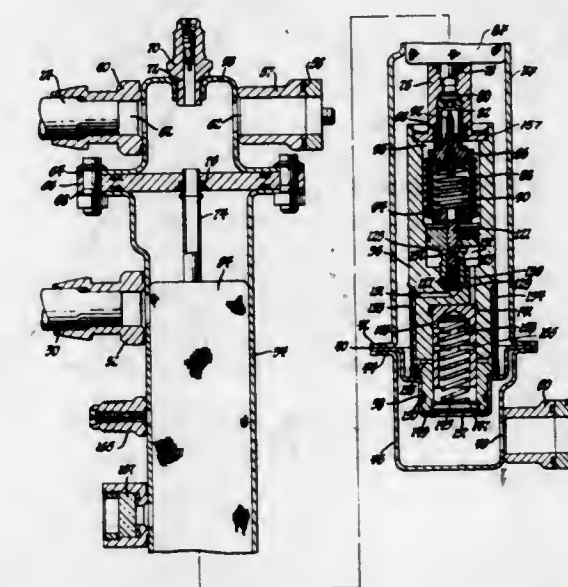
Richard E. Widdowson, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 11, 1969, Ser. No. 849,022

Int. Cl. F25b 41/04

U.S. Cl. 62-222

5 Claims



In the preferred form, a vertical receiver housing incorporates a receiver entrance and an outlet fitting at the top and an inlet fitting at the bottom of a vertical evaporator. A coaxial tube extends from the outlet fitting down through the receiver to a pilot control enclosure containing an evacuated pressure responsive bellows provided with a coaxial follower for operating the pilot valve in accordance with the outlet pressures. The pilot valve controls the flow of high-pressure liquid from the receiver to the pistonhead of the piston slotted sleeve valve which forms the main valve to control the flow of liquid refrigerant from the receiver into the bottom inlet fitting of the evaporator. This pilot control arrangement controls the outlet pressure within a very small differential between idling and maximum speed of the compressor.

3,592,019

QUICK LOCK ASSEMBLY FOR REFRIGERATOR UNIT

Maurice Beaudet, St. Laurent, Montreal, Quebec, Canada, assignor to Galt Equipment Ltd., Candiac, Quebec, Canada

Filed Aug. 29, 1969, Ser. No. 854,203

Claims priority, application Great Britain, May 28, 1969, 27070/69

Int. Cl. F25d 19/00

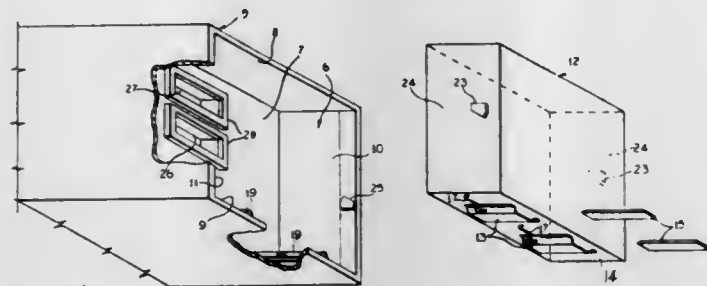
U.S. Cl. 62-298

11 Claims

A device for locking a refrigeration unit into a recessed end of a shipping container. The novel feature comprises a special locking arrangement which is entirely activated by means of the forks of a forklift truck.

The locking arrangement includes (a) at least one actuat-

ing arm pivotally mounted on the bottom of a refrigeration unit, said actuating arm being spring biased in a normally downward position and including at least one lateral locking projection adapted to engage a catch in the shipping container when the actuating arm is in the downward position and prevent either upward or outward movement of the refrigeration unit with respect to the container and further adapted to release from the catch only by an inward and upward push of the actuating arm against the resistance of the



spring and (b) interengaging elements on the refrigeration unit and shipping container recess which normally prevent outward movement of the refrigeration unit and which disengage only by lifting the refrigeration unit with respect to the container, so that the refrigeration unit can be released from the container only by forcing the actuating arm inwardly and upwardly to disengage the lateral projection from corresponding catch while simultaneously lifting the refrigeration unit to disengage the locking elements.

3,592,020

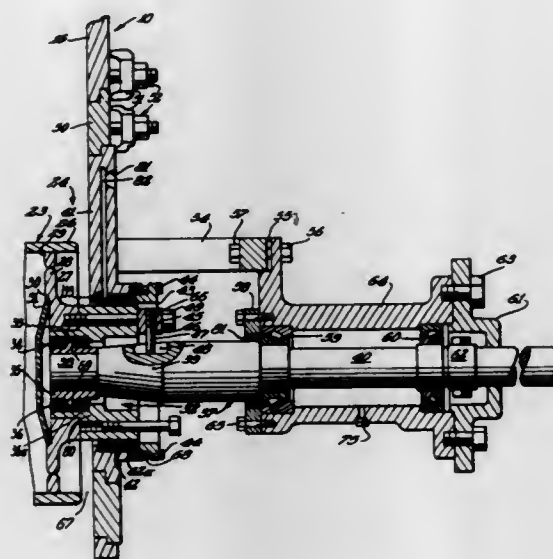
RECTIFIER ROLL SUPPORT

James H. Brewer, Tracy, Quebec, and George Forrest, Sorel, Quebec, both of Canada, assignors to Beloit Corporation, Beloit, Wis.

Filed Nov. 6, 1968, Ser. No. 773,806
Int. Cl. F16d 3/16

U.S. Cl. 64-8 R

5 Claims



A rectifier roll employs a hub insert assembly to provide positive alignment of the roll and journal for eliminating any eccentricity which would result in roll bounce or run out and a pivotal drive engagement of the hub which permits the roll to deflect without imposing severe stress or strain on the separator tips which attach the end plate of the roll to the cylindrical shell of the roll.

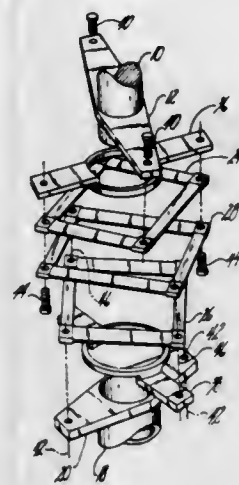
3,592,021

FLEXIBLE COUPLING

Robert J. Mayerjak, Torrington, Conn., assignor to Kaman Aerospace Corporation, Bloomfield, Conn.
Continuation-in-part of application Ser. No. 746,526, July 22, 1968, now Patent No. 3,481,158. This application June 30, 1969, Ser. No. 837,461
Int. Cl. F16d 3/62

U.S. Cl. 64-12

12 Claims



A drive shaft and a shaft to be driven have end fittings with diametrically opposed flange portions in which fastener elements are mounted to receive two of three rectangular flexing elements. These elements are planar, with two sets of opposed leg portions and one of said sets has its leg portions shorter than the other. The elements are arranged in axially offset relationship with respect to one another, that is, with alternate diagonal, or radially extending planes defined by their interconnected corners or vertices, angularly spaced with respect to the axis of rotation of the coupling to permit minimizing the axial length thereof and to nevertheless provide sufficient clearance between the adjacent fastener elements during misalignment of the shafts. A pair of torsion members are arranged adjacent each of the end fittings and their associated flexing elements, said torsion members being disposed at approximately right angles to the end fittings and being connected to the associated flexing elements by fastener elements connecting an additional flexing element intermediate the elements associated with the drive and the driven end of the coupling.

3,592,022

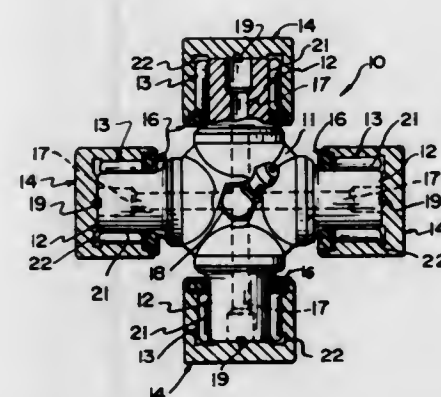
LUBRICANT SEAL

Raymond E. Stokely, Rockford, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Dec. 15, 1969, Ser. No. 885,229
Int. Cl. F16d 3/41, 3/16

U.S. Cl. 64-17 A

3 Claims



An elastically resilient lubricant seal includes a deformable shoulder portion for interference fitted engagement with a bearing cup and has a purging channel extending through part of the shoulder to define a purging lip. Elastically resilient sidewalls of the channel provide a bias for the lip

which is independent of the fit between the seal and cup. A hinged shield portion is provided for protecting the lip from external contaminants.

3,592,023

CONSTANT VELOCITY UNIVERSAL JOINT

Hideo Okoshi, Fujisawa-shi, Japan, assignor to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan

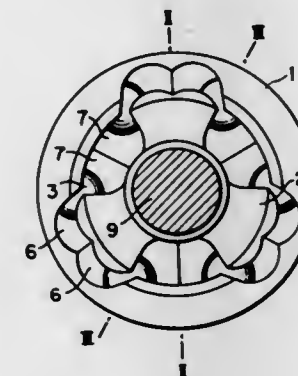
Filed June 24, 1969, Ser. No. 835,960

Claims priority, application Japan, June 27, 1968, 43/44188

Int. Cl. F16d 3/30

U.S. Cl. 64-21

1 Claim



The present invention provides a constant velocity universal joint of the type in which an outer joint member is disposed coaxially of an inner joint member and the inner concave spherical surface of the outer joint member is formed coaxially with the outer convex spherical surface of the inner joint member, but no retainer is used which avoids the problem of lubrication. According to this invention, the balls for transmitting power are held in the grooves intersecting with each other and provided in said two members, respectively, and the balls lie in the plane bisecting the angle between the axes of the drive and driven shafts. One-half the working angle β is selected to be less than the angle α of inclination so that the torque transmission is not abruptly reduced. The cross section of said groove is a simple arcuate curve, the machining of the grooves is much facilitated.

3,592,024

MACHINE FOR PRODUCING TUBULAR ELASTIC NETTING

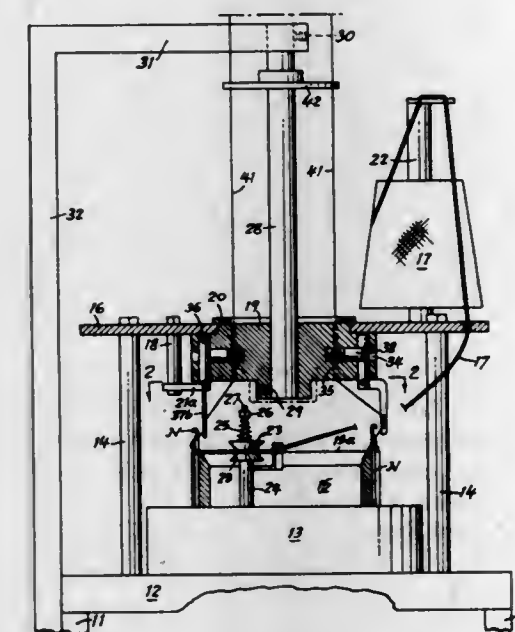
Nathan Levin, 722 Edgewood Ave., Trenton, N.J.

Filed May 21, 1968, Ser. No. 730,775

Int. Cl. D04b 9/16, 15/50

U.S. Cl. 66-9

1 Claim



A latch needle multifeed circular-knitting machine having means to knit chain stitches of individual inelastic warp yarns

on each of a circle of spaced needles at each of the feeds of the machine to form a circle of spaced chain stitch warp strings and having means to feed tensioned elastic yarn to the needles below their opened latches at one feed of the machine whereby the elastic yarn is castoff and is incorporated unknit in spaced chain stitches of the circle of warp strings to produce circular knit tubular openwork elastic mesh netting or fabric. Each yarn is fed to a needle by an L-shaped finger attached to a finger shaft the axis of which is located within the needle circle so that the finger moves back and forth across the needle circle and around the needle to feed the yarn thereto.

3,592,025

WARP KNIT FABRIC CONTAINING LOOSE FILLING

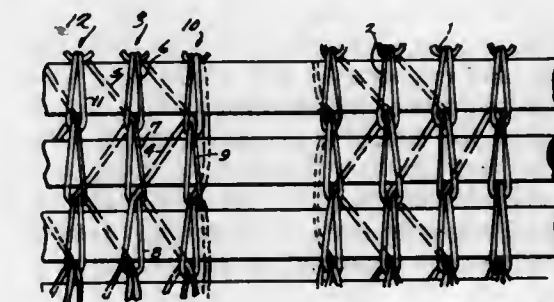
Ned K. Sharpe, Burlington, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed Nov. 9, 1967, Ser. No. 681,702

Int. Cl. D04b 23/10

U.S. Cl. 66-192

1 Claim



A fabric of the type comprising a plurality of loose filling yarns gathered into generally parallel clusters with a plurality of chains of loops of sewing threads extending along one side of the filling, generally perpendicular to the filling yarns, with sewing thread connecting between loops extending through the filling and along the other side. The loop chains are in sewn bands spaced across the fabric, separated by unsewn bands wherein the loop chains are omitted. At the edges of the unsewn bands, the laterally outermost chain of loops is formed of (a) a first sewing thread which alternately forms loops in the outermost chain and in the chain next to it, and (b) a second sewing thread which only forms loops in the outermost chain alternately with loops formed from the first sewing thread, portions of the second sewing thread connecting between loops being substantially taut against the other side of the filling and in line with the outermost chain of loops.

3,592,026

WASHING MACHINE AGITATOR

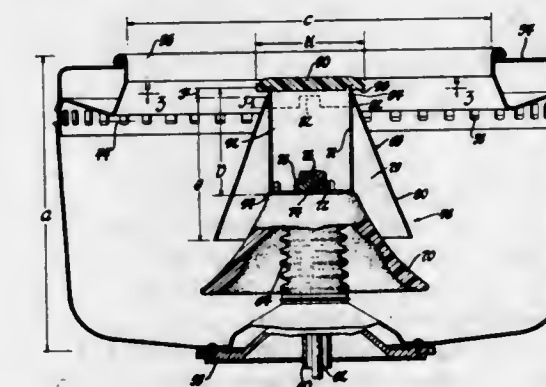
Richard R. Walton, Boston, Mass., assignor to General Motors Corporation, Detroit, Mich.

Filed June 9, 1969, Ser. No. 831,423

Int. Cl. D06f 17/10

U.S. Cl. 68-134

2 Claims

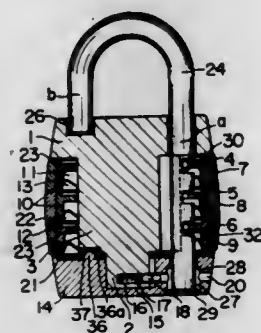


A domestic clothes washer has a tub with a top opening. An agitator is adapted to reciprocate vertically within the tub and includes a frustoconically shaped, single cone providing clothes immersion and turnover.

3,592,027

COMBINATION LOCK

Shigeru Wako, Tokyo, Japan, assignor to Wako Kinzoku Kabushiki Kaisha, Tokyo, Japan
 Filed Sept. 22, 1969, Ser. No. 859,909
 Claims priority, application Japan, Sept. 30, 1968, 43/85129; 43/85130
 Int. Cl. E05b 37/14, 37/02, 67/22
 U.S. Cl. 70-25 6 Claims

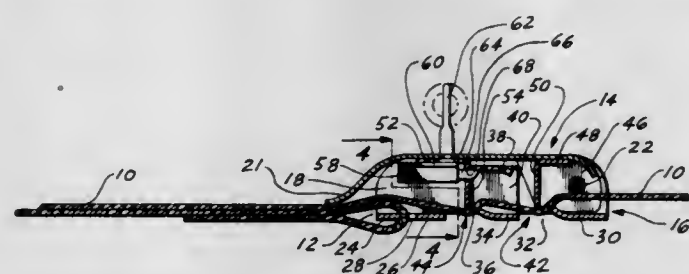


A combination lock includes a plurality of dial rings each mounted on and engageable with engaging rings positioned about a shaft and the engaging rings being rotatably movable about the shaft for fastening or unfastening a lock bail positioned in the shaft. In its unfastened position, the lock is arranged to afford the release of the interengagement of the dial rings and engaging rings for separately rotating the dial rings for resetting the combination for opening the lock.

3,592,028

RESTRAINING BELT BUCKLE WITH LOCK

Joseph B. La Monica, Orange, Calif., assignor to John T. Posey d/b/a J. T. Posey Company, Pasadena, Calif.
 Filed Oct. 6, 1969, Ser. No. 863,918
 Int. Cl. E05b 65/00; A44b 11/12
 U.S. Cl. 70-57 12 Claims



A buckle at the end of a belt has a clasp that pivots open with respect to a base to allow the belt to be drawn through the buckle. When the clasp is closed, a blade-like clamp on the underside of the clasp cooperates with a closely spaced, upwardly projecting belt-retaining member in the base of the buckle to tightly crimp the belt. A catch from a lock on the underside of the clasp abuts against the underside of a retaining member in the buckle when the clasp is closed to prevent the clasp from opening and to maintain the belt in its crimped condition. A key inserted in a keyhole in the clasp retracts the catch to open the clasp.

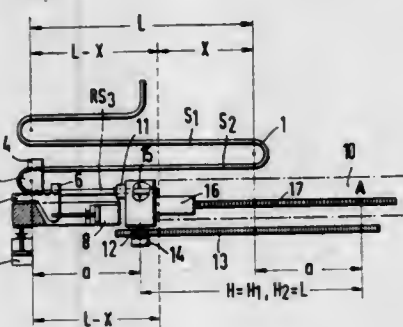
3,592,029

TUBE-BENDING MACHINE

Erich Ritter, Spellen, and Ranganathan Guruswami, Cologne Holweide, both of, Germany, assignors to H. Schwarze Sohne; Gebr. Schwarze, Peter, Wirtz, K. G., Kohn-Merheim, Cologne-Merheim, Germany
 Filed Aug. 11, 1969, Ser. No. 849,214
 Claims priority, application Germany, Aug. 16, 1968, P 17 52 977.0
 Int. Cl. B21b 37/14; B30b 15/26
 U.S. Cl. 72-7 10 Claims

In a fully automatic cold tube-bending machine for production of serpentine coils from straight tubes of random

lengths, a tube feeder not only measures the tube feed between successive bends, but also, after the last bend in any given tube, senses the tube end and measures the residual terminal length or the deficiency from the length to the next succeeding bend in a desired larger coil, and, by generating a



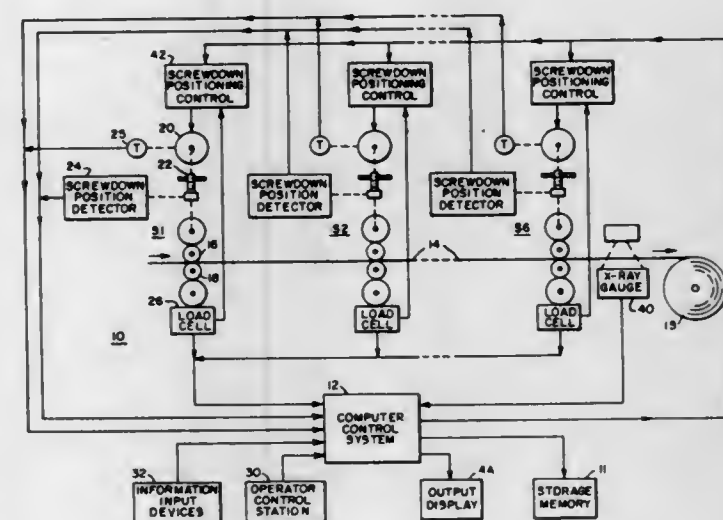
corresponding control signal, initially feeds the next tube by the amount of the length deficiency, with allowance for any tubing length adjustment for the joint to be made between successive tubes; so that successively bent tubes may be appropriately joined without fitting or matching operations.

3,592,030

ROLLING MILL STAND SCREWDOWN POSITION CONTROL

Andrew W. Smith, Jr., Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed June 5, 1969, Ser. No. 830,636
 Int. Cl. B21b 37/00 14 Claims

U.S. Cl. 72-8



There is disclosed a method and apparatus to determine the proper unloaded screwdown setting for at least one stand of a rolling mill prior to a work strip entering that mill stand and in relation to the predicted flattening of the work rolls that will occur, when the required total roll-separating force is applied to that mill stand to obtain the desired delivery thickness of the work strip passing through that mill stand.

3,592,031

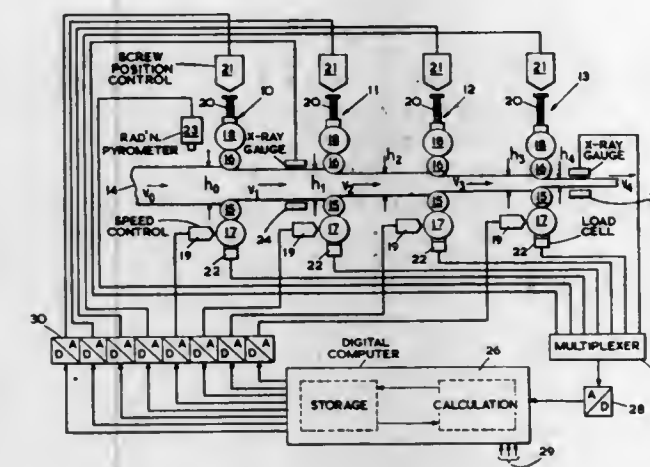
AUTOMATIC CONTROL OF ROLLING MILLS

Robert William Sutton, and John Edward Sharp, both of Stafford, England, assignors to The English Electric Company Limited, London, England
 Filed Dec. 9, 1968, Ser. No. 788,676
 Int. Cl. B21b 37/00 10 Claims

U.S. Cl. 72-8

The specification describes a multistage rolling process which is controlled by a computer to reduce the thickness of a piece of deformable material from a known initial thickness to a desired final thickness. Using the terminal thicknesses and other known or assumed characteristics of the material,

the computer derives values for the rolls separations in the stages for achieving an optimum value for a parameter such as maximum throughput or minimum power for the process as a whole.



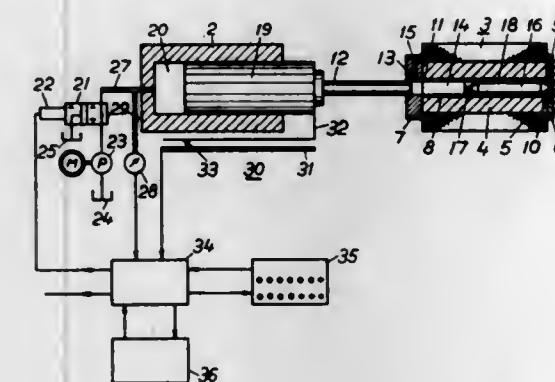
as maximum throughput or minimum power for the process as a whole.

3,592,032

CONTROL MEANS FOR HYDROSTATIC EXTRUSION

Ingemar Stromblad, Vasteras, Sweden, assignor to Allmanna Soenska Elektriska Aktiebolaget, Vasteras, Sweden
 Filed June 30, 1969, Ser. No. 837,537
 Claims priority, application Sweden, July 2, 1968, 9077/1968
 Int. Cl. B21c 31/00 10 Claims

U.S. Cl. 72-20



For the control of a press which includes a press stand, an operating cylinder carried by the stand and having an operating piston therein, a pressure chamber arranged in the stand and an extrusion die in the chamber, with a pressure-generating punch connected to the operating piston and inserted in the pressure chamber for compressing a pressure medium isostatically around the billet, a position indicator and a pressure indicator are provided which are connected to a calculating unit to sense when extrusion starts and to calculate, depending on the size of the billet, the allowable movement of the pressure-generating punch, which is interrupted just before the last of the billet is extruded.

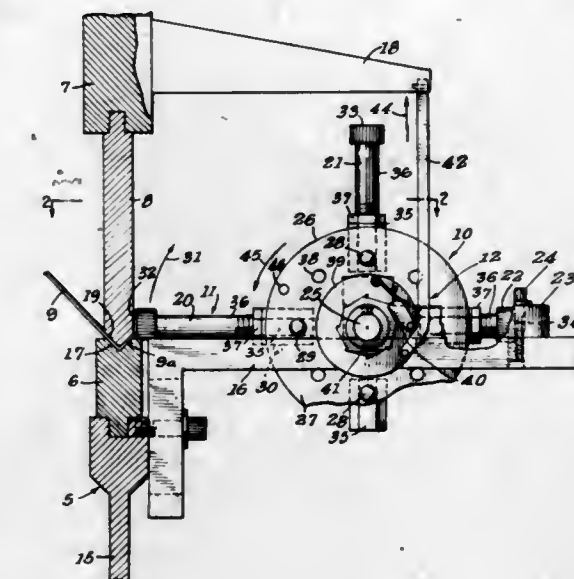
3,592,033

AUTOMATIC STOP GAUGE FOR POWER MEANS

Donald F. Murdoch, 5441 S. Norwalk Blvd. No. 8, Whittier, Calif.
 Filed June 30, 1969, Ser. No. 837,414
 Int. Cl. B21j 7/26 4 Claims

U.S. Cl. 72-22

A rotational unit mounting a plurality of stop gauges and connected to the ram of a power brake and intermittently advanced by the ram each time the same retracts after performing a bending operation on a sheet metal member, thereby replacing the stop gauge that had been in operative position



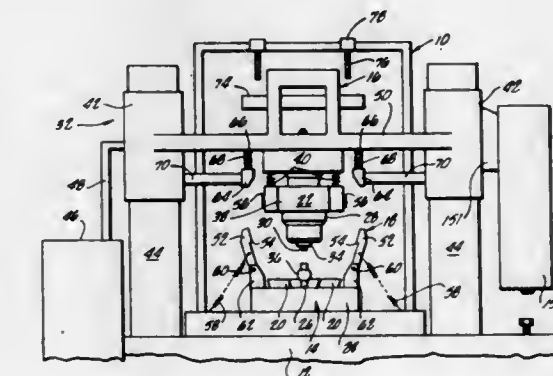
member prior to the next bending operation on the metal member.

3,592,034

APPARATUS FOR FORMING ARTICLES

Forrest H. McMeen, Arcadia, and William F. Gresham, San Clemente, both of, Calif., assignors to VSI Corporation, Pasadena, Calif.
 Filed Oct. 21, 1968, Ser. No. 770,893
 Int. Cl. B21d 26/08 14 Claims

U.S. Cl. 72-58



Die segments in a die body are movable between a normally open blank-receiving position and a closed blank-reforming position. In the blank-reforming position, the die segments engage the die body along surfaces which are disposed at an acute angle to the longitudinal axis of the press ram used to move the die segments into their blank-reforming position. The press ram maintains the die segments in the blank-reforming position while a piston punch fluid pressurizes a hollow blank to reform the blank into the shape of a forming cavity defined by the die segments, a die stripper head and a neck die of the ram. The die stripper is coupled to the die segments to eject a reformed article and to accept a hollow blank for reforming. The angle of engagement of the die segments with the die body to the longitudinal axis of the ram is small enough that the amount of force which the ram must exert to keep the die segments together is relatively low. A pump coupled to the press ram is capable of providing additional pressurization of the hollow blank in the event that the piston punch is incapable of displacing sufficient liquid to effect the high-pressure required for reforming.

3,592,035

STRIP TRANSFER DEVICE

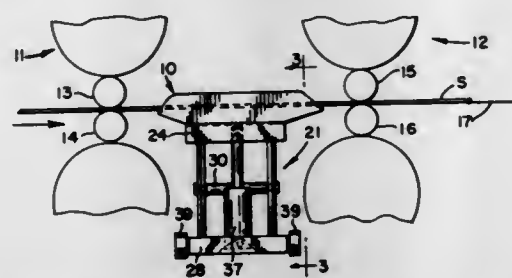
Dario Buccicone, Gary, Ind., assignor to Bucciconi Engineering Co., Inc., Gary, Ind.

Filed Mar. 17, 1969, Ser. No. 807,691

Int. Cl. B21b 41/00

U.S. Cl. 72-227

10 Claims



A device for supporting metal strip material between roll stands in a rolling mill which comprises an apron forming member of polished stainless steel plate which is mounted so as to extend between the exit end of one roll stand and the entrance end of the next succeeding roll stand with a sheet supporting surface which is bowed transversely of the path of the strip and which has magnets mounted beneath the same for exerting a downward pull along the center of the strip as it advances across the apron so that the traveling strip will be bowed and stiffened to prevent sagging between the roll stands. An antifriction means may be provided in the center of the apron such as skate rollers or an air cushion.

3,592,036

METHOD AND APPARATUS FOR PRESSING A ROTATING ROLL AGAINST A SURFACE

Paul Blain, Saint Germain-en-Laye, France, assignor to Institut de Recherches de la Siderurgie Francaise, Saint Germain-en-Laye, France

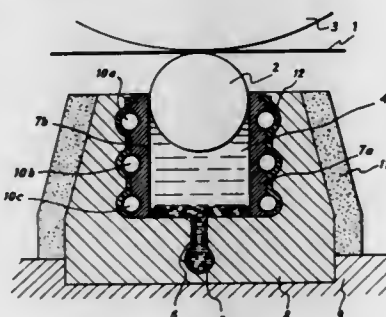
Filed July 15, 1969, Ser. No. 841,949

Claims priority, application France, July 23, 1968, 160174

Int. Cl. B21b 31/32

U.S. Cl. 72-245

9 Claims



An ice cushion is used to press a rotating roll against a workpiece surface by hydraulic pressure, the ice preventing leakage of the underlying water between the roll and adjacent guide walls.

3,592,037

SHEET METAL BENDING BRAKE

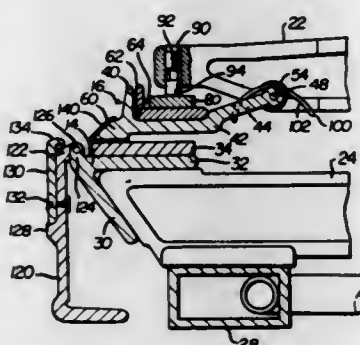
Eugene H. Van Cleave, Redford, Mich., assignor to Van Mark Products Corporation, Detroit, Mich.

Filed Jan. 27, 1969, Ser. No. 794,326

Int. Cl. B21d 11/04

U.S. Cl. 72-319

8 Claims



A sheet metal bending brake having spaced upper and lower support arms with a base member fixed to the lower

arms and a clamping member pivoted to the upper arms and aligned with the base member. The clamping member is normally held in a released position by biasing springs and is pivoted to a locked position by a slidable locking member guided on the clamping member and having cams engaging antifriction lugs extending below the upper support arms.

3,592,038

TOOL AND/OR MACHINE TOOL TO WORK A HOLE AND ITS FLANGE INTO A WALL FOR A BRANCH PIPE TO BE ATTACHED TO THE WALL

Leo Larikka, IV Linga 17-19 B3, Helsinki, Finland

Filed July 11, 1968, Ser. No. 744,087

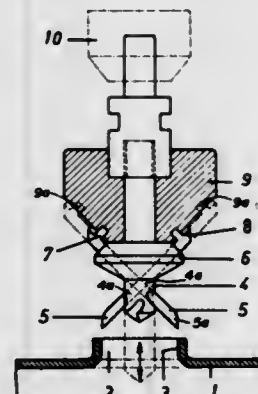
Claims priority, application Finland, July 11, 1967, Apr. 4,

1968, May 16, 1968, 1905/67; 929/68; 1379/68

Int. Cl. B21d 31/02, 11/02, 53/00

U.S. Cl. 72-325

5 Claims



The formation of a hole and a flange surrounding the hole in a wall and to which flange a branch pipe is attached including a drill provided with at least two elements which, following the drilling of the hole are capable of being extended to a location under the edge of the hole so that upon withdrawal of the drill the elements coact to form a projecting flange at the edge of the hole.

3,592,039

APPARATUS FOR PRODUCING TYPE

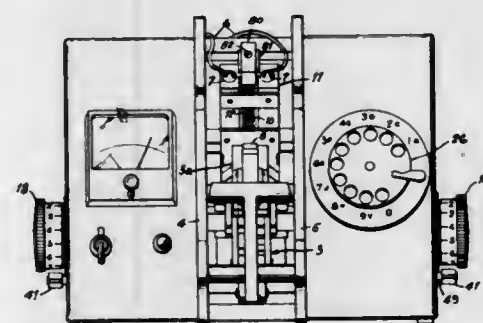
Richard Henry Frye, and Frederick Joseph Bingham, both of Keene, N.H., assignors to Markem Corporation, Keene, N.H.

Filed Oct. 9, 1968, Ser. No. 766,196

Int. Cl. B21k 23/00

U.S. Cl. 72-342

1 Claim



This disclosure relates to a manually operated apparatus which produces a bar or line of letterpress type characters. The desired legend can be mechanically established through a dial-type input linkage preparatory to actuation for preparing the typebar. This apparatus is especially suited to the preparation of typebars on which the character legend varies from slug to slug.

3,592,040

DEVICE FOR FORGING CRANKSHAFTS AND THE LIKE

Gabriel Ruget, St. Etienne, France, assignor to Compagnie Des Ateliers Et Forges De La Loire St. Chamond, Firminy, St. Etienne, Jacob-Holtzer, Paris, France

Filed Aug. 22, 1968, Ser. No. 754,658

Claims priority, application France, Sept. 7, 1967, 120,268

Int. Cl. B21j 9/02

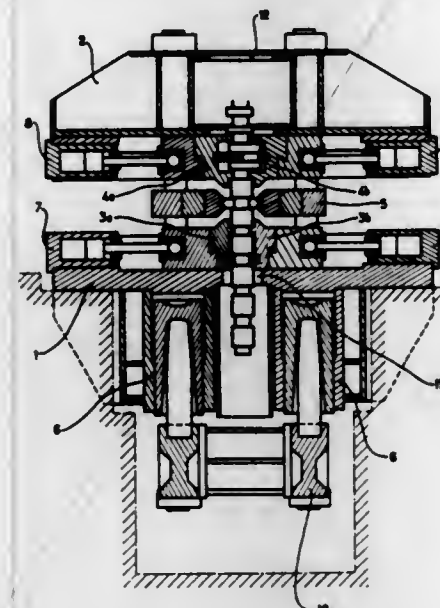
U.S. Cl. 72-399

7 Claims

A device for forging crankshafts having a plurality of throws disposed in different angular positions by carrying out the method consisting in upsetting one portion of a cylindrical initial blank either plain or formed with swellings, by ex-

erting two oppositely directed efforts on the zone heated to the forging temperature, and by applying an effort perpendicular to the aforesaid oppositely directed efforts, in off-

fluids are passed to form a common fluid stream and means contacted by the common fluid stream are utilized for in-



setting the intermediate portion of the initial bar. The offset portion constituting a crankpin, and the upset portions constituting two cheeks of the crankshaft to be forged.

3,592,041

CHAIR-TESTING APPARATUS

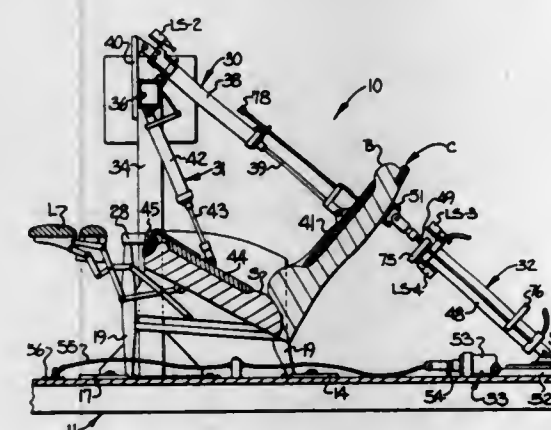
William H. Spencer, Vale, N.C., assignor to Burris Manufacturing Company, Lincolnton, N.C.

Filed Oct. 25, 1968, Ser. No. 770,590

Int. Cl. G01n 3/56; G01m 19/00

U.S. Cl. 73-7

11 Claims



A chair-testing apparatus for testing the operability and/or durability of the elements and construction of a reclining chair, including means for applying forces to movable seat, back and leg rest portions of a chair under test and thereby simulating use of the chair by an occupant by causing the movable portions to cycle between a generally upright seating position and a generally inclined reclining position and further including means for engaging occupant-supporting surfaces of a chair under test to simulate wear imposed thereon by an occupant seating himself in the chair and arising from the chair. Testing sequences are under the control of a control means governing the cycling of forces applied to portions of the chair under test in such a manner as to permit full simulation of use of the chair by an occupant or suspension of certain test functions as may be desired.

3,592,042

FLUIDIC INDICATING DEVICE

Esteban Martinex, 206 Brunswick Ave., Lambertville, N.J.

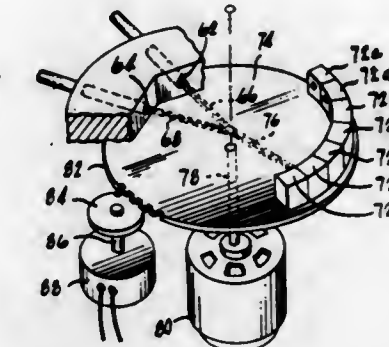
Filed Dec. 23, 1968, Ser. No. 786,157

Int. Cl. G01n 33/00; F15c 4/00

U.S. Cl. 73-23

11 Claims

An indicating device is provided with two nozzles positioned at an angle with respect to each other through which



indicating the direction of flow of the common fluid stream which in turn indicate the pressure ratio or other conditions of the fluids issuing from the nozzles.

3,592,043

MICRO-ADSORPTION DETECTOR AND METHOD OF USING SAME

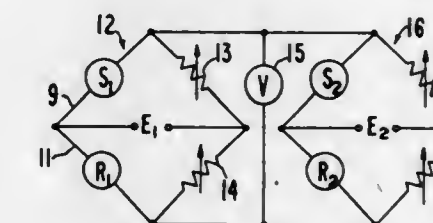
Miner Nelson Munk, Walnut Creek, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Jan. 27, 1969, Ser. No. 793,948

Int. Cl. G01n 31/08, 11/00

U.S. Cl. 73-23.1

7 Claims



A microadsorption detector is disclosed having at least three adsorption-heat-detection cells serially disposed in close proximity to each other along the flow path for a fluid stream in which constituents are to be detected. The third adsorption-heat-detection cell permits the electrical outputs of the cells to be combined in at least two pairs to form at least two separate composite output signals. The composite signals each comprise a combination of the outputs of at least two cells. Use of different adsorptive fill materials in the pairs of cells yields qualitative information concerning the constituents to be detected in the fluid stream. At least one of the cells would normally be filled with a relatively inert, nonadsorptive material and serve as a reference cell to compensate for extaneous temperature changes common to all the cells. Four or more cells can be arranged to compensate for flow sensitivity. The signal from one pair of cells, both members of which are filled with the same type of adsorptive material, will compensate that part of the signal from other pairs of cells which is due to change in flow rate.

3,592,044

SAMPLE HANDLING MEANS FOR USE IN GAS ANALYSIS APPARATUS

Donald E. Green, Sunnyvale, and Duane P. Littlejohn, Santa Clara, both of, Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed Aug. 1, 1968, Ser. No. 749,383

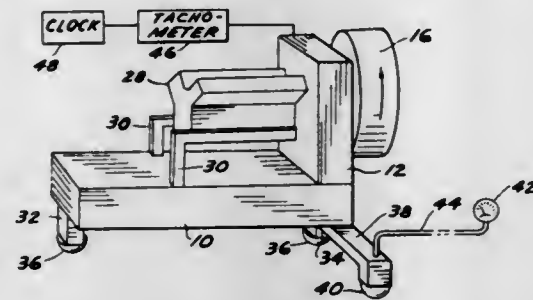
Int. Cl. G01n 31/08; B01j 17/28

U.S. Cl. 73-23.1

12 Claims

A gaseous sample handling apparatus utilizing the principles of condensation and revaporization to allow selected quantities of sample to be temporarily stored within the flow path connecting a gas chromatograph and a gas analyzer so

to a flywheel of known inertia which is driven and accelerated from a first predetermined angular velocity to a second predetermined angular velocity. The time taken for accelerating the flywheel is measured, and the average torque developed by the prime mover is derived from the time taken to accelerate the flywheel. The continuous torque developed, during acceleration, by the prime mover is monitored by measuring the reaction force exerted by the flywheel upon its support during acceleration. Alternately, the invention provides for a test stand on which a prime



mover may be tested while a second prime mover is being installed or disconnected, and for comparing the torque developed by a prime mover to the torque of a reference prime mover. The invention further provides a simplified instrumentation system for determining the torque performance of an engine or other prime mover by counting the revolutions of the output shaft at various time intervals during acceleration by means of an impulse signal for each revolution of the shaft which is fed into an impulse counter whose output is connected to a recorder instrument.

3,592,054

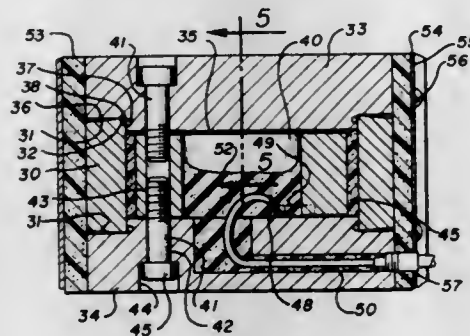
STRUCTURAL LOAD CELL

Donald R. Stewart, and Howard B. Dutro, both of Denver, Colo., assignors to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Dec. 18, 1968, Ser. No. 784,849
Int. Cl. G01e 5/00

U.S. Cl. 73-141

11 Claims



A load cell, a cylindrical tube having disc-shaped caps closing the ends thereof, strain gages at the inner wall of the tube and a cylindrical connector block within the tube to which the caps are connected. The ends of the tubes are slightly bevelled to provide a line contact with the caps adjacent to the inner wall of the tube at small loads, but a full surface contact at design loads. The resulting strain pattern on the strain gages provided for more sensitive measurements at the smaller loads. The height of the connector block is selected to provide a small clearance between it and the end caps at normal design loads. However, when the cell is overloaded the end caps bottom against the connector block so that the connector block cooperates with the tube to resist the excess load.

3,592,055

DIRECTIONAL SENSOR

Frank D. Dorman, St. Paul, Minn., assignor to Thermo-Systems, Inc., St. Paul, Minn.

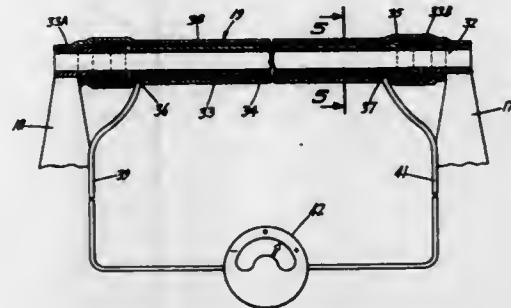
Filed Feb. 12, 1969, Ser. No. 798,756
Int. Cl. G01w 1/02

U.S. Cl. 73-188

12 Claims

A fluid flow sensing instrument having a hot-wire or hot-film sensor mounted on the end of a probe for measuring the

velocity of the flowing fluid. The sensor is combined with transducers, as thermocouple junctions, for sensing nonu-



niform distribution of heat on the sensor and generating an EMF which indicates the velocity vector of the flowing fluid.

3,592,056

PROCESS FOR MEASURING THE PRESSURE AND/OR RATE OF FLOW OF INTERSTITIAL FLUID IN A PERMEABLE MEDIUM

Jean Bernaix, Saint-Mande, France, assignor to Coyne et Bel-lie, Bureau d'Ingenieurs Consells, Paris, France
Filed Feb. 19, 1968, Ser. No. 706,436

Claims priority, application France, Feb. 20, 1967, 95 601
Int. Cl. G01p 5/00

U.S. Cl. 73-194

12 Claims



A process for measuring the pressure and/or rate of flow of interstitial fluid in a permeable medium, such as porous or fissured rock, comprising lining the wall of an elongated cavity in the medium with a flexible membrane, creating a pressure within the membrane exceeding the pressure of the interstitial fluid in order to apply the membrane against the wall of the cavity, isolating a short portion of the length of the interior of the membrane, varying the pressure in this short portion and measuring the results. A device for carrying out this process is also described.

3,592,057

DEVICE FOR MEASURING LIQUID FLOW RATE

Christian Thorkild Boe, Farum; Mogens Myrup Andreassen, Copenhagen, and Steen Gamwell Dawids, Kalmpeborg, all of, Denmark, assignors to Institutet for Produktudvikling, Lyngby, Denmark

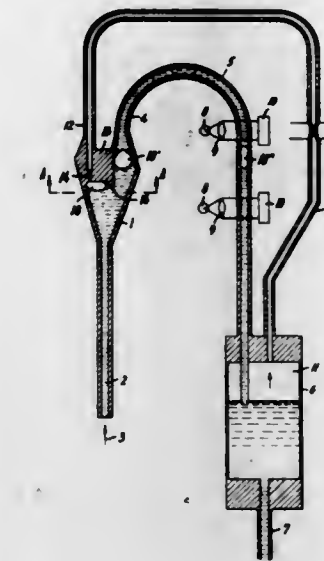
Filed July 7, 1969, Ser. No. 839,587
Claims priority, application Denmark, July 10, 1968, 3386/68

U.S. Cl. 73-194 R

7 Claims

A device for measuring liquid flow rate in a duct by introducing a fluid bubble in the duct and measuring the interval between the bubble's passage of two spaced measuring points. To form and introduce the bubble there are provided two chambers in the duct so that the static pressure in the

downstream chamber exceeds that in the upstream chamber. The chambers are connected by means of a separate bubble



3,592,058

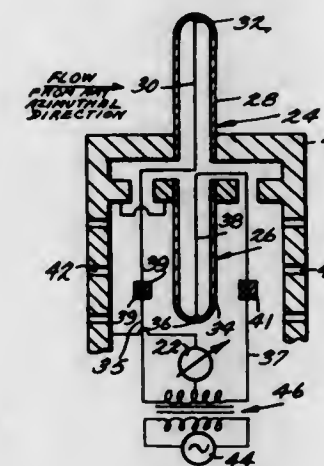
OMNIDIRECTIONAL FLUID VELOCITY MEASURING DEVICE

James M. Benson, and Edmond Easter, both of Hampton, Va., assignors to Teledyne, Inc., Los Angeles, Calif.

Filed Sept. 17, 1968, Ser. No. 760,014
Int. Cl. G01p 5/10

U.S. Cl. 73-204

3 Claims



Apparatus for sensing fluid flow in all directions of azimuth in a predetermined plane irrespective of changes in ambient temperature and of changes in composition or static pressure of the fluid wherein the apparatus provides for at least one unshielded thermocouple and one shielded thermocouple in circuit relationship wherein the shielded thermocouple is sensitive to the static characteristics of the fluid and wherein the unshielded thermocouple is additionally sensitive to the dynamic characteristics of the fluid so that the accurate velocity of the fluid flow can be determined independently from variations in the static characteristics of the fluid, e.g. composition or static pressure. Apparatus is also disclosed which utilizes three exposed thermocouple junctions located in a line for accurately sensing fluid flow in all directions of azimuth in a predetermined plane independently of changes in ambient temperature.

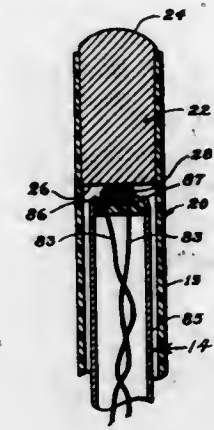
3,592,059

TEMPERATURE MEASURING APPARATUS

George E. Chilton, Haworth, N.J., assignor to Computer Diode Corporation, Fairlawn, N.J.
Continuation-in-part of application Ser. No. 733,738, May 21, 1968. This application June 27, 1969, Ser. No. 843,276
Int. Cl. G01k 1/20, 7/24

U.S. Cl. 73-362

12 Claims



A disposable heat receptor is placed in heat-absorbing relationship with a body or atmosphere whose temperature is to be measured when the heat receptor reaches the temperature of the environment. The heat receptor is then transferred to an apparatus for measuring of its temperature. Provision is made for a first surface of the heat absorber to be placed in heat exchange relationship with the environment and for a second and different surface to be placed in contact with the sensing element of the temperature-measuring apparatus so that contamination of temperature-measuring apparatus is avoided.

3,592,060

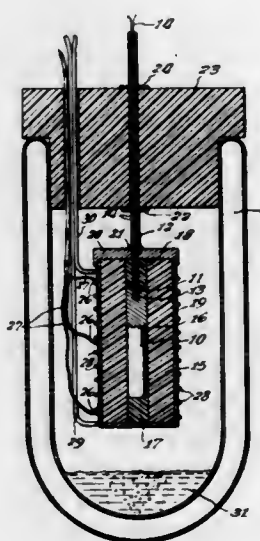
APPARATUS AND METHOD FOR MEASURING THE THERMAL CONDUCTIVITY OF INSULATING MATERIAL

Royce Jay Laverman, South Holland, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Jan. 24, 1969, Ser. No. 793,789
Int. Cl. G01n 25/20

U.S. Cl. 73-15

9 Claims



Apparatus for quickly determining the thermal conductivity of a material over a wide temperature range in a single test. The apparatus comprises a heat sink of metal of known heat capacity, a shell surrounding and spaced away from the metal heat sink providing a space in the shell for placing a sample material, the thermal conductivity of which is to be determined, essentially all around the metal heat sink, means for measuring the temperature of the metal heat sink, and means for measuring the temperature of the shell to thereby determine the temperature difference through the sample.

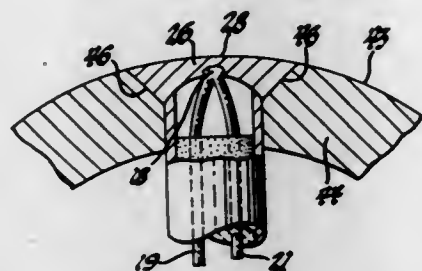
3,592,061 GAS TURBINE AIRFOIL HAVING INTEGRAL THERMOCOUPLE

Ronald P. Schwedland, Indianapolis, and Morris F. Hall, Danville, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 22, 1969, Ser. No. 852,434
Int. Cl. G01k 1/14, 7/04

U.S. Cl. 73-343 R

6 Claims



A gas turbine airfoil having a thermocouple assembly mounted integrally therewith so as to sense the temperature at the surface of the leading edge of the airfoil without disturbing the gas flow conditions within the engine is disclosed.

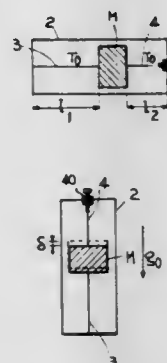
3,592,062 VIBRATING STRINGS GRAVIMETER

Raymond Mathey, Paris, France, assignor to Thomson CSF
Filed Oct. 31, 1969, Ser. No. 872,982
Claims priority, application France, Nov. 22, 1968, 174,999

Int. Cl. G01v 7/16

U.S. Cl. 73-382

3 Claims



A vibrating strings gravimeter comprising a mass secured to a frame by two vertical strings having different characteristics, such as length. A mechanical tension is applied to these strings and is adjusted as a function of the mass and of these characteristics for minimizing the effect of parasitic alternating acceleration on the measure of the gravitational acceleration.

3,592,063 CONTROL DEVICE FOR MINING EQUIPMENT

Hans Rieschel, Miltenberg, Germany, assignor to Bergwerkssverband GmbH, Essen, Germany

Filed Nov. 20, 1969, Ser. No. 878,408

Claims priority, application Germany, Nov. 22, 1968, P 18 10 260.8

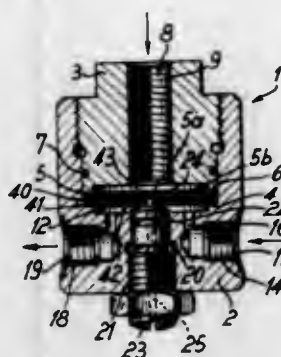
Int. Cl. G01l 7/08

U.S. Cl. 73-406

5 Claims

The invention relates to a device which can be used in the remote control technique in mining and in particular hydraulic mining and serving for the conversion of a hydraulic pressure into a pneumatic analog pressure signal. The device has a diaphragm which is subjected on one side to hydraulic pressure and on its other side to constant pneumatic pressure. The diaphragm is arranged in a pressure chamber which has an output for the analog signal and a connection for the constant supply of pneumatic line pressure. An axially adjustable

tube has an end facing the diaphragm and provides an annular slot with the diaphragm. The tube has bore open to the



outside. A plurality of spring washers resist diaphragm deflection in a unique manner.

3,592,064 METHOD FOR TRANSFERRING A SAMPLE TO BE ANALYZED INTO THE COLUMN OF A GAS CHROMATOGRAPH, AND PRECOLUMN SYSTEM FOR CARRYING OUT THE METHOD

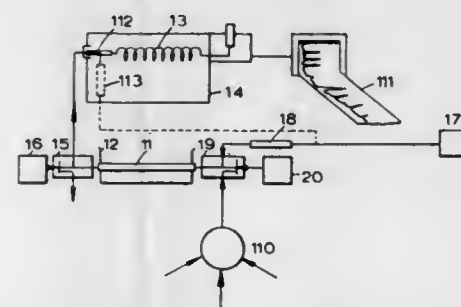
Jorgen Johan Gether, Oslo, Norway, assignor to Bryggeriindustriens forskningslaboratorium and Sentralinstitutt for industriell forskning, Forskningsveien, Oslo, Norway

Filed Feb. 18, 1969, Ser. No. 800,226

Int. Cl. G01n 1/28

U.S. Cl. 73-422

3 Claims



An apparatus and a method for transferring a sample to be analyzed into the column of a gas chromatograph by rapid heating of the sample to evaporate it whereby transfer is effected. It further relates to a precolumn system for carrying out the method, in particular a tube in which the sample is frozen out and then heated, a restrictor providing a pressure drop in the system, a gas-operated valve, and a selection unit comprising two discs of which one is turnable, both having channels therethrough.

3,592,065 ASSEMBLING AND BALANCING DEVICE FOR A SET OF TOOLS

Ludwig Seydelmann, Holderlinstrasse 9, 7 Stuttgart, Germany

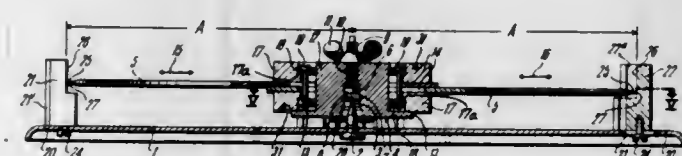
Filed July 26, 1968, Ser. No. 748,096

Claims priority, application Germany, July 31, 1967 P 16 48 695.6

Int. Cl. G01m 1/12

U.S. Cl. 73-483

10 Claims



their proper length as determined by these abutments. Upon such adjustment, two relatively rotatable and eccentrically weighted clamping rings are turned until the assembly is balanced on the hub axis, the rings being then immobilized with reference to the blades whereupon the entire assembly is removed from the hub for mounting on the drive shaft of the meat cutter.

movement, in contact with a cam surface formed on a shaft, capable of circular movement. The cam surface is formed as an evolute curve based on a base circle determined by the circumference of the shaft. The rodlike member has punctiform contact with the cam surface, and each contact point is on a tangent to the base circle aligned rectilinearly with the axis of reciprocation of the rodlike member.

3,592,066 TWO-AXIS RATE GYRO

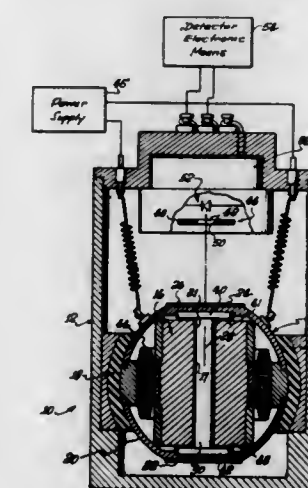
Gerald B. Speen, Northridge, Calif., assignor to Conductron Corporation, Northridge, Calif.

Filed Dec. 12, 1966, Ser. No. 601,016

Int. Cl. G01c 19/04

U.S. Cl. 74-5.5

6 Claims



This invention relates to a control device and more particularly to a two-axis rate gyro in which the rotatable mass of the gyro is contained within a casing having a peripheral partially spherical exterior wall with opposed flat ends perpendicular to the spin axis of the rotating mass. The casing is in turn mounted within the exterior frame, or housing member, by means of elastomeric material which supports the casing and connects the casing to the frame. The configuration of the elastomeric mass is such that it supports the casing without the need of additional gimbles or bearings, and allows movement of the casing about two axes. Means are provided for the detection of such movement about the two axes for control purposes.

3,592,068 DEVICE FOR ADJUSTING THE HEAD IN TAPE RECORDER

Takehiko Yamada, Osaka, Japan, assignor to Orion Electric Co., Ltd., Osaka, Japan

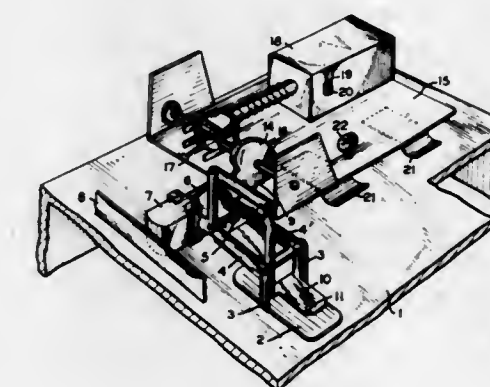
Filed Nov. 14, 1969, Ser. No. 876,917

Claims priority, application Japan, Feb. 3, 1969, 44/10007

Int. Cl. F16h 21/02

U.S. Cl. 74-89

3 Claims



A tape recorder head adjuster includes a mounting plate fixed to a frame. The mounting plate has a parallelogram link member supported by a pin on the mounting plate. The free end of the member has a head mounting plate having at one end the head. At the other end of the head mounting plate is contacted by a cam mounted on a rotatable shaft. A spring operates to bias the member and the head normally up. When the cam is rotated, the head is forced down against the force of the spring.

3,592,069 ROLLER-RIBBON MECHANICAL MOTION APPARATUS

Thomas Ross Welch, P.O. Box 5339, Santa Monica, Calif.

Filed Apr. 3, 1968, Ser. No. 718,453

Int. Cl. F16h 27/02

U.S. Cl. 74-89.2

28 Claims

3,592,067 DEVICE FOR CONVERTING BETWEEN LINEAR AND CIRCULAR MOVEMENT

Walter Hetzer, Haidholzen, Germany, assignor to Messerschmitt-Bolkow Gesellschaft mit beschränkter Haftung, Munich, Germany

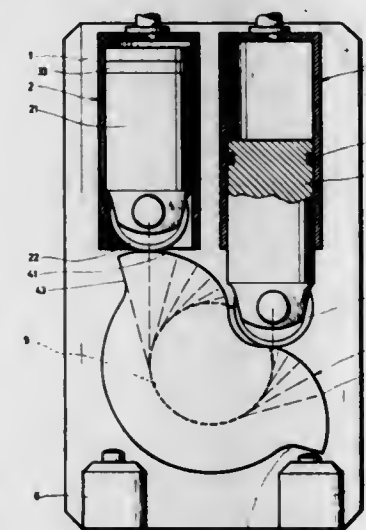
Filed Apr. 15, 1969, Ser. No. 816,315

Claims priority, application Germany, Apr. 20, 1968, P 17 50 322.9

Int. Cl. F16h 25/08

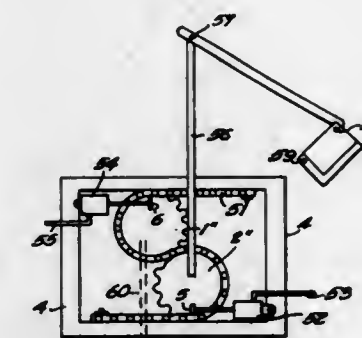
U.S. Cl. 74-55

6 Claims



A device for converting between linear and circular movement, is composed of a rodlike member, capable of linear

A lever mechanism having a shiftable, frictionless fulcrum utilizing a roller-ribbon construction.

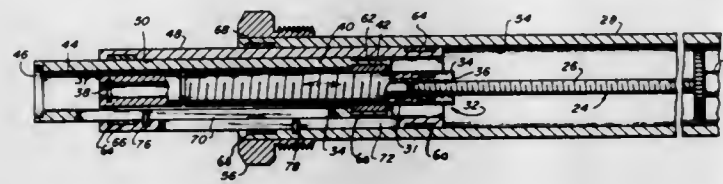


3,592,070

LINEAR ACTUATOR

Ivan K. Hammond, Box 182, Boonton, N.J.
 Filed July 14, 1969, Ser. No. 841,534
 Int. Cl. F16h 27/02, 1/18
 U.S. Cl. 74—89.15

3 Claims



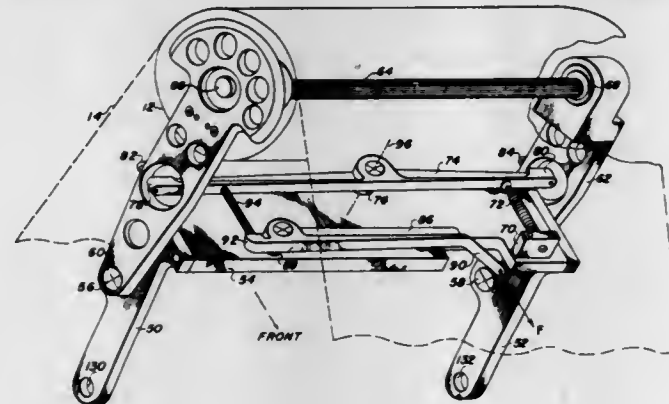
A linear actuator for telescopic movement is provided in which rotation of an inner shaft transmits linear movement to at least one outer hollow arm. The inner shaft is placed in threadable engagement with the outer arm which is provided with an external key that slides in a keyway formed in a support housing.

3,592,071

BELT TRACKING APPARATUS

James M. Steinke, Fairport, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
 Filed May 28, 1969, Ser. No. 828,562
 Int. Cl. F16h 7/18
 U.S. Cl. 74—241

10 Claims



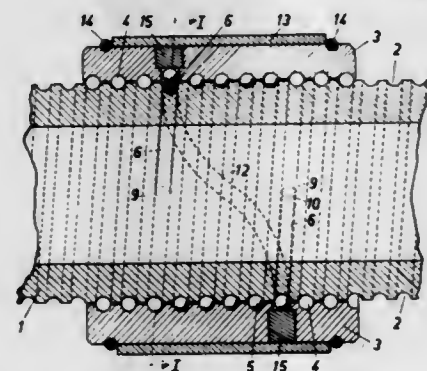
Belt tracking apparatus for use with a nonstretchable continuous belt in conjunction with a plurality of belt supporting drums or rollers. The shaft of the belt tracking drum is mounted for short pivotal movement about an axis normal to its axis, said normal axis lying in a plane that bisects the angle of the belt runs on either side of the tracking drum. With the use of belt sensing means, a mechanical feedback linkage is utilized to pivot the tracking drum about said bisecting axis in order to effect accurate belt tracking.

3,592,072

BALL NUT MECHANISM

Sven Walter Nilsson, Sövedalen, Sweden, assignor to Aktiebolaget Svenska Kullagesfabriken, Göteborg, Sweden
 Filed May 12, 1969, Ser. No. 823,559
 Claims priority, application Sweden, May 13, 1968, 6406/68
 Int. Cl. F16h 55/22
 U.S. Cl. 74—459

2 Claims



To ensure a smooth transfer of the balls in a ball nut mechanism, the nut is provided with an elongated, solid

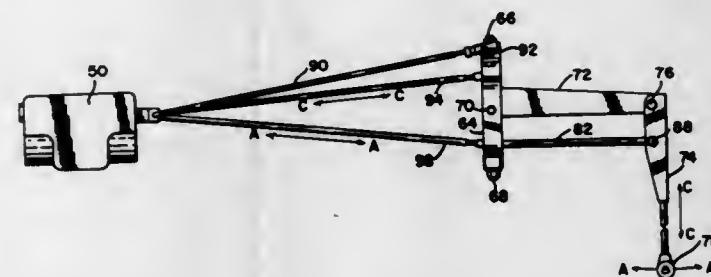
catching member, which is designed to extend into the ball race and has an obliquely cut edge, which forms the base of a tangential passage for guiding the balls away from the race towards a return passage within the nut.

3,592,073

CONTROL SYSTEM FOR TREE SHAKER APPARATUS
 Stuart D. Pool, Naperville; Edward Sverelka, Chicago, Ill., and Jack B. Findlay, Minneapolis, Minn., assignors to International Harvester Company, Chicago, Ill.
 Division of Ser. No. 753,378, Aug. 19, 1968, Pat. No. 3,537,246. Filed Feb. 5, 1970, Ser. No. 13,223
 Int. Cl. G05g 9/04

U.S. Cl. 74—471 R

5 Claims



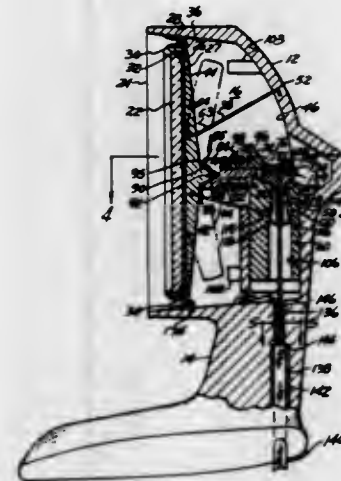
A tree shaker apparatus including a frame pivotally mounted on a tractor for swinging movement about a vertical axis and a horizontal axis. A boom and clamp assembly is mounted on the frame for movement longitudinally thereof. Movement of the frame and the boom and clamp assembly is provided by hydraulic cylinders controlled through respective valves. The valves are actuated by selective operation of a control lever which is mounted for swinging movement in three modes which are manifested in similar movements of the frame and the boom and clamp assembly to position the clamp in gripping relation on a tree limb to be shaken by the apparatus.

3,592,074

REMOTE-CONTROLLED MIRROR

Carl M. Petersen, III, Pontiac, and William C. Wehner, Detroit, both of, Mich., assignors to International Engineering Service, Inc., Birmingham, Mich.
 Filed Aug. 11, 1969, Ser. No. 848,957
 Int. Cl. G05g 1/08
 U.S. Cl. 74—491

10 Claims



A remote-controlled mirror assembly for an automotive vehicle having a mirror housing with a base for attachment to the outside of the vehicle and a remote control for attachment to the vehicle and a remote control for attachment to the vehicle structure in the passenger compartment of the vehicle. A mirror is pivotally mounted on a control mechanism that is slidably and rotatably mounted on the housing, with the remote control connected to the control mechanism by a single connecting cable. Sliding motion of the control mechanism by means of the remote control and

cable pivots the mirror about a first axis contained in the plane of the mirror, while rotary motion of the control mechanism by means of the remote control and cable pivots the mirror about a second axis contained in the plane of the mirror and substantially perpendicular to the first axis.

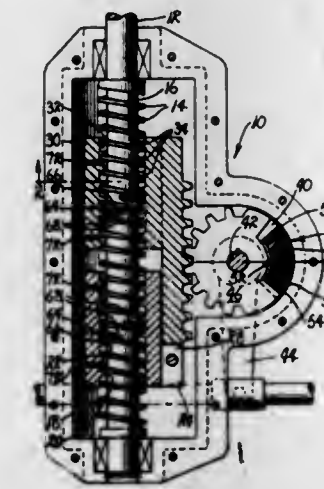
3,592,075

STEERING MECHANISM

Marion A. Clark, 546 W. Pleasant, Tulare, Calif.
 Continuation-in-part of application Ser. No. 817,030, Apr. 17, 1969, now abandoned. This application Oct. 22, 1969, Ser. No. 871,514
 Int. Cl. B62d 1/20

U.S. Cl. 74—498

6 Claims



This disclosure concerns an improved steering mechanism which eliminates the reverse direction lag which causes play in the steering wheel. The steering wheel is connected to a shaft which has a helical thread at its lower end disposed in the bores of two bearing nuts which are separately movable on the shaft and contain reciprocal threads. In a first embodiment, one of the bearing nuts is formed integral with a single-track rack gear and the other with a double track rack gear with a slot between its tracks which slidably receives the single-track gear. The single-track rack gear is engaged with a single-pinion gear, and the double track rack gear with a pair of pinion gears mounted in axial alignment with and on each side of the single pinion. The pinion gears are mounted on a power shaft which drives the steering rod, and the two paired gears are keyed to the power shaft while the single gear is freely mounted on the power shaft but is connected to the paired pinions by a spring coupling which urges the paired pinion gears in an opposite rotational direction with respect to the single pinion, and in turn, through the rack gears, urges the bearing nuts in opposite linear directions on the helical threads on the steering shaft. In the second embodiment the rack gears and pinion gears are eliminated and a helical spring coupling surrounds the steering shaft between the bearing nuts urging the bearing nuts in opposite linear directions on the helical threads. Also, the power shaft is replaced by a thrust rod which is disposed coaxially with the steering shaft at its lower end and attached to the lower bearing nut. The spring coupling in each embodiment assures that both of the bearing nuts will be in snug engagement at all times with the helical threads on the steering shaft, one with one side of the threads and the other with the opposite side of the threads. Helical ball bearings are provided in each of the ball nuts to reduce the friction between the engaging surfaces of the threads.

3,592,076

PLASTIC BICYCLE PEDAL WITH A FOOT STRAP MEANS

Martin R. Baginski, Ashtabula, Ohio, assignor to Ashtabula Bow Socket Company, Ashtabula, Ohio
 Filed June 3, 1969, Ser. No. 829,993
 Int. Cl. G05g 1/14

U.S. Cl. 74—594.5

13 Claims

A bicycle pedal comprises a pedal axle and a pedal body. The pedal body includes a pedal body member, protective



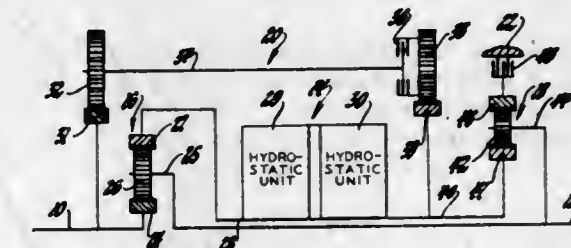
which is formed from a plasticlike material. The pedal body member receives the bearing means which in turn receives the pedal axle such that relative rotation between the pedal axle and the pedal body may be effected. The foot strap means is attached to the pedal body member by said protective strap means.

3,592,077

HYDROMECHANICAL TRANSMISSION

James C. Polak, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.
 Filed Sept. 4, 1969, Ser. No. 855,223
 Int. Cl. F16h 47/04
 U.S. Cl. 74—687

7 Claims



A hydromechanical transmission comprising planetary gearing dividing input power between the transmission output and a variable speed ratio hydrostatic drive train having a pair of operatively hydraulically connected variable displacement hydrostatic units to provide a low speed range drive between the transmission input and output and the same planetary gearing combining power from the transmission input and the hydrostatic drive train to provide a high speed range drive between the transmission input and output with the speed ratio in both speed range drives varied by varying the hydrostatic drive train speed ratio with shifting between drives provided by devices which are speed synchronized for engagement at a predetermined transmission input-output speed ratio.

3,592,078

MULTIPLE-PINION GEAR

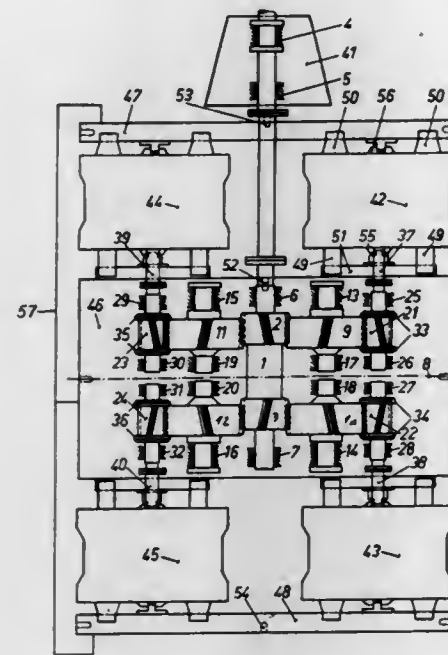
Richard Stark, Mannheim, Germany, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
 Filed June 10, 1969, Ser. No. 831,922
 Claims priority, application Germany, June 21, 1968, P 17 50 958.9
 Int. Cl. F16h 37/06

U.S. Cl. 74—665

13 Claims

A multiple drive pinion gearing for transmitting power from the drive shaft of a driving machine to different working machines comprises a pair of axially spaced sets of gear teeth on the drive shaft which transmit power from the drive shaft via intermediate gear wheels to separate pinion gears respectively which are independently mounted parallel to the drive shaft and which function to drive the different working machines such as a turbocompressor. The pinion gears and their intermediate gear wheels are located on opposite sides of a divider plane extending between the two sets of gear teeth on the drive shaft and perpendicular to the axis of the drive shaft. All of the gears have helical tothing and the inclination of the teeth of those gears located on one side of

the divider plane is opposite to that of the teeth on those gears located at the opposite side of the divider plane. Moreover, thrust bearings are provided for the shafts of the intermediate gear wheels to restrain them against any axial



displacement, and the pinion gears are provided with abutment rings on each end thereof which overlap opposite ends of the intermediate gear wheels so as to transmit to the latter any axial thrust acting on the pinion gears.

3,592,079

AUTOMATIC SPEED CHANGE GEAR

Yoichi Mori, Yokohama, Japan, assignor to Nissan Jidosha Kabushiki Kaisha

Division of Ser. No. 682,811, Nov. 14, 1967, Pat. No.

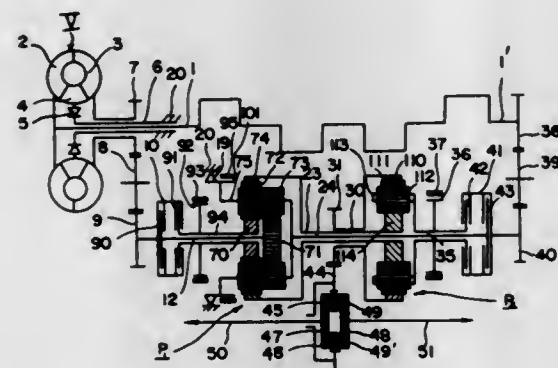
3,482,469.

Filed Oct. 27, 1969, Ser. No. 871,194

Int. Cl. F16h 47/08

U.S. Cl. 74-688

8 Claims



An automatic speed change gear in 6 to 8 forward stages and one rearward stage of speed reduction ratio, which comprises a hydraulic torque converter and a first and a second planetary gear assemblies. The first planetary gear assembly transmits the power from said torque converter to the second planetary gear assembly in at least three forward stages and a rearward stage. The second planetary gear assembly delivers output power in at least three forward slow speed stage and a rearward stage when it is not coupled with the torque converter, while in at least three forward high speed stages when it is coupled with the torque converter.

3,592,080
TRANSMISSION GEARBOX, PREFERABLY FOR USE IN A TRACTOR

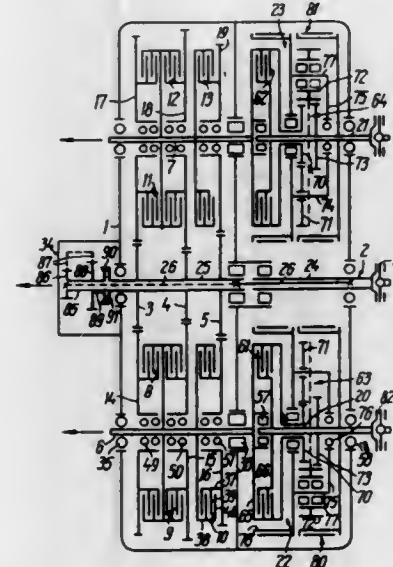
Jury Petrovich Samatov, Prospekt Lenina, 22, kv. 30; Mikhail Davidovich Goldin, ulitsa Tankistov, k44a, kv. 31; Evgeny Ivanovich Tarakanov, ulitsa Bazhova, 36a, kv. 27; Vladimir Vasilievich Emelyanenko, ulitsa Turistov, 106, kv. 39; Ivan Savvateevich Kaviarov, prospekt Lenina, 15, kv. 20, and Vladimir Sergeevich Malchikov, 2 Sadovaya ulitsa, 19, kv. 23., all of Chelyabinsk, U.S.S.R.

Filed June 20, 1969, Ser. No. 834,967

Int. Cl. F16h 37/00; B60k 17/28

U.S. Cl. 74-740

8 Claims



A transmission gearbox, for use with a tractor or the like comprising a housing, an input shaft located within the housing and being provided with a driving member and a driven member, a coupling element connecting the driving and driven members, layshafts located within the housing, continually mesh in gears operatively communicating with the input shaft and layshafts for transmitting torque from the input shafts and layshafts, friction clutches causing the continually mesh gears to communicate with the layshafts, output shafts are lined with the layshafts, and reversing coupling gears into locking when a forward speed is provided by the gearbox and for connecting the output shaft to the layshaft when a reverse speed is provided.

3,592,081

MULTIPLE SPEED HUB WITH AUTOMATIC GEAR CHANGE AND MANUAL OVERRIDE

Hans Joachim Schwerdhofer, Schweinfurt am Main, Germany, assignor to Fichtel & Sachs AG, Schweinfurt am Main, Germany

Filed Mar. 5, 1970, Ser. No. 16,920

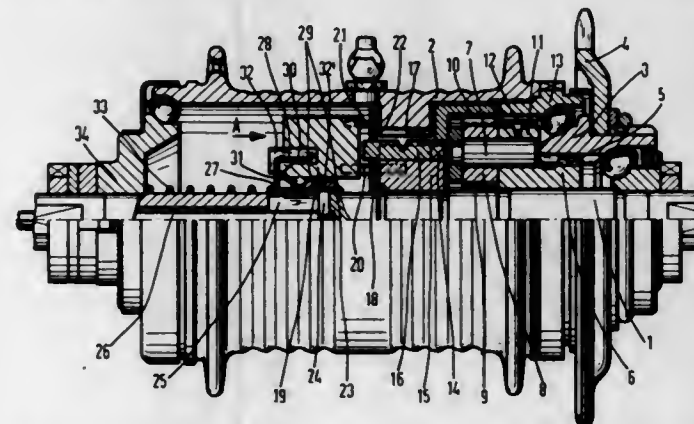
Claims priority, application Germany, Mar. 7, 1969

P 19 11 548.1

Int. Cl. F16h 5/46; F16d 41/00, 45/00

U.S. Cl. 74-752 E

12 Claims



A dual-speed bicycle hub with planetary gearing and automatic gear shift operated by a centrifugal governor is addi-

tionally equipped with a manual override permitting manual speed selection while movement of the flyweight in the governor under the influence of centrifugal forces is blocked. The manual controls may shift the otherwise blocked flyweight and thereby act on an overrunning clutch in the transmission or act on a separate clutch while the flyweight is immobilized.

3,592,082

PLANETARY GEAR TRANSMISSION WITH INTERCONNECTED PLANET CARRIERS

Anton Ott, Olgastrasse 6, Friedrichshafen, Germany

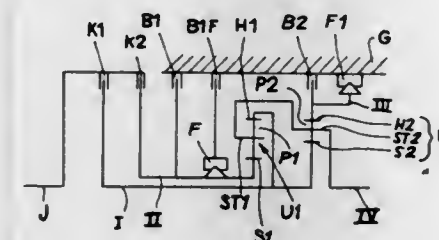
Filed Sept. 4, 1969, Ser. No. 855,315

Claims priority, application Germany, Sept. 6, 1968, Sept. 6, 1968, Z 12 079; Z 12 078

Int. Cl. F16h 57/10

U.S. Cl. 74-761

8 Claims



An automotive transmission with two cascaded planetary gear trains has the two planet carriers rigidly connected with each other and with the output shaft, the input shaft being alternatively connectable with one sun and one ring gear (forward) and other sun gear (reverse) or with one ring gear only (forward) and the two rigidly interconnected sun gears (reverse); in the latter case, one of the gear trains has two sets of intermeshing planet gears to invert the sense of relative rotation of the interconnected sun gears and planet carriers during operation in reverse gear.

3,592,083

AUTOMATIC TRANSMISSION CONTROL SYSTEM

Minoru Kawabata, Chita-gun, Aichi-ken, Japan, assignor to Toyota Koki Kabushiki Kaisha

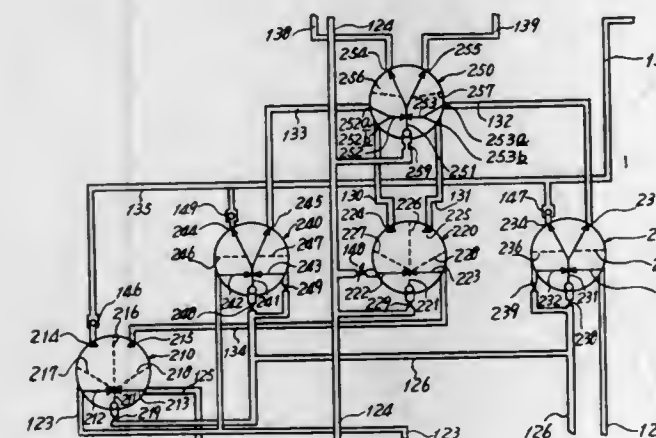
Filed July 7, 1969, Ser. No. 839,542

Claims priority, application Japan, July 13, 1968, 43/49476

Int. Cl. B60k 21/06; F15c 1/08; F04b 49/08

U.S. Cl. 74-868

14 Claims



An automatic transmission control system which comprises a pressure fluid supply source for supplying pressure fluid, a shift valve for selectively actuating friction engaging means to complete diverse driving connections between a drive shaft and a driven shaft, and a group of pure fluid control elements which have no movable parts and may control the pressure fluid in response to vehicle speed and throttle opening to selectively actuate the shift valve.

3,592,084

DIE-WORKING MACHINE

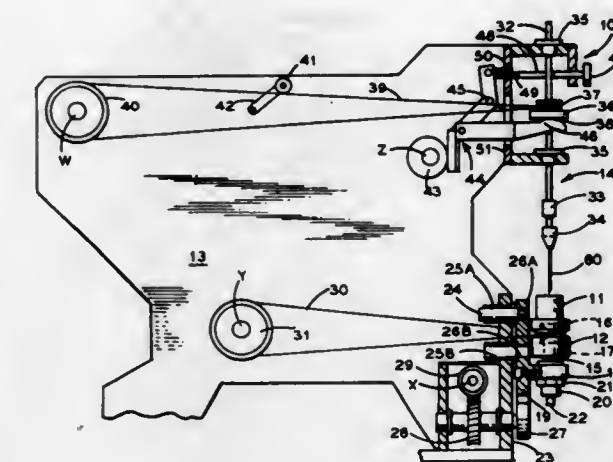
Karl B. Gelfand, Mexico City, Mexico, and Max Rovinsky, North Bellmore, N.Y., assignors to National Wire Die Co., Inc., New York, N.Y.

Filed Oct. 31, 1968, Ser. No. 772,310

Int. Cl. B21k 5/20

U.S. Cl. 76-4

8 Claims



A die-working machine featuring a plurality of die-working stations grouped together in side-by-side relation and operating from a common drive means. Each die-working station is equipped with a dieholder and a toolholder, the movements of which can be adjusted independently of the other stations. The dieholder is rotatably driven about one axis and is supported for driven angular oscillatory movement about either of two selectable pivot axes transverse to its rotation axis. The toolholder is adapted to hold either a needle or a wire tool that works a die secured to the dieholder, which toolholder is driven rotatably about an axis intersecting the dieholder pivot axes and is also reciprocable along its axis of rotation.

3,592,085

SAW CHAIN GRINDING DEVICE

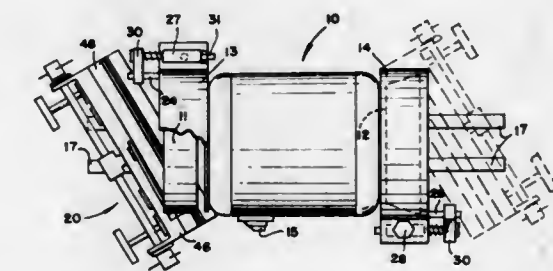
Floyd D. Arneson, 2028 "L" St., Springfield, Oreg.

Filed Oct. 31, 1968, Ser. No. 772,129

Int. Cl. B23d 63/00

U.S. Cl. 76-25

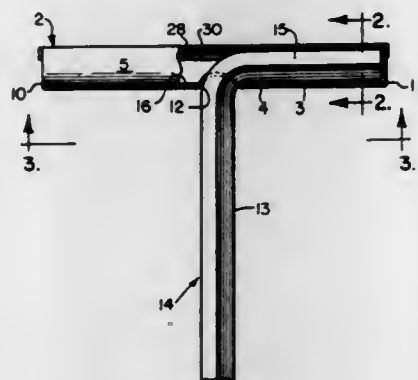
5 Claims



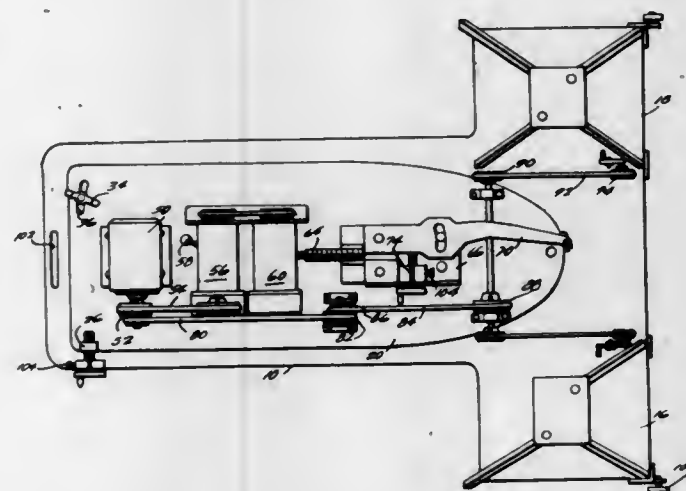
The present disclosure includes a stationary electrical motor with abrasive grinding means affixed to its motor shaft. A saw-chain-holding mechanism is positionably mounted adjacent the grinding means for advancing a chain saw cutter tooth held thereon into sharpening contact with said grinding means. The holding mechanism includes chain-engaging elements to locate and secure each during grinding. The abrasive means includes a shaped grinding wheel for rotation in a single plane and having a beveled surface against which a cutter tooth may be horizontally swung while retained on said mechanism. A screw feed is provided for additionally locating a cutter tooth during grinding. At the completion of grinding the cutter tooth is swung away from the grinding means whereupon another cutter tooth of the same series may be advanced into place on the chain-holding mechanism.

3,592,086 TOOL HANDLE STRUCTURE

Louis A. Derwin, 4508 Cross St., Downers Grove, Ill.
Filed Jan. 27, 1969, Ser. No. 793,972
Int. Cl. B25b 13/00; B25g 1/00
U.S. Cl. 81-177 A 10 Claims

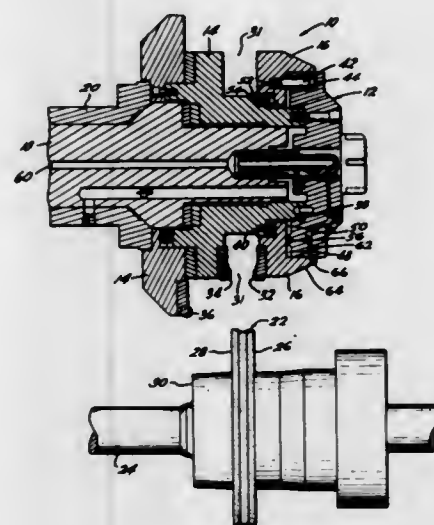


and in which the method is accomplished on the brakes while they are yet on the vehicle, or on other mounting gear, and



whether they are front or rear wheels of such automotive vehicle.

3,592,089
APPARATUS FOR MACHINING SPACED SURFACES
Frank C. Skrentner, Bloomfield Hills, Mich., assignor to La Salle Machine Tool Inc., Warren, Mich.
Filed June 16, 1969, Ser. No. 833,349
Int. Cl. B23b 21/00
U.S. Cl. 82-25 5 Claims



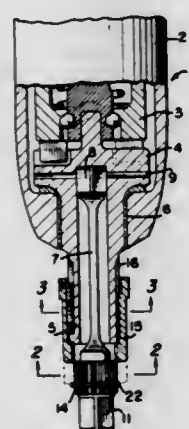
A tool retracting head for finish machining parallel surfaces on a workpiece in which the tools which are movable across the surfaces to be machined are mounted on relatively movable supporting head sections. The tools are moved radially inwardly along opposite surfaces of a rotating workpiece, one of the head sections is then moved a predetermined distance in a direction to move the tool thereon away from the tool on the other head section, the workpiece is then moved in the same direction a smaller distance so that both surfaces are spaced from the tools, and the head is then retracted while the tools are spaced from the workpiece surfaces to positively preclude the formation of objectionable drawback lines on the workpiece.

3,592,090
ROTARY ASSEMBLY OF THE HOLLOW SPINDLE TYPE
Raymond G. Koopman, Floyds Knobs, Ind., assignor to M.K.M. Machine Tool Co., Inc., Jeffersonville, Ind.
Filed June 25, 1969, Ser. No. 836,325
Int. Cl. B23b 19/02
U.S. Cl. 82-30 8 Claims

A rotary spindle assembly is composed of a pair of hollow cylindrical outer and inner parts, each having a pair of equally spaced long parallel axes, one a center axis and the other an offset bore axis. The inner part additionally has a

3,592,087 IMPACT WRENCH DRIVE

Reginald W. Pauley, Belle Mead, N.J., assignor to Ingersoll-Rand Company, New York, N.Y.
Filed Aug. 27, 1969, Ser. No. 853,333
Int. Cl. B25b 19/00
U.S. Cl. 81-52.3 11 Claims



An impact wrench having a torsion bar and a latch means which can be manually moved between an inoperative position, wherein the torsion bar limits the torque delivered by the wrench to a fastener, and an operative position, wherein the wrench anvil is connected substantially rigidly to the fastener to deliver an increased torque to the fastener.

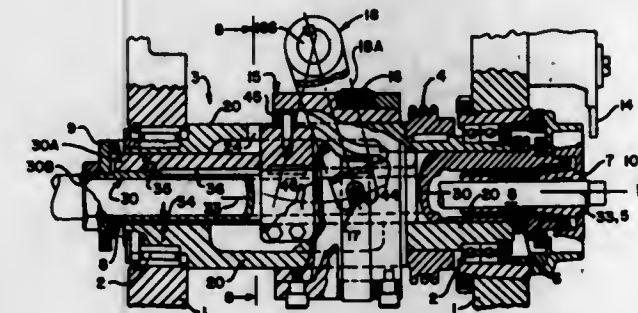
3,592,088 BRAKE DISC CUTTER

Donald E. Welling, 42 Anthony Wayne Terrace, Baden, Pa.
Filed June 12, 1969, Ser. No. 832,774
Int. Cl. B23b 5/04
U.S. Cl. 82-4 A 3 Claims

A brake disc cutter used to true up distorted or scored brake discs for automotive, truck and aircraft disc brakes,

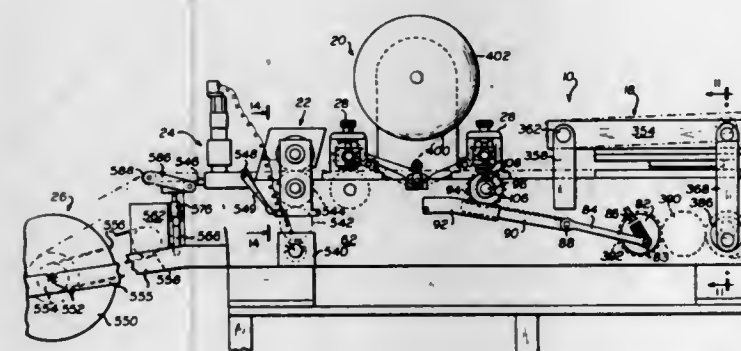
chuck for centering a stock-rod on the center of its offset bore, which is large enough to embrace all four axes. The bore and chuck axes of the inner part, and the center axis of a chuck-held stock-rod, all coincide.

The outer cylindrical part is mounted in an automatic screw machine with its center axis coincident to the main rotary axis of the machine and with its bore axis offset therefrom. The inner cylindrical part is mounted within the



offset bore of the outer part with its center axis coincident to the bore axis and with its chuck axis movable along a circular "adjustment" arc, which intersects the center axis of the outer part. By angularly turning the inner cylindrical part, a chuck-held stock-rod may be swung along said circular adjustment arc either to bring the center axis of the rod into coincidence with the center axis of the outer part or to bring any offset rod axis along that adjustment arc into such coincidence.

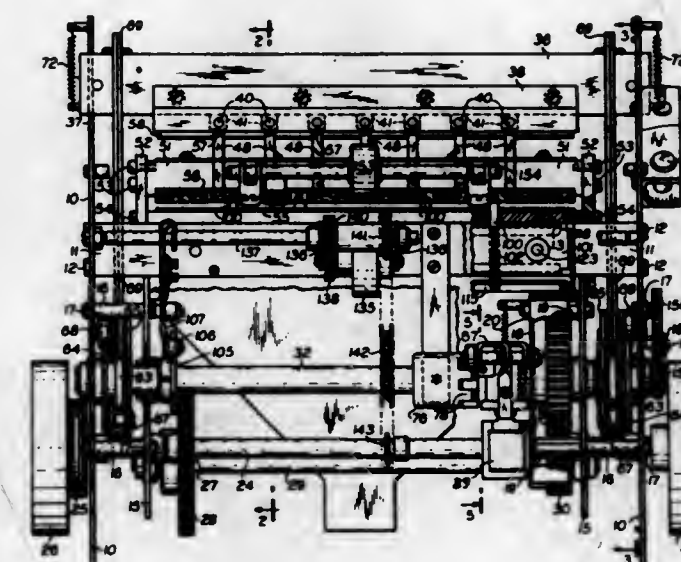
3,592,091
DIECUTTER
Gerald J. Ottavan, Ridgefield, N.J., assignor to Allamatic Corporation, Cliffside Park, N.J.
Division of Ser. No. 736,768, June 13, 1968. This application June 15, 1970, Ser. No. 46,417
Int. Cl. B26d 3/08
U.S. Cl. 83-6 2 Claims



A printing press especially adapted for printing pressure sensitive adhesive-backed labels, comprising a novel paper feeding mechanism having means for maintaining constant tension including a self-adjusting brake and tension indicating means, a printing press head having two parallel ink feeds to permit the inking roller to move across the printing plate in either direction in order to ink the plate, a novel die-stamp or die-cut mechanism which assures a uniform application of cutting force over the entire peripheral edge of the label by virtue of a slightly resilient platen and a twin link arrangement for moving the movable die up and down, out of and into cutting relation with the label paper, a novel stripper having a slip clutch for driving a drum that pulls the unwanted material from the printed label at a substantially constant tension, a cutter of unique design not employing shearing for cutting the labels into longitudinal strips of a preselected integral number of labels and a takeup mechanism for rolling up the printed labels in lieu of cutting.

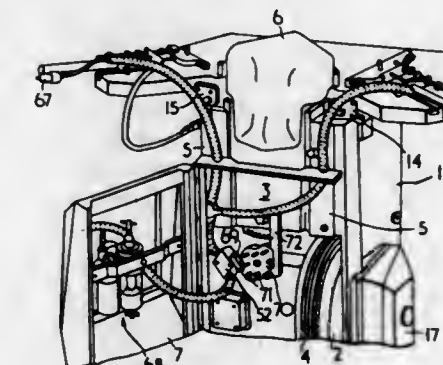
3,592,092 PAPER PUNCH

Frank C. Blowsky, 46-16 195th St., Flushing, N.Y.
Filed Sept. 29, 1969, Ser. No. 861,725
Int. Cl. B26d 7/16
U.S. Cl. 83-156 10 Claims



A paper punch with adjustable and depressable paper stop means is described having a novel construction of means operating for the cutting punches by cams. In addition a single cam depresses the paper stop out of the way and also brings a feed roll into contact with the punches sheets for ejecting the same under the cutting punches. The paper stop is adjustable with respect to the cutting punches whereby the location of the punched holes with respect to the edge of the sheets may be adjusted without affecting the means for depressing the paper stop means or the timing thereof.

3,592,093
MACHINES FOR CUTTING SHEET MATERIAL, SHEET METAL AND THE LIKE
Alves Cantelli, via Don Minzoni 5, Rastignano (Bologna), Italy
Filed July 24, 1969, Ser. No. 844,294
Claims priority, application Italy, Aug. 10, 1968, 1742A
Int. Cl. B26d 7/16
U.S. Cl. 83-364 6 Claims

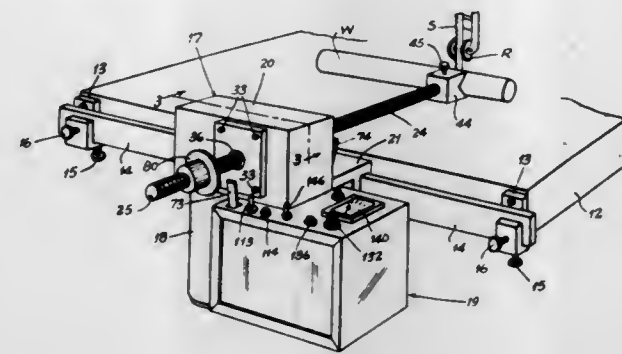


Automatic guides for positioning and aligning sheet material to be cut in which the guides carry elements to control a drive, which can be set to advance and retract and partially rotate the guides to required positions.

3,592,094
BANDSAW WORK FEED
Louis W. Greenblatt, 12 Ladue Manor, St. Louis, Mo.
Filed Aug. 28, 1969, Ser. No. 853,801
Int. Cl. B26d 1/46
U.S. Cl. 83-201 11 Claims

A variable-speed, constant-thrust, work feed for band and circular saws. It employs a DC motor generator in which motor speed and generator output voltage normally decrease as load increases, but it uses a control which increases motor

voltage input as a function of generator voltage reduction to maintain substantially constant speed and power. The feeding speed may be adjusted and may be automatically regulated to limit the load on the saw blade to prevent injury to the blade, and to give warning to the operator. Means to increase the



feeding rate temporarily is provided. Withdrawal is at higher speed. Limit switches control feed and withdrawal. Dynamic braking prevents overtravel in either direction when the mechanism is stopped intentionally or by limit switches. A feeding speed indicator is provided.

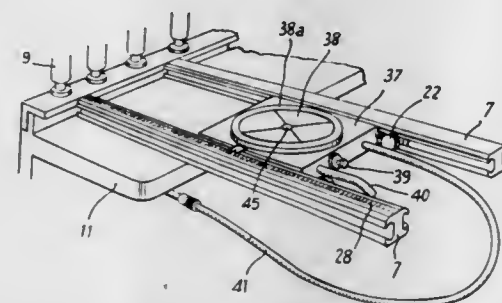
3,592,095 SHEARS AND THE LIKE APPARATUS FOR CUTTING SHEET MATERIAL

Rene Passa, Livry-Gargan, and Achille Romoli, St-Remy Saint-Denis, both of, France, assignors to Ste. B.R.G., rue Pasteur-Devil, La Barre, France
Filed Apr. 9, 1969, Ser. No. 814,593
Claims priority, application France, Apr. 17, 1968 148,326

U.S. Cl. 83-267

Int. Cl. B26d 5/20

9 Claims



The shears are of the type including a centering carriage adapted to cut circular blanks out of a metal sheet, said carriage being slidably fitted and held between two guiding rails in any desired longitudinal position and being provided with a rotary plate or the like means over which the metal sheet may rest to be shifted angularly by predetermined amounts to allow a succession of cuts to be executed along the desired circular line of cut, a jack associated with the jacks controlling the shearing blades providing in antagonism with a spring for the intermittent progression of the rotary plate through the agency of a ratchet wheel.

3,592,096 PITCH-VARYING APPARATUS FOR STRING INSTRUMENTS

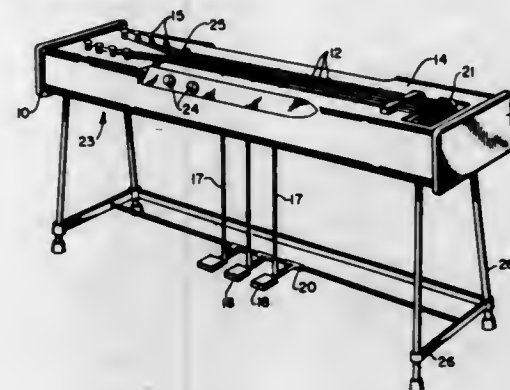
Bryan D. Ritter, 23 Oakwood Drive, Monroe, La.
Filed Aug. 4, 1969, Ser. No. 847,184
Int. Cl. G10d 3/14

U.S. Cl. 84-312

11 Claims

A tension-varying system and a mechanical linkage system therefor for varying the normal tones of guitar strings while the instrument is being played. The tension-varying system include for each guitar string two parallel, juxtaposed wires stretched between the end walls of and within the guitar body. One of the wires is connected at one end to the guitar body and at the other to a lever arm which by means of a spring is connected to the opposing wall of the guitar body.

The other wire is likewise connected to one end to the same lever arm and at its other end to a second lever arm to which the guitar string is attached. When the former wire is depressed or further stretched it lowers the tone of the string while depressing or stretching the other wire raises the tone. In one embodiment (FIGS. 2-5) the second lever arm is



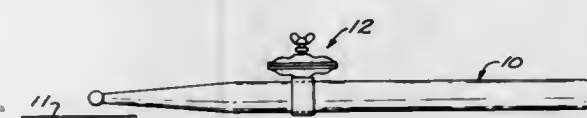
straight and unitary while in a second, preferred embodiment (FIGS. 6-8) the lever arm is pivoted and two piece and can break inwardly or outwardly. The mechanical linkage system (FIG. 9) for actuating the tension-varying system by depressing one or the other of the wires, includes uniform elements which have flexibility and adjustability.

3,592,097 PERCUSSION MUSICAL INSTRUMENT

Donald C. Friede, 4839 Dorsie Drive, Sappington, Mo.
Filed Feb. 9, 1970, Ser. No. 9,579
Int. Cl. G10d 13/06

U.S. Cl. 84-402

8 Claims



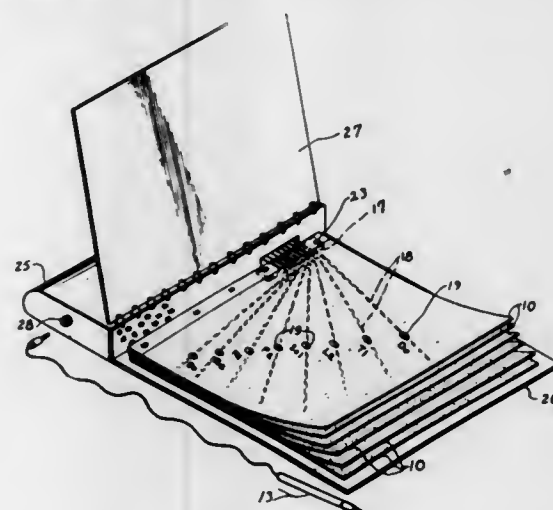
This musical instrument includes a drumstick having a percussion assembly mounted thereon. The percussion assembly consists of a pair of cymbals freely mounted on a stem which is transversely oriented relative to the drumstick. The percussion assembly is adjustably clamped to the drumstick and the stem includes an adjustable limit nut limiting the travel of the cymbals thereon. The volume and character of the sound may thereby be controlled.

3,592,098 ELECTRONIC MUSICAL INSTRUMENT EMPLOYING PLURAL TUNING SHEETS AND A HAND-HELD SELECTOR

Ernest A. Zadig, 1 Bouton St., South Norwalk, Conn.
Filed May 21, 1969, Ser. No. 826,440
Int. Cl. G10b 15/02

U.S. Cl. 84-471

6 Claims



A device for producing selected tones includes an electrically operated tone generator which includes a stylus and a

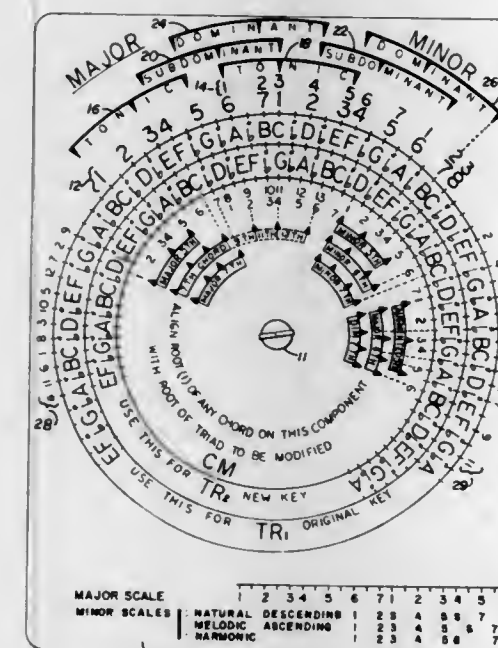
plurality of terminals for producing tones by completing a circuit through the stylus and the one of the terminals that will cause the desired tone to be produced. A separate conductor for each terminal is on a sheet and extends to one edge. Each conductor is uninsulated at a portion at said edge, and at least at one other point. By folding the edge portion of the sheet each conductor will have an uninsulated portion at both the upper and under side of the sheet for making contacts with similarly arranged conductors on another sheet, above or below, if a number of the sheets are stacked. A contact board has contacts connected respectively to the tone generator terminals and arranged to contact respective conductors on one or more sheets by placing the board against the edge portion of one or more of the sheets. A selected tone is produced by contacting the stylus with an uninsulated point on one of the conductors on a sheet.

3,592,099 SLIDE RULE FOR COMPUTING MUSICAL RELATIONSHIPS

Delbert F. Gibby, 1600 Maxxim, Fullerton, Calif.
Filed Apr. 11, 1969, Ser. No. 815,283
Int. Cl. G09b 15/02

U.S. Cl. 84-473

10 Claims



A slide rule capable of computing through mathematical constants substantially all significant musical relationships as they apply to any given key including chord structure and interval patterns of major and relative minor diatonic scales. The slide rule comprises a plurality of slidable members on the face and the back in cooperation with at least one stationary member, and may be linear or circular in form. A variety of marks and symbols representing musical tones, scales and chords are geometrically inscribed upon the moveable and stationary members so as simultaneously to depict an array of relationships, including interval patterns of major and relative minor diatonic scales and multiple chord combinations and variations applicable thereto in any major or relative minor key.

3,592,100 BINDING SCREW HAVING ELECTRICALLY INSULATED HEAD

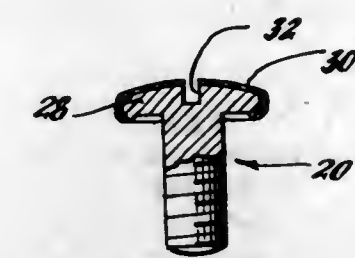
Czeslaw Mackiewicz, Trumbull, and James E. Meehan, Bridgeport, both of, Conn., assignors to Harvey Hubbell, Incorporated, Bridgeport, Conn.
Filed May 9, 1968, Ser. No. 727,939
Int. Cl. F16b 23/00, 35/00

U.S. Cl. 85-1

5 Claims

A binding screw having a threaded shank and an enlarged

head coated with a plastic insulating material. The head in-



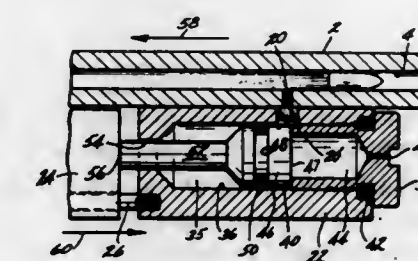
cludes a usual slot which is cut through the insulating material exposing the base metal.

3,592,101 GAS SYSTEM FOR AUTOLOADING FIREARM

Edwin S. Vartanian, North Haven, and Jay P. Jarvis, Madison, both of, Conn., assignors to Olin Corporation
Filed Apr. 21, 1969, Ser. No. 817,770
Int. Cl. F41d 5/08, 5/10

U.S. Cl. 89-193

7 Claims



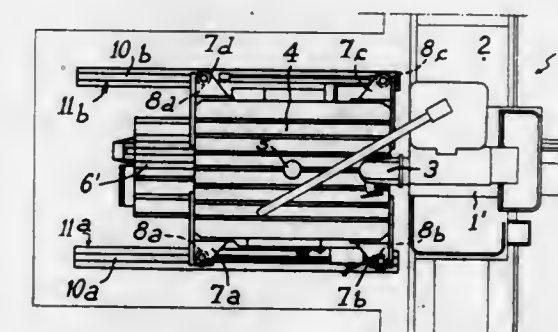
A gas system for an autoloading firearm wherein the gas piston is operative to seal the gas cylinder against high-pressure combustion gases during early stages of recoil of the firearm after firing thereof. As the force of recoil decreases, the seal is broken and lower pressure gases are bled into the gas cylinder to actuate the gas system.

3,592,102 ROTATABLE INDEXING PLATE FOR A MACHINE TOOL

Charles William Berthiez, 5 Avenue Eglantine, Lausanne, Switzerland
Filed Jan. 24, 1969, Ser. No. 793,716
Claims priority, application France, Feb. 2, 1968, 138,559
Int. Cl. B23d 7/08

U.S. Cl. 90-56 R

8 Claims



An indexing plate for a machine tool rotatable about a vertical axis on a support resting in a foundation including horizontal support surface means positioned in the foundation, vertical jack means are mounted between said support surface means and the periphery of said plate and said jack means are capable of simultaneously contacting said support surface means and said plate to support said plate. In one embodiment four jacks are provided in the plate whose axes

pass through the plane of the plate at the corners of a square centered on the axis of rotation of the plate and the support surface means includes four support shoes mounted in pairs on rails.

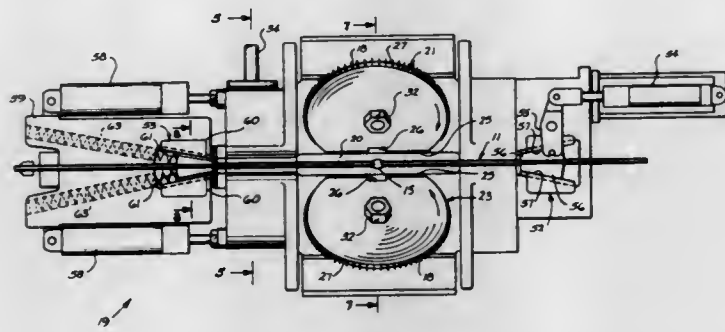
3,592,103

APPARATUS FOR REMOVING MATERIAL FROM A WORKPIECE

William B. Brown, Pasadena, Md., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed June 11, 1969, Ser. No. 832,349
Int. Cl. B23d 41/06, 37/14

U.S. Cl. 90—88

9 Claims



In order to remove flash from a weld of butt-welded sections of rod, four eccentrically mounted cutting wheels are positioned around the periphery of the rod adjacent to the weld. Each wheel has a plurality of cutting blades attached thereto which have paths of movement that overlap the paths of movement of other blades positioned on adjacent wheels when the blades are in cutting engagement with the flash. Each wheel is relieved along a chord thereof to form a straight section for initially accommodating the welded sections of rod before the milling operation is commenced. The eccentric mounting arrangement results in progressively deeper milling of the flash as the wheels are rotated.

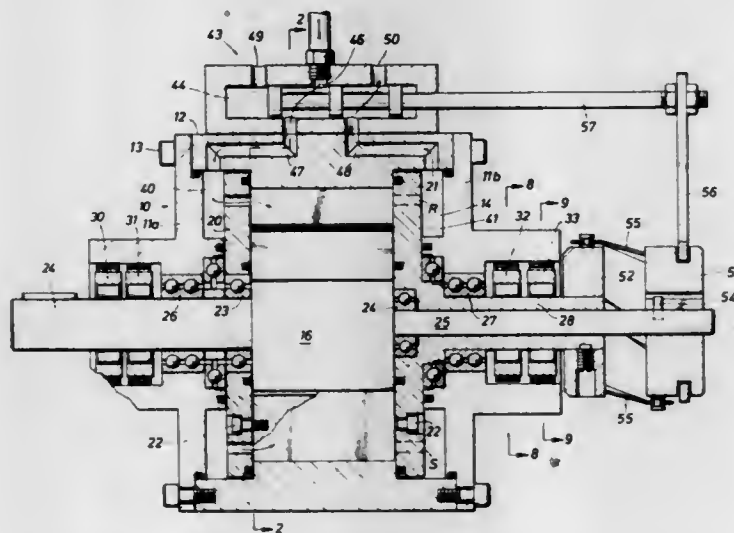
ERRATUM

For Class 91—170 see:
Patent No. 3,592,107

3,592,104 FLUID MOTOR

James H. Harness, Houston, Tex., assignor to Harness Power Associates, Houston, Tex.
Filed Oct. 17, 1969, Ser. No. 867,182
Int. Cl. F01b 15/00; F01c 9/00
U.S. Cl. 91—196

7 Claims



A motor is disclosed that has abutment vanes and power vanes moving around an annular chamber. Fluid under pres-

sure is first injected between an abutment vane and a power vane while exhausting the other sides thereof to move the vanes apart. Then the pressure fluid is injected on the outer sides while the space between them is exhausted to move them together. This switching of the injecting and exhausting functions is determined by the relative position of the vanes.

ERRATUM

For Class 91—276 see:
Patent No. 3,592,109

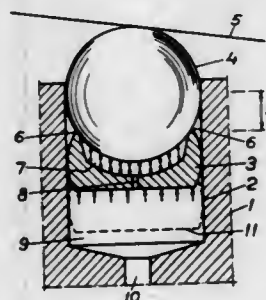
3,592,105

HYDROSTATIC PUMP OR MOTOR WITH SPHERICAL PISTON

Per Fryklund, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed July 17, 1969, Ser. No. 842,522
Claims priority, application Sweden, July 23, 1968, 10,013
Int. Cl. F01b 13/00; F16j 1/24

U.S. Cl. 92—54

3 Claims



A hydraulic energy converting device applicable to both pumps and motors, such devices employing an obliquely pivoted swash plate to interact with a spherical piston. The axial component of the force on the piston causes wear. This wear is minimized by providing a bowl-shaped piston with a ball-contacting seat and interposing a ball between the piston and the swash plate. Pressure-communicating arrangements in the piston permit fluid pressure and the ball to interact directly, minimizing the force of contact between ball and seat.

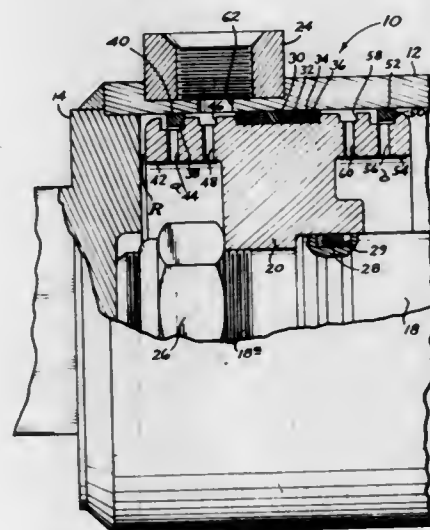
3,592,106

RAM WITH CUSHIONED PISTON STROKE

Gaylord G. Baughman, Troutdale, Oreg., assignor to Cascade Corporation, Portland, Oreg.
Filed June 25, 1969, Ser. No. 836,533
Int. Cl. F01d 11/02

U.S. Cl. 92—85

7 Claims



A ram with a construction for cushioning the ram's piston as it nears the end of a stroke while accommodating a fast

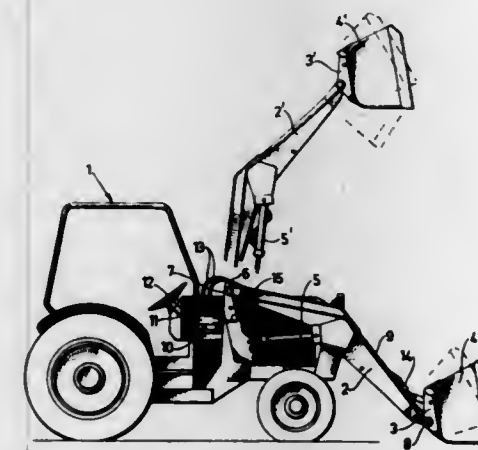
return stroke in the piston. A metallic piston ring is loosely mounted to permit limited axial movement within an annular groove on the piston. A fluid passage connects this groove with an end of the piston. The ring on movement of the piston toward the end of a stroke moves to a position tending to close off the fluid passage, to capture cushioning fluid. With pressure fluid admitted to the ram to produce a return stroke, the ring shifts axially to a position tending to open up the fluid passage.

3,592,107

HYDRAULIC CONTROL SYSTEM

Gosta Ahlenius, Oppange, Enanger, Sweden, assignor to Broderna Lundbergs Mekaniska Verkstad AB, Sweden
Filed June 2, 1969, Ser. No. 829,655
Claims priority, application Sweden, June 6, 1968, 7645/68
Int. Cl. F01b 1/00; B66f 9/00; F02f 3/62
U.S. Cl. 91—170 R

13 Claims



Hydraulic control system producing parallel linkage of a toolholder located on control arms actuated by means of a hydraulic cylinder mechanically coupled between the toolholder and the control arms, the control units for said arms being allotted a hydraulic valve containing a supervisory unit detecting the movements of the arms and in dependence on the direction of movement of said arms, permitting the passage of fluid to a hydraulic unit allotted to said valve, said unit assuming a first position for the passage of fluid to one side of the cylinder on movement of the control arms in one direction under the influence of said fluid, and a second position for passage of fluid to the other side of the cylinder on movement of the control arms in the opposite direction.

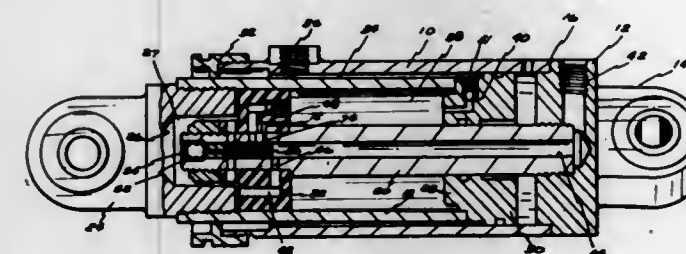
3,592,108

FLUID CYLINDER

Borje Oscar Rosaen, 4031 Thornoaks, Ann Arbor, Mich., and Robert L. Firth, 4817 Sunnyslope Road, Minneapolis, Minn.
Continuation-in-part of application Ser. No. 660,454, Aug. 14, 1967, now Patent No. 3,335,642, dated Aug. 15, 1967.
This application Feb. 7, 1969, Ser. No. 797,420
Int. Cl. F01b 31/00

U.S. Cl. 92—110

12 Claims



A fluid cylinder comprising inner and outer tubular members telescopically joined for relative movement between extended and retracted positions. A piston carried by the outer tubular member is slidably disposed in the inner tubular

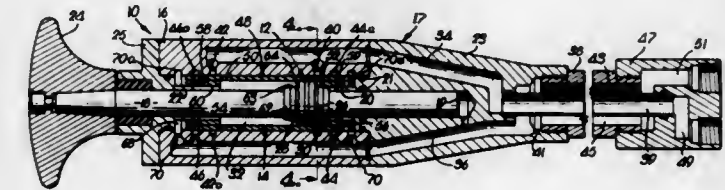
3,592,109

RECIPROCATING FLUID MOTOR

Wade A. Eskridge, Overland Park, Kans., assignor to A. B. Chance Company, Centrailla, Mo.
Filed Mar. 5, 1969, Ser. No. 804,500
Int. Cl. F01i 17/00, 25/04; F15b 15/22

U.S. Cl. 91—276

8 Claims



A reciprocating fluid motor has a piston shiftably carried in the bore of a longitudinally extending housing. The piston includes an axial rod projecting from the housing that is adapted for attachment to mechanism requiring reciprocable drive. A freely slidable valve in the bore and shiftable by the piston alternately admits fluid pressure to opposite sides of the piston to shift the same in opposite directions. Interfitting parts on the valve and on the piston cooperate to create an imbalance of pressure on opposite sides of the piston adjacent each end of its path of reciprocation in a direction and of a magnitude sufficient to insure shifting of the valve.

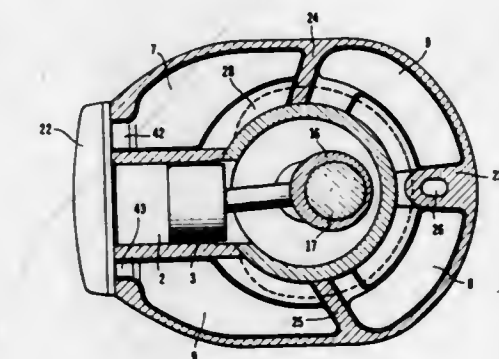
3,592,110

MOTOR COMPRESSOR PARTICULARLY FOR SMALL REFRIGERATING MACHINES

Bendt Wegge Romer, Ulkebol; Vagan Valbjorn, Nordborg, and Bent M. K. Holme, Skovby, all of Denmark, assignors to Danfoss A/S, Nordborg, Denmark
Filed Aug. 5, 1969, Ser. No. 847,637
Int. Cl. F01b 29/00

U.S. Cl. 92—161

9 Claims



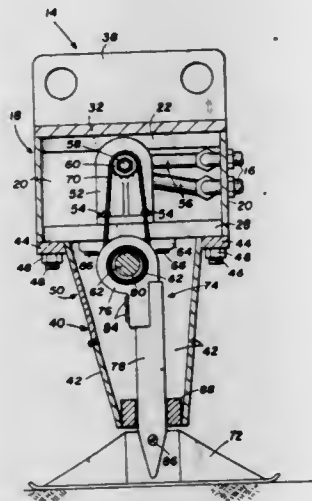
The invention relates to a motor compressor assembly of the type used for small refrigerating machines. It involves a construction for forming noise-reducing chambers wherein the chambers are formed between recesses in a central bore of the casing and a cup shaped element inserted in the central bore. Grooves are formed in the central bore which are covered by the peripheral wall of the insert and the grooves form passages connecting the noise reducing chambers.

3,592,111 COMPACTOR

Johnston R. Livingston, Dallas, and George C. Whitus, Grand Prairie, both of Tex., assignors to Construction Technology, Inc., Arlington, Tex.
Filed Apr. 1, 1969, Ser. No. 811,753
Int. Cl. E01c 19/30

U.S. Cl. 94—49

7 Claims

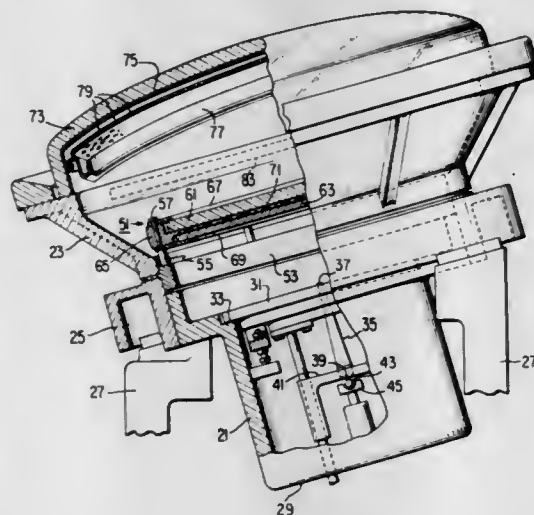


A material compactor for use with backhoes and the like. The compactor includes a box frame adapted for attachment to a backhoe and a hydraulic motor rigidly supported within the box frame. A shaft is rotatably supported on the frame beneath the motor. The shaft extends horizontally and is directly coupled to the motor by a chain and sprocket drive. A pair of connecting rod assemblies are eccentrically mounted directly on the shaft and extend downwardly therefrom to a pair of compactor shoes.

**3,592,112
PHOTOGRAPHIC PRINTING OF CATHODE-RAY TUBE
SCREEN STRUCTURE**
Harry Robert Frey, Lancaster, Pa., assignor to RCA Corporation

Filed July 25, 1969, Ser. No. 844,852
Int. Cl. G03c 7/00; H01j 1/62, 29/89
U.S. Cl. 95—1 R

10 Claims

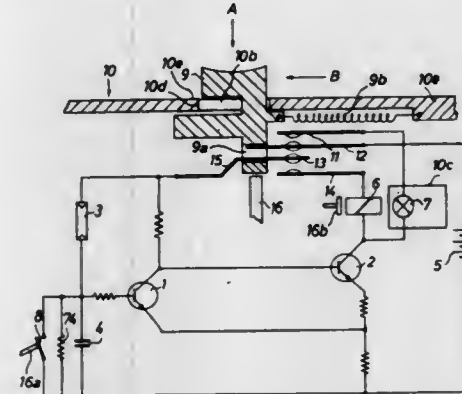


During the fabrication of a cathode-ray tube screen structure, a light field is projected through a photographic master, a correction lens and an optical filter incident upon a photosensitive layer. The filter is a relief image comprised of preformed, nonmetallic, light-absorbing particles having a mean diameter in the range of 5 to 50 millimicrons in a light-transmitting binder. The filter has variations in light transmittance which produce predetermined variations in light intensity in the light field tailored to the particular system.

**3,592,113
CAMERA WITH MEANS FOR INDICATING
AUTOMATICALLY DETERMINED EXPOSURE TIMES**
Erwin von Wasielewski, Munich, Germany, assignor to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Sept. 13, 1967, Ser. No. 667,396
Claims priority, application Germany, Sept. 21, 1966, A 5 550

Int. Cl. G03b 7/08; G01j 1/46
U.S. Cl. 95—10 C

22 Claims

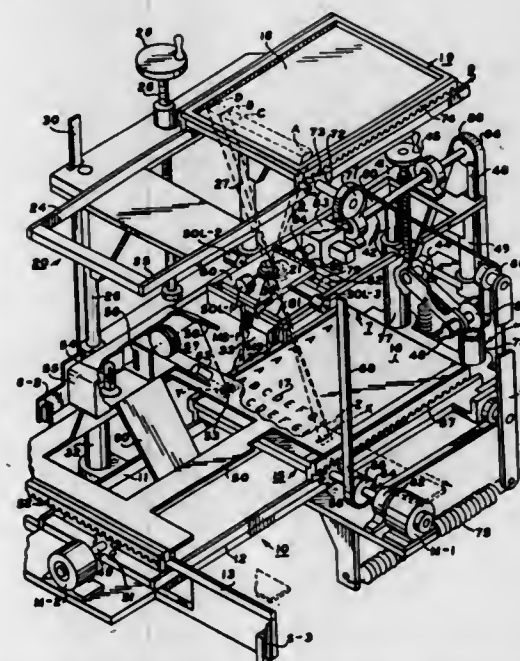


A photographic camera wherein the shutter opens in response to operation of a release trigger which simultaneously completes an electronic delay circuit serving to close the shutter with a delay which is a function of the intensity of scene light. The duration of exposure time under given lighting conditions can be determined prior to or in the course of an exposure by a testing circuit which is completed by the release trigger and includes a lamp, flag or buzzer producing one or more signals to indicate the duration of exposure time, the limit of scene brightness at which an exposure can be made with camera held by hand, and/or the limit of scene brightness at which an exposure can be made with camera mounted on a fixed support. The duration of signals may be a fraction or a multiple of the corresponding exposure time. The absence of a signal can indicate satisfactory scene brightness for exposures with camera held by hand and a continuous signal can indicate that the intensity of scene light is unsatisfactory. Changes in frequency and/or duration of recurring signals can indicate different exposure times.

**3,592,114
APPARATUS FOR JUSTIFYING A REPRODUCED LINE
OF CHARACTERS**
Ernest Everet Minett, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Division of Ser. No. 468,698, July 1, 1965. This application Oct. 3, 1968, Ser. No. 764,851
Int. Cl. B41b 19/00, 23/00

U.S. Cl. 95—4.5 J

9 Claims



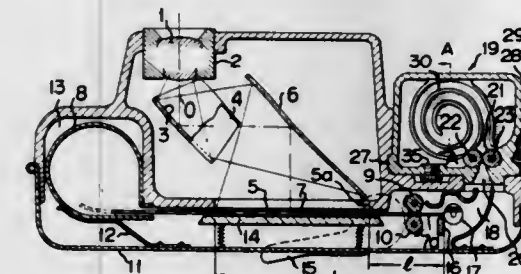
Apparatus for justifying a line of printed matter including a planar support for an original document to be justified posi-

tioned in an optical path relative to a planar support for a sensitized recording member such that an original document is scanned to project a justified image onto the recording medium. The justifying apparatus includes an asymmetric lens supported by a lens carriage positioned intermediate the original document support and the recording member support and movable at a synchronous speed related to a scanning mechanism to expand or contract the graphic data for justifying the image onto the recording medium.

**3,592,115
ELECTRONIC PHOTOGRAPHIC CAMERA**
Sadanao Ando, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Dec. 9, 1968, Ser. No. 782,081
Int. Cl. G03b 17/50

U.S. Cl. 95—13

2 Claims

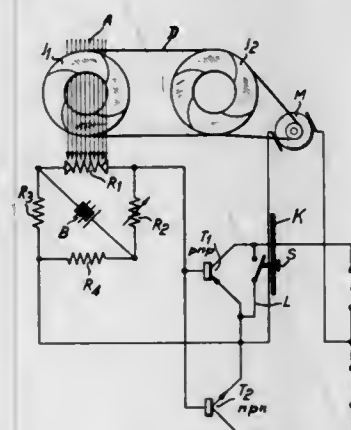


An electronic photographic and processing camera having an optical system for inverting an image for exposure on photosensitive paper. The exposed paper is advanced after exposure by rollers into an attached processing unit that includes processing fluid and a cutter for cutting off individual exposures. The processing unit is detachable from the camera and includes additional rollers to seal the fluid therein.

**3,592,116
AUTOMATIC DIAPHRAGM ADJUSTMENT FOR A
PHOTOGRAPHIC CAMERA**
Arno Ritze, Stuttgart-Möhringen, Germany, assignor to Zeiss Ikon Aktiengesellschaft, Stuttgart, Germany
Filed Sept. 10, 1969, Ser. No. 856,580
Claims priority, application Germany, Sept. 28, 1968, P 17 97 443.5
Int. Cl. G03b 19/18

U.S. Cl. 95—64 R

4 Claims



An automatic diaphragm adjustment device for a photographic camera in which a photoconductive cell is arranged in the input circuit of a Wheatstone bridge and is illuminated by light coming from the subject being photographed and passing through an adjustable diaphragm arranged in front of the photoconductive cell. The diaphragm is operatively connected with the adjustable diaphragm of the camera objective and with an electric motor. A transistor amplifier having at least two transistors is arranged in the diagonal of the Wheatstone bridge and controls the electric motor rotating it

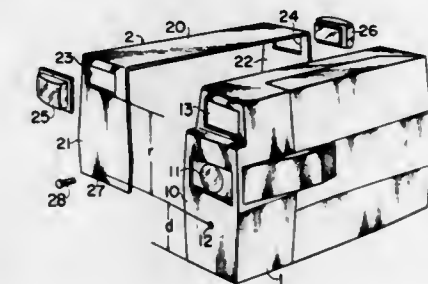
888 O.G.—16

in one or the other direction as the case may be until the bridge is balanced. One of the transistors is bridged by a conductor including a manually operable switch, so that when the switch is closed the diaphragm is closed by the electric motor.

**3,592,117
GRIP OF A CAMERA**
Masahiro Fukuda, Tokyo, Japan, assignor to Fuji Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan
Filed July 28, 1969, Ser. No. 845,449
Claims priority, application Japan, Aug. 28, 1968, 43/61626
Int. Cl. G03b 17/56

U.S. Cl. 95—86

3 Claims

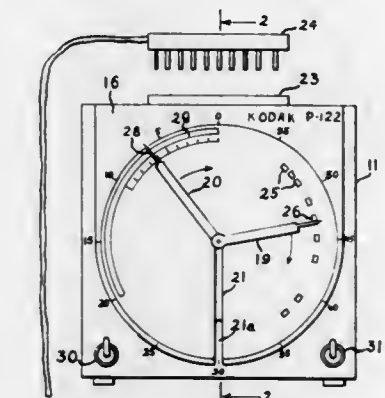


A U-shaped grip carrying a viewfinder is pivotally mounted to the camera. The grip is used as a grip for supporting the camera when not taking the picture and acts as a lens cover when carrying the camera but is used as a viewfinder when taking pictures.

**3,592,118
PHOTOGRAPHIC PROGRAM TIMER**
Werner W. Buechner, 4407 Gladding Court, Midland, Mich.
Continuation of application Ser. No. 677,265, Oct. 23, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 302,902, Aug. 19, 1963, now Patent No. 3,349,685, and a continuation-in-part of 621,382, Jan. 23, 1967, now Patent No. 3,538,270. This application Apr. 20, 1970, Ser. No. 28,254
Int. Cl. G03d 3/00

U.S. Cl. 95—89

10 Claims



A photographic process timer of the dual-speed type having contacts and cooperating countercontacts and auxiliary contact and cooperating auxiliary countercontact. The contacts have a slightly larger time value than the auxiliary contact, so that the actual timing of the steps of the process is effected by the engagement of the auxiliary contact countercontact pair.

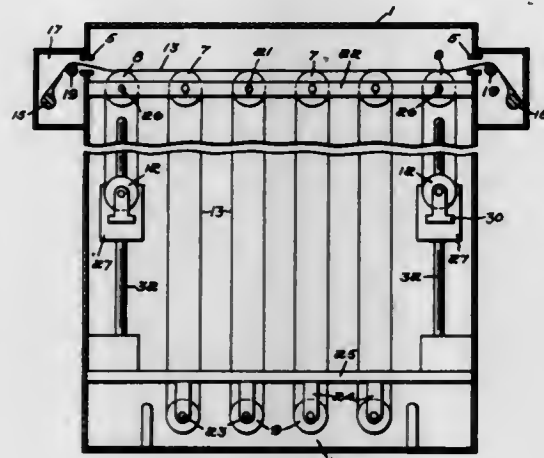
**3,592,119
FILM-PROCESSING MACHINE**
Ralph G. Matheson, 178 Essex Ave, Gloucester, Mass.
Filed Apr. 21, 1969, Ser. No. 817,728
Int. Cl. G03d 3/12

U.S. Cl. 95—94

8 Claims

A film-processing machine in which a strip of film is driven back and forth through a tank of processing solution. The

ends of the film remain fixed while rollers drive the intermediate portion. To take up slack and maintain tension, two gravitationally biased guide rollers are mounted on vertically



moving carriages at opposite ends of the path. Each of the carriages operates a microswitch, automatically reversing the direction the film is driven.

3,592,120

PROCESS OF PRESSURIZATION OF AIRCRAFT, WITH DIFFERENT PRESSURE VALUES IN ITS VARIOUS COMPARTMENTS

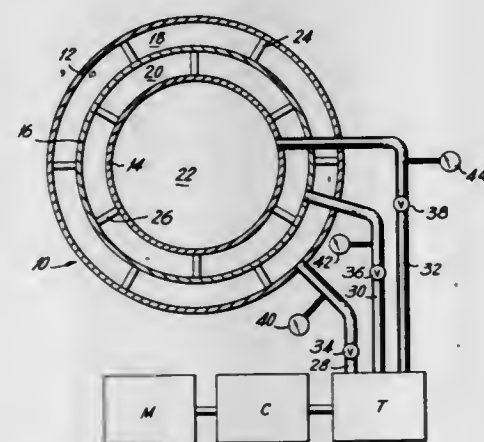
Carlos Cudell Goetz, Avenida Luiz Blvar 36-50 Esq, Lisbon, Portugal

Filed Aug. 2, 1968, Ser. No. 749,626

Claims priority, application Portugal, Aug. 16, 1967, 48206 Int. Cl. B64d 13/04

U.S. Cl. 98-1.5

4 Claims



A method for controlling the interior pressure of an aircraft. The aircraft has at least one intermediate space situated between the interior cabin space of the aircraft and the exterior of the aircraft. A pressure which is substantially different from the outside pressure is maintained within the interior cabin space while there is simultaneously maintained in the intermediate space a pressure between the pressure in the interior cabin space and the outside pressure. In this way the transition from the inside to the outside pressure is more gradually distributed, thus making it possible for pressurized fuselage structures to be used at altitudes and pressure higher than would normally be expected.

3,592,121

COMPENSATING HOOD APPARATUS

Alvin S. Lundy, Bloomfield Hills, Mich., assignor to Claude B. Schneible Co., Holly, Mich.

Filed June 23, 1969, Ser. No. 835,340

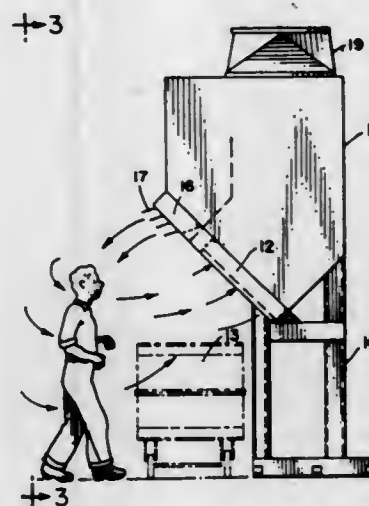
Int. Cl. F23j 11/00

U.S. Cl. 98-36

3 Claims

Supply air, which is preferably outside air, is discharged to form an air curtain between an operator and a mold pourer, etc., joining a rising column of gas, dust, etc., to direct the

column toward an exhaust intake, and adjustable means are provided for directing the air curtain outwardly to cool the



3,592,122

GAS DISPERSAL UNIT

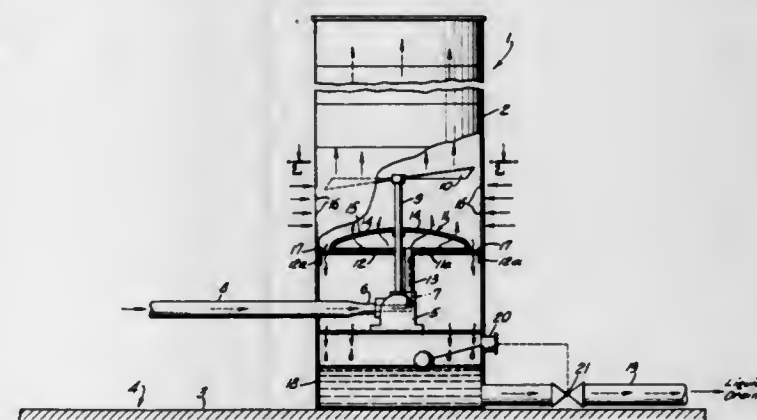
Leonard H. Hughes, New Orleans, La., assignor to Texaco Inc., New York, N.Y.

Filed June 26, 1971, Ser. No. 836,702

Int. Cl. E04f 17/02

U.S. Cl. 98-58

7 Claims



An apparatus for diluting a waste, flue gas prior to discharging the latter into the atmosphere. The apparatus comprises a rotatable inductor located in a flue. A source of a gaseous diluting medium such as air, is positioned upstream of the inductor to mix with waste gas passing through the latter prior to the waste gas contacting the inductor blades. Waste gas is passed upwardly through a perforated manifold which functions as a condensing unit. In said manifold, a part of the gas flow is passed through constrictions in the manifold upper side and thence to the inductor, the remainder of the gas is condensed and passed from the manifold to a condensate collector.

3,592,123

AIR CONDITIONER FRONT ASSEMBLY

Ferdinand C. Henken, Kettering, and Emerson L. Wark, Vandalia, both of, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 19, 1969, Ser. No. 886,641

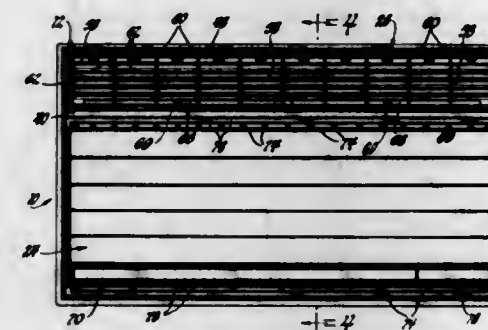
Int. Cl. E06b 7/02

U.S. Cl. 98-94

3 Claims

In preferred form an air conditioner front assembly including a unitary plastic member having a first outer frame adapted to be connected to the cabinet of an air conditioner unit. A discharge sleeve extends across the width of the frame at the top thereof and a second frame is supported in front of the first frame by a plurality of reinforcing ribs that

define an inlet opening above, below and to each side of the frame for flow of return air across a filter element secured on the frame at an outlet opening on the front. The second frame includes a pair of spaced-apart parallel tracks in which slots are formed that receive spring-biased tabs on an imper-



forate baffle which normally covers the full planar extent of the second frame when the panel is in a closed position to damp operating noise. When in an open position, the panel is moved to one side of the second frame to uncover control means for operating the air conditioner.

3,592,124

APPARATUS FOR PRODUCING PLASTICIZED CHEESE FROM RAW CURD

Nicholas E. Pontecorvo, Tarzana, and Wilfred A. Shaffer, Los Angeles, both of, Calif., assignors to American Foods Machinery Corporation

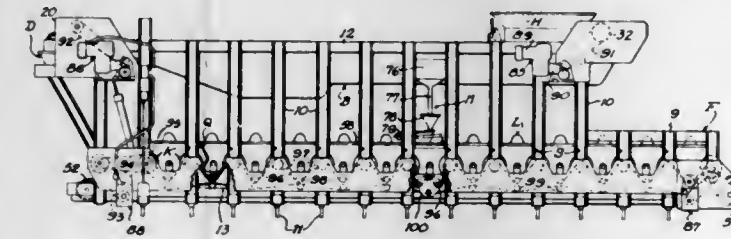
Division of Ser. No. 601,177, Dec. 12, 1966, Pat. No. 3,445,241 which is a continuation-in-part of application Ser. No. 489,833, Sept. 24, 1965, now Patent No. 3,403,030, dated Sept. 24, 1968.

Divided and this application Nov. 1, 1968, Ser. No. 792,877

Int. Cl. A23c 19/02

U.S. Cl. 99-243

3 Claims



Apparatus for processing raw cheese curd into compact, homogeneous and plasticized cheese. The apparatus is provided with means including an elevated hot water bath for softening the curd, a conveyor belt for moving the cheese curd through the bath, means for conveying the curd in a shallow layer onto the belt, means for elevating the softened curd out of the bath and discharging it downwardly, and means below the bath for agglomerating the softened curd, forming it into a shallow horizontally moving stream, and kneading the stream into a ribbon of homogeneous cheese. In the apparatus is provided kneading rolls, a plurality of gathering baffles for narrowing and thickening the curd ribbon between the rolls, radiant heaters for applying heat to the curd ribbon between the rolls, and means for delivering fine water mist sprays on the kneading rolls.

3,592,125

AUTOMATIC INFUSION BREW MAKER

Robert J. Tolmie, Fairfield; Robert L. Rubenstein, Norwalk, and Theodore R. Flowers, Fairfield, all of, Conn., assignors to Sperry Rand Corporation, New York, N.Y.

Filed Mar. 4, 1969, Ser. No. 804,159

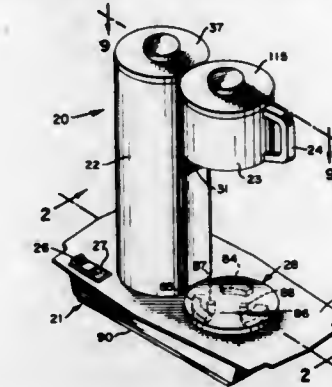
Int. Cl. A47j 31/00

U.S. Cl. 99-307

15 Claims

An automatic infusion brew maker comprising a pair of reservoirs and a pair of heat pumps connected thereto. The

two heat pumps are driven by a common electrical heating means. Water from the first reservoir is pumped into a removable steeping basket, passes through a filter and exits



through an outlet below the steeping basket. Water from the second reservoir is heated and pumped directly to the steeping basket outlet, thus bypassing the material to be steeped.

3,592,126

COFFEEMAKER FILTER

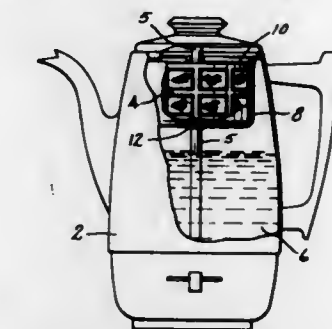
Eugene S. Dombrowik, New Britain, Conn., assignor to General Electric Company

Filed Dec. 19, 1969, Ser. No. 886,442

Int. Cl. A47j 31/08

U.S. Cl. 99-312

7 Claims



A coffeemaker filter basket wherein the sidewalls of the filter have smaller openings than the bottom wall of the filter.

3,592,127

APPARATUS FOR EXTRACTING JUICE FROM FRUIT AND THE LIKE

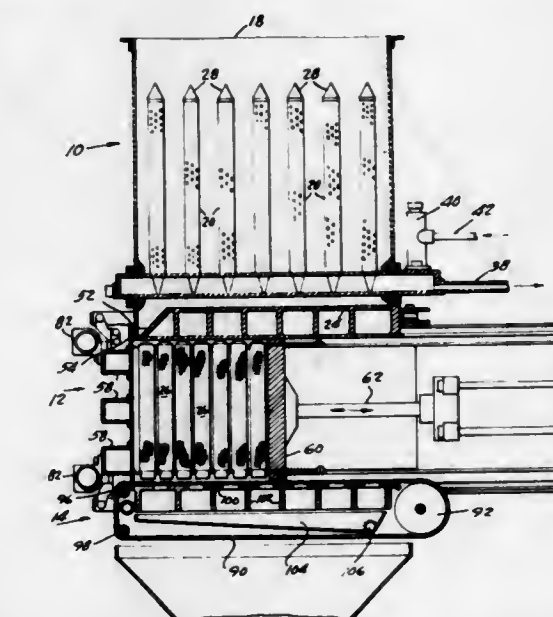
William L. Cooley, 1415 Squirrel Hollow, Saratoga, Calif.

Filed July 18, 1969, Ser. No. 851,130

Int. Cl. B30b 9/02, 9/06

U.S. Cl. 100-107

11 Claims

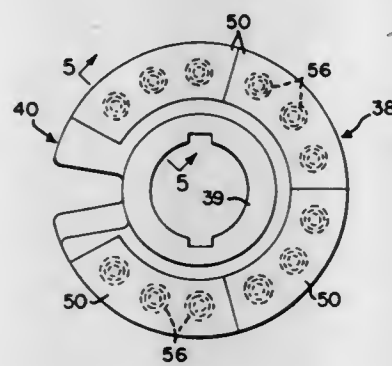


Apparatus for extracting the juice from fruit and the like, said apparatus comprising a vat to receive material to be treated; a plurality of laterally spaced vertical perforated

drainage tubes; manifolds receiving juice from said vertical tubes; an outlet connected to said manifolds; a gate forming a bottom for said vat; means for moving said gate into and out of position whereby to dump at least the lower portion of said vat when said gate is out of its vat-bottoming position; a press receiving material from said vat; a plurality of vertical drainage tubes in laterally spaced rows in said press, drainage means below said tubes and means for separating said drainage means from said tubes whereby to permit dumping of the residue from said tubes and means to compress material inside said press and to bring said tubes into mutual close juxtaposition.

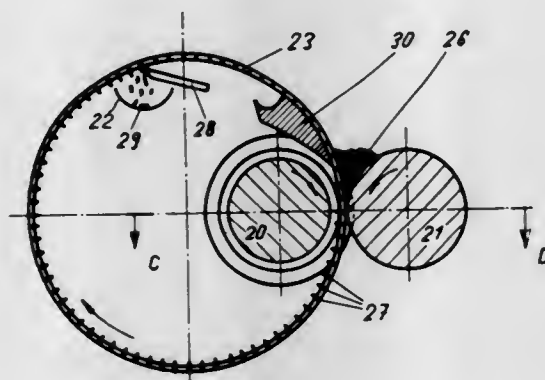
3,592,128 SCREW PRESS

Alfred W. French, Piqua, Ohio, assignor to The French Oil Mill Machinery Company, Piqua, Ohio
Filed June 6, 1968, Ser. No. 735,050
Int. Cl. B30b 3/00, 3/02
U.S. Cl. 100—145



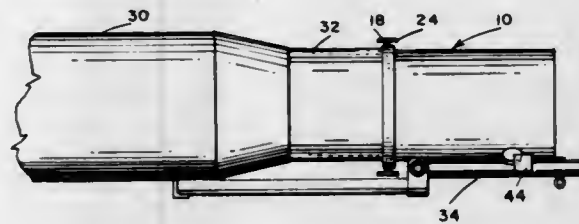
A screw press has a cage defining an elongated pressing chamber, a screw extends within the chamber and has a plurality of worm bodies supporting a series of axially spaced helical flights receiving stationary breaker bars therebetween, and the flights have a hardened insert member removably connected to the corresponding body for resistance to wear and convenient reconditioning of the screw.

3,592,129
MACHINE FOR PROCESSING POWDER OR PASTELIKE MATERIALS INTO A GRANULATE OR THE LIKE
Heinz List, St. Jakobstrasse 43, Pratteln, Switzerland
Filed Apr. 22, 1968, Ser. No. 722,832
Int. Cl. B30b 3/04
U.S. Cl. 100—157



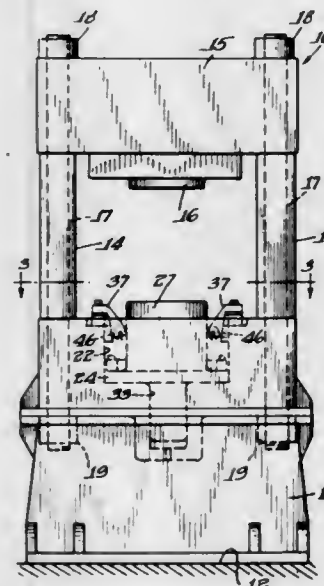
A machine for processing or working powdery or pastelike materials into a granulate at the wedge gap between two opposite rotating rollers. A forming ring member rotates between the rollers, and the forming means are arranged at such ring member.

3,592,130
TRANSFER SLEEVE
Daniel Q. Boje, Staten Island; Samuel Taylor Permutt, Jamaica Estates, Queens, and Sol Kestlin, Bronx, all of, N.Y., assignors to Compactor Corporation
Filed June 30, 1969, Ser. No. 837,743
Int. Cl. B30b 15/08
U.S. Cl. 100—229



A transfer sleeve comprising an open ended hollow body adapted to be disposed at the discharge end of a compacting device, for extending the compacted waste storage capacity of waste compactors prior to removal of the waste or refuse receptacles and for improving the means for removing the refuse receptacles. Alternatively, the transfer sleeve can be used for transferring and storing any other materials flowable therethrough.

3,592,131
HYDRAULIC CYLINDER APPARATUS
Tsuruo Otsuka, Harvey, and Eugene E. Grankowski, Chicago, both of, Ill., assignors to Verson Allsteel Press Company, Chicago, Ill.
Filed June 11, 1969, Ser. No. 832,195
Int. Cl. B30b 1/32
U.S. Cl. 100—269

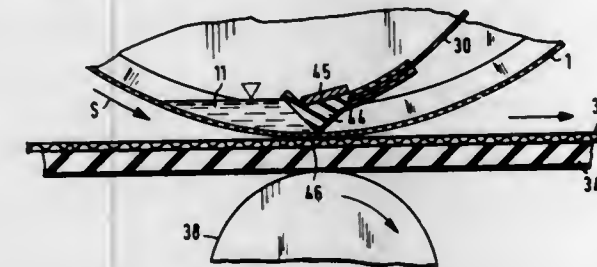


A hydraulic cylinder apparatus for a hydraulic press effectively provides in itself the hydraulically movable platen of the press. A hollow hydraulic cylinder body which is open at one end and closed at the other has a cylinder of large diameter at the open end and a cylinder of small diameter at the closed end communicating with the cylinder of large diameter substantially midway between the ends of the cylinder body. A piston body is longitudinally movably received in the cylinder body and it has intermediate its ends a piston of large diameter in the large diameter cylinder, a piston extension of small diameter in the small diameter cylinder and a ram extension of intermediate diameter extending through the open end of the cylinder body and effectively providing the hydraulically movable platen of the hydraulic press. Hydraulic packing is carried by the piston of large diameter and engages the cylinder of large diameter for hydraulically sealing the piston body in the cylinder body. Guide means is provided between the cylinder of small diameter and the piston extension for guiding longitudinal movement of this end of the piston body, and guide means is

provided between the cylinder of large diameter and the ram extension for guiding longitudinal movement of this end of the piston body.

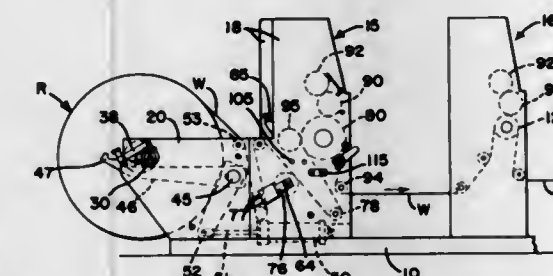
3,592,132
ROTARY FORAMINOUS PRINTING MACHINE WITH MAGNETICALLY ATTRACTED INTERNAL INKER
Erich Weber, Eichgrabenweg 2, Feldafing, Germany
Filed Nov. 27, 1968, Ser. No. 779,542
Claims priority, application Germany, Nov., 1967, P 16 10 300.7
Int. Cl. B41f 13/04

U.S. Cl. 101—119



The specification describes a foraminous printing apparatus in which a squeegee inside a screen or stencil cylinder is flexible in the direction of its length and is adapted to be attracted by a magnet placed under the screen cylinder.

3,592,133
PRINTING APPARATUS
Henry C. Webendorfer, and Louis Schriber, both of Dayton, Ohio, assignors to Harris-Intertype Corporation, Cleveland, Ohio
Filed Nov. 12, 1968, Ser. No. 774,773
Int. Cl. B41f 13/54
U.S. Cl. 101—228



A web of material is fed from a supply roll around a tension control roll to a printing unit including a large diameter cylinder having a high friction outer surface. Guide rolls provide for a substantial wrap of the web around the cylinder, and gripping rollers press the web against the outer surface so that rotation of the cylinder effects precise metering of the web from the supply roll through the printing unit and other units which perform successive operations on the web.

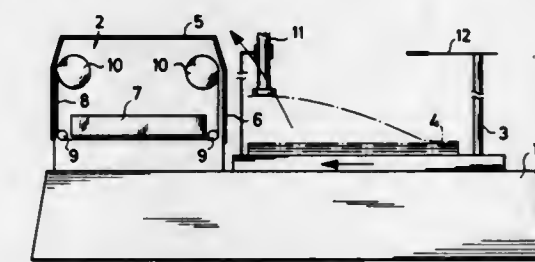
3,592,134
IMPRINTER UTILIZING COMPENSATING ROLLER PLATEN
James M. Patterson, Jr., Fairfax County, Va., assignor to Farrington Business Machines Corporation, Springfield, Va.
Filed Apr. 30, 1968, Ser. No. 725,292
Int. Cl. B41f 3/20
U.S. Cl. 101—269



Disclosed is an imprinter for printing upon documents from a printing plate, the imprinter utilizing a compensating cylinder and comprising a roller for applying ink solvent to

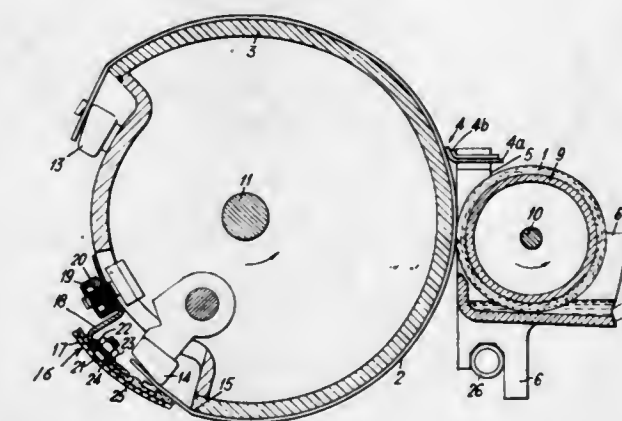
roller platen. The platen may be of the dry roll-type and includes a plastic or nylon outer sleeve of typically 80 to 90 durometer hardness, Shore "D" scale. An inner sleeve is also provided, the inner sleeve being rotatably mounted with respect to the imprinter carriage. This sleeve has a peripheral grooved portion disposed along a substantial portion of the length thereof. The inner sleeve is also of 80 to 90 durometer hardness, Shore "D" scale. Disposed between the inner and outer sleeves is an intermediate, annular, cylindrical resilient member which has a Shore "D" scale hardness of typically 40 to 45 durometer and which may be made of rubber. Because of the groove on the inner sleeve, the resilient intermediate member has room in which to retract whenever the combined thickness of the printing plate and the document encountered by the roller platen is greater than that for which the imprinter was originally set. Thus, a wide range of printing plate and document thicknesses may be accommodated.

3,592,135
APPARATUS FOR PRINTING BOUND STAPLED OR GLUED BOOKS
Hans Geltermair, Baertal near Wiesloch, Germany, assignor to Adnumat-Gesellschaft MBH 2 Co., Heiligenstadt, Germany
Filed Oct. 8, 1968, Ser. No. 765,881
Claims priority, application Belgium, Oct. 16, 1967, 49672
Int. Cl. B41f 1/06
U.S. Cl. 101—287



An improved apparatus for printing bound, stapled or glued books, and more particularly check books and other stacked sheets, wherein a printing and stamping device and the stacked sheets carry out two reciprocating movements relative to each other and parallel and perpendicularly to a printing plane, and wherein in one of two end positions of the relative parallel movement, corresponding to one of the two end positions of the vertical relative movement, the printing is effected, whilst in the zone of the other end position of the relative parallel movement the individual sheets are raised after the printing by suction and are then pivoted into a plane tilted against the printing plane and held in this position.

3,592,136
OFFSET PRINTING APPARATUS CLEANER
Thomas G. Selman, London, England, assignor to Gestetner Limited, London, England
Filed Dec. 31, 1968, Ser. No. 788,143
Claims priority, application Great Britain, Jan. 5, 1968, 881/68
Int. Cl. B41f 35/00
U.S. Cl. 101—425



The invention relates to a device for cleaning a printing cylinder and comprising a roller for applying ink solvent to

the cylinder and a device for wiping excess solvent around the cylinder to be deposited on a solvent absorbent strip attached to the cylinder. The volatile solvent may subsequently evaporate to leave the strip once more absorbent.

3,592,137

PLANOGRAPHIC PRINTING PLATES

Douglas A. Newman, Glen Cove, N.Y., assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y.

Filed Jan. 29, 1969, Ser. No. 795,047

Int. Cl. B41n 1/00, 3/00

U.S. Cl. 101-462

3 Claims

An improved planographic printing plate based upon a polyvinyl alcohol binder material in the printing layer. The improvement resides in the incorporation of a certain amount of zinc oxide, relative to the amount of polyvinyl alcohol, in order to provide a printing layer which has an excellent hydrophilic-oleophilic balance, excellent ink-drying properties and avoids spreading of the oleophilic images on the plate surface.

3,592,138

ELECTRICALLY-ACTUATED, POWDER-OPERATED RAIL BONDING CONNECTOR

William F. Broske, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

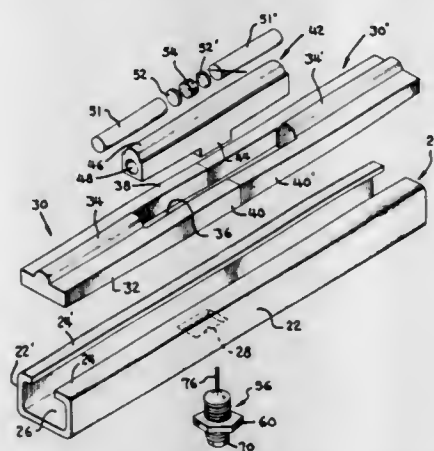
Division of Ser. No. 608,781, Jan. 12, 1967, Pat. No.

3,495,778. Filed Sept. 25, 1969, Ser. No. 860,897

Int. Cl. F42b 3/12

U.S. Cl. 102-28 R

1 Claim



This disclosure relates to an explosively-operated connector for splicing current-carrying rail members. A pair of rails are abutted and the connector is secured thereto. An explosive is disposed within the connector and ignited electrically by a circuit containing a length of wire that develops ignition heat through electrical resistance. The detonation drives a pair of pistons which, in turn, drive a pair of wedge members contained in the connector, so that each of the wedge members secures one of the rails to the connector.

3,592,139

BELT CONVEYOR

Pierre Patin, 58, rue de Sevres, 92 Boulogne-sur-Seine, France

Filed Oct. 9, 1969, Ser. No. 865,037

Claims priority, application France, Oct. 15, 1968 169,984

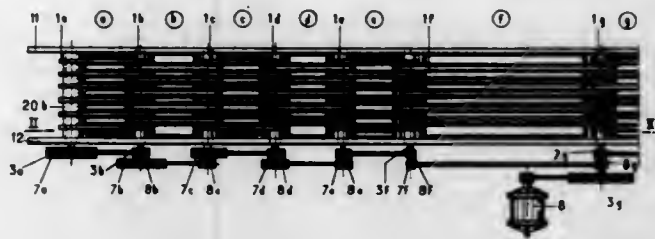
Int. Cl. A63g 1/00; B65g 15/12; B66b 9/12

U.S. Cl. 104-25

9 Claims

An improvement to the belt conveyor which has a series of sets of belts each being offset transversely so as to comb the adjacent set and the sets being propelled at different speeds and wherein the belts of each set are driven by fixed pulleys on a common shaft and pass over pulleys idly mounted on another common shaft integral with drive pulleys of the following set of belts combing the first set. Said improvement comprises an intermediate endless belt which is arranged between the drivable and freely rotatable pulleys of each set of belts and extends over substantially the width of the con-

veyor, said intermediate endless belt being grooved to allow the set of belts which pass over it to form a mutually finish



surface and being drivable by the superimposed set of belts by frictional contact.

3,592,140
CONVEYORS

Paul Zuppiger, c/o Fort Dunlop Erdington, Birmingham 24, England

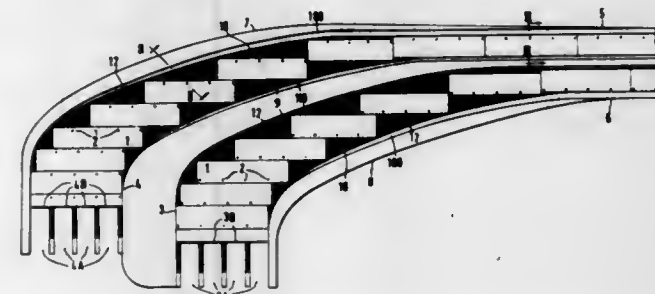
Filed Feb. 3, 1969, Ser. No. 796,101

Claims priority, application Switzerland, Feb. 2, 1968, 1629/68

Int. Cl. B65g 15/22, 17/12

U.S. Cl. 104-25

12 Claims



Conveyor having low speed and high speed zones, and a connection zone therebetween, comprising a series of load-carrying platforms slidable one against the next to effect acceleration in the connection zone, wherein retractable means, for example a continuous deformable layer of fingers mounted at the side edge of the conveyor provides a lateral extension of the load-carrying surface of the platforms in the connection zone of which the following is a specification.

3,592,141

CONVEYING DEVICE

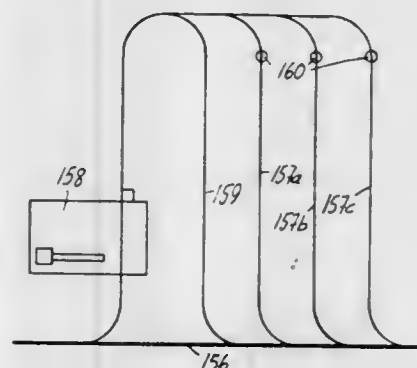
Mats I. Davidson, Nygarden, Ganghester, Sweden

Filed Sept. 25, 1968, Ser. No. 762,539

Int. Cl. B61j 3/00

U.S. Cl. 104-88

26 Claims



The device is for conveying objects such as semifinished products between different working stations in a transfer line and the personnel at any of the different working stations can direct a selected number of the semifinished products to other working stations in the transfer line by the manual actuation of a keyboard.

3,592,142

RAILWAY BOXCAR WITH REINFORCED END

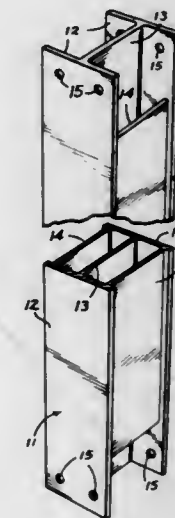
William Don Miller, 922 American Bank Bldg., Portland, Oreg.

Filed June 30, 1969, Ser. No. 837,602

Int. Cl. B61d 17/06, 45/00

U.S. Cl. 105-410

4 Claims



This is an improvement in railway boxcars that include a floor, a top, two sidewalls and two end walls defining the cargo space in said boxcars. The hammering induced on the end walls of a boxcar cannot be strongly braced to resist blows imposed by heavy cargo. This invention comprises the inclusion of a detachable bulkhead laterally spanning the distance between sidewalls and located inwardly of at least one end wall of a boxcar. Thus, said bulkhead element may easily be removed, straightened, and after being repaired, reinstalled in a boxcar, to eliminate need for repair of distorted members while the bulkhead constitutes a part of the framework of said boxcar.

3,592,143

KNOCKDOWN TABLE

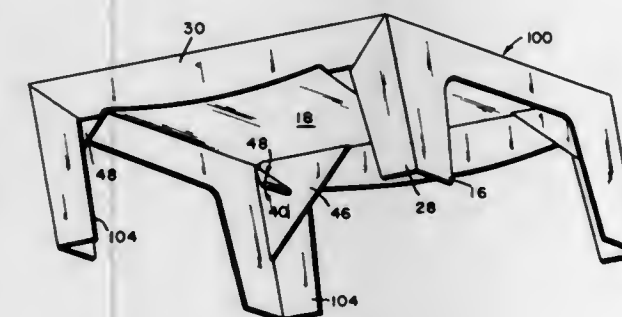
Martin Krone, 60 E. 42nd St., New York, N.Y.

Filed Dec. 26, 1968, Ser. No. 786,895

Int. Cl. A47b 3/06

U.S. Cl. 108-115

2 Claims



A knockdown table formed of a cardboard blank which has been adapted by means of a plurality of fold lines and score lines in such a way that when the blank is folded along said fold lines a table having an imperforate top will be defined thereby, the score lines defining removable sections which, when removed, are effective to form the legs of the table, and are further adapted to be delineated into corner locking and supporting members which will underlie and act as support for the resulting standing table structure.

3,592,144

UTILITY TABLE FOR AUTOMOBILES

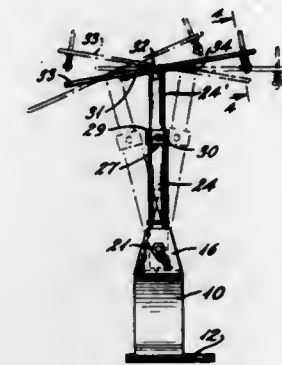
James C. Futrell, 1007 Drake St., Roanoke Rapids, N.C.

Filed Oct. 16, 1969, Ser. No. 866,836

Int. Cl. A47b 37/00

U.S. Cl. 108-44

6 Claims



The invention is a utility table for use in an automobile, with such table having a base which may be curved to fit over the rounded cover for the shaft housing of the automobile ahead of the seat. A mounting member is swingably carried by the base and is provided with means for securing it in a definite position. A post with a tabletop at a slight angle at its upper end is detachably carried by the mounting member so that when in upright position the tabletop will be at a slight angle and by swinging the post and mounting member rearwardly the table top will be disposed at a greater angle but by swinging the post forwardly the tabletop can be disposed horizontally. By reversing the post and tabletop on the mounting member, the table top can be similarly disposed but in its rearmost position will extend farther over the seat.

3,592,145

FORCE-CARRYING INTERLOCK FOR ALUMINUM EXTRUDED PLATFORM

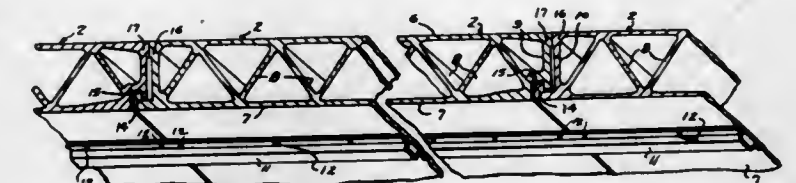
Gene A. Petry, New Carlisle, Ohio. Assignor to the United States of America as represented by the Secretary of the Air Force

Filed Aug. 15, 1969, Ser. No. 850,503

Int. Cl. B65d 19/00

U.S. Cl. 108-51

3 Claims



An aircraft cargo delivery pallet comprising a plurality of elongated flat extruded lightweight metallic panels interlocked together along their longitudinal edges and having a plurality of spaced elongated metallic skid strips secured transversely across the bottom surfaces of the panels adjacent their interlocking edges in parallel relation to each other, holding the panels in substantially predetermined relative flat interlocking edge-to-edge relation and elongated side rails secured to the panels across the opposite ends thereof.

3,592,146

SUSPENDED TABLE

David C. Loomans, West Bend, Wis., assignor to Louis C. Riesch, a part interest

Filed May 14, 1969, Ser. No. 824,571

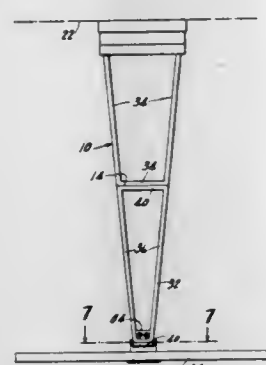
Int. Cl. A47b 5/00

U.S. Cl. 108-149

11 Claims

A table suspended from the ceiling and provided with

suspension legs which are adapted to fold to thereby permit



elevation of the table from its lowered usable position to an elevated out-of-the-way position in proximity to the ceiling.

3,592,147

METHOD AND MEANS FOR ATTENUATING SHOCK WAVES PROPAGATING WITHIN A SOLID

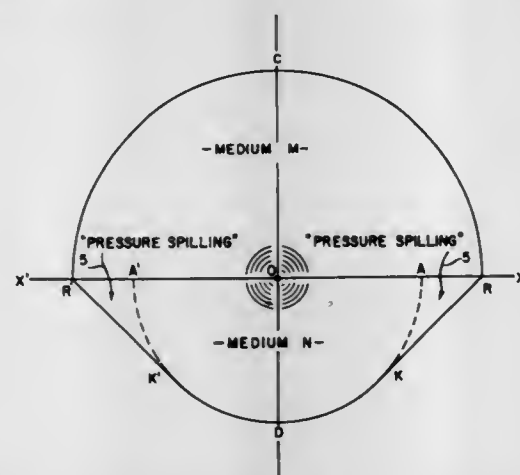
Edward Y. Harper, Los Altos, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed May 14, 1969, Ser. No. 824,586

Int. Cl. E04b 2/04

U.S. Cl. 109-1

5 Claims



A method is disclosed for attenuating shock waves propagating within solids which waves are defined by an ambulatory three-dimensional zone of high stress comprising a plurality of parallel zonal strata oriented normal to the direction of wave propagation, each stratum comprising a plurality of interspersed sets of zonal regions. The method of attenuation comprises the acts of sequentially scattering the sets of zonal regions in each of the zonal strata.

Means are also disclosed for attenuating shock waves of predeterminable maximum pulse length propagating within a solid medium of predetermined shock wave speed. The attenuating means comprises a solid structure of shock wave speed at variance from that of the solid medium. The solid structure comprises a set of juxtaposed protuberances in abutment with the solid medium which protuberances span the space between two substantially parallel planes spacially separated a distance in excess of the predeterminable shock wave pulse length.

3,592,148

EXPLOSIVE ARMOR

John R. Manis, 418 Millburn Ave., Millburn, N.J.

Filed Dec. 31, 1969, Ser. No. 889,549

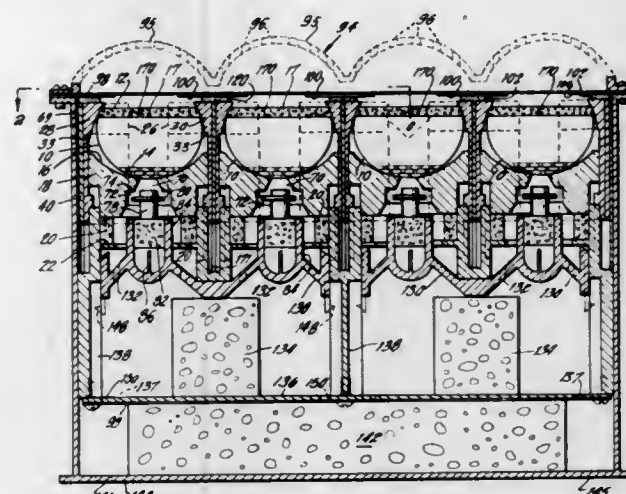
Int. Cl. F41h 5/06

U.S. Cl. 109-37

17 Claims

A plurality of freely tiltable, shaped explosive charge holding receptacles are positioned next to each other. Tilt causing strikers are positioned between adjacent charge receptacles. When a striker is depressed upon being struck by an incoming projectile, it tilts its receptacle toward the projectile and pushes that receptacle into the armor, causing detonation of the charge. In an alternate embodiment, the depressed striker acts on the charge detonator, rather than on the charge receptacle, to cause detonation. An automatic disarming apparatus for preventing explosion of neighboring charges is

provided. Detonating devices for a set of neighboring shaped charges are mounted on a single support, which support is adapted to move all unactivated detonating devices away



from their respective shaped charges upon the operation of a detonator mounted on the support, whereby other detonating devices would not be activated to explode their charges.

3,592,149

APPARATUS FOR PROCESSING SEWAGE

Reinhold Mutke, Erkrath-Unterbach, and Peter Steller, Düsseldorf, both of Germany, assignors to Vereinigte Kesselwerke Aktiengesellschaft, Düsseldorf, Germany

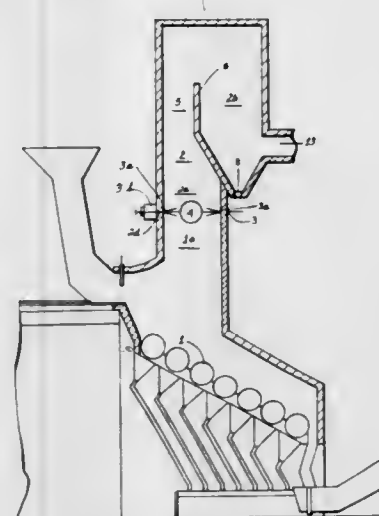
Filed Sept. 25, 1969, Ser. No. 861,088

Claims priority, application Japan, July 16, 1969, 44/55787

Int. Cl. F23g 5/00

U.S. Cl. 110-7

13 Claims



Apparatus for drying sewage with a high liquid content comprising a flue duct for conducting hot flue gases from a combustion furnace along a predetermined path and in which at least one atomizer is arranged for injecting sewage into the hot flue gases passing through the flue duct. Baffle means are provided in the flue duct after the atomizer for mixing the hot flue gases with the sewage injected therein to thereby dry the substantially liquid sewage and simultaneously cool the hot flue gases.

3,592,150

OPEN PIT INCINERATING METHOD AND APPARATUS

Robert P. Lanyon, Edison, and Carleton H. Boll, Rumson, both of N.J., assignors to Separation Processes Corporation, Linden, N.J.

Filed Dec. 16, 1969, Ser. No. 885,569

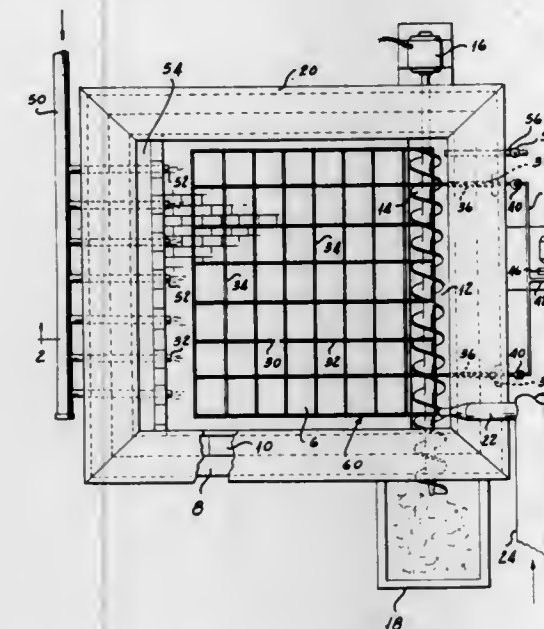
Int. Cl. F23g 7/00

U.S. Cl. 110-7-R

6 Claims

Viscous liquid wastes having a high ash content are incinerated in an open pit incinerator having a hearth inclined upwardly from the point of introduction of the liquid wastes to the hearth. The liquid wastes are spread into a thin film by means of a reciprocating grid, and air for maintaining com-

bustion is introduced into the open pit over one of its walls through downwardly directed jets. An ash pit is provided ad-



acent the highest point of the hearth. Hot ashes may be quenched therein and removed from the pit by a conveyor.

3,592,151

METHOD AND APPARATUS FOR REFUSE INCINERATION

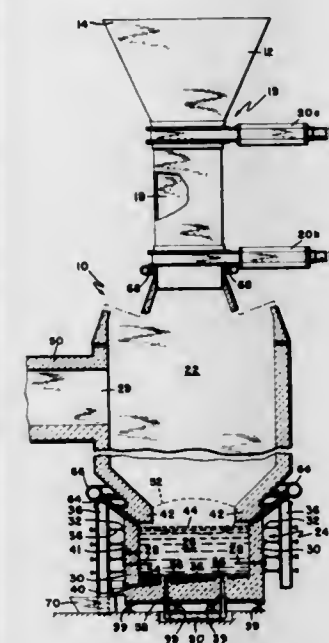
John J. Webber, Westboro, Mass., assignor to Morgan Construction, Worcester, Mass.

Filed Mar. 9, 1970, Ser. No. 17,854

Int. Cl. F23g 5/10

U.S. Cl. 110-8 E

10 Claims



A method and apparatus for high-temperature incineration of refuse containing a random mixture of inert and combustible materials. The apparatus includes a combustion chamber having a tank at its base containing a high-temperature molten slag bath. The refuse, which may be initially subjected to drying and partial incineration in an auxiliary furnace, is deposited directly onto the surface of the molten slag bath. The combustible materials in the refuse are rapidly and completely incinerated either as they drop through the chamber, or as they subsequently float on the surface of the molten bath. The inert materials in the refuse are melted in the molten bath, thereby adding to the slag content of the tank while at the same time producing a small volume of molten metal which sinks to the bottom of the tank where it is eventually tapped off.

3,592,152

ATTACHMENT FOR EMBROIDERING INITIAL LETTERS, PATTERNS AND THE LIKE IN A ZIGZAG SEWING MACHINE

Saburo Shimada, and Nobutane Mori, both of Tokyo, Japan, assignors to Riccar Sewing Machine Co., Ltd., Chuo-ku, Tokyo, Japan

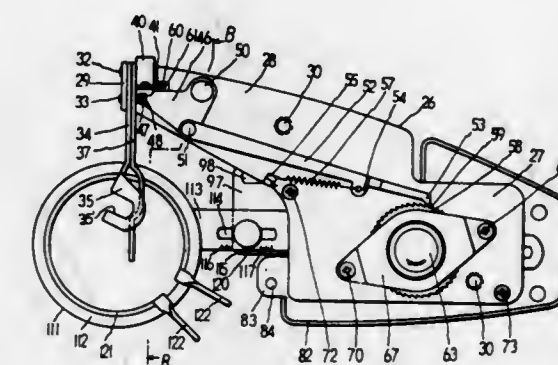
Filed Oct. 2, 1969, Ser. No. 863,080

Claims priority, application Japan, Oct. 23, 1968, 43/76821

Int. Cl. D05c 3/02

U.S. Cl. 112-102

9 Claims



For embroidering initial letters and/or patterns by means of a zigzag sewing machine an attachment is fixed on the upper surface of the bed plate of a zigzag sewing machine for domestic use, and an oblong cam plate is actuated by making use of vertical motion of the needle bar. An embroidery frame carrying cloth is moved past the needle by means of a mechanism interlocking with said cam plate, thus embroidering initial letters and/or patterns.

3,592,153

MACHINE POSITIONING MEANS

Gregory John Margereson, Pudsey, England, assignor to W. J. Clarkson Limited, Leeds, Yorkshire, England

Filed Mar. 17, 1969, Ser. No. 807,532

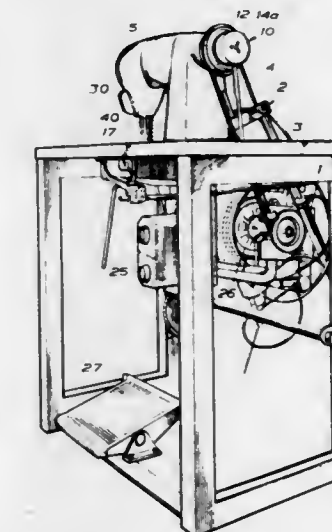
Claims priority, application Great Britain, Mar. 28, 1968,

Apr. 22, 1968, 14892/68; 18899/68

Int. Cl. D05b 69/22

U.S. Cl. 112-219

7 Claims



The invention comprises a device for automatically repositioning a machine if it comes to rest in an unwanted position, said device including a fluid/power operated piston-cylinder unit adapted to give rotary motion to a machine shaft, a fluid pressure system including a control valve, a sensing unit on the shaft for controlling the valve, and means for bringing the sensing unit into operation when a braking action brings the machine to rest. The sensing unit is preferably electrical and the device is eminently applicable to sewing machines for positioning the needle.

3,592,154

HYDROPLANE CONSTRUCTION

Ronald Leslie Holmes, 30 Wilton Avenue, Southampton Hants, England

Filed Aug. 5, 1966, Ser. No. 570,606

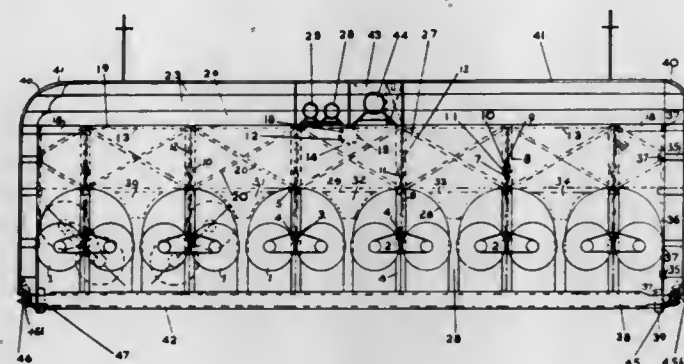
Claims priority, application Great Britain, Aug. 6, 1965,

33,716/65

Int. Cl. B63b 35/00, 35/44

U.S. Cl. 114-0.5

11 Claims



The invention relates to a waterborne craft of the hydroplane-type which is capable of ocean travel at high speed while simultaneously maintaining a high degree of stability and a horizontal aptitude to the craft. The craft is supported by a support assembly in the form of a plurality of vertical structure supports which have a pair of roller-shaped floats positioned to each vertical support through means of a rocker assembly pivotally connected to the vertical supports and mounted for reciprocating movement up and down the support, and shock absorbing means carried by said support to provide a shock absorbing action upon the vertical reciprocation of each pair of floats.

3,592,155

FLOATING PLATFORM

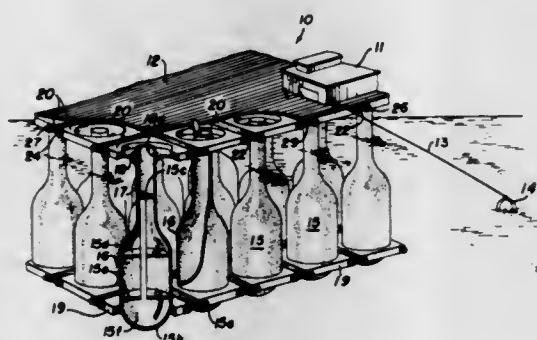
Edgar N. Rosenberg, 6914 Mission Gorge Road, San Diego, Calif.

Filed Apr. 24, 1969, Ser. No. 819,055

Int. Cl. B63b 35/00, 35/44

U.S. Cl. 114-0.5

10 Claims



A flotation structure in the shape of an elongate bottle is cast in concrete as well as are sets of prestressed rods disposed at opposite ends of the structure. A plurality of such structures is joined together in sets by coupling devices provided at opposite ends of the prestressed rods to yield a highly stable floating platform since the center of buoyancy is well below surface wave turbulence. The necks of the bottle-shaped flotation structures have reduced cross-sectional area to minimize the possibility of an adverse reaction to surface wave action, e.g., rolling or heaving reactions within each flotation structure enables a selective shifting of ballasts to facilitate launching and alignment when several structures are joined together without requiring any elaborate support facilities. Sets of flotation structures are hinged together to form runways or include spaces vacant of flotation structures to form dry docks or reduced capacity platforms.

3,592,156

OMNIDIRECTIONAL SENSOR

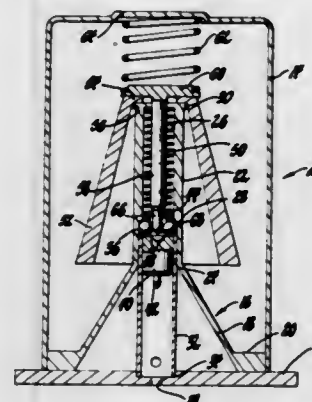
Otakar P. Prachar, Santa Barbara, Calif., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 23, 1970, Ser. No. 31,086

Int. Cl. G01d 21/00

U.S. Cl. 116-114

8 Claims



An omnidirectional sensor includes a tubular guide slidably receiving an operator which is biased from a nonactuated position to an actuated position. The operator includes an axial bore opening to three radial bores, each of which receives a respective ball. A headed control rod projects within the axial bore and engages the balls to force the balls outwardly of the radial bores and into engagement with a radial shoulder of the guide to locate the operator in nonactuated position. A seismic mass seats on one end of the guide and engages the head of the control rod under a predetermined resilient bias. Movement of the mass under an acceleration pulse of predetermined amplitude and time overcomes the resilient bias and moves the control rod outwardly of the axial bore to permit the balls to move inwardly of the radial bores and out of engagement with the guide shoulder to release the operator. The sensor is reset by moving the operator against its bias from actuated position to nonactuated position so that the control rod projects within the axial bore and forces the balls outwardly of the radial bores into engagement with the guide shoulder.

3,592,157

ILLUMINATED BALLOON

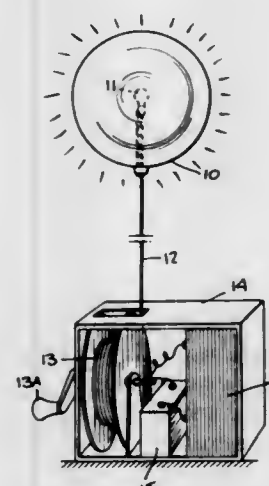
Robert C. Schwartz, 87-73 Kingston Place, Jamaica Estates, N.Y.

Filed Apr. 3, 1969, Ser. No. 813,244

Int. Cl. F21p 1/02; F21l 15/08

U.S. Cl. 116-124 B

6 Claims



An illuminated balloon adapted to function as a signal beacon or as a display device, the balloon being constituted by an inflatable bag of translucent material having a spout. Inserted in the spout to hermetically seal the bag is a stopper having a self-sealing plug portion to receive a hypodermic

3,592,160

RETRACTABLE SNOOT FOR METALLIC COATING PROCESS AND APPARATUS

Roman A. Schwietzman, and Kasimir Oganowski, both of Middletown, Ohio, assignors to Armco Steel Corporation, Middletown, Ohio

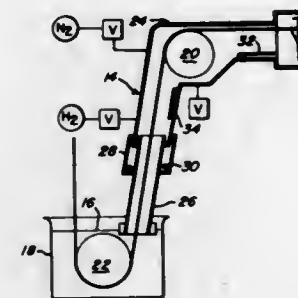
Division of Ser. No. 859,033, Sept. 18, 1969.

Filed June 29, 1970, Ser. No. 50,476

Int. Cl. B05c 11/12

U.S. Cl. 118-65

12 Claims



Snout for metallic coating line extending from the strip preparation furnace to the coating metal bath, having a gas impermeable flexible joint permitting movement of the snout from a position with one end immersed in the coating bath to a position thereabove, permitting a change in coating metal bath or coating metal bath and container without degassing the strip preparation furnace.

3,592,158

FRICTIONLESS READOUT INSTRUMENT

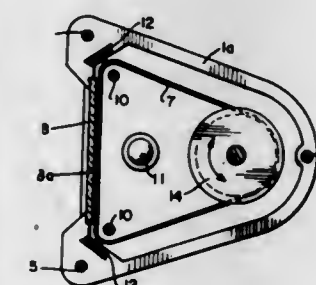
John Gear, Huntington, N.Y., assignor to Atlantic Scientific Corporation, Plainview, N.Y.

Filed Jan. 6, 1970, Ser. No. 981

Int. Cl. G09f 9/00

U.S. Cl. 116-129

6 Claims



A frictionless readout device is disclosed in which guide means magnetically support a flexible magnetic tape for providing an indication corresponding to an input signal, characterized by extremely low power requirement and high precision. The strip is caused to move longitudinally across magnetic means generating a magnetic field of attractive power sufficient to cancel tension exerted longitudinally along the tape and thereby to suspend the tape in a fixed spatial relationship with the magnetic means.

3,592,159

LIQUID LEVEL CONTROL

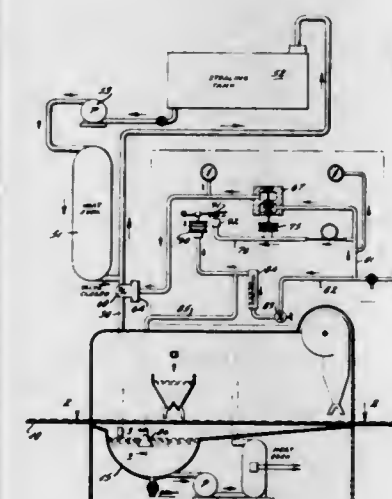
Robert Murphy, Robinson, Ill., assignor to L. S. Heath & Sons, Inc., Robinson, Ill.

Filed Nov. 21, 1968, Ser. No. 777,563

Int. Cl. B05c 11/10

U.S. Cl. 118-7

4 Claims



A level control for the chocolate supply in an enrober has a fast-cycling makeup controlled by an air tube applied to the surface of the chocolate so that slight lowering of the surface operates the makeup control.

3,592,161

CLEANING TISSUE DISPENSER

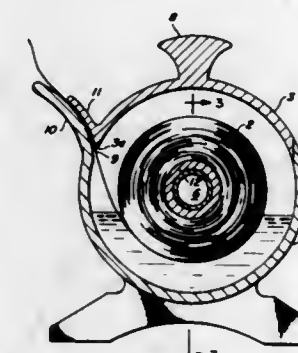
Erwin L. H. Hoffmann, Phoenix, Ariz., assignor to Modern Bidet Company

Filed Aug. 18, 1969, Ser. No. 850,929

Int. Cl. B05c 11/02

U.S. Cl. 118-122

1 Claim



A device for dispensing lengths of wetted cleaning tissues from a container which may be either portable or built in. This invention provides a more convenient alternative to the so-called "bidet" of Europe and may be installed in bathrooms which could not accommodate a "bidet" without extensive reconstruction of the bathroom.

3,592,162

INSIDE-OUTSIDE GLUE LAP UNIT

Albert F. Shields, Forest Hills, N.Y., assignor to S & S Corrugated Paper Machinery Co., Inc., Brooklyn, N.Y.

Filed Dec. 15, 1969, Ser. No. 884,904

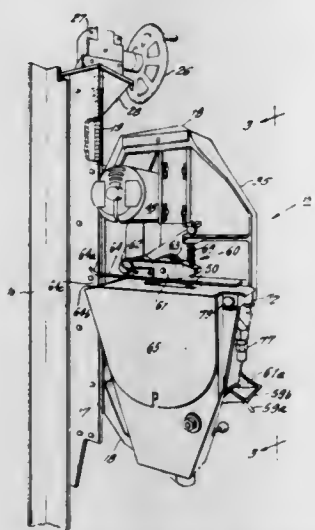
Int. Cl. B05c 11/08

U.S. Cl. 118-249

12 Claims

A gluing unit for inside and outside glue laps is constructed with a single glue wheel on a frame mounted for vertical movement to selectively position the glue wheel above and below a sheet feeding path. The frame is also pivotable 180° about a vertical axis, so that the peripheral portion of the glue wheel which engages the sheet material moves in the same direction as the sheet material regardless of whether

the glue wheel is applying glue to the upper or lower surface of the sheet. A single doctor means and a single glue nozzle,



directing glue against the glue wheel periphery, are provided together with a single glue outlet in the movable frame.

3,592,163

APPARATUS FOR TREATING WIRE

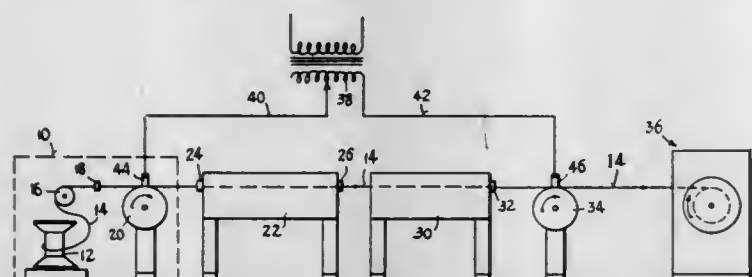
Gordon L. Bauer, Shelton, Conn., assignor to Wyrepak Industries, Inc., Bridgeport, Conn.

Filed May 29, 1968, Ser. No. 733,093

Int. Cl. B05c 5/00, 3/02

U.S. Cl. 118—620

7 Claims



An apparatus for continuously processing wire containing a high percentage of copper, which involves pulling the wire through a reducing die and around a powered capstan to reduce its diameter and raise its temperature. The wire is then immediately, without cooling or bending or otherwise physically altering it, pulled through a molten tin bath to coat and simultaneously anneal the wire. Added heat may be imparted to the wire without contamination by means of an electric current passed through the wire via the pulling capstans as the wire passes through the tin bath.

3,592,164

SHOCK ABSORBER PISTON ROD SEAL ASSEMBLY WITH BELLEVILLE WASHER

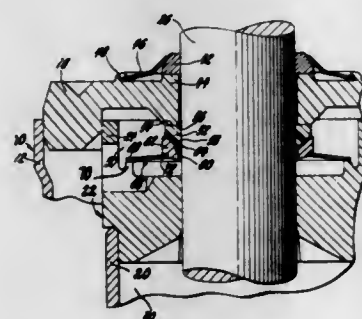
Harold E. Schultze, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 1, 1969, Ser. No. 812,108

Int. Cl. F16f 9/36

U.S. Cl. 188—322

1 Claim



In preferred form, a direct acting hydraulic shock absorber having a frustoconically shaped piston rod seal biased by a

Belleville washer spring against the outer surface of a piston rod to prevent hydraulic fluid leakage therebetween. The Belleville washer spring is supported at its outer edge by a piston rod guide to cause its inner edge to bear against a loading ring having a conical end surface adjacent the conical end surface of the seal. The force of the loading ring on the seal radially biases the seal against the piston rod.

3,592,165

DEVELOPING DEVICE FOR PHOTOCONDUCTING MATERIALS

Karl Brendel, Reilingen/Holst; Georg Cranskens, Wedel/Holst; Hans Jakobson, Quickborn/Holst; Walter Limberger, Hamburg-Poppenbützel; Egon Opravil, Hamburg-Pergehof, and Werner Salger, Hamburg-Langenhorn, all of Germany, assignors to Lumoprint Zindler KG, Hamburg, Germany

Filed Apr. 26, 1968, Ser. No. 724,360

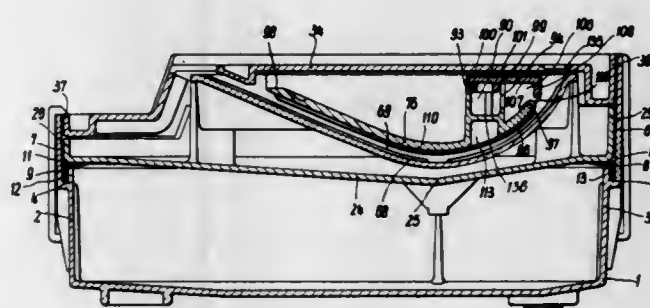
Claims priority, application Germany, May 2, 1967

P 15 72 389.4

Int. Cl. B05c 3/02

U.S. Cl. 118—428

17 Claims



A developing apparatus for photoconductive materials, is formed of a storage tank for a supply of liquid developer with pigment particles. The developer liquid is pumped through a distributing channel and a calming chamber into an upwardly concave, shallow guide and the level of the developer liquid is determined by an overflow adjacent the outlet end of the guide from where it flows back into the storage tank. To provide nonturbulent supply, the developer flows from the distributing conduit into the guide below the level of liquid within the guide. The overflow or developer liquid outlet is formed by an edge of an upper guide element defining the guide channel. The components of the apparatus fit into one another for ease in assembly.

3,592,166

APPARATUS FOR DEVELOPING ELECTROSTATIC IMAGES

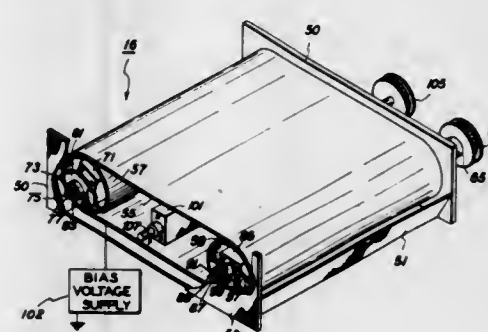
Paul S. L. Wu, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed May 28, 1968, Ser. No. 732,737

Int. Cl. B05b 5/02

U.S. Cl. 118—637

3 Claims



A developing apparatus for applying developing material to a photoconductive surface carrying a latent electrostatic image. The apparatus comprises a transport belt for trans-

porting a developer material made up of magnetic carrier particles and electroscopic toner powder in a path past the latent electrostatic image to be developed. Fixed magnets are disposed at the belt ends to provide magnetic fields for handling the magnetic developer material. At the development zone, the developer material is not affected by the end magnets but instead by one or more rotatable magnet members disposed on the interior of the transport belt which rotate at a predetermined rate to cause a continuous rolling or cascading action of the developer material across the latent image during development. The belt may be electrically biased to suppress image fields in background areas.

3,592,167

APPARATUS FOR LOADING TONER ON A DEVELOPING BRUSH

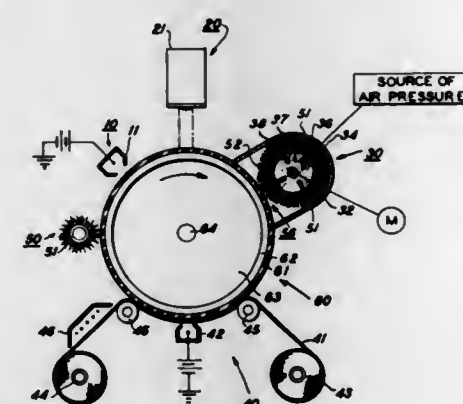
James H. Blow, Jr., Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Apr. 2, 1969, Ser. No. 812,797

Int. Cl. G03g 13/06

U.S. Cl. 118—637

7 Claims



A brush for developing electrostatic latent images having apertures which enable toner particles within the core of the brush to pass through the brush onto its outer periphery. The toner is held on the outer periphery of the brush by electrical charges until attracted to the latent image by electrostatic charges.

3,592,168

METHOD OF RAISING BIVALVES IN A CONTROLLED ENVIRONMENT

George Claus, Stamford, Conn., assignor to Offshore/Sea Development Corporation, New York, N.Y.

Filed May 2, 1969, Ser. No. 821,456

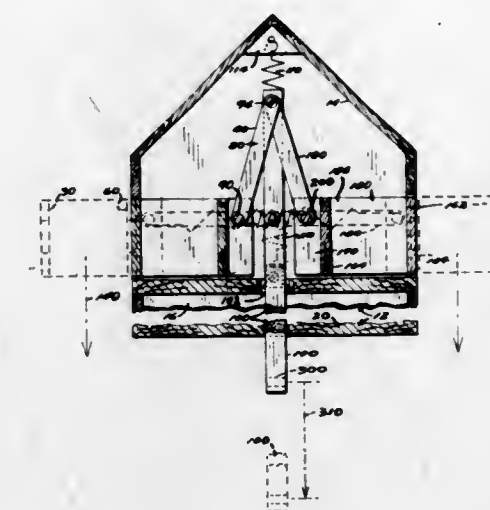
Int. Cl. A01k 61/00

U.S. Cl. 119—4

11 Claims

Bivalves are fed with living blood cells prepared by adding an anticoagulant to whole blood, separating the blood cells from the plasma of the whole blood, and then washing the blood cells in a saline solution or filtered sea water. Additional steps are provided to prevent cell clumping and bacterial proliferation, and to stabilize the cell membrane and facilitate the dispersal of the cells in liquid.

so that they can be moved outwardly beyond the floor to allow old nesting material to fall down from the birdhouse,



and means for moving the front and rearward walls inwardly and outwardly as controllable from the ground.

3,592,170

APPARATUS AND METHOD FOR RECIRCULATING WORKING MEDIUM IN A FORCED FLOW STEAM GENERATOR

Ewald K. Burkle, Stuttgart, Germany, assignor to Sulzer Brothers, Limited, Winterthur, Switzerland

Filed July 24, 1969, Ser. No. 844,576

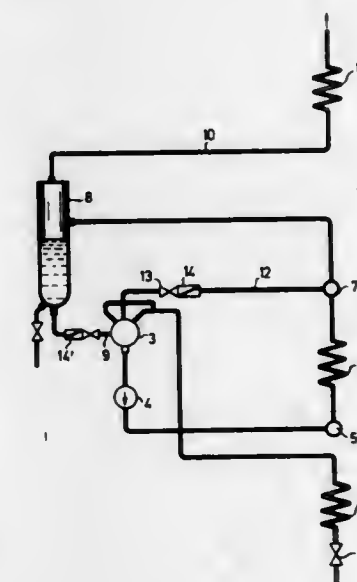
Claims priority, application Germany, July 25, 1968

P 17 51 761.2

Int. Cl. F22b 20/06

U.S. Cl. 122—406-S

1 Claim



At least some of the working medium leaving the evaporator is condensed on at least some of the preheated feed water and is fed with the feed water to the evaporator inlet. The temperature of the condensate and feed water mixture is kept 10° to 20° C. below the saturated steam temperature. The condensate can be formed in a separable mixer or in a water separator.

3,592,171

BOILER PENTHOUSE

Martin D. Bernstein, Bronx, N.Y., assignor to Foster Wheeler Corporation, Livingston, N.J.

Filed Aug. 28, 1969, Ser. No. 853,903

Int. Cl. F22b 37/36

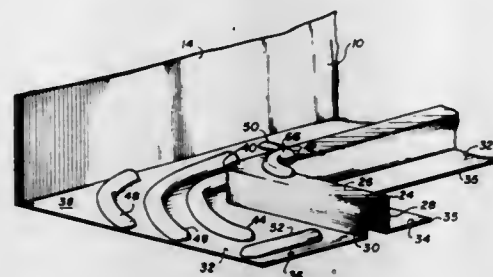
U.S. Cl. 119—23

4 Claims

A birdhouse having a roof and a floor and having a nesting area, front wall and rear wall, which are connected together

A pressurized penthouse which is joined to the top of a boiler and which retains internal pressure even when the

boiler expands substantially more than the penthouse. The fluid communication with a horizontally divided cylinder induction conduit, a portion of the divided cylinder induction



corrugations which permit expansion of the boiler without the development of leaks in the penthouse.

3,592,172

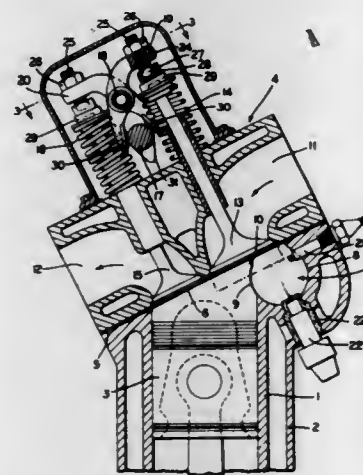
INTERNAL COMBUSTION RECIPROCATING ENGINE
Otis D. Treiber, 3080 Stanley Ave., Santa Cruz, Calif.

Filed Jan. 28, 1969, Ser. No. 794,555

Int. Cl. F02b 19/16

U.S. Cl. 123-30 D

8 Claims



An internal combustion reciprocating engine having a substantially round combustion chamber in one side of the cylinder at the top thereof and formed partly in the cylinder and partly in the piston near the upper end thereof. The combustion chamber is preferably spherical, although it may be drum shaped.

Fuel is sprayed into the combustion chamber, directed away from the relatively cool combustion chamber walls and preferably toward the cylinder head, and is ignited during the early part of the fuel injection period by any of many artificial ignition means, such as a spark, stream of sparks, hot sparks, glow plug, cold plug, torch, hot spot or pin, various kinds of catalysts, etc.

The top of the piston and top of the cylinder are both located at an angle to the axis of the cylinder, with the long side of the piston and the cylinder on the combustion chamber side.

Movement of the piston produces high turbulence of the combustion air equivalent to 1 1/2 to 5 revolutions of eddying of the air past the fuel spray nozzle during the maximum duration of fuel injection.

3,592,173

MULTICYLINDER INTERNAL COMBUSTION ENGINE
Dieter Frehe, Macon, France, assignor to Walter Gutbrod and Wolfgang Gutbrod, Gutbrod-Werke GmbH, Bublengen/Saar, Bubingerhof, Germany

Filed July 7, 1969, Ser. No. 839,433

Claims priority, application Germany, July 22, 1968, P 17 51

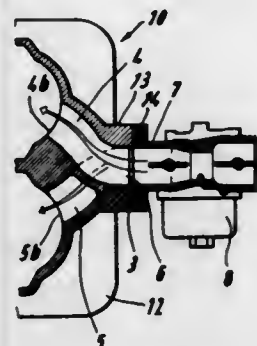
746.3

Int. Cl. F02b 75/18, 33/04, 75/20

U.S. Cl. 123-52 M

6 Claims

An internal combustion engine having two or more cylinders vertically disposed, one relative to the other or others, the fuel for the vertically disposed cylinders being supplied through a single main induction pipe, the conduit being in



3,592,174

VALVE ROCKER ARM

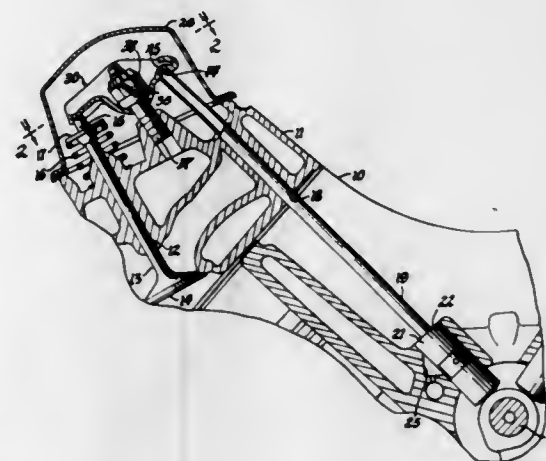
Walter C. Heidacker, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 3, 1970, Ser. No. 16,028

Int. Cl. F01m 9/10; F01I 1/18

U.S. Cl. 123-90.35

3 Claims



A valve rocker arm for transmitting reciprocatory movements between a poppet valve and its push rod, the rocker having surfaces on one side adjacent its opposite ends adapted to engage the driving and driven ends of the push rod and valve, respectively, an oppositely presenting pivotal bearing surface for the rocker on its opposite side intermediate the ends thereof and adapted to journal on a cooperating seat, the rocker arm being provided with an integral oil deflector at one end thereof in the form of a tab bent back over an oil hole extending through the surface seat for the push rod to catch oil delivered from the push rod and deflect it inwardly toward the pivotal bearing surface to lubricate the ball seat on which the rocker arm is pivotally mounted.

3,592,175

PRESSURIZED FUEL SYSTEM

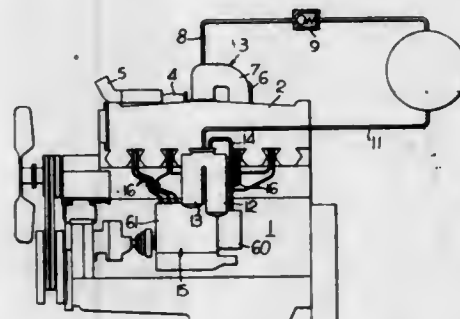
William I. Hamilton, Chicago Heights, Ill., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Dec. 6, 1968, Ser. No. 781,751

Int. Cl. F02d 23/02

U.S. Cl. 123-136

7 Claims



A fuel system pressurized by an engine supercharger.

3,592,176

LIQUID FUEL PUMPING APPARATUS

Ivor Fenne, Greenford, England, assignor to C. A. V. Limited, London, England

Filed June 16, 1969, Ser. No. 833,606

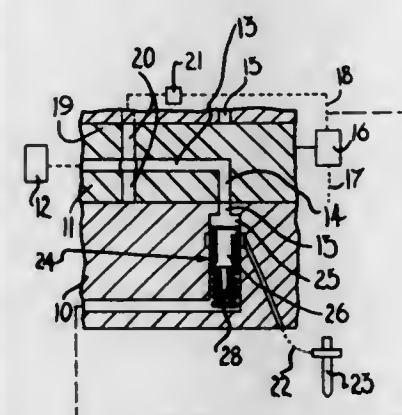
Claims priority, application Great Britain, July 1, 1968,

31261/68

Int. Cl. F02m 63/00

U.S. Cl. 123-139

2 Claims



A liquid fuel injection pumping apparatus including an injection pump which can supply fuel in turn to a plurality of outlet ports, each outlet port being connected by a pipeline to an injection nozzle, there being disposed in each outlet port a valve element which is spring loaded in one direction and which is moved by the action of fuel leaving the outlet port, to allow fuel to flow to the pipeline and the remote side of the valve element being subjected to a substantially constant pressure the arrangement being that the valve element will remain in the open position until the pressure in the outlet port has fallen to a predetermined value whereafter the element cuts off the communication between the pipe line and the port and the element acts to pressurize fuel contained in the port and the injection pump until the communication between the injection pump and the port is closed.

3,592,177

FUEL-INJECTION APPARATUS FOR INTERNAL-COMBUSTION ENGINES

Heinz Wehde, Heidelberg, Germany, assignor to Teldix GmbH, Heidelberg, Germany

Filed Oct. 6, 1969, Ser. No. 863,945

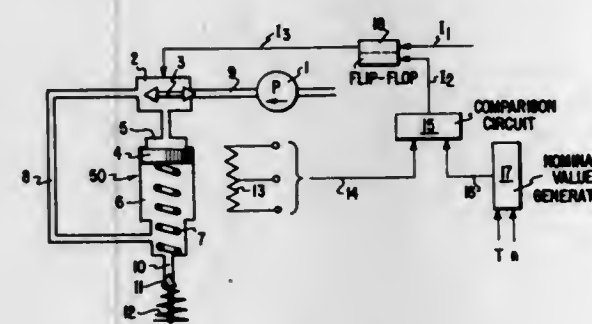
Claims priority, application Germany, Oct. 4, 1968, P 18 01

156.8

Int. Cl. F02m 51/00

U.S. Cl. 123-139 E

13 Claims



Fuel-injection apparatus for use with internal-combustion engines having an intermediate reservoir which stores and makes available the quantity of fuel to be injected for each fuel-injection operation. The intermediate reservoir is provided with two chambers separated from each other by a movable dividing wall. The first of these chambers is connected between a pressurized fuel supply and/or the second of these chambers. The second chamber is selectively connected between the first chamber and at least one fuel-injection nozzle. A spring is arranged in the second chamber to

bias the movable wall in the direction of enlargement of the second chamber. The first chamber may be selectively connected by one three-way valve or by two one-way valves. Means are provided to adjust the quantity of fuel injected in response to the requirements of the engine. The devices may be used individually, or grouped together for multicylinder engines.

3,592,178

ELECTRONIC IGNITION TIMING CIRCUIT

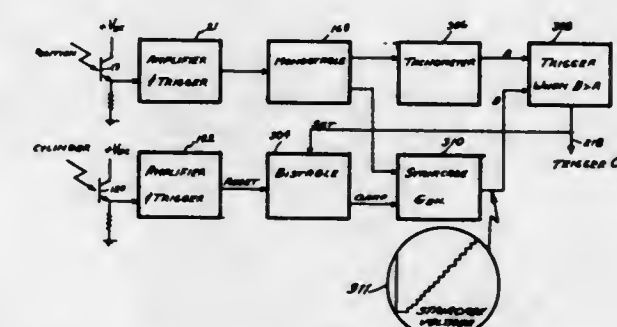
Peter Schiff, R.D. #2, Lambertville, N.J.

Filed Oct. 15, 1969, Ser. No. 866,670

Int. Cl. F02p 1/00, 5/04

U.S. Cl. 123-148

11 Claims



A solid-state electronic timing circuit for adjusting the initial idling timing, the rate of advance of timing with increasing engine r.p.m. and the maximum advance by means of readily accessible manual adjusting means to obtain peak engine performance, which system is used in place of conventional timing means such as ignition points. The system is controlled by position markers and cylinder reference markers generated by the rotation of the distributor shaft. These signals are electronically manipulated to produce accurate ignition timing pulses. Electronically, the initial timing, rate of advance with increasing r.p.m., and maximum advance is accurately controlled by simple dashboard adjustment. The output pulse is applied to a control circuit for delivering the spark to the distributor, which spark will be of sufficient energy to provide good ignition.

3,592,179

GAS IGNITER

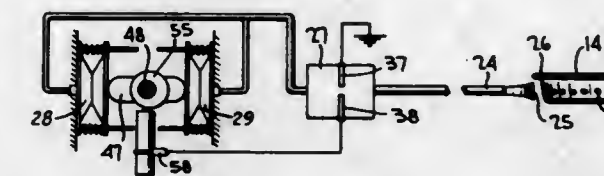
Linus K. Hahn, 1920 Hillside Drive, Columbus, Ohio

Filed June 23, 1969, Ser. No. 835,373

Int. Cl. F23q 21/00; F24c 3/10

U.S. Cl. 126-41

16 Claims



Disclosed is a gas igniter for gas heated grills wherein gas is sucked from the grill into an ignition chamber by increasing the volume of a contractable chamber. The ignited gas is blown out of the chamber by decreasing the volume of the contractable chamber.

3,592,180

GAS BURNER DEVICE

Esher R. Kweiler, Downers Grove; Robert B. Rosenberg, Evergreen Park, and William R. Staats, Chicago, all of, Ill., assignors to Institute of Gas Technology

Filed May 5, 1969, Ser. No. 821,872

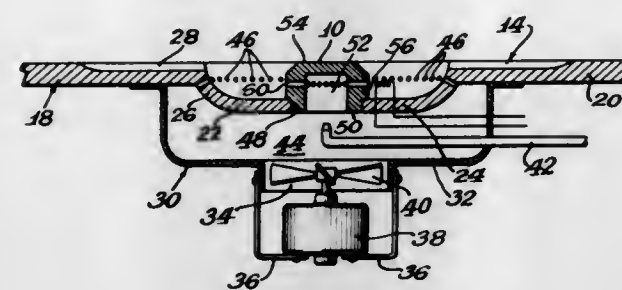
Int. Cl. F24c 3/00, 15/10

U.S. Cl. 126-39

7 Claims

A gas burner for heating a pot or pan for use on a gas range top. The burner includes a planar portion and a recessed portion which is unitary with the planar portion. A

chamber is provided below the recessed portion and passage means extend from the chamber and pass outwardly through the recessed portion. Means are provided for introducing a gaseous combustible medium, such as a mixture of air and



gas, to the chamber and for directing the combustible mixture through the passage means. Means are also provided for igniting the gaseous combustible mixture as it passes outwardly through the passage means in the recessed portion.

3,592,181

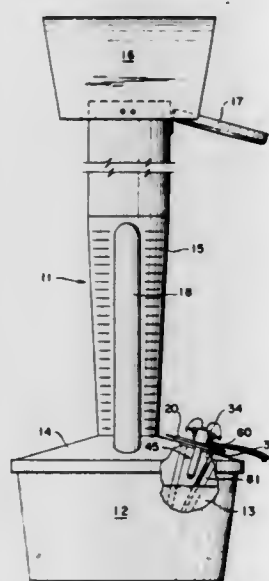
IGNITER FOR SMUDGE POTS

Gerald J. Rohwein, 752 Wembleton Lane, and Don P. Van Dyke, 1125 Lakehurst Road, both of Livermore, Calif.
Filed Dec. 29, 1969, Ser. No. 888,460

Int. Cl. A01g 13/06

U.S. Cl. 126-59.5

10 Claims



An electrically controlled igniter assembly for lighting the fuel in an orchard heater or smudge pot. The assembly includes an igniter, cartridge loaded with a large main pyrotechnic charge and with a small ignition charge fired by an electric heating element to ignite the main pyrotechnic charge. The assembly further includes a cartridge holder comprising an open ended tube adapted to be secured to a smudge pot and project into the fuel chamber thereof, and a connector for electrically connecting an igniter cartridge inserted into the holder tube to an energizing and control circuit by means of which the heating element of the cartridge is energized.

3,592,182

HUMIDIFIER

Richardson, Benjamin F., Hebron, Ky., assignor to Aeroprop Enterprises, Inc., Cincinnati, Ohio
Filed July 22, 1969, Ser. No. 843,363

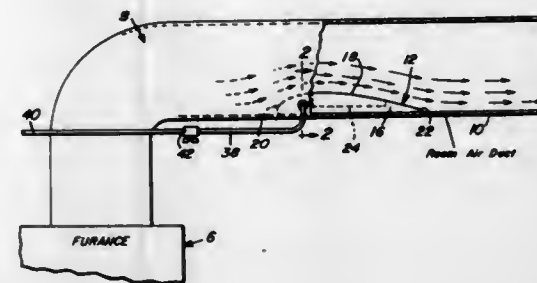
Int. Cl. F24f 3/14

U.S. Cl. 126-113

5 Claims

An airfoil-type humidifier for installation within the confines of a horizontal furnace duct. No electricity is needed. A

hollow shell provides a water trapping container. The water level is controlled by a float valve. The airstream from the



furnace blower flows across a pocketed sponge, is moistened, and is effectually humidified for room use.

3,592,183

HEART ASSIST METHOD AND APPARATUS

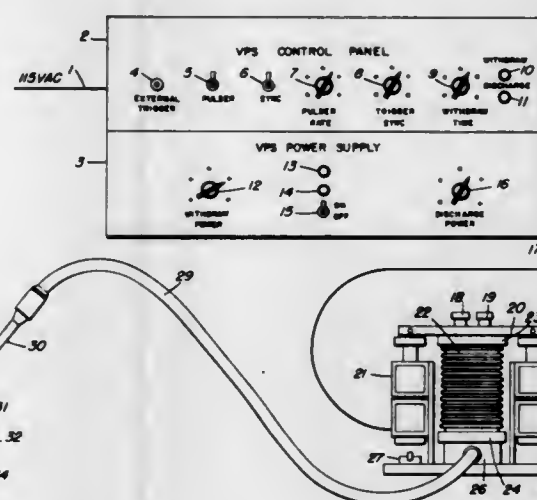
David H. Watkins, 6039 N. Waterbury Road, Des Moines, Iowa, and Erwin J. Klink, 814 Laurel Circle S.E., Albuquerque, N. Mex.

Filed May 27, 1969, Ser. No. 828,151

Int. Cl. A61b 19/00; A61m 1/03

U.S. Cl. 128-1 R

11 Claims



Method and apparatus for assisting a failing heart by sucking blood out of the left ventricle during normal systolic action, while at the same time blocking flow to the aorta, and during diastolic action, when the aortic valve is closed, forcing blood into the aorta and thence to the arterial tree. More particularly, there is provided a catheter with openings back from the tip thereof and with a radially surrounding collapsible portion, which catheter is inserted in the aorta with tip immediately above the aortic valve. A reciprocating external pump connected to the catheter on withdrawal stroke sucks blood out of the left ventricle and on pressure stroke forces the blood under pressure through the aorta and arterial system. Suitable provision is made for timing the sequence and pace of the pump with respect to the natural beat of the heart or, as desired, to a predetermined beat in point of time. Provision also is made for controlling the volume of blood moved by the pump. Additional provision is made for precisely locating the tip of the catheter immediately adjacent the aortic valve. Where desired, provision is made for directly observing the blood pressure and automatically controlling the same at a predetermined figure. Other provision is made for supplying additional blood.

3,592,184

HEART ASSIST METHOD AND CATHETER

David H. Watkins, 6039 N. Waterbury Road, Des Moines, Iowa, and Erwin J. Klink, 814 Laurel Circle S.E., Albuquerque, N. Mex.

Filed Dec. 16, 1969, Ser. No. 885,507

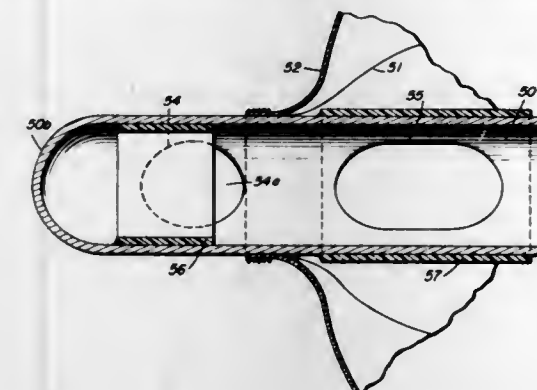
Int. Cl. A61m 1/03; A61b 19/00

U.S. Cl. 128-1 R

5 Claims

Method and device for augmenting the action of an ailing heart having an incompetent aortic valve, wherein blood is

sucked up from the aorta, while blocking flow to the arterial tree, and then, upon reverse, a major portion of the blood is



forced into the arterial tree and a minor portion forced into the coronary arteries of the heart itself.

3,592,185

FERROMAGNETIC CONTRAST MEDIA AND METHOD OF USE

Ephraim H. Frel, and Efrom Gunders, both of Rehovoth, Israel, assignors to Yeda Research and Development Co., Ltd., Rehovoth, Israel

Filed Apr. 18, 1967, Ser. No. 631,597

Int. Cl. A61k 27/08

U.S. Cl. 128-2

4 Claims

Ferromagnetic contrast media incorporating magnetic ferrites such as magnesium ferrite, barium ferrite, manganese ferrite, manganese-zinc ferrite, nickel ferrite, magnetite, or ferromagnetic garnets; γ -ferric oxide and a guar gum stabilizer. Such media are used for diagnostic or therapeutic treatments of the gastrointestinal or lymph tracts, by subjecting the patient to external magnetic fields to concentrate the medium in the body region to be diagnosed or treated.

3,592,186

CYTOLOGIC SCRAPER

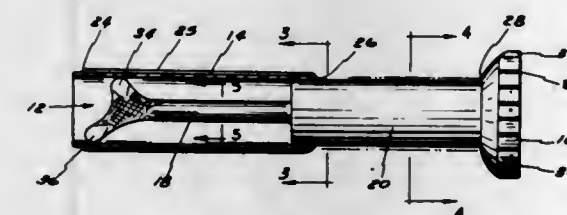
Claude Oster, 16206 Addison, Southfield, Mich.

Filed Jan. 28, 1969, Ser. No. 794,520

Int. Cl. A61b 10/00

U.S. Cl. 128-2 R

1 Claim



An apparatus adapted to be self-administered for obtaining surface cells from a human being, particularly from the vaginal and cervical areas of a female, for use in diagnosing cancer, the apparatus having a spatulalike scraper of heart-like configuration with two dissimilarly shaped lobes for taking a cellular smear, the scraper telescoping within a protective cover and being operable to be extended therefrom and to be rotated for cell collecting when the apparatus is disposed within the human body.

3,592,187

BLOOD FLOW RATE - PRESSURE TRANSDUCER

Myron Youdin, Flushing, and Theobald Reich, New York, both of N.Y., assignors to New York University, New York, N.Y.

Filed Sept. 3, 1969, Ser. No. 854,989

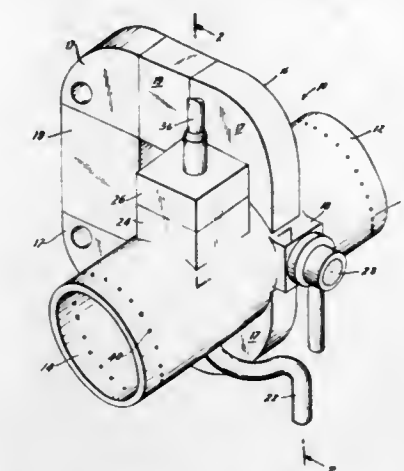
Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 E

5 Claims

A blood flow and blood pressure transducer is provided including a core member having a fixed orifice lumen therethrough adapted to be coupled in line or about a blood vessel. Permanent magnets are coupled to the core forming a magnetic circuit, the force lines of which are perpendicular to the axis of the lumen. Two housings containing silver-silver chloride electrodes covered with permeable mem-

branes are rigidly fastened to opposite sides of the core so that their electrodes extend into a gap in the magnetic circuit. The electrodes are aligned perpendicular to both the longitudinal axis of the lumen and the magnetic force lines. A third housing containing a silicon wafer strain gage is also



coupled to the core member. A diaphragm formed of a very thin sheet of mica is provided at the interface of the housing and core lumen having one surface in contact with the strain gage and the other surface communicating with the core lumen.

3,592,188

POWER OPERATED GUM MASSAGER AND TOOTH BRUSH

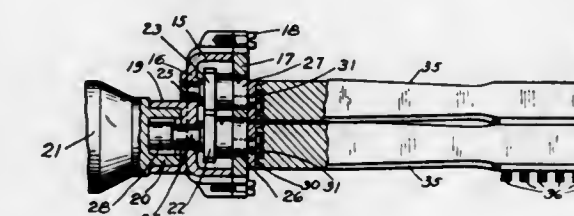
Forest H. Barnett, 2602 N. Baltimore, Tacoma, Wash.

Filed Mar. 21, 1969, Ser. No. 809,303

Int. Cl. A61h 7/00

U.S. Cl. 128-62 A

3 Claims



Two brush members, each having a set of bristles are supported from a housing and driven by gear and crank means so as to move the two sets of bristles in opposite directions along two generally oval paths. This provides a brush in which the sets of bristles, when in use for massaging the gums, will always move outwardly over the gums toward the crowns of the teeth thus avoiding brushing the gums back on the teeth, which might tend to cause them to recede.

3,592,189

LEG SUPPORT FOR SPLINT

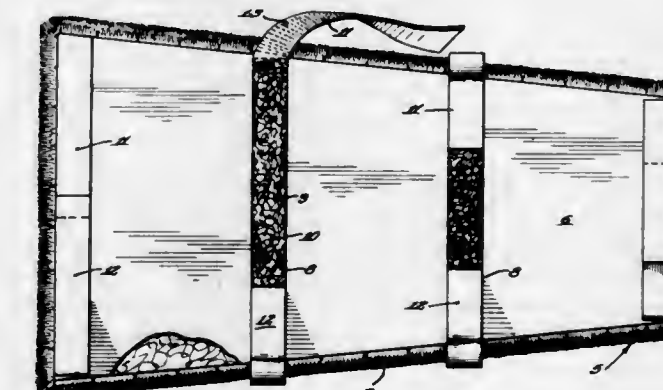
Donald W. Bergen, Glenview, Ill., assignor to The Scholl Mfg. Co. Inc., Chicago, Ill.

Filed Feb. 14, 1969, Ser. No. 799,253

Int. Cl. A61f 5/04

U.S. Cl. 128-89 R

3 Claims



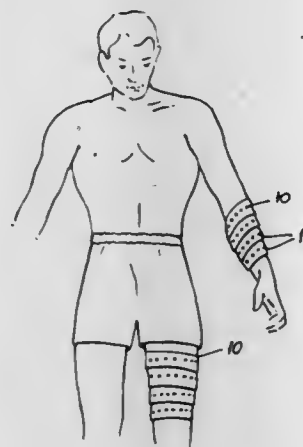
A leg support for use with a splint of the type used for fracture of a leg bone when traction is indicated. The support is

readily attached to or removed from the splint and shaped to cradle the leg and provides soft cushioning support and protection to pressure-sensitive areas, and may be sterilized and reused indefinitely.

3,592,190
NEOPRENE SURGICAL BANDAGE FOR MAKING BODY
IMMOBILIZING CASTS

Jack J. Silverman, 15 Cypress Road, Eastchester, N.Y.
Filed Nov. 5, 1968, Ser. No. 773,396
Int. Cl. A61f 5/04; A61l 15/07
U.S. Cl. 128-90

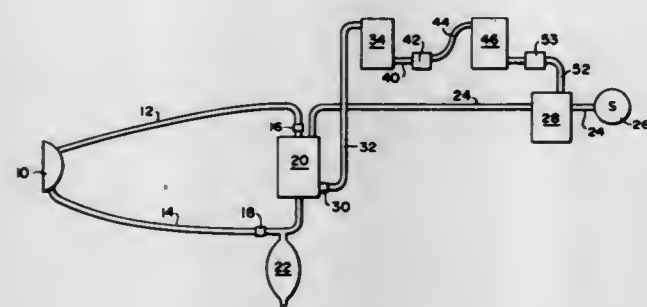
1 Claim



A surgical dressing in the form of a plastic, foraminated bandage which may be wound about a diseased, deformed or broken part to produce a helix thereabout, and thereafter rendered rigid or semirigid to produce a cast immobilizing the part. The bandage is constituted by a strip of thermoplastic material which is moldable, when heated, to permit the strip to be wound about the part, the strip being rendered semirigid or rigid when cooled to room temperature.

3,592,191
RECOVERY OF ANESTHETIC AGENTS
Richard R. Jackson, 8 Trinity Road, Marblehead, Mass.
Filed Jan. 17, 1969, Ser. No. 791,910
Int. Cl. A61m 17/00; B01d 51/10
U.S. Cl. 128-188

29 Claims

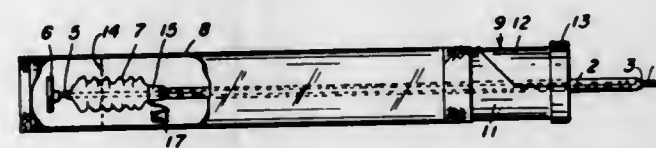


In a system for administering a volatile inhalation anesthetic agent to a patient at a flow rate that is in excess of the patient's uptake rate and wherein a portion of the excess anesthetic agent is exhausted from the system, a method and apparatus for recovering the exhausted anesthetic agent. Recovery is effected by collecting the exhausted gas and removing the water vapor either by condensation or with a hygroscopic material. The anesthetic agent is then extracted from the dried gas by a cryogenic process in which the vapors in the anesthetic agent are condensed to a liquid phase or by an absorbent material which is processed later to

remove the agent. When employing the condensing process, the anesthetic condensate is collected and may be readmitted directly into the anesthetic system.

3,592,192
INTRAVENOUS CATHETER APPARATUS WITH
CATHETER TELESCOPED ON OUTSIDE OF
PUNCTURING CANNULA
Andrew Harautunelian, Gardena, Calif., assignor to American Hospital Supply Corporation
Filed June 13, 1967, Ser. No. 645,655
Int. Cl. A61m 5/00
U.S. Cl. 128-214.4

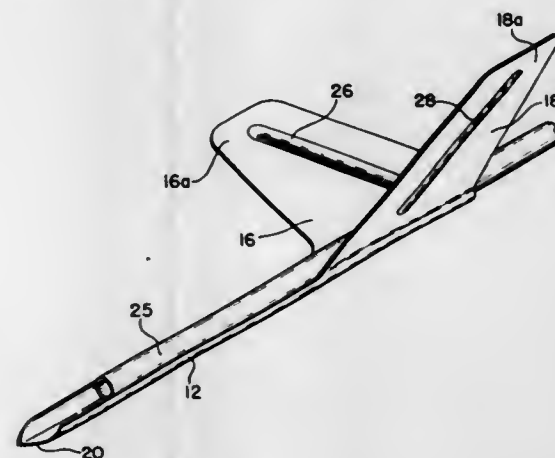
24 Claims



An intravenous catheter assembly in which a separable gripping hub integrates a rigid cannula and flexible catheter for retaining them against relative movement during a venipuncture and permitting relative longitudinal movement after the flexible catheter has been in place and the cannula is to be withdrawn; the gripping hub including hinged jaws and a circumferential pressure band; a base plate and separate clamp parts; and a transverse clamp plate; the latter gripping heads including means for gripping a flexible protective sheath; the cannula being connected at its rear end to a flexible, withdrawing wire, and a protective rigid housing into which the cannula is withdrawable while the flexible sleeve protects against contamination of blood etc.

3,592,193
REMOVABLE GUIDE NEEDLE
James A. Higgins, Racine, Wis., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Apr. 10, 1969, Ser. No. 814,977
Int. Cl. A61m 5/00
U.S. Cl. 128-214.4

5 Claims



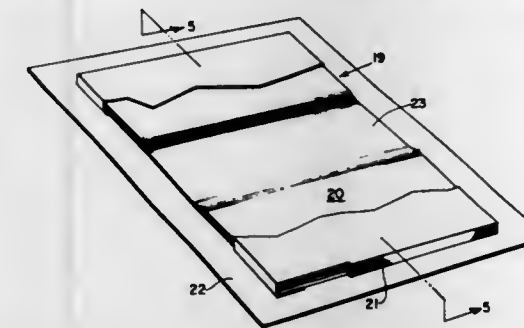
A removable guide needle is provided for use with a flexible catheter tube in withdrawing or introducing fluids relative to a body, the guide needle having handle means associated therewith which provides controlled insertion and removal from the body with subsequent detachment from the flexible catheter tube in an expeditious manner.

3,592,194
DIAPER HAVING IMPROVED WICKING AND DRYNESS
Robert C. Duncan, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Mar. 5, 1969, Ser. No. 804,560
Int. Cl. A61f 13/16
U.S. Cl. 128-287

16 Claims

A diaper is disclosed wherein the structure comprises an absorbent substrate wherein the amount of expressible

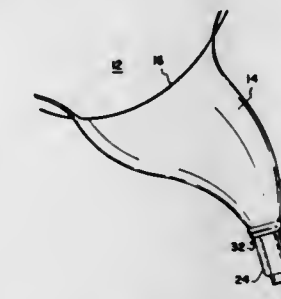
moisture within the central section of the substrate is reduced relative to contiguous peripheral sections either by reduction in weight of absorbent material per unit of surface area or by compression of the absorbent material during the manufacturing operation or by introducing a waterproof film as an intermediary ply within the absorbent substrate. The purpose of the structure is to improve the surface dryness of



the central section of the diaper top sheet surface and improved utilization of absorbent substrate materials toward the diaper extremities. Also disclosed is a diaper structure wherein the relation between free space available for fluid retention of the top sheet and in-use changes of absorbent capacity of the substrate's central section are specified so as to preclude or minimize surface flooding of the diaper top sheet, which is adjacent the wearer's skin.

3,592,195
MEANS AND METHOD FOR DIURNAL TOILET
TRAINING
Richard K. Van Wagenen, 3304 S. Stanley Place, Tempe, Ariz.; Russell W. Meredith, 405 E. 10th St., Mesa, Ariz., and Lee Meyerson, 6816 Almeria, Scottsdale, Ariz.
Filed July 22, 1968, Ser. No. 746,640
Int. Cl. A61f 5/44
U.S. Cl. 128-295

2 Claims



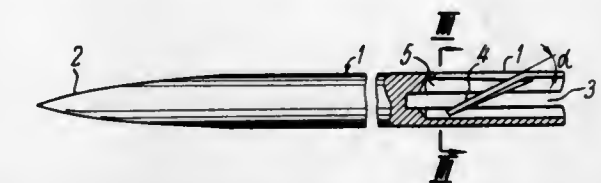
A means and method for diurnal toilet training comprising a nozzle adapted to receive urine from a subject; said nozzle mounted on the subject, and having a passage in which two spaced electrodes are so disposed that urine provides an electrical bridge only when flowing through the passage; and an audio signal device coupled to the electrodes and carried by the subject; said warning device carried by the subject adapted to sound an audio signal when urination starts so as to alert the subject and a trainer in order to elicit restraint of the voiding impulse and to move to a proper toilet area, remove clothing, and take an appropriate stance for the voiding event.

3,592,196
SURGICAL NEEDLE WITH SUTURE RETAINING
MEANS
Boris Yakovlevich Daikhovsky, Karetny ryad, 5/10, kv.12, and Sergei Petrovich Kosov, pereulok Raskovol, 19/23, kv.61, both of Moscow, U.S.S.R.
Continuation of application Ser. No. 633,482, Apr. 25, 1967, now abandoned. This application Nov. 28, 1969, Ser. No. 876,192
Int. Cl. A61b 17/06
U.S. Cl. 128-339

4 Claims

A surgeon's needle has a rear portion in the shape of a tube which opens to the rear, a longitudinal slot being formed in said rear portion equal to the thickness of the suture material, the slot dividing the rear portion into two

resilient sections. A resilient tongue is stamped from one of the sections and the end of the tongue is in the direction of



the needle point, the tongue extending through the longitudinal slot.

3,592,197
CATHETER
Milton J. Cohen, 5437 Connecticut Ave., Washington, D.C.
Filed Mar. 24, 1969, Ser. No. 809,918
Int. Cl. A61m 25/00
U.S. Cl. 128-349

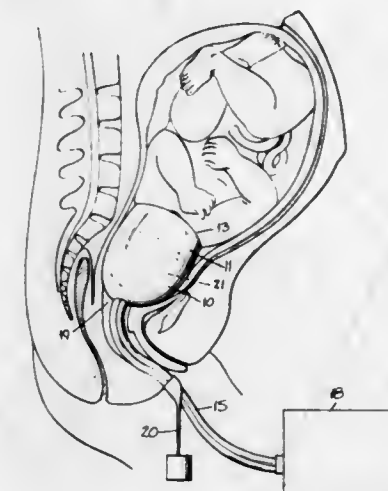
1 Claim



This application discloses a catheter which comprises a hollow tube having a plurality of extensions at one end which are normally urged, by springs or other force exerting means, outwardly of the tube so that after the catheter has passed through a body passage or canal, with the end carrying the extensions entering first, when the extensions enter a body cavity the extensions will bend outwardly engaging the walls of the cavity adjacent the passage to retain the catheter therein so that fluid may be drained from the cavity.

3,592,198
OBSTETRICAL INSTRUMENT FOR FETUS
EXTRACTION
Evan F. Evans, 3755 Washington Blvd., Ogden, Utah
Filed Oct. 31, 1967, Ser. No. 679,442
Int. Cl. A61b 17/42
U.S. Cl. 128-352

8 Claims



A surgical instrument, such as an obstetrical forceps has a flexible member made of vinyl plastic sheets. The member has closed wall portions that form a caplike shape. A capilla-

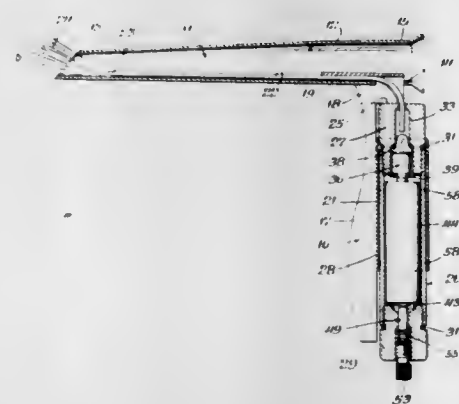
ry network inside the walls of the member is connected through a flexible tube to a source of temperature-controlled circulating water. A thermosensitive compound surrounds the network and forms a matrix of compound that is softened or hardened by changes in the water temperature. While the matrix is soft, the caplike member is fitted like a glove on the fetal skull; the matrix is then hardened, making the forceps self-retaining.

3,592,199 AUTOCLAVABLE SURGICAL INSTRUMENT ILLUMINATION

Ralph G. Ostensen, Morton Grove, Ill., assignor to Medical Products Corp., Skokie, Ill.
Continuation of application Ser. No. 574,431, Aug. 23, 1966, now abandoned. This application Feb. 9, 1970, Ser. No. 9,105
Int. Cl. A61b 1/06

U.S. Cl. 128-6

10 Claims



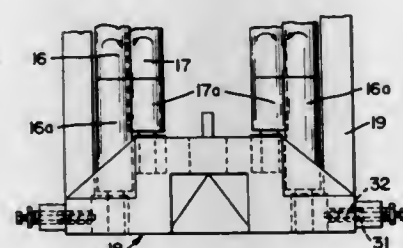
An autoclavable surgical instrument for directly illuminating interior portions of a human body having a distal end for insertion into a body cavity and a proximal end including a handle portion, a fiber optics device extending from a point adjacent the distal end to a proximal end adjacent the handle portion, and a powerpack unit including a light source, and means removably mounting that unit on the handle portion to position the light source in cooperative relationship with the proximal end of the fiber optics device; lens means being interposed between the light source and the fiber optics device, and means for mounting the lens means on the handle portion to cooperate with the power pack unit to properly position the latter relative to the fiber optics device.

3,592,200 CORN HUSKING MACHINE

Floyd O. Fedderly, Toppenish, Wash., assignor to Del Monte Corporation, San Francisco, Calif.
Filed Mar. 26, 1969, Ser. No. 810,756
Int. Cl. A01f 11/06

U.S. Cl. 130-5 J

3 Claims



A corn husking machine having one or more sets of oppositely rotating husking rolls. The ears are caused to move

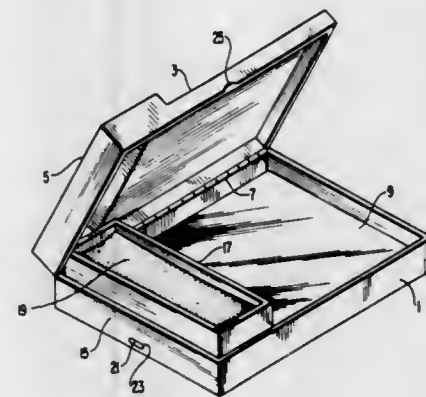
along the rolls while the husks are being removed. One roll is made longer than the other at the discharge end of the machine whereby plugging or jamming is eliminated or greatly minimized.

3,592,201 COSMETIC CASE

Klein K. Haddaway, 1650 21st Road North, Arlington, Va.
Filed Aug. 8, 1969, Ser. No. 848,489
Int. Cl. A45d 40/22

U.S. Cl. 132-79 G

5 Claims



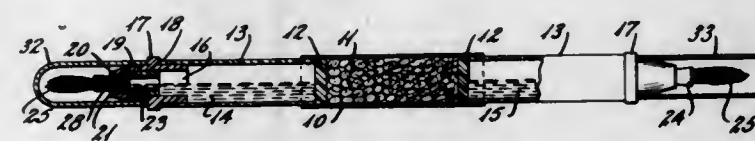
A mirrored cosmetic case has a snap-in container for a solid cosmetic at one end of the mirror and a hinged lid that is recessed to accommodate the container.

3,592,202 TOILETRY ARTICLE

Frances F. Jones, Pent House, White House Motor Inn 70 Houston St. N.E., Atlanta, Ga.
Filed May 14, 1969, Ser. No. 826,084
Int. Cl. A45d 40/26

U.S. Cl. 132-88.7

3 Claims

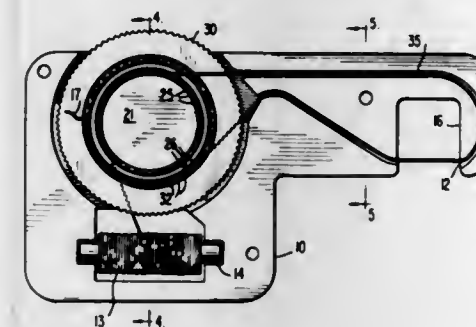


The present invention is a fingernail polish kit or toiletry article having a rigid, central, handle-forming body or sleeve or appropriate length to contain within the same lint cotton, gauze, or other appropriate preferably absorbent substance used in manicuring. In each end of the sleeve is frictionally and removably telescoped a tube container either having a readily distortable wall portion or the entire tube flexible with a stopper or plug at its open end, one of the containers being adapted to receive fingernail polish remover and the other, fingernail polish. Each stopper is provided with an axial channel or passage in the outer end of which is a removable and replaceable brush so that when the container is squeezed it will expel a drop of the liquid for application by the brush to a fingernail, a removable and replaceable protective cap or cover being provided for each brush with one cover of a different detectable characteristic from the other to enable the device to be used regardless of whether in the light or not. Also a holder is provided in the form of a base which may be a suction cup and an upwardly opening yoke for receiving the body of the device so that when on a flat surface it will not roll, and alternately the device may be attached to a surface either horizontal or otherwise.

3,592,203
DENTAL FLOSS DISPENSER
Bradford J. Johnson, 4718 68th Ave., Landover Hills, Md.
Continuation-in-part of application Ser. No. 744,278, June 10, 1968, now abandoned. This application Dec. 29, 1969, Ser. No. 888,475
Int. Cl. A61c 15/00

U.S. Cl. 132-91

10 Claims

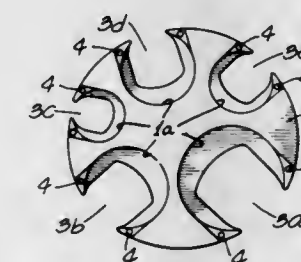


This invention relates to improvements in a device for dispensing dental floss from a source of supply such as a spool by a clutch member which cooperates with a drive means for unwinding and feeding the floss to an exposed position exteriorly of the housing preparatory for use, the clutch member holding the floss taut while in use.

3,592,204
CHANGE HOLDER
Robert Hernandez, 2025 N. Western Circle, Camarillo, Calif.
Filed Sept. 24, 1968, Ser. No. 761,906
Int. Cl. G07d 1/00

U.S. Cl. 133-6

1 Claim



A change holder to be carried in the pocket or purse which is designed to carry a plurality of coins ranging from one cent to fifty cent pieces. The change holder is formed primarily of two pieces of molded plastic material and has a round shape with the coins carried in compartments inside the circumference of the holder. The coins are retained in these compartments by an elliptical base member and resilient pins which partially block the coin slot entrances.

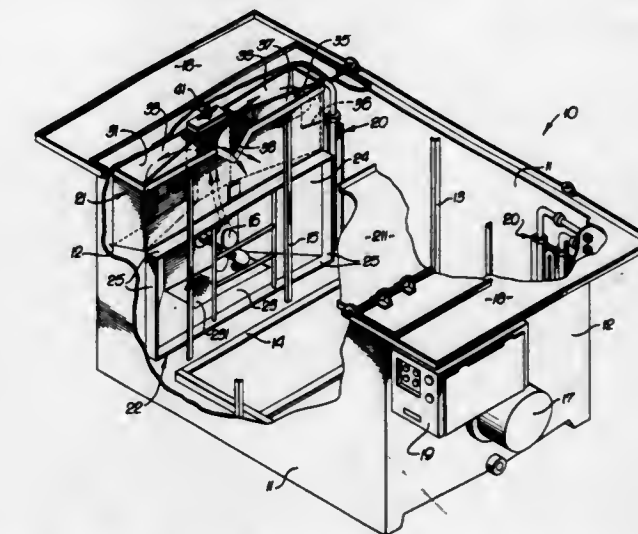
3,592,205
WASHING APPARATUS WITH SLUDGE SEPARATOR
Richard H. Sheppard, Palos Verdes Peninsula, Calif., assignor to Purex Corporation, Ltd., Lakewood, Calif.
Filed Sept. 29, 1969, Ser. No. 861,577
Int. Cl. B08b 3/10, 15/00

U.S. Cl. 134-104

14 Claims

Apparatus for the cleaning of mechanical or structural parts by circulation of cleaning solution within a tank having cavitated end walls which house circulating propellers and wherein sludge is entrapped in one or a pair of relatively small volume containers receiving side streams of propeller-displaced cleaning solution, these containers being manually removable from the tank without interruption of the parts

cleaning operation. The invention also provides improvements in the tank and propeller housing constructions and

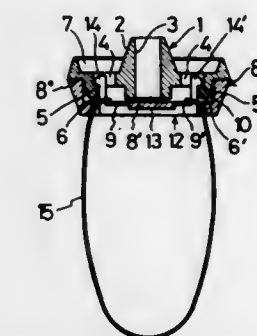


benefits resulting from association within the tank of the propeller housing with vertical end walls of the tank.

3,592,206
KNOBS FOR UMBRELLA STICKS
Satuki Kitani, Tokyo, Japan, assignor to Okuda Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 10, 1969, Ser. No. 865,360
Claims priority, application Japan, Mar. 11, 1969, 44/22096
Int. Cl. A45b 1/00

U.S. Cl. 135-46

5 Claims

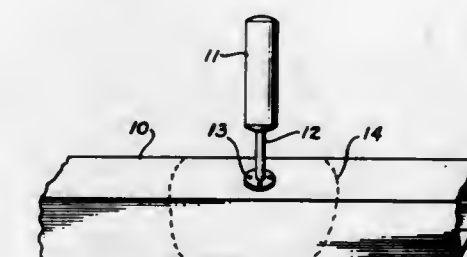


A knob for an umbrella stick comprises an adapter having an opening for accommodating the stick and a pair of opposing shoulders, an intermediate member having spaced-apart windows and a recess to accommodate the bottom portion of the adapter, and a locking member having a pair of spaced-apart hooks which are inserted through the windows to engage the shoulders thus maintaining the knob in the assembled state.

3,592,207
AIR DUCT CLOSURE
Richard A. Borello, 4060 Grant Road, Mountain View, Calif.
Filed May 12, 1969, Ser. No. 823,707
Int. Cl. E03b 1/00; F16k 13/04

U.S. Cl. 137-1

5 Claims



A closure for a ventilating or heating duct comprises a plug or pillow of a foamed plastic automatically injected into the duct by a propellant, through a temperature sensitive valve which opens at a predetermined temperature as in case of fire.

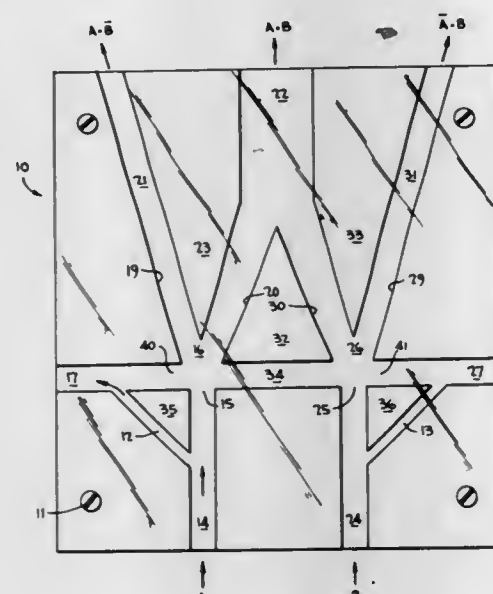
3,592,208

FLUERIC SELF-BIASING AND GATE

Henry Steven Kimmel, Greenbelt, Md., and Elmer L. Swartz, Annandale, Va., assignors to The United States of America as represented by the Secretary of the Army
Filed Apr. 28, 1969, Ser. No. 819,871
Int. Cl. F15c 1/10

U.S. Cl. 137-81.5

3 Claims



A flueric AND logic element is disclosed which is capable of accurate and reliable operation without the necessity of critical dimensional control. This is accomplished by the use of a pair of fluid bias channels which produce a low pressure region in the vicinity of the control nozzle. In one embodiment the bias channels are located between the two input signals and the two control channels of the respective amplifiers. In a second embodiment both bias channels feed into a central control channel located between the two interaction chambers of the respective amplifiers.

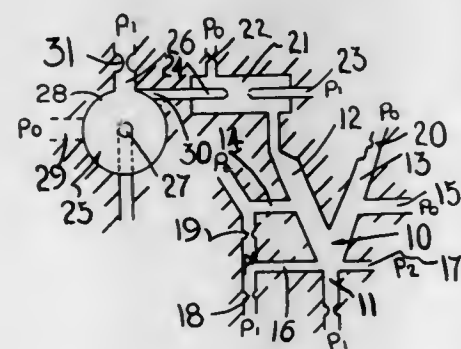
3,592,209

FLUIDIC CONTROL CIRCUITS

Michael John Joby, Hampton-In-Arden, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed May 26, 1969, Ser. No. 828,458
Int. Cl. F15c 1/12, 1/16

U.S. Cl. 137-81.5

13 Claims



The invention comprises a fluidic control circuit adapted to produce a high power output signal when the ratio of a first and second control pressure is above a predetermined value. The circuit includes a bistable coanda-effect device which changes its flow state in accordance with the said ratio. An output from the bistable device provides the control for modulating a relatively high pressure in an intermediate stage. The output of the intermediate stage forms a control for a final stage in which flow of fluid from a nozzle to an outlet is interrupted by causing swirling about the axis of the nozzle. Accurate sensing of pressure differentials by the bistable device is thus combined with the high power amplification of the output stage.

3,592,210

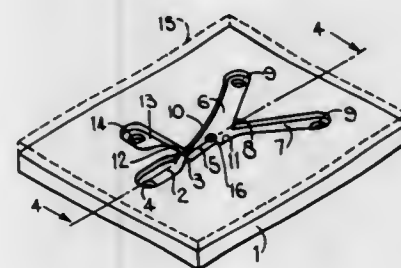
FLUID-OPERATED DEVICES

Brian John Steptoe, Hitchin; Sidney Ties, Stevenage, and William Cecil Morton, Biggleswade, all of, England, assignors to International Computers and Tabulators Limited, London, England
Filed Apr. 9, 1968, Ser. No. 719,904
Claims priority, application Great Britain, Apr. 22, 1967, 18613/67

Int. Cl. F15c 1/10

U.S. Cl. 137-81.5

3 Claims



A monostable pure fluid device is described in which the values of the control pressures at which the power stream is switched from its normal outlet and at which the power stream resets to its normal outlet respectively are substantially equal. The reaction chamber of the device has substantially parallel top and bottom surfaces and a small interruption is formed in one of the surfaces by a projection, step or depression in the surface.

3,592,211

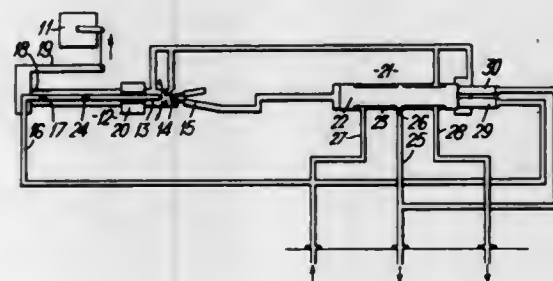
PRESSURE-REGULATING VALVE

Cyril Spalding, Welwyn Garden City, England, assignor to Hawker Siddeley Dynamics Limited, Hatfield, England
Filed Nov. 26, 1968, Ser. No. 779,280
Claims priority, application Great Britain, Nov. 30, 1967, 54676/67

Int. Cl. F15b 5/00; F15c 3/02

U.S. Cl. 137-83

3 Claims



A pressure-regulating valve is provided, especially for an antiskid braking system, which has two fluidic stages of amplification, the first being a jet pipe regulator device and the second a spool valve in a cylinder. The input signal to the second stage is applied to one end of the spool valve and proportions of the supply and regulated output pressures are applied to the opposite end.

3,592,212

WATER TREATMENT SYSTEM

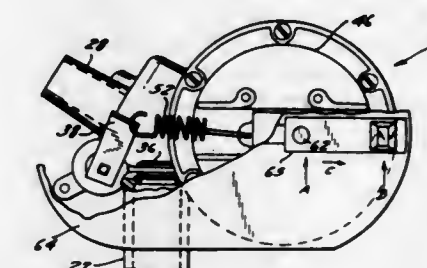
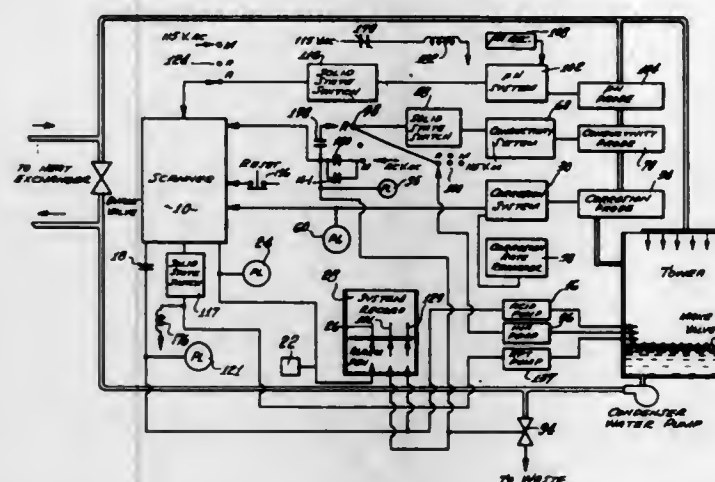
James A. Schleimer, 799 Via Ondulano, Ventura, Calif., and Arthur M. Beavens, Manhattan Beach, Calif.
Filed Dec. 18, 1969, Ser. No. 886,287
Int. Cl. G05d 11/00

U.S. Cl. 137-93

8 Claims

A water treatment system having a scanner circuit which monitors and controls and takes corrective action upon receiving signals from pH-sensing apparatus, conductivity-sensing apparatus, or corrosion rate sensing apparatus, singly

or together, and provides electrical timing means for the valve to subsequently direct rinse water to the drain. stopping or starting acid or alkaline feed equipment, bleed When the slide is returned to its first position, actuation of



the pump in the reverse direction causes the suds water to return to the machine.

3,592,215

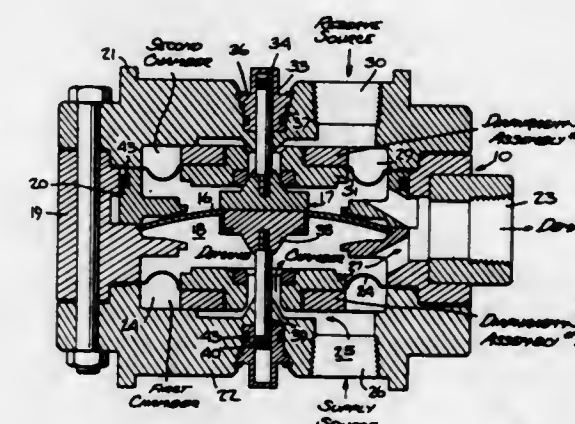
AUTOMATIC CHANGEOVER VALVE ASSEMBLY

James W. Davis, New Britain, Pa., assignor to Fischer & Porter Co., Warminster, Pa.
Filed Dec. 2, 1969, Ser. No. 881,565

Int. Cl. G05d 16/06

U.S. Cl. 137-113

6 Claims



An automatic changeover valve assembly for controlling the selective withdrawal of fluid from either one of two cylinders or containers, one serving as the main supply source and the other as a standby or reserve source. The valve assembly comprises a Belleville spring supporting a double-ended valve plug within a demand chamber communicating with a demand line. The first plug cooperates with a valve seat mounted on a diaphragm enclosing a first fluid chamber communicating with a supply fluid source, and the second plug cooperates with a valve seat mounted on a diaphragm enclosing a second fluid chamber communicating with a reserve source. Initially, the first plug is displaced from its related diaphragm seat, whereby the supply fluid is admitted into the demand chamber, whereas the second plug is fitted in its related diaphragm seat, whereby flow of reserve fluid is blocked. But when the pressure of the supply fluid drops, this gives rise to a differential pressure between the demand chamber and the reserve fluid chamber which in turn compels the actuating diaphragm to move and causing the Belleville spring to snap and thereby reverse the relationship of the plugs and valve seats.

3,592,213

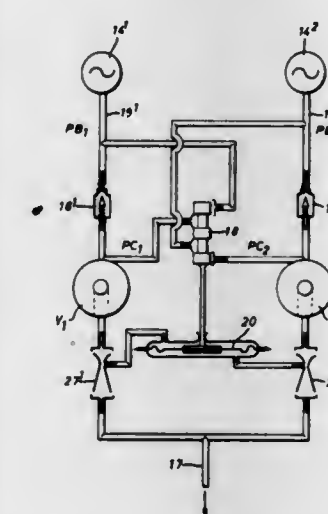
FUEL FLOW PROPORTIONER

Charles Philip Smith, Wolverhampton, England, assignor to H. M. Hobson Limited, London, England
Filed Nov. 12, 1969, Ser. No. 875,933

Claims priority, application Great Britain, Nov. 12, 1968, 53,596/68
Int. Cl. G05d 11/00

U.S. Cl. 137-98

5 Claims



The invention provides a fuel flow proportioner for aircraft which comprises two fluidic vortex valves, one interposed in the flow line from one fuel tank and the other interposed in the flow line from another fuel tank, and mechanism for sensing the fuel pressures at the outlets of the two vortex valves and operative, in the event of these outlet pressures becoming unbalanced due to excess flow in one of the flow lines, to increase the control flow supplied to the vortex valve in the line having the higher outlet pressure.

3,592,214

FLUID CONTROL DEVICE FOR LAUNDRY MACHINES

Harold Louis Woehler, Herrin, and Billy Gene Jack, Johnston City, both of, Ill., assignors to Fedders Corporation, Edison, N.J.
Filed Dec. 4, 1968, Ser. No. 781,214

Int. Cl. D06f 41/00, 39/08; G05d 7/06

U.S. Cl. 137-109

13 Claims

A suds-saver device for use with laundry machines having a pump for emptying suds water to a storage reservoir and rinse water to the drain. The device includes a transverse slide operatively connected to a valve to first direct suds water, under pump pressure, to the reservoir and operable, by the pressure of the suds water, to automatically position

3,592,216

FLOW CONTROL VALVE

Kenneth G. McMillen, Wolcottville, Ind., assignor to Borg-Warner Corporation, Chicago, Ill.
Filed Sept. 6, 1968, Ser. No. 757,960

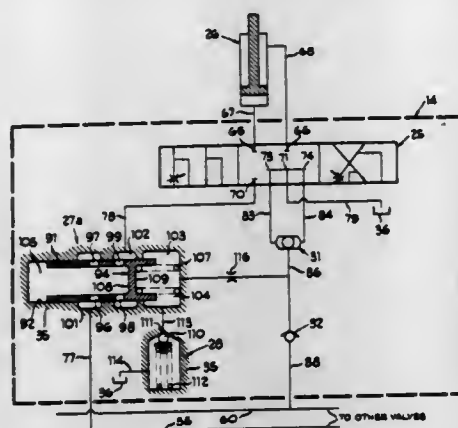
Int. Cl. G05d 11/00; F15d 11/10

U.S. Cl. 137-115

33 Claims

A flow control valve for use with a manual control valve controlling a hydraulic motor, the flow control valve having a piston therein having a variable orifice and an optional fixed orifice connected between the variable orifice and the inlet of the manual valve. The flow control valve is controlled by a variable orifice established by the manual valve between the inlet to the manual valve and an outlet port of the manual

valve connected to the hydraulic motor. The flow control valve includes a pressure chamber connectable to the load-actuating pressure of the manual valve whereby the variable orifice will be sized to provide a pressure in accordance with the work port pressure and the optional fixed orifice providing a maximum flow limit for the control valve. An orifice is provided in the connection between the work ports and the pressure chamber of the flow control valve and the pressure



chamber is further connected to a relief valve whereby when the relief valve is open the pressure in the pressure chamber will be stabilized allowing movement of the flow control valve to limit the pressure supplied to the manual valve when the load-actuating pressure exceeds the predetermined maximum pressure limit of the manual control valve whereby a maximum pressure value is established for the hydraulic motor.

3,592,217

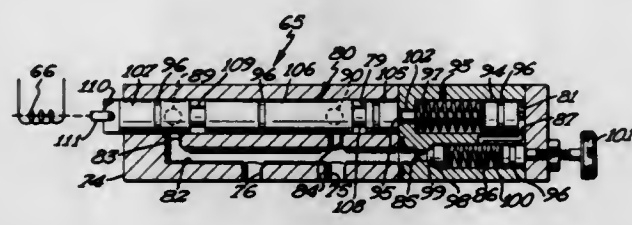
AUTOMATIC PRESSURE RELEASE VALVE

Stanley E. Keagle, Minneapolis, Minn., assignor to Earl Manufacturing Company, Minneapolis, Minn.
Division of Ser. No. 668,431, Sept. 18, 1967, Pat. No. 3,517,607. This application Aug. 1, 1969, Ser. No. 846,883

Int. Cl. G05d 11/00; F15b 13/02

U.S. Cl. 137-115

17 Claims



A fully automatic bottle and can crusher in which articles are fed, one at a time, into the crusher by a feeder. The feeder control is responsive to the presence of an article in the feeder, and the crusher control is responsive to the presence of an article in the crusher. The crusher is operated by an electrically actuated hydraulic release valve which discontinues operation of the crusher at a predetermined hydraulic pressure. The valve has a hydraulically actuated means for moving a spool to a pressure release position in response to the predetermined pressure.

3,592,218

PRESSURE GAUGE

Billy Lynn Guy, 240 Shady Lane, Lexington, Ky., and Walden Sam Campbell, 1013 Cella Drive, Lexington, Ky.
Filed July 31, 1969, Ser. No. 846,518

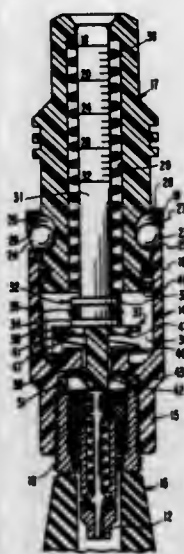
Int. Cl. F16k 15/20

U.S. Cl. 137-227

20 Claims

A combined gauge and inflator for a tire includes a support member threaded on the tire stem with a body slidably disposed within the support member and locked in a first position. The body has a passage extending therethrough with a spring-biased piston slidably disposed therein. With the body in the first position, the piston rests against a spring-

biased plunger, which opens the valve in the tire stem when the plunger spring is overcome. The plunger spring is overcome either by an air chuck acting on the piston to move the piston against the plunger or when the body is moved from its first position to a second position in which the body en-



3,592,219

CAM-OPERATED VALVE WITH SCRAPING VANES

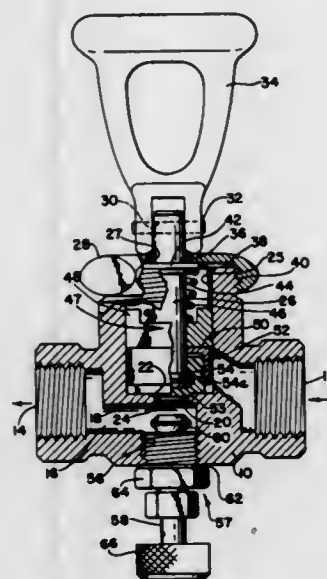
Elroy J. Giese, Cleveland, Ohio, assignor to Tomlinson Industries, Inc., Cleveland, Ohio

Filed May 5, 1969, Ser. No. 821,759

Int. Cl. F16k 29/00, 51/00

U.S. Cl. 137-242

13 Claims



This invention relates to a valve particularly adapted for use in controlling flow through water feed lines for commercial coffee urns. The valve includes a valve body having an inlet and an outlet interconnected by a fluid passageway. Intermediate the ends of the passageway is a shoulder or partition, apertured to permit flow therethrough. A handle operates to open and close the valve by reciprocating a stem which extends into the passageway through an opening in the valve body. On the inner end of the stem is attached a resilient closure member adapted to engage a first sealing seat provided on one side of the partition and encircling the aperture through such partition. Received over the closure member is a cuplike shield which covers a major portion of the closure member. Disposed above the shield and circumscribing the stem is a stem guide having a plurality of vanes radiating outwardly from the stem. The stem guide centers the stem and, by rotation of the vanes, produces a scraping action which helps to reduce "liming" of certain interior valve surfaces. The stem is biased downwardly toward the first sealing seat by a spring which is compressed between the

top of the stem guide and the undersurface of a bonnet nut through which the stem passes. The valve may also include an antisiphon control assembly which acts in concert with a second sealing seat encircling the aperture on the other side of the partition. The antisiphon control assembly may be either manually or automatically actuated.

3,592,220

LINEAR IRRIGATION SYSTEM WITH PICKUP SHOE

Richard F. Reinke, P.O. Box 272, Deshler, Nebr.

Filed July 1, 1969, Ser. No. 838,089

Int. Cl. B05b 9/02; E01h 3/02

U.S. Cl. 137-344

13 Claims



An elongated pipe boom provided with irrigation sprinkler heads thereon supported by a plurality of driven wheeled assemblies including a central driven unit having a pickup shoe thereon for receiving water from a supply pipe with the entire assembly being driven back and forth in a linear direction in relation to an area to be irrigated. All of the supporting assemblies are retained in alignment by a timing mechanism and a control is provided so that the pump associated with the pickup shoe and the water supply line will have an intake capacity balanced with the water supply so that the pickup shoe will not intake air into the system.

3,592,221

PLATE SWING VALVE

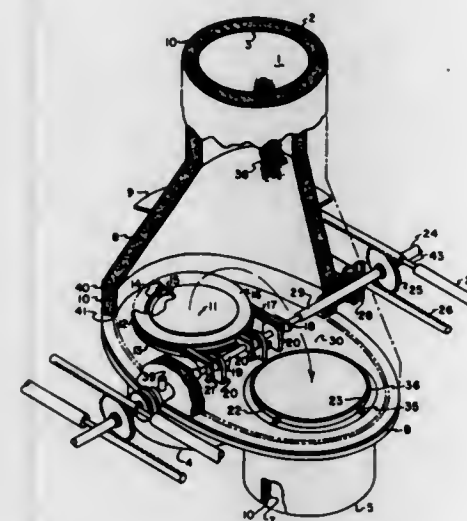
Arthur C. Worley, Morristown, and Dominic Cicchino, Rockaway, both of N.J., assignors to Esso Research and Engineering Company

Filed Dec. 1, 1969, Ser. No. 881,072

Int. Cl. F16k 27/00, 11/00, 31/54

U.S. Cl. 137-375

12 Claims



A three-way plate valve for directing a gas stream at high temperature is characterized by an upper inlet port, a pair of adjacent outlet ports and a closure plate for either outlet port pivoted therebetween. The closure plate includes a pair of spaced sealing surfaces for contacting the outlet ports and is attached to a shaft which is journaled in bearings within the valve body. Operation of the valve is effected by an external drive mechanism.

3,592,222

RELIEF VALVE

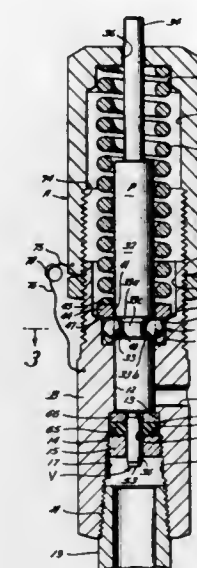
John B. Goss, and John E. Stachowiak, both of Harris County, Tex., assignors to American Aero Industries, Inc.

Filed Dec. 3, 1969, Ser. No. 881,828

Int. Cl. F16k 17/00

U.S. Cl. 137-467

10 Claims



A relief valve for releasing surges of liquid at a predetermined relief pressure in fluid-pumping systems comprising a valve held in closed position in its housing by a latch means which permits the valve to move without opening to accommodate pressure variations in the system and which opens at a predetermined pressure to release pressure from the system. The invention also includes means to vary the predetermined pressure at which such valve opens and also means to manually reset the valve after discharge to release again at such predetermined relief pressure without further adjustment.

3,592,223

PILOT-OPERATED MODULATING VALVE SYSTEM AND FLOW STABILIZER INCORPORATED THEREIN

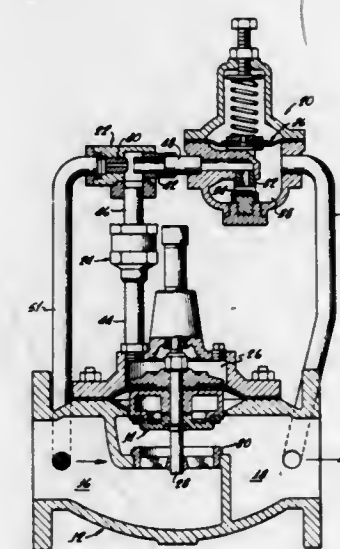
James R. Reese, Santa Anna, Calif., assignor to Cla-Val Co., Costa Mesa, Calif.

Filed Nov. 6, 1969, Ser. No. 874,449

Int. Cl. G05d 16/00

U.S. Cl. 137-489

20 Claims



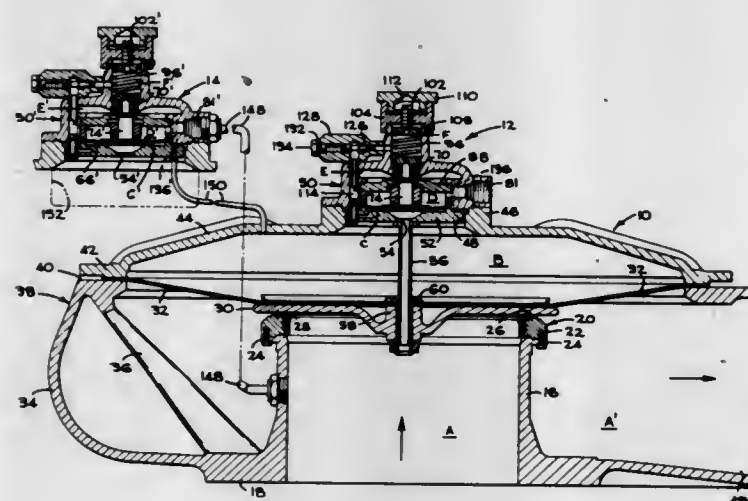
The valve system comprises a main valve including a diaphragm-operated poppet separating an inlet side from an outlet side, a pilot valve for opening and closing the main valve in response to a predetermined pressure or flow condition, and a restrictor (for example, the inlet nozzle of an

ejector) coupled to pass fluid from the inlet side to a flow stabilizer and to the pilot valve. The flow stabilizer is connected between the ejector and a diaphragm chamber in the main valve. The stabilizer passes fluid from the ejector to the diaphragm chamber, and at other times from the diaphragm chamber to the ejector, at a restricted rate for slowly opening and closing the main valve in response to slow or small changes in the demand, and at much faster rates for rapidly opening and closing the main valve in response to sudden and substantial changes in the demand.

3,592,224 RELIEF VALVE

Louis Bois, Sens, France, assignor to Societe Technique Et Commercial D'Installations Industrielles "Lucaet," , Sens (Yonne), France

Filed Nov. 26, 1969, Ser. No. 880,031
Claims priority, application France, Dec. 20, 1968, 179,512
Int. Cl. F16k 17/19, 17/10
U.S. Cl. 137-492 15 Claims



A relief valve of the diaphragm type that provides pressure and vacuum relief for storage vessels. The relief valve includes a pressure pilot valve that is effective to actuate the relief valve in response to an overpressure in the storage vessel, and the pilot valve includes external adjustment means for varying the value of the pressure at which it actuates the relief valve.

The relief valve further includes a vacuum pilot valve, of substantially identical construction as the pressure pilot, that communicates with the storage vessel and the actuating chamber of the relief valve, and actuates the relief valve when the vessel is subject to a vacuum greater than the value at which the vacuum pilot is set.

3,592,225

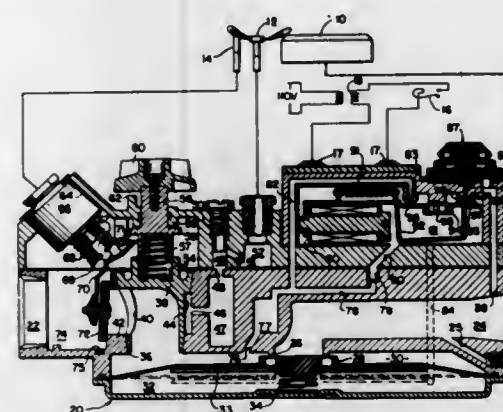
UNITARY CONTROL DEVICE

Marvin M. Graham, San Pedro, and John W. Wright, Long Beach, both of, Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 658,000, Aug. 2, 1967, Pat. No. 3,513,873. This application June 19, 1969, Ser. No. 834,770

Int. Cl. G05d 27/00; F16k 31/165
U.S. Cl. 137-495 10 Claims
A unitary control device for main and pilot burner apparatus having a differential pressure operated diaphragm valve operated by an internal bleed line which is subject to pressure regulation and to on-off control by a dual valve permitting a bypass bleed flow to assure closure of the main diaphragm valve. The control device casing houses conven-

tional manual and safety valves adjacent its inlet port and includes an impurity collector in its inlet chamber as being ar-



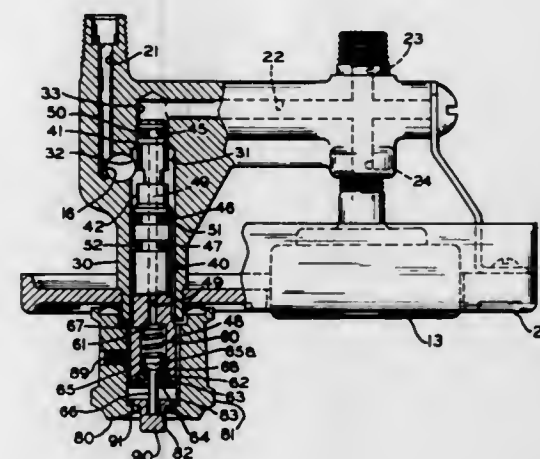
ranged so that all the connections for operating components of the control device are located on the same wall of the casing.

3,592,226

PRESSURE CONTROL APPARATUS

John A. Graham, Jr., Toledo, Ohio, assignor to Hadley Manufacturing Company, Toledo, Ohio

Filed Dec. 15, 1967, Ser. No. 691,006
Int. Cl. F16k 37/00, 11/10, 11/07
U.S. Cl. 137-557 14 Claims



A novel system which utilizes pressure control apparatus comprising main valve chamber means having an entry port adapted to be connected to a supply source of fluid under pressure and an exit port adapted to be connected to a pressurized fluid system to be controlled. A blocking element is located in the chamber. The blocking element may be selectively manipulated to permit fluid flow between the entry and exit ports. Secondary valve means are provided with communication between the exit port and the secondary valve means. Means are disclosed for manipulating the secondary valve means to reduce pressure in the fluid system being controlled.

3,592,227

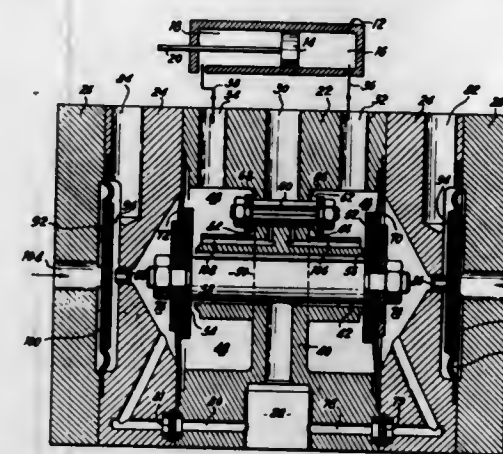
FLUID PRESSURE CONTROL VALVE UNIT

Charles Rivoller, 11 rue d'Aulnoy, Cesson, 77, France

Filed July 18, 1969, Ser. No. 842,985
Int. Cl. F16k 11/10

U.S. Cl. 137-596.14 8 Claims
A control valve for switching high-pressure fluid from a first outlet to a second outlet, to position a piston in response to a pressure signal. The pressure signal moves a diaphragm to permit the high pressure to be selectively admitted to opposed inner chambers. A movable wall separates each inner chamber. The movable walls are connected by a shaft retained in a bore connected to the high-pressure fluid. Low pressure from the atmosphere controlled by an exhaust valve is communicated to the second outlet simultaneously with high pressure being communicated to the first outlet. Upon the outlet pressure being received by the inner chambers a

pressure differential is created across the movable walls causing a valve to seat on the bore from the high pressure permitting high pressure to the other inner chamber. Once the

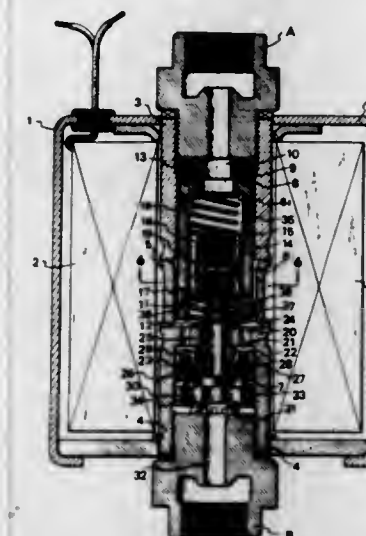


shift has occurred, the pressure differential between the inner chamber will retain the movable walls in that operative position until a subsequent pressure signal is received.

3,592,228 MAGNET VALVE

Tetsuo Kukuminato, and Akira Ohashi, both of 684 Chigusashinden, Osawa-machi, Kimitsu-gun, Chiba-ken, Japan

Filed Aug. 6, 1969, Ser. No. 847,874
Claims priority, application Japan, Aug. 8, 1968, 43/55823
Int. Cl. F16d 65/24
U.S. Cl. 137-598 7 Claims



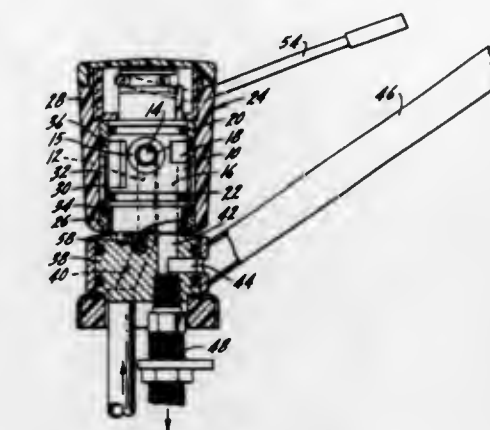
A valve construction includes a cylinder having an inlet fitting at one end and an outlet fitting at an opposite secondary end and being divided internally into an inlet chamber portion adjacent the inlet end and an outlet chamber portion adjacent the outlet end. A nozzle-shaped member is disposed in the outlet chamber and urged in a direction by a washer element toward the inlet end so that its nozzle points into the inlet chamber. The nozzle member defines an interior passage which may be closed by a poppet portion of a slide valve member which, in the nonactuated position is urged by a spring toward the inlet end into a position at which it opens the passage to the nozzle member. An electromagnetic coil is provided to cause movement of the valve member which is formed as a magnetically attractable armature so that it will move downwardly with the poppet member carried thereby in accordance with the primary pressure exerted through the inlet to overcome the biasing force of the spring and to at least partially close the passage of the nozzle member. A portion of the inlet flow is divided at the nozzle member and flows around the nozzle member into an annular passage defined therearound at the outlet chamber and which is sealed by a lip shaped tacking. During the primary pressure flow conditions, a portion of the liquid will pass around the packing and exit out through the outlet wherein an excessive pressure will cause an annular flange member to move upwardly to seal the connection between the outlet and inlet passages which is formed around the nozzle member.

3,592,229 OPERATING STRUCTURE FOR A TWO-WAY SINGLE HANDLE MIXING FAUCET

Alfred M. Moen, 25 Lakeview Drive, Grafton, Ohio
Filed Nov. 10, 1969, Ser. No. 875,042
Int. Cl. F16k 11/02

U.S. Cl. 137-625.17

22 Claims

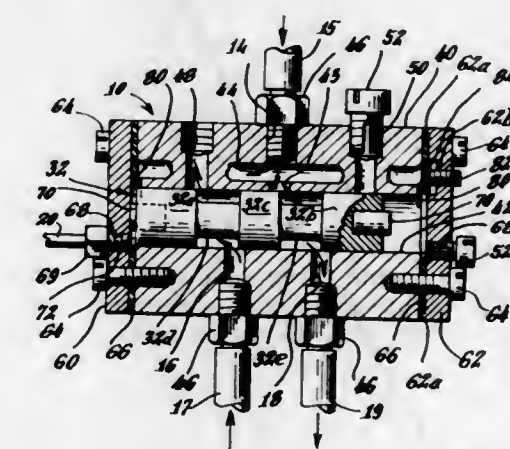


A single handle mixing faucet having a body member and an external sleeve. The body member includes hot and cold water passages which terminate in ports on the body member exterior. There is an outlet passage in the body member. The sleeve includes a mixing chamber and is reciprocal and rotatable on the body member to selectively control communication between the hot and cold water ports, the mixing chamber and the outlet passage. There are means extending upwardly from the body member interconnecting the sleeve and body member to prevent removal of the sleeve but yet provide for limited relative rotation and reciprocal movement between the two members.

3,592,230 BACK PRESSURE DIRECTIONAL CONTROL VALVES EMPLOYING PILOT AIR OF LOW VOLUME AND PRESSURE

Miroslav J. Piroutek, Stamford, Conn., assignor to Self-Matic Valves Corp., Stamford, Conn.

Filed Apr. 23, 1969, Ser. No. 818,568
Int. Cl. F16k 11/07
U.S. Cl. 137-625.66 17 Claims

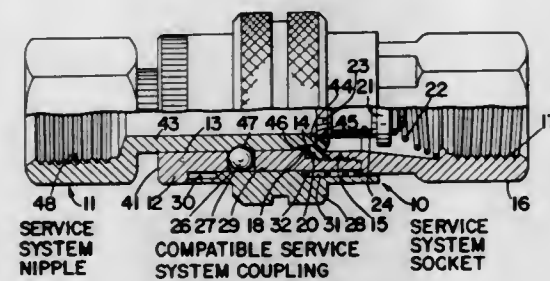


The disclosed pneumatically actuated control valves utilize exceptionally low volume and low-pressure pilot air to shift the valve spool between valve positions. Hose having valveless, open ends continuously bleed pilot air and are simply adapted to have their open ends blocked by external system elements to develop sufficient back pressure for shifting the spool between valve positions. The volume of pilot air is adjustable so as to regulate the rate of back pressure buildup. In a self-actuated valve embodiment, pilot air blockage is performed by the spool itself and the valve cycles between valve positions automatically.

3,592,231
QUICK CONNECT COUPLINGS WITH SELECTIVE CONNECTION MEANS
 Ted L. Lamb, San Lorenzo, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio
 Continuation of application Ser. No. 620,596, Apr. 13, 1967, now abandoned. This application Oct. 17, 1969, Ser. No. 867,414

Int. Cl. F16l 37/28, 37/22
 U.S. Cl. 137—614.04

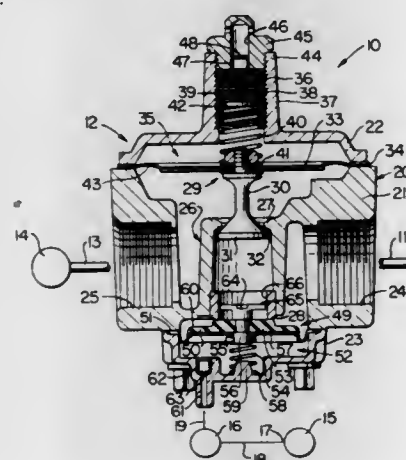
1 Claim



A pair of quick connect couplings, each coupling including a nipple and corresponding socket connectable with each other, and each nipple and socket including means to prevent connection between noncorresponding nipples and sockets.

3,592,232
FUEL CONTROL SYSTEM AND PNEUMATICALLY OPERATED VALVE MEANS THEREFOR OR THE LIKE
 Arthur L. Good, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va.
 Filed May 12, 1969, Ser. No. 823,589
 Int. Cl. G05d 16/06
 U.S. Cl. 137—614.21

20 Claims



A pneumatically operated valve means having a housing means provided with an inlet separated from an outlet by a valve seat means, the valve seat means having a first valve seat leading to one of the inlet and outlet and being controlled by a pressure regulator means and having a second valve seat leading to the other of the inlet and outlet and being controlled by pneumatically operated means. The first and second valve seats are fluidly interconnected together.

3,592,233
COMMON BEARING MEANS FOR LOAD SHAFT AND ROTARY VALVE IN FLUID PRESSURE DEVICE
 George V. Woodling, 22077 West Lake Road, Rocky River, Ohio

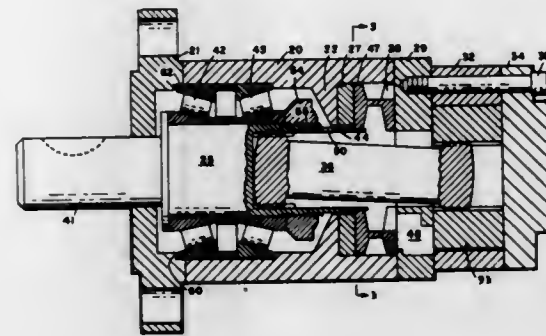
Filed Nov. 28, 1969, Ser. No. 880,677
 Int. Cl. F16k 11/02

U.S. Cl. 137—625.21

7 Claims

Common bearing means are provided for a load shaft and a rotary valve in a fluid pressure device. The load shaft and rotary valve are mounted in two separate compartments of a housing. A hollow drive shaft extension is carried by the load shaft in one compartment and extends into the other compartment upon which the rotary valve is mounted. The common bearing means directly supports the load shaft and in-

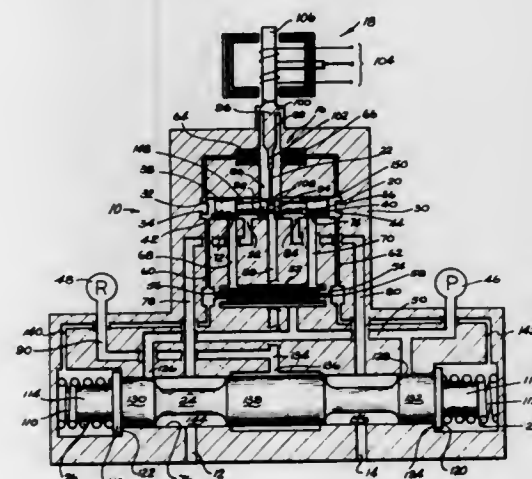
directly supports the rotary valve through the hollow drive shaft extension. The common bearing means preferably comprises a pair of tapered roller bearings which provide both radial and axial thrust. The rotary valve is radially spaced



from the housing in which it is mounted and makes an axially slidable connection with the hollow drive shaft extension and thus is not affected by radial and axial movements of the load shaft.

3,592,234
STAGED-FLOW VALVE
 George T. Baltus, Tonawanda, N.Y., assignor to Bell Aerospace Corporation
 Filed July 25, 1969, Ser. No. 844,784
 Int. Cl. F15b 5/00; F16k 11/07, 11/10
 U.S. Cl. 137—625.62

11 Claims



A double-legged two-stage servo valve in which metering to load is provided by both a low-flow second stage and a high-flow second stage, the high flow stage becoming operative when a predetermined pressure differential is exceeded. Specifically, the first stage is a flapper valve driving, with mechanical feedback, a low-flow second stage four-way spool valve over a portion of the full signal input and driving a high-flow second stage spring-centered four-way spool valve for the remainder of the signal range.

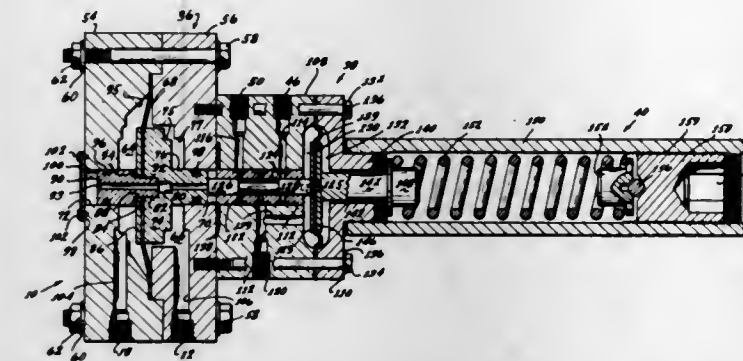
3,592,235
DIFFERENTIAL PRESSURE VALVE
 Milton T. Fore, Houston, Tex., assignor to Bell Aerospace Corporation
 Filed July 25, 1969, Ser. No. 844,783
 Int. Cl. F16k 11/07

U.S. Cl. 137—625.66

8 Claims

A differential pressure sensor wherein a flow control member (spool valve) is disposed in operative association

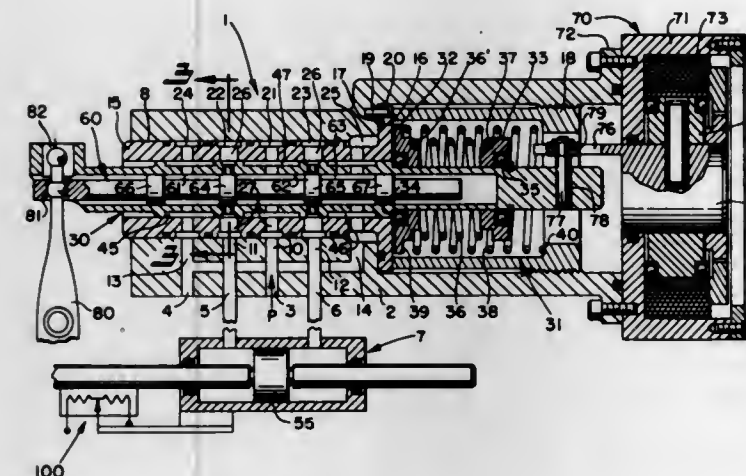
with a pressure-displaceable member (diaphragm) of the sensor so as to move therewith to open a pilot line, and which pressure increases the closing of the perforations reduces the



includes spool valve self-locking so that the pilot line is locked in an open position.

3,592,236
DUAL-INPUT SERVO VALVE
 John W. Meulendyk, Kalamazoo, Mich., assignor to Pneumo Dynamics Corporation, Cleveland, Ohio
 Filed June 2, 1969, Ser. No. 829,333
 Int. Cl. F16k 11/22
 U.S. Cl. 137—637.4

12 Claims



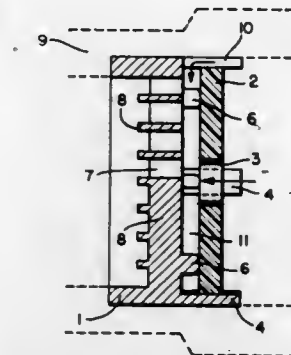
A dual-input servo valve including an inner valve sleeve having an electromechanical input device directly coupled thereto for rotation of the inner valve sleeve to control fluid flow to an actuator, and a valve plunger axially reciprocable in the inner valve sleeve by application of mechanical input to control the flow to such actuator. Should the valve plunger become stuck or jammed in the inner valve sleeve, such valve plunger and inner valve sleeve may be moved axially as a unit to control the flow to the actuator. Flow to the actuator caused by rotary movement of the inner valve sleeve can be supplemented or counteracted by appropriate axial movements of the valve plunger by itself or valve plunger and inner valve sleeve as a unit.

3,592,237
THROTTLE MEANS FOR MAINTAINING CONSTANT FLOW
 Alwin Borschers, Kupfermuhlenweg 48, Flensburg, Germany
 Filed June 23, 1969, Ser. No. 835,703
 Int. Cl. F15d 1/00

U.S. Cl. 138—43

9 Claims

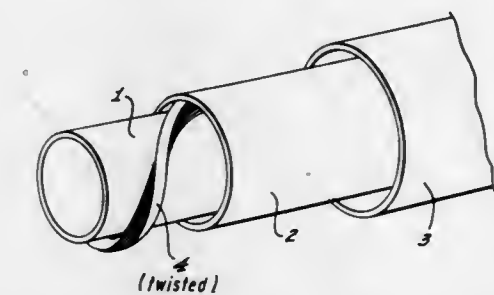
The invention relates to a throttle device for maintaining a constant flow through a pipe when the delivery pressure varies. The device includes a rigid perforate plate and a resilient disc having a central orifice, the disc being maintained in spaced relation to the plate by spacing elements extending transversely from the plate. Increased pressure in the pipe deflects the resilient disc towards the perforate plate so that the perforations of the plate are closed by the disc to a



effective cross-sectional area of the pipe to maintain a constant flow through the pipe.

3,592,238
SPACER FOR COAXIAL PIPES
 Ernst Scheffler, Langenhagen, and Gerhard Ziemek, Hannover, both of, Germany, assignors to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany
 Filed Aug. 25, 1969, Ser. No. 852,810
 Int. Cl. F16l 9/18, 11/00
 U.S. Cl. 138—114

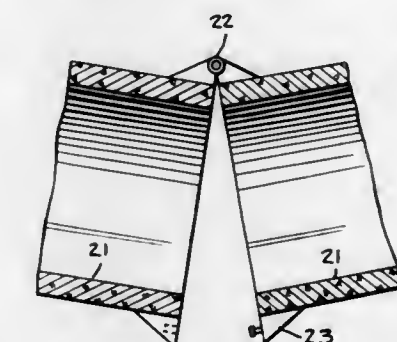
10 Claims



Coaxial pipes are positioned one inside the other and maintained by a helical spacer constructed from loosely piled tapes, fastened to each other in isolated points.

3,592,239
HINGED PIPE STRUCTURE
 Cyrus Adler, New York, N.Y., assignor to Offshore/Sea Development Corporation, New York, N.Y.
 Filed Nov. 20, 1967, Ser. No. 684,885
 Int. Cl. F16l 9/22
 U.S. Cl. 138—155

5 Claims



A pipe structure to be placed in an inaccessible location, e.g., below the surface of a body of water, comprising a plurality of pivotally mounted pipe sections which are attached one to the other by hinge means. Each pipe section is provided with lock structure arranged to coact with structure on the next adjacent pipe sections to lock said sections with respect to one another and thereby form a continuous fluid tight conduit.

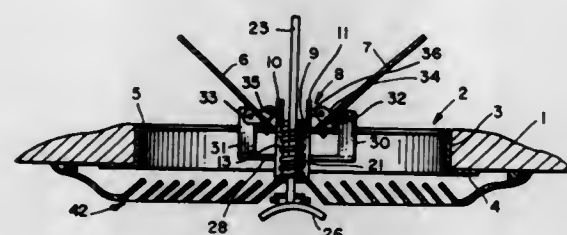
3,592,240

DAMPER UNIT FOR CONTROLLING AIR FLOW
Warren R. Hedrick, and Henry J. Meurer, both of Holland, Mich., assignors to Allied Thermal Corporation, New Britain, Conn.

Filed Oct. 30, 1968, Ser. No. 771,835
Int. Cl. F16I 13/00

U.S. Cl. 137-316

9 Claims



A damper unit for controlling air flow by adjustment of a pair of pivotally mounted damper blades. Adjustment of the blades is accomplished by linear movement of an operating member pivotally connected to the blades and actuated by the rotation of a worm. The worm has a noncircular opening there-through to receive a rod of similar cross section. The rod is frictionally, but movably, held in the opening through the worm for adjustment lengthwise thereof to accommodate louvered face plates of various heights.

3,592,241

WEFT THREAD CONTROL APPARATUS

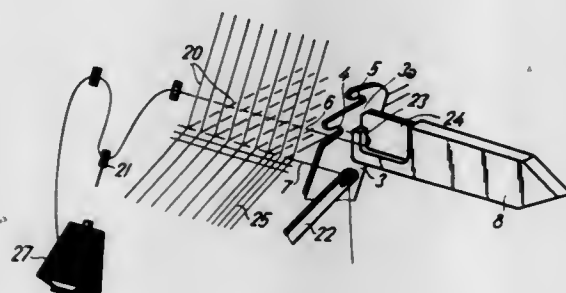
Vladimir Svaty, Liberec, Czechoslovakia, assignor to Elitex, Zavodig Textilniho Strojirenstvi, Liberec, Czechoslovakia
Filed Sept. 9, 1969, Ser. No. 856,344

Claims priority, application Czechoslovakia, Sept. 13, 1968, PV 6428

Int. Cl. D03d 47/24, 47/34

U.S. Cl. 139-125

10 Claims



After the pick of the reversible gripper shuttle with a clamp weft thread, a control member, mounted on the slay, is driven to pull out the picked weft thread from the clamping means of the gripper shuttle, and to simultaneously sever a previously picked weft thread which is held by a feeding member which inserts the same into the gripper shuttle so that the reverse gripper shuttle can be picked in the opposite direction with the newly inserted weft thread.

3,592,242

HOLDING AND RELEASING MECHANISM FOR SPIRAL BINDER APPLYING MACHINES

Hans A. Sickinger, Bloomfield Hills, Mich., assignor to Hans Sickinger Co., Pontiac, Mich.

Continuation-in-part of application Ser. No. 662,013, Aug. 21, 1967, now Patent No. 3,486,537, dated Dec. 30, 1969.

This application Apr. 1, 1969, Ser. No. 811,731

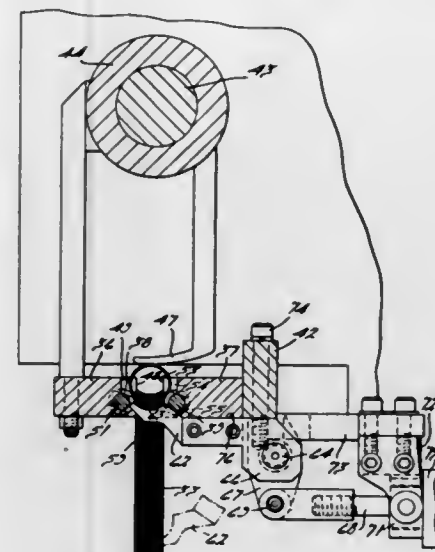
Int. Cl. B21f 21/00

U.S. Cl. 140-92.94

3 Claims

A spiral binder applying machine having two guide roller supports between which a pack of sheets is clamped, the spiral wire being guided by slots in the supports. The stationary support has a pair of hooks pivotally-actuable between upper supporting positions engageable with

looseleaf holes in the pack and lower releasing positions. In one embodiment of the invention, a pair of stripping plates



are provided for facilitating removal of the pack from the hooks as they approach their releasing positions.

3,592,243

METHOD OF FABRICATING PC CONCRETE PIPE REINFORCING

Yoshikiyo Fukushima, Tokyo; Yasushi Ishihara, Tokyo; Kenzo Momota, Tokyo; Yasuo Usui, Chigasaki; Tuyoshi Sakumura, Tokyo; Satoru Sogo, Tokyo, and Koji Nunokawa, Tokyo, all of Japan, assignors to Nippon Concrete Industries Co., Ltd., Tokyo, Japan

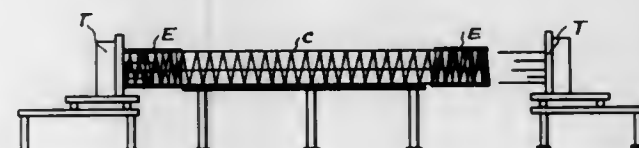
Filed Jan. 29, 1969, Ser. No. 794,900

Claims priority, application Japan, Feb. 26, 1968, 43/11924

Int. Cl. B21f 3/02

U.S. Cl. 140-92.2

3 Claims



A method of fabricating reinforcements for PC concrete pipe comprising forming a central cage structure and two end cages of slightly larger diameter than said central cage, positioning the said end cages at each end of said central cage structure, inserting tension reinforcing material along the length of said cage structure, without intertwining said tensioning reinforcing members, and through holes formed on the end surfaces of metal fittings, forming hook ends on the tension reinforcing members, and extending said metal fittings to contact said hook ends and place the tension reinforcing members under tension, the central cage structure being free to move within the end cages, and the end cages being attached to the end surface metal fittings.

3,592,244

FLASK-CHARGING APPARATUS

Edward B. Chamberlin, 112 Fifth St., Garden City, N.Y.
Filed June 28, 1968, Ser. No. 741,075

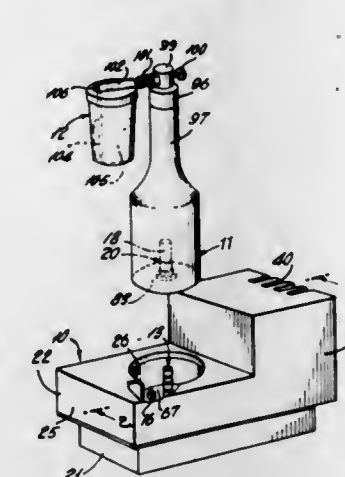
Int. Cl. B67c 3/12, 3/26

U.S. Cl. 141-14

6 Claims

Apparatus adapted for charging portable gas-containing flasks adapted for use with spraying devices. The apparatus includes a compressor driven by an electric motor, the operation of the motor being initiated by a switch engaged by the flask when the flask is operatively mounted at the charging station of the apparatus. A pressure-operated switch is disposed in the motor circuit for shutting off the motor driving the compressor when the flask has been charged to the desired predetermined pressure. The apparatus is provided

with a novel check valve which is disposed between the cooperating cutting plane of the slitting knife and the cutting pressor and the flask-charging station. The apparatus has a edge of the shaving knife extend in the same direction trans-



split housing, the parts of the housing being secured together by means which also secures the motor and the compressor to the housing.

3,592,245

UNIVERSAL DISPENSING DEVICE FOR INTRAVENOUS MEDICATIONS

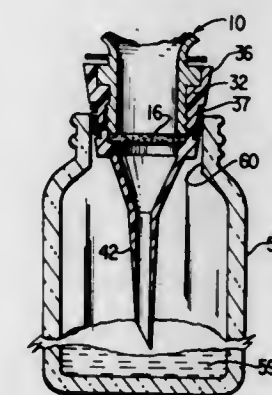
George H. Schneller, Devon; Ralph S. Levi, Norristown; Howard J. Levin, Norristown, and Stephen W. Goodsir, King of Prussia, all of Pa., assignors to American Home Products Corporation, New York, N.Y.

Filed Sept. 24, 1968, Ser. No. 762,063

Int. Cl. A61J 1/00

U.S. Cl. 141-25

7 Claims



The disclosure is directed to a universal dispensing package for medicaments to be dissolved in a parenteral container prior to use. A container is provided with a cap which first, has a hollow piercing device for dispensing a contained medicament into a "closed system" parenteral solution container, and, second, has a frustoconical shank adapted to engage the interior surface of the neck of an "open system" parenteral solution container. A membrane filter may be disposed between the container and the cap. An outer sheath is provided over the cap and is scaled in place.

3,592,246

APPARATUS FOR MAKING WOOD WOOL

Heinz Barke, Felsenbachstrasse 18, 5904 Eiserfeld-Niederschelden (Sieg), and Heiner Barke, Weinweg 47, 84 Regensburg, both of Germany

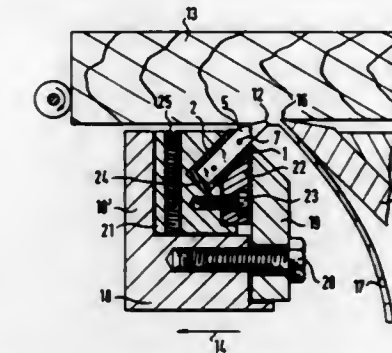
Continuation-in-part of application Ser. No. 644,028, June 6, 1967, now abandoned. This application July 16, 1969, Ser. No. 842,097

Int. Cl. B27I 11/04

U.S. Cl. 144-186

8 Claims

In an apparatus for making excelsior, a shaving knife cooperates with an adjacent slitting knife so that their cutting edges are adjacent. The slitting knife consists of a tightly assembled stack of interleaved blades and washers, the ground cutting edges of the blades lying in a common plane extending obliquely to the cutting edge of the shaving knife. The



versely across a wood log or board from which excelsior is made.

3,592,247

HANDLE FOR SCREWDRIVERS OR THE LIKE

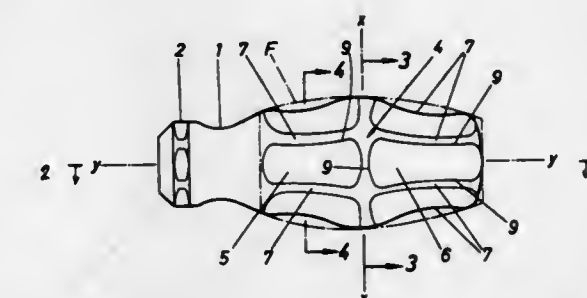
Johannes J. Solt, Ludwigsburg, Germany, assignor to Fisma Hermann Werner, Wuppertal-Hahnerberg, Germany
Filed July 31, 1968, Ser. No. 749,126

Claims priority, application Germany, July 31, 1967, P 16 28 088.9

Int. Cl. B25g 1/10

U.S. Cl. 145-61

7 Claims



A tool handle, particularly a screwdriver handle having a ring zone of largest diameter approximately in a center zone of the handle, the handle being reduced on both sides of the ring zone constituting reduced sections including grooves angularly symmetrically arranged about the longitudinal axis of the handle, the grooves running concavely in the longitudinal direction of the handle.

3,592,248

APPARATUS FOR POSITIONING ARTICLES FOR APPLICATION TO OBJECTS

David Stuart Cameron, Loughborough, England, assignor to Charles Churchill Limited, Nottingham, England

Filed June 24, 1969, Ser. No. 836,101

Claims priority, application Great Britain, June 26, 1968, 30,356/68

Int. Cl. B23b 19/06

U.S. Cl. 144-32

4 Claims



The invention provides apparatus for positioning articles for application to objects comprising a pair of jaws operable

by cam means to open and close said jaws and a holder adapted to be pivoted from a position between said jaws when said jaws grip such an article passed to and held by said holder between said jaws upon operation of said cam means.

3,592,249

CORN-CUTTING MACHINE

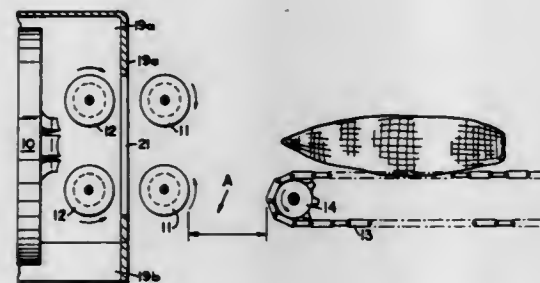
Edward E. Ross, San Francisco, Calif., assignor to Del Monte Corporation, San Francisco, Calif.

Filed Apr. 14, 1969, Ser. No. 815,687

Int. Cl. A23n 15/00

U.S. Cl. 146-242

3 Claims



A method and machine for cutting kernels from sweet corn ears. The method employs a rotary cutter together with feed rolls which feed the ears into and through the cutter. A feed conveyor serves to advance the ears in single file and in axial alignment to the feed rolls. Undersized ears and ear fragments, together with upwardly and downwardly tipped ears are dropped through a gap between the feed conveyor and the feed rolls, while ears within the normal range of sizes are fed to the rolls and the rotary cutter means, thereby eliminating jamming.

3,592,250

SELF-RETAINED BOLT

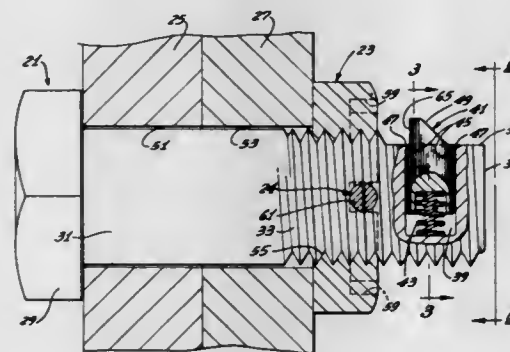
George J. Petroshonoff, Torrance, Calif., assignor to Tridair Industries, Redondo Beach, Calif.

Continuation of application Ser. No. 784,057, Dec. 16, 1968, now abandoned. This application Apr. 7, 1970, Ser. No. 24,421

Int. Cl. F16b 39/00

U.S. Cl. 151-6

6 Claims



A self-retained bolt which may include a head, a shank having threads thereon, a pawl mounted for generally radial movement within the shank and means for biasing the pawl radially outwardly. A nut can be threaded onto the bolt for cooperation therewith in securing together two or more members. The pawl acts in various ways to prevent inadvertent separation of the nut and bolt and/or the bolt and the members being fastened together.

3,592,251

WEB MEMBER FOR TIRE PROTECTIVE CHAINS

Anton Muller, Unterkochen, Germany, assignor to Eisen-und Drahtwerk Erlau AG., Aalen/Wurttemberg, Germany

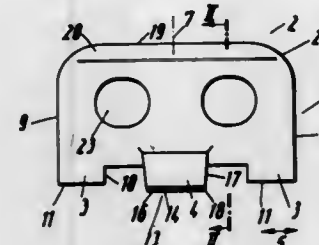
Filed May 16, 1969, Ser. No. 825,359

Claims priority, application Germany, May 18, 1968, P 17 55 524.7

Int. Cl. B60c 27/20

U.S. Cl. 152-243

21 Claims



The invention concerns a weblike traction member for a tire chain which has a weblike body that is apertured for receiving connecting links of the chain and with the roadway engaging edge of the body being provided with protruding regions distributed therealong and with at least one of said regions having inclined lateral walls and sharp edges about the periphery of the face thereof that engages the roadway.

3,592,252

FABRIC-REINFORCED TIRES

Jean Francis Olgner, Ermont, France, assignor to Pneumatiques, Caoutchouc Manufacture Et Plastiques Kleber-Colombes, Colombes, France

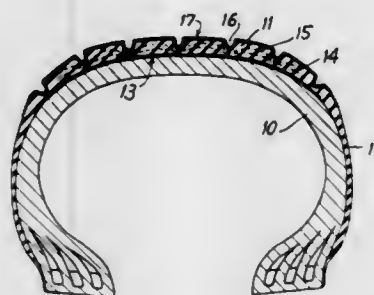
Filed Mar. 3, 1969, Ser. No. 803,586

Claims priority, application France, Mar. 4, 1968, 142,327

Int. Cl. B60c 9/20

U.S. Cl. 152-361

4 Claims



This invention relates to tires of the kind which have reinforcing fabric layers distributed within the tread thereof, one or more of such layers being undulated transversely and extending into the ribs of the tread pattern. In order to prevent any reinforcing fabric layer appearing in the bases of the grooves between the ribs of the tire pattern, the invention proposes applying a rubbery mixture having a weak flow characteristic, at least into the bases of the grooves between the ribs of the tire but, alternatively, over the whole tread pattern and into the grooves, thus parts of the applied mixture on the superficial areas of the tread rapidly wearing away to leave the mixture deep in the said grooves.

3,592,253

CONCENTRATING PROCESS AND APPARATUS

David D. Peebles, deceased, late of Davis, Calif. (by Margaret M. Peebles, Pebble Beach, Calif., Lois P. Meade, Appleton, Wisc., and James R. Bancroft, San Francisco, Calif., executors), and Wayne E. Henry, Downers Grove, Ill., assignors to Carnation Company, Los Angeles, Calif.

Filed June 13, 1968, Ser. No. 740,429

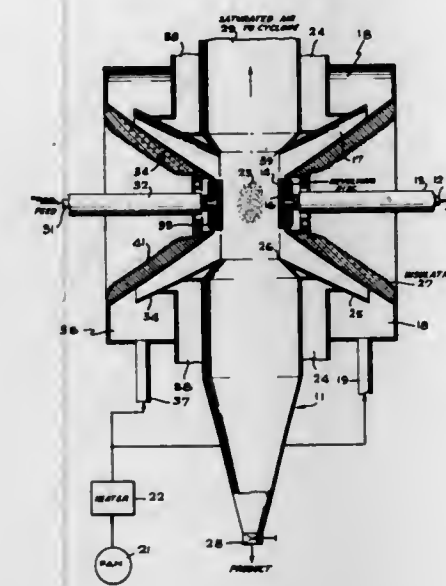
Int. Cl. B01d 1/16

U.S. Cl. 159-4

11 Claims

The present invention generally relates to an improved process and apparatus for concentrating fluids. The process and apparatus have particular application for removing

moisture from liquids containing entrained solids or solids in solution, such as liquid foods and the like. In the process, fluid is concentrated by atomizing it into fine droplet form, injecting the atomized droplets into a band of dry high temperature gas, preferably air, passing into a concentrating



zone, subjecting the droplets to controlled shear and turbulence and collecting and withdrawing the concentrated fluid. The conditions for atomizing, injecting and concentrating are controlled to provide a figure of merit of at least about 30 where the figure of merit is defined as follows:

$$\text{Figure of merit} = 74 \times 10^4 \frac{\pi D_p}{W} \left(\frac{D_p G}{\mu_b} \right)^{0.6} \left(\frac{T_a - T_s}{\Delta H_v} \right) \sin \theta$$

3,592,254

METHOD AND APPARATUS FOR PRODUCING MULTICOLORED SPRAY DRIED DETERGENT PARTICLES

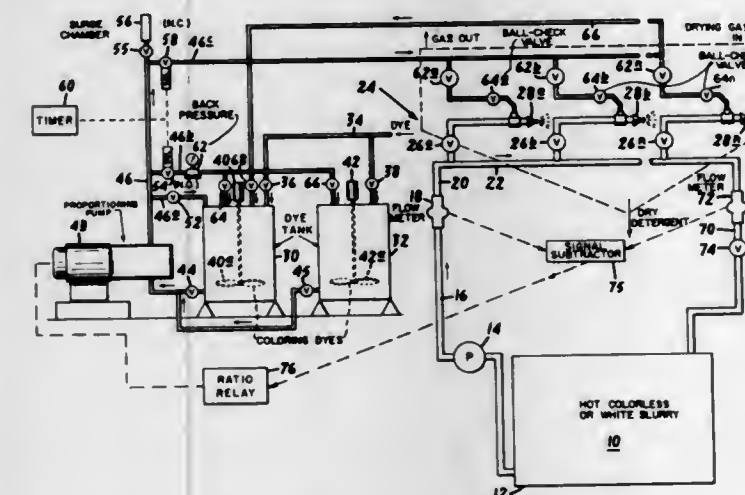
Herbert E. Bauer, Saddle Brook, N.J., assignor to Lever Brothers Company, New York, N.Y.

Filed Dec. 9, 1968, Ser. No. 782,192

Int. Cl. B01d 1/16

U.S. Cl. 159-4

8 Claims



As described herein, hot colorless liquid detergent is continuously supplied under pressure to a plurality of spaced nozzles extending into a spray drying tower. A coloring solution is also supplied under pressure for controlled periods of time to the nozzles wherein the liquid detergent and the coloring solution are thoroughly mixed to form a uniformly colored liquid detergent. The nozzles spray either the colorless liquid detergent or the colored liquid detergent into the interior of the tower wherein the sprayed detergent is dried

3,592,255

AUTOMATIC TENSIONING BAR FOR PORTABLE PICTURE SCREENS

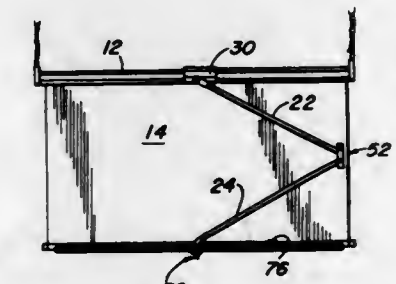
Fred S. Potter, and Walter H. Maxson, both of Warsaw, Ind. assignors to Da-Lite Screen Company, Inc., Warsaw, Ind.

Filed Mar. 3, 1969, Ser. No. 803,652

Int. Cl. G03b 21/58

U.S. Cl. 160-24

7 Claims



A vertically extending stretch bar having toggle arrangement therein on the rear of a hanging projection screen to automatically tension the screen surface when the screen is in fully extended position and hidden from view behind the screen case when the screen is rolled up in the case.

3,592,256

CURTAIN CONSTRUCTION

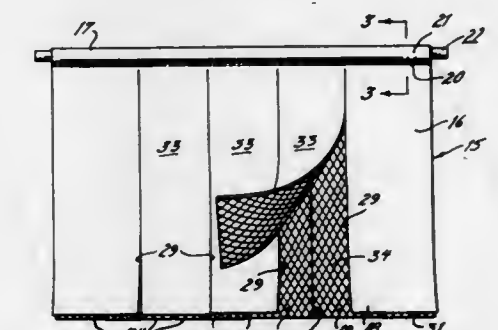
Silsby H. Knight, 6720 Park Ave., Pennsauken, N.J.

Filed Mar. 20, 1970, Ser. No. 21,426

Int. Cl. A47h 23/05

U.S. Cl. 160-184

8 Claims



A curtain of a single integral flexible sheet folded upon itself with the overlying sheet layers secured together by a weld extending in parallel spaced relation with the fold, the sheet portions between the fold and weld defining a receiver for a suspending rod, and the facing surfaces of the layers being nonsmooth to resist adherence therebetween.

3,592,257

FOLDING DOOR CONSTRUCTION

John W. Matyas, 11300 Schaefer, Detroit, Mich.

Continuation-in-part of application Ser. No. 775,062, Nov. 12, 1968, now Patent No. 3,511,300. This application Nov. 24, 1969, Ser. No. 879,257

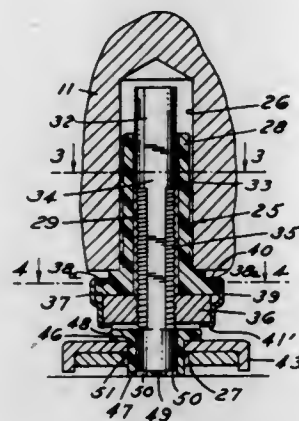
Int. Cl. E05d 15/26, 7/04

U.S. Cl. 160-206

14 Claims

The folding door construction disclosed herein comprises an upper pivot assembly and a lower pivot assembly for pivoting a panel of a multipanel door in a door opening. A guide assembly guides another of the panels along a track. The lower pivot assembly comprises a sleeve frictionally held

in the panel and a pivot pin which is threaded on a nut journaled on the sleeve and slidable in an opening in the sleeve. are provided on the exterior of the mold to afford a variable cooling effect for the member being cast within the mold. An



Interengaging means are provided between the nut and the sleeve to hold the pivot pin in adjusted position.

3,592,258

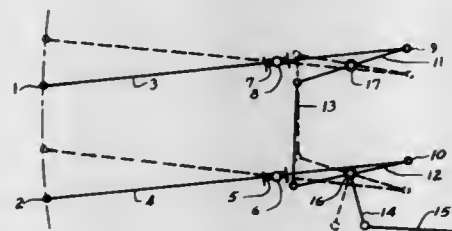
APPARATUS FOR GUIDING OSCILLATING CONTINUOUS CASTING MOLD

Willi Simons, Dusseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany
Filed June 24, 1969, Ser. No. 836,059
Claims priority, application Germany, June 26, 1968, P 17 58 554.5

Int. Cl. B22d 11/02, 27/08

U.S. Cl. 164-260

5 Claims



Apparatus for guiding an oscillating continuous casting mold along a curved path is characterized by a pair of guide levers with one end of each linked to the mold successively in the direction of mold travel. The other, outer, ends of the guide levers are linked respectively to the ends of a pair of drive levers whose fulcrums are located between the outer ends of guide levers and the mold, and the drive levers are linked together by a connecting rod. At least one of the drive levers is connected to be driven for rocking the drive levers about their fulcrums thereby to rock the guide levers and move the mold along a curved path. At least one of the guide levers has a sliding guide.

3,592,259

COOLING MEANS FOR A CONTINUOUS CASTING MOLD ASSEMBLY

Alfred Adamec, Roland Leder, and Walter Fadler, all of Vienna, Austria, assignors to Wiener Schwachstromwerke Gesellschaft m.b.H., Wien, Austria

Filed Dec. 10, 1968, Ser. No. 782,646

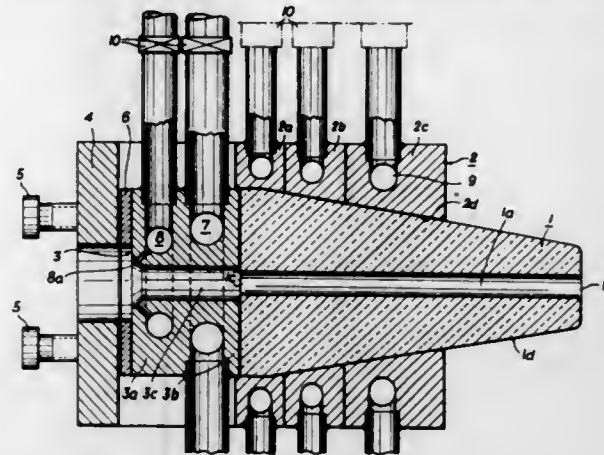
Claims priority, application Austria, Dec. 15, 1967, A 11 330/67

Int. Cl. B22d 11/00

U.S. Cl. 164-283

5 Claims

A graphite mold for use in continuous casting operations is cooled by elements mounted on the side faces and at the outlet end face of the mold. A plurality of the cooling elements



attachment device positively and detachably mounts the cooling elements on the graphite mold.

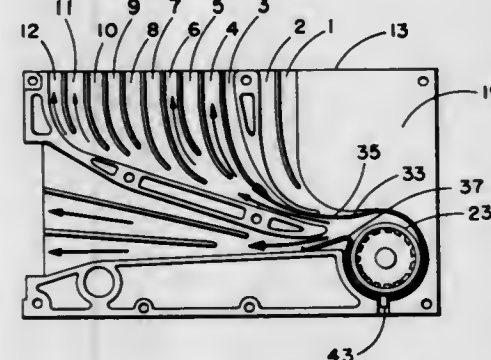
3,592,260

HEAT EXCHANGER WITH INNER GUIDE STRIP
Harvey L. Berger, Saratoga Springs, N.Y., assignor to Espey Mfg. & Electronics Corporation, Saratoga Springs, N.Y.
Filed Dec. 5, 1969, Ser. No. 882,509

Int. Cl. F28f 13/00

U.S. Cl. 165-121

4 Claims



In a rectangular heat exchanger for electronic equipment wherein part of said equipment is placed on one end wall of the heat exchanger while air is brought into the heat exchanger by fan means located towards the other end wall and said air is channeled in the heat exchanger by a plurality of guide vanes extending generally radially outwards from a zone surrounding said fan means, the improvement wherein said heat exchanger includes an elongated resilient strip which has the inner end resting on a bottom wall of the heat exchanger, with the center portion thereof going around said fan means zone and the outer end extends across the mouths of flow channels which it is desired to cut off thereby increasing the air flow to the other channels to enhance the cooling to the electronic components.

3,592,261

HEAT EXCHANGER

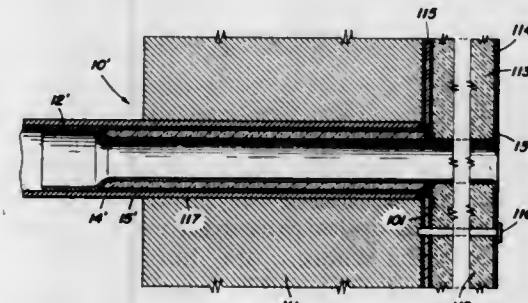
Gary M. Black, Mountain Lakes, assignor to The Lummus Company, Bloomfield, N.J.

Filed Nov. 25, 1968, Ser. No. 778,411

Int. Cl. F28f 21/00

U.S. Cl. 165-178

8 Claims



In combination with a heat exchanger, insulating tube in-

serts positioned in the inlet portion of the heat exchanger tubes which are at least coextensive with the portion of the tubes retained in the inlet tube sheet to reduce both thermal stresses and the overall temperature of the tube sheet.

3,592,262

EXTENDED SURFACE EXCHANGE HAVING A TUBULAR PORTION

Byron L. Brucken, Dayton, Ohio, assignor to General Motor Corporation, Detroit, Mich.

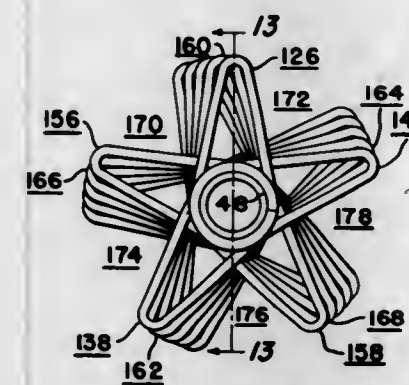
Division of Ser. No. 501,991, Oct. 22, 1965, Pat. No.

3,482,298. Filed Oct. 22, 1969, Ser. No. 868,401

Int. Cl. F28g 1/36

U.S. Cl. 165-184

1 Claim



In preferred form, a heat exchanger including an elongated tubular member, with a wire fin formed along the length thereof. The fin has a plurality of axially spaced portions bent around an arcuate segment of the outer periphery of the tube for conductive heat transfer between the fin and tube. Other portions of the wire fin are looped radially outwardly of each of the bent portions to form a flow passageway between the fin and tube for convective heat transfer.

3,592,263

LOW PROFILE PROTECTIVE ENCLOSURE FOR WELLHEAD APPARATUS

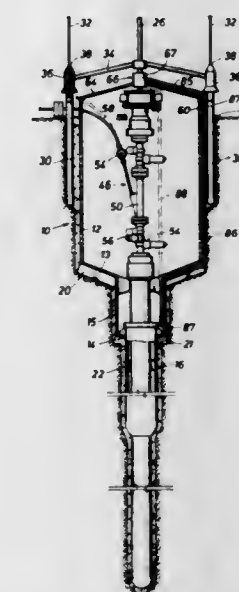
Norman A. Nelson, Houston, Tex., assignor to A C F Industries Incorporated, New York, N.Y.

Filed June 25, 1969, Ser. No. 836,362

Int. Cl. E21b 33/035

U.S. Cl. 166-5

13 Claims



Low profile wellhead installation and servicing apparatus for subsea wellhead assemblies and the like, including a conductor guide conduit having a protective enclosure fixed to the upper extremity thereof. The guide conduit and protective enclosure are inserted into surface stratum to such extent that the upper extremity of the enclosure is located substantially at the surface level of the surface stratum, thereby presenting an extremely low profile that is not susceptible to damage by equipment ordinarily employed above the surface stratum or by other foreign objects. The guide conduit and enclosure structures are provided with means to wash the conduit and enclosure to their proper depth in the surface

stratum during installation and also include a system for filling same with corrosion and marine life inhibitors or removing the inhibitors as desired. The apparatus includes a service manipulator which is receivable within the enclosure and is capable of performing various repair operations.

3,592,264

METHOD AND SYSTEM FOR IMPOSING PRESSURE ON A WELLBORE PACKER

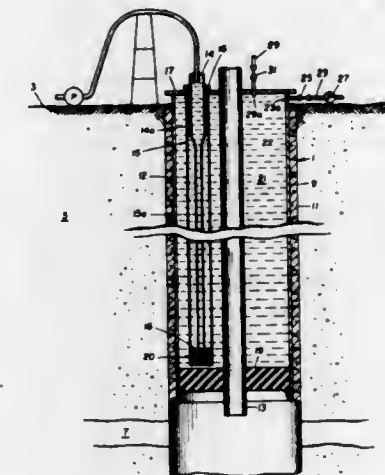
Luther H. Williamson, Dallas, Tex., assignor to Mobil Oil Corporation

Filed May 29, 1969, Ser. No. 828,914

Int. Cl. E21b 33/12

U.S. Cl. 166-244

10 Claims



This specification discloses a method and system for increasing the hydrostatic pressure of a packer liquid on the upper side of a wellbore packer. A manometer-type fluid piston is used to increase the hydrostatic pressure by a predetermined amount.

3,592,265

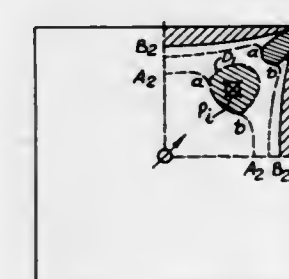
INTERFACE ADVANCE CONTROL IN SECONDARY RECOVERY PROGRAM BY RESHAPING OF THE INTERFACE BETWEEN DRIVING AND DRIVEN FLUIDS
Donald L. Hoyt, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Dec. 24, 1968, Ser. No. 786,565

Int. Cl. E21b 43/20, 43/22

U.S. Cl. 166-245

18 Claims



The interface between driving and driven fluids in a secondary recovery operation is reshaped after a cusp has developed by injection of fluids via control wells to delay the arrival of the injected driving fluid into the vicinity of a production well.

3,592,266

METHOD OF FRACTURING FORMATIONS IN WELLS
John M. Tinsley, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Mar. 25, 1969, Ser. No. 810,146

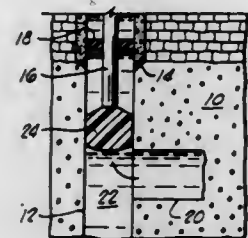
Int. Cl. E21b 43/26

U.S. Cl. 166-283

21 Claims

The present invention is directed to a method for fracturing a subterranean formation penetrated by a well bore, the

fracturing being accomplished by alternately injecting into said formation a high-viscosity non-Newtonian fluid and a low-viscosity Newtonian fluid. The low-viscosity fluid carries propping agents into the fracture if a wide fracture having a



relatively small radius and a layered proppant configuration is desired, and the high-viscosity fluid carries propping agents into the formation if narrow fractures having a relatively large radius and a high permeability are desired.

3,592,267

METHOD OF CONSOLIDATING AN UNCONSOLIDATED SAND

Morgan Ashley Stainback, and Evan Hoskins Street, Jr., both of Houston, Tex., assignors to Shell Oil Company, New York, N.Y.

Filed June 27, 1969, Ser. No. 837,182

Int. Cl. E21b 33/138

U.S. Cl. 166-294

7 Claims



A method of consolidating an unconsolidated sand disposed in an incompetent formation by treating the formation with an emulsion of an aqueous solution of an alkali metal silicate in a hydrocarbon liquid and an aqueous solution containing a silicate precipitator.

3,592,268

SAND CONSOLIDATION METHOD

Bobby G. Harnsberger, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Dec. 23, 1969, Ser. No. 887,731

Int. Cl. E21b 33/138

U.S. Cl. 166-295

4 Claims

Method of and composition for the treatment of unconsolidated sandy formations to stabilize a formation sand comprising injecting a treating composition of 10-60 percent by volume of acrolein dimer, 1 to 10 percent by volume of thionyl chloride catalyst, and 30 to 89 percent by volume of a nonaromatic petroleum solvent into said formation sand, polymerizing said dimer, and forming a fluid-permeable consolidated sand in said formation.

3,592,269

SELF-CONTAINED FOAM FIRE EXTINGUISHING SYSTEM

Howard C. Stults, 7630 So. Bright Ave., Whittier, Calif.

Filed Dec. 9, 1968, Ser. No. 782,343

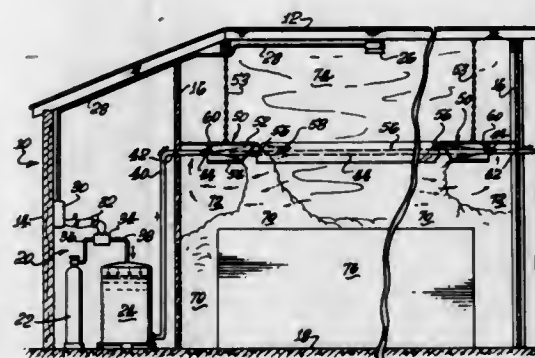
Int. Cl. A62c 35/46

U.S. Cl. 169-9

11 Claims

A self-contained high-expansion foam fire extinguishing system providing an independent source of pressurization to

a container holding a mixture of water and foam concentrate for delivery to a foam generator having a plurality of nozzle



members and a screen to produce high-expansion foam upon activation of the system by a fire detecting sensor.

3,592,270

DOUBLE RATE FLOW CONTROLLER

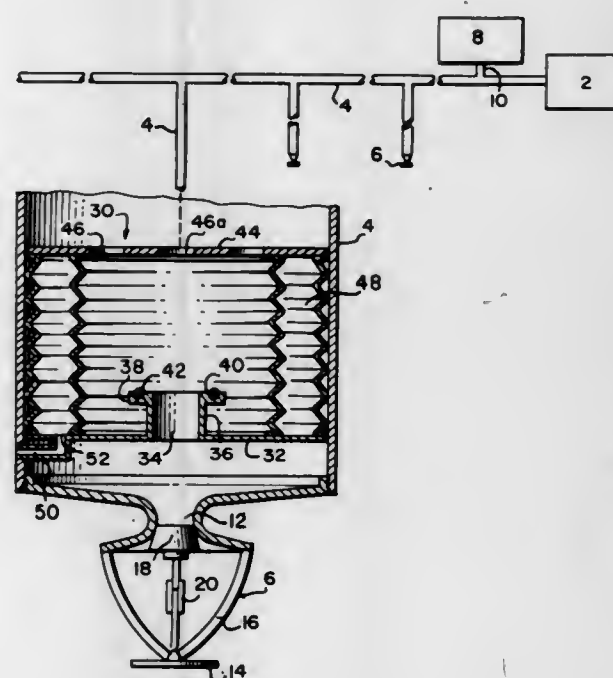
William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation, Turnpike, Mass.

Filed Oct. 24, 1968, Ser. No. 770,248

Int. Cl. A62c 37/06

U.S. Cl. 169-16

17 Claims



A double-rate flow controller including a means for permitting fluid flow at a first high-flow rate, a means for reducing the first flow rate to a second lower flow rate and a means for regulating the volume of water passing through the flow controller during the high-flow condition before the high-flow rate is terminated and the low-flow rate begins.

3,592,271

IMPLEMENT DRAWBAR ASSEMBLY

Fred J. Schnelder, Box 940, Eston, Saskatchewan, Canada

Filed Mar. 24, 1969, Ser. No. 809,577

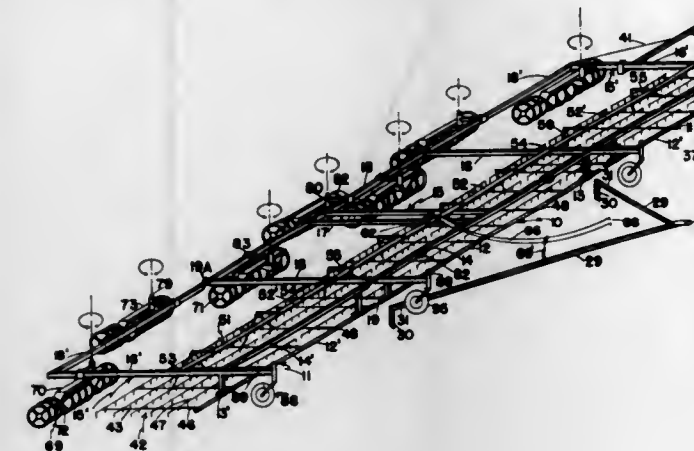
Int. Cl. A01b 49/02, 23/04, 35/04

U.S. Cl. 172-175

20 Claims

An implement drawbar having one set of soil treating implements on the front and a second set of different implements on the rear, with castor wheels supporting the front and the second set of implements supporting the rear. The rear set is mounted for movement around a vertical pivot and

two horizontal pivots at right angles to one another and means to lift the first set of implements clear of the frame are



provided to allow the machine to be moved to the transport position without having to disconnect any of the implements.

3,592,272

MULTIPURPOSE GARDEN TOOL

Felix A. Perez, 631 Manila Way, Colma, Calif.

Filed Dec. 13, 1968, Ser. No. 783,607

Int. Cl. A01b 1/20

U.S. Cl. 172-375

2 Claims



A multipurpose garden tool adapted for spading, shoveling, edge trimming, hoeing, weeding, tilling, backfilling and other gardening operations, comprises a substantially flat plate working part of generally rectangular configuration, and a handle part rigidly connected to the top edge of said plate part medially thereof. The plate part is provided with raking teeth on the top edge at one side of the handle part. One side edge has a relatively straight and flat top portion, and the opposite side edge is a convexly curved cutting edge between the top and bottom edges. The flat portion joins a convexly curved corner cutting edge adjacent the bottom edge which is also a knife edge. Advantageously, all the edge portions between the straight portion on said side edge and the side of the handle part opposite the teeth are a substantially continuous knife edge. The convexly curved side edge is suitable for use as an axe for chopping into the ground, while the bottom knife edge is useful for digging purposes and spading, while the rounded corner at the straight portion of one side edge is useful for edge trimming. The teeth are suitable for uprooting and raking. The handle part rigid with the flat working part is of a length which enables ready grasping with the hands for close work, and means for detachable connection with a handle rod that enables the tool to be used with the user standing in upright position.

3,592,273

BODILY ATTACHABLE BULLDOZING ASSEMBLY FOR TRACTORS

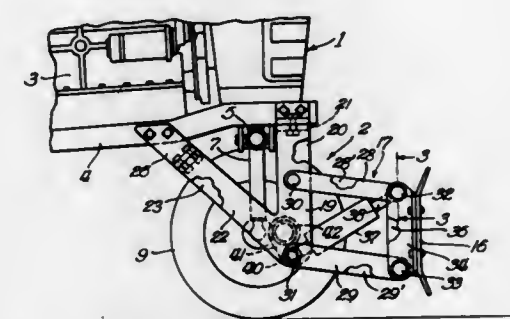
William E. Martin, Martin Company P.O. Box 187, Kewanee, Ill.

Filed Jan. 18, 1968, Ser. No. 698,949

Int. Cl. A01b 59/048

U.S. Cl. 172-803

6 Claims



This is a bodily attachable unitary bulldozing apparatus for conventional farm tractors or similar mobile power units and comprises a completely operable mechanism to manipulate a bulldozing blade as required to position such blade upwardly or downwardly as well as at a transverse angle in a vertical plane in relation to the surface being worked.

3,592,274

TORQUE CONTROL IMPACT WRENCH LOCKING SYSTEM

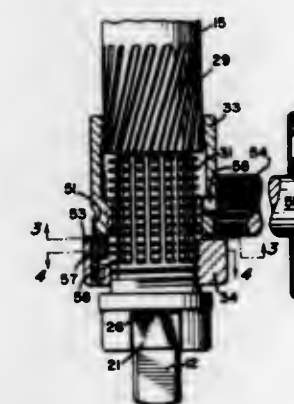
Yik Y. Young, Elmira, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y.

Filed Feb. 18, 1970, Ser. No. 12,274

Int. Cl. B25b 23/14

U.S. Cl. 173-93.6

2 Claims



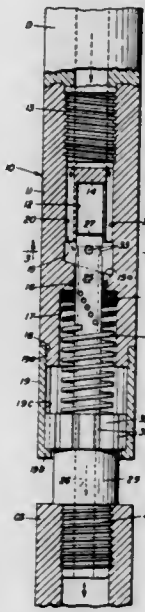
A lock mechanism for an impact wrench containing a torsion bar torque control system including a torsion bar, an annular member surrounding the torsion bar, a sleeve slideably splined on the annular member, a nut threaded on the annular member for adjusting the sleeve along the member, and a gear key for adjusting the nut and engaging gear teeth on the nut and a radial hole on the sleeve. The locking means includes a series of detent recesses on the sleeve and a spring-pressed detent contained in the nut for selectively engaging the recesses to prevent the nut from turning when the gear key is withdrawn from the mechanism. A ring is slideably mounted on the sleeve and located to force the detent to a nonlocking position when the gear key is inserted in its radial hole contained in the sleeve.

3,592,275 SPRING LOADED ADAPTER FOR DRILL RODS AND CORE BARREL

Ernest P. Fletcher, Athens, Greece, and William L. Acker, Scranton, Pa., assignors to Acker Drill Company, Inc., Clarks Summit, Pa.

Filed Apr. 11, 1969, Ser. No. 815,377
Int. Cl. E21b 17/04, 41/00

U.S. Cl. 175-317



An adapter for connecting a core barrel to drill rods to provide automatic water control to a diamond drill bit and to provide cushioning pressure control to the diamond drill bit. An elongated hollow body has an internally threaded upper end to receive a hollow drill rod, a series of drill holes are spaced about an axial pocket and lead from the discharge of the hollow drill rod to a water chamber. A floating hollow piston has a threaded lower end for coupling to the top of a core barrel. Above the threaded lower end of the piston is an enlarged splined portion received in a housing that has internally longitudinal grooves for receiving the splines on the piston or vice versa and is threadably connected to the lower end of the elongated hollow body. A spiral spring is received over a reduced portion of the hollow piston about its splined portion and extends up into an axial pocket in the elongated hollow body where its upper end rides against annular shims. The upper end of the reduced portion of the hollow piston is closed off and spaced below the upper end are radial ports that communicate with the water chamber when the hollow piston is extended by action of the spring. Spaced below the upper portholes are axially spaced ports which communicate with the water chamber when the hollow piston is retracted against the spring at which time the upper portholes are closed off. The first-mentioned set of portholes are so axially spaced from the second set that all water flow is cut off to the hollow floating connecting piston for a certain part of its axial positioning as when the core drill reaches a soft strata.

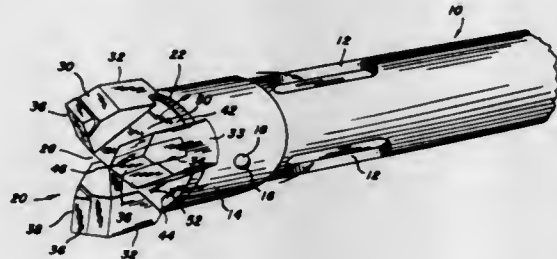
3,592,276

ROTARY PERCUSSION DRILLING APPARATUS
Harley G. Pyles, Fairmont, W. Va., assignor to A. M. Byers Company, Ambridge, Pa.

Filed Apr. 28, 1969, Ser. No. 819,811
Int. Cl. E21c 13/08

U.S. Cl. 175-410

9 Claims



This disclosure relates to apparatus for roof drilling in mines comprising a drill bit and hollow drill steel. The drill

steel has apertures in its wall near the bit for the evacuation through the drill steel of rock dust. The bit has a plurality of cutting elements separated by plane channels which diverge rearwardly along the bit head to conduct cuttings and rock dust past the bit to the apertures in the drill steel.

3,592,277 WEIGHING SCALE WITH CONTAINER STORAGE MEANS

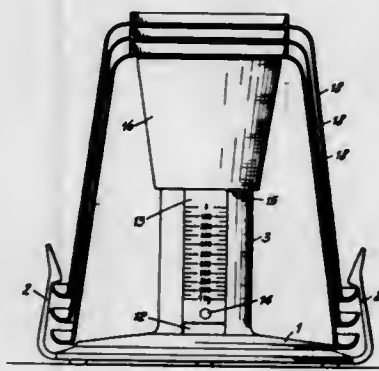
Peter Ackeret, Schutzenweg 3, 8700 Kusnacht, Zurich, Switzerland

Filed Mar. 24, 1969, Ser. No. 809,845
Claims priority, application Switzerland, Mar. 22, 1968, 4327/68

Int. Cl. G01g 21/00

U.S. Cl. 177-126

4 Claims



A multipurpose scale construction, particularly for household kitchen use, comprises a base, a compressible spring mounted thereon, a platform on the spring and at least one container for holding material to be weighed. The container may be inverted over the platform and spring and secured to the base protecting the scales when not in use.

3,592,278

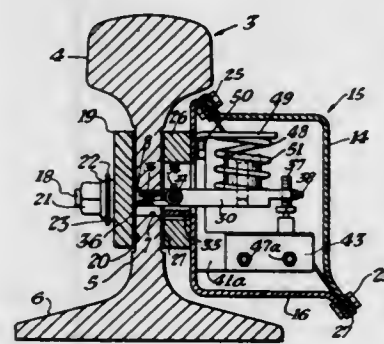
VEHICLE WEIGHT CLASSIFIER WITH LOAD LIMIT MEANS

Harold L. Shumaker, Monroeville, and James B. Rupert, Bellevue, both of Pa., assignors to Westinghouse Air Brake Company, Swissvale, Pa.

Filed May 26, 1970, Ser. No. 40,505
Int. Cl. G01g 19/52

U.S. Cl. 177-132

10 Claims



Our invention relates to a weigh rail having a crown, a web and a flange portion and an elongated slot extending transversely through the web portion between the crown and flange portions. A pivotal lever having one end is interposed into the slot so that downward deflection of the crown portion produces an angular rotation of the pivotal lever. A plurality of switching devices are disposed adjacent the other end of the pivotal lever. Each of the switching devices includes an actuator which is adapted to be selectively released in accordance with the amount of crown deflection and in turn pivotal rotation so that passing railway vehicles are categorized into weight classes.

3,592,279

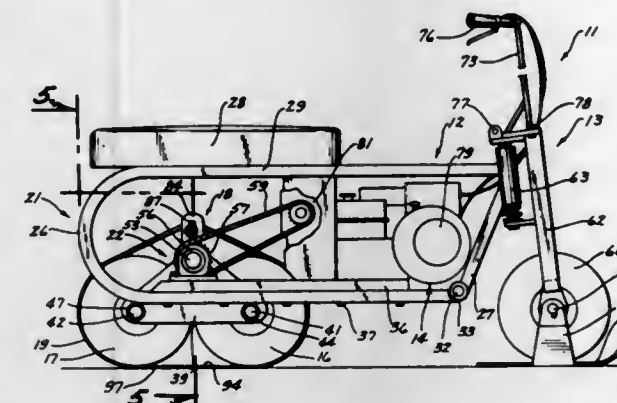
SNOW SCOOTER

Harlan J. Donelson, Jr., Highway 330 West, Marshalltown, Iowa

Filed May 1, 1969, Ser. No. 821,001
Int. Cl. B62m 27/02

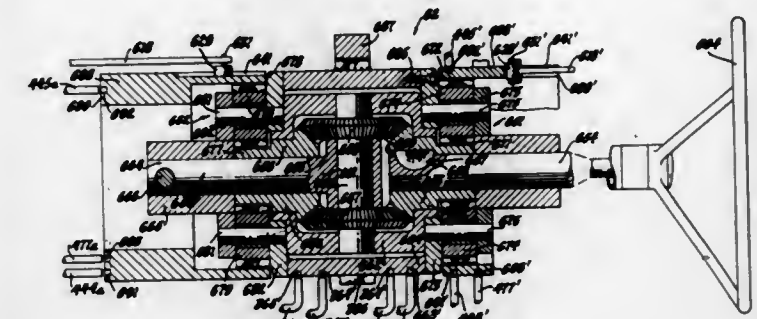
U.S. Cl. 180-5

7 Claims



This invention relates to a motorized snow scooter which is readily convertible to a conventional motor scooter and which comprises a frame having steering means and drive means mounted thereon. Two rear wheels, mounted in tandem, and a guide means are also mounted on the frame. A demountable, endless track is rotatably and demountably engaged with the rear wheels and the guide means.

same direction while the manual control which also includes differential gearing is operative to change the hydraulic ratios equally in opposite directions thus providing steer by driving.



3,592,282

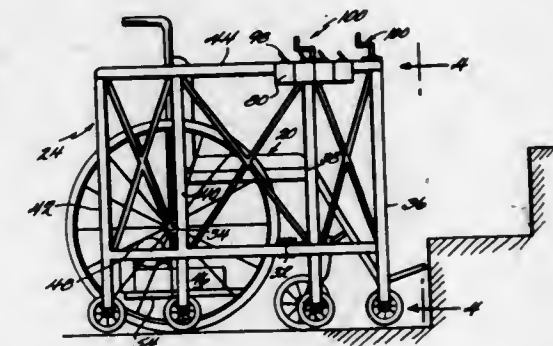
STAIR-TRAVERSING WHEELCHAIR APPARATUS

Robert L. Soileau, 2524 Gayoss St., Baton Rouge, La.

Filed Sept. 12, 1969, Ser. No. 857,471
Int. Cl. B62b 5/02

U.S. Cl. 180-8 A

5 Claims



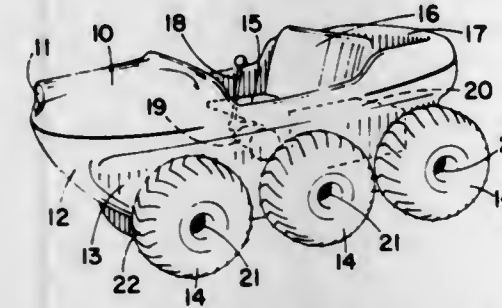
3,592,280 VARIABLE-SPEED DRIVE AND COMBINED BRAKING AND STEERING MECHANISM

Joachim Wappler, 11 Clayhill Crescent, Downsview, Ontario, and Arno C. Schwarz, 55 Oakmount Road, Apt. 1503, Toronto 5, Ontario, both of, Canada

Filed June 10, 1968, Ser. No. 746,719
(Filed under Rule 47)
Int. Cl. B62d 11/08

U.S. Cl. 180-6.2

8 Claims



A selective vehicle wheel speed control system for a motor-driven vehicle with wheels having a separate side drive train system for driving the wheels on each side, a steering and braking means in each drive train system for braking the wheels on each side which is operated in unison for braking and separately for steering the vehicle, and a transmission means with a means for engaging and disengaging the transmission means in each side drive train system to transmit the power to the wheels operated simultaneously with the braking and steering means.

An apparatus adapted to carry a wheelchair comprises a frame having side members between which the wheelchair is mounted which frame members carry adjustable support means for raising and lowering the frame means and the wheelchair mounted therein. The adjustable support means of the apparatus comprises four pairs of jacks which are carried on the frame members with the four pairs of jacks being longitudinally spaced relatively to each other and with the jacks of each pair being transversely spaced relative to each other on the side frame members. Drive means are provided for extending and retracting the jacks with control elements regulating the drive means so that the jacks of each pair can be operated in unison to effect the simultaneous extension or retraction of any selected pair of jacks. In addition, means are provided to propel the apparatus horizontally whereby through the extension and/or retraction of selected pairs of jacks and the propulsion of the apparatus in the horizontal direction, the apparatus can ascend or descend a stair flight.

3,592,281

HYDROMECHANICAL TRANSMISSION CONTROL

Robert C. Utter, and Howard W. Christenson, both of Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed June 17, 1969, Ser. No. 834,097
Int. Cl. B62d 11/04

U.S. Cl. 180-6.48

12 Claims

A control for an engine-driven dual-output hydromechanical transmission having hydraulic pumps and motors operative in conjunction with mechanical gearing to drive each output wherein the hydraulic ratio between the pumps and motors is controlled automatically to produce forward and reverse drive and manually to produce steer by driving. The automatic control includes a differential gearing arrangement and is responsive to engine parameters to change the hydraulic ratios of the hydraulic pumps and motors equally in the

3,592,283

TRACKED VEHICLE

Jacob Fischbach, 3439 Knox Place, Bronx, N.Y.

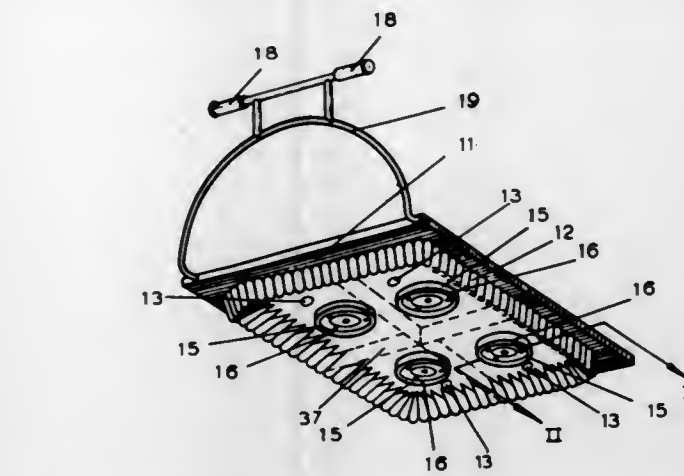
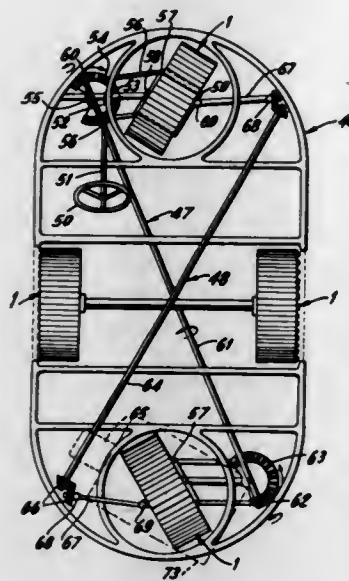
Division of Ser. No. 687,252, Dec. 1, 1967, Pat. No. 3,495,883. Filed Sept. 25, 1969, Ser. No. 871,993
Int. Cl. B62d 11/20

U.S. Cl. 180-9.44

5 Claims

A tracked vehicle has a double-isosceles triangle support

frame, the flexible tracks at the apices of the triangles, the platform, the lifting means being extendible to an operative position where it is adapted to support the platform until the supporting cushion is formed, and thereafter being retracted



to an inoperative position. Exemplary lifting means comprise flexible inflatable diaphragms or pneumatically actuated wheels or rollers.

steering tracks pivoting at front and rear in opposite directions.

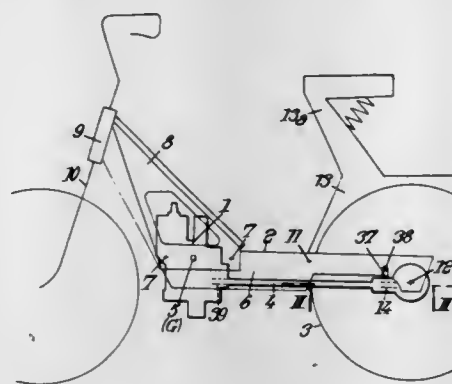
3,592,284

MOTORBICYCLE

Bernard Rene Mennesson, Neuilly-Sur-Seine, France, assignor to Societe D'Appareils De Controle Et D'Equipement Des Moteurs S. A. C. E. M., Neuilly-Sur-Seine, France
Filed Sept. 2, 1969, Ser. No. 854,445
Claims priority, application France, Sept. 30, 1968, 168,136
Int. Cl. B62k 1/100

U.S. Cl. 180—33

9 Claims



The rear-driving wheel of the motorbicycle is connected to the engine by a substantially horizontal transmission shaft. The engine is mounted in the frame by two transverse half-pivots whose axis passes substantially through the engine center of gravity. The engine is prevented from rotating around the half-pivots only by means of the transmission shaft. This transmission shaft extends freely between the engine output shaft and an input shaft providing a connection to the rear wheel, and is held in alignment with the engine output shaft and with the input shaft.

3,592,285

AIR CUSHION SUPPORTED PLATFORMS

Bruce Thomas Noble, Cowes, England, assignor to British Hovercraft Corporation Limited, Yeovil, Somerset, England
Filed Dec. 9, 1968, Ser. No. 782,297
Claims priority, application Great Britain, Mar. 8, 1968, 21688/68
Int. Cl. B60v 1/02

U.S. Cl. 180—124

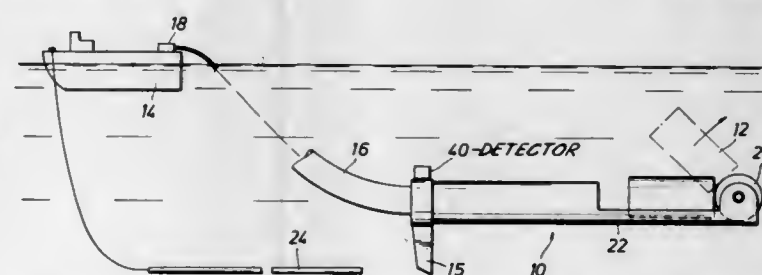
8 Claims

A load bearing platform of the air cushion supported type comprises a platform, a flexible skirting assembly adapted to restrict the escape of air from a cushion area beneath the platform, means for supplying pressurized air to the cushion area, and at least one platform lifting means carried by the

3,592,286
METHOD OF SEISMIC PROSPECTING
Curtis H. Johnson, San Marino, Calif., assignor to Western Geophysical Company of America, Houston, Tex.
Filed Sept. 11, 1969, Ser. No. 857,086
Int. Cl. G01v 1/00

U.S. Cl. 181—0.5

10 Claims



A method of seismic prospecting whereby explosive charges are detonated at any desired depth and the bubble-pulse train is permitted to form without hindrance.

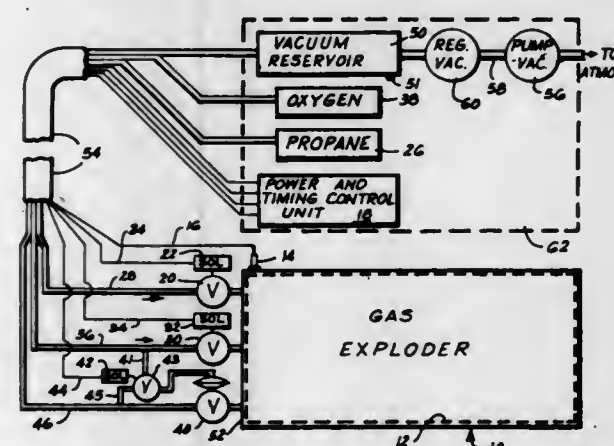
In a first embodiment of the invention the effects of the bubble are removed in the stage of processing of the recorded seismic data.

In a second embodiment, the characteristic pulse train produced by the bubbles is used to enhance the quality of the resulting seismic data.

3,592,287
EXHAUST VALVE SYSTEM FOR SEISMIC GAS EXPLODER APPARATUS
John C. Mollere, San Marino, Calif., assignor to Western Geophysical Company of America, Houston, Tex.
Filed Apr. 7, 1969, Ser. No. 814,022
Int. Cl. G01v 1/04

U.S. Cl. 181—.5

16 Claims



A seismic gas exploder having a combustion chamber for receiving a mixture of combustible gases and a remotely posi-

tioned vacuum chamber coupled to the combustion chamber. A remotely controllable, pilot-operated exhaust valve allows the products of combustion to purge into the vacuum chamber through the exhaust valve thereby achieving substantially greater efficiency and uniformity of operation. The pilot-operated exhaust valve is operated from a gas source forming part of the exploder fuel system.

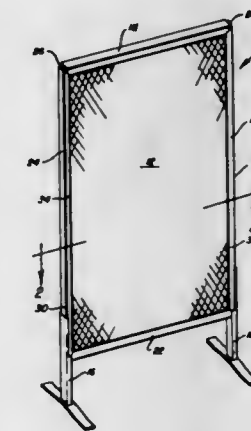
3,592,288

ACOUSTICAL PANEL FOR FREESTANDING SPACE DIVIDER

Richard K. Walter, St. Paul, Minn., assignor to Conwed Corporation, St. Paul, Minn.
Filed Sept. 6, 1968, Ser. No. 758,049
Int. Cl. E04b 1/86, 1/99; A47g 5/00

U.S. Cl. 181—30

10 Claims



An acoustical panel is provided for a freestanding space divider which panel is resilient transverse to the major faces thereof in order to provide for easy insertion into the frame of the divider and further to provide for application of additional finishing sheets to the surface after insertion in the frame.

3,592,289

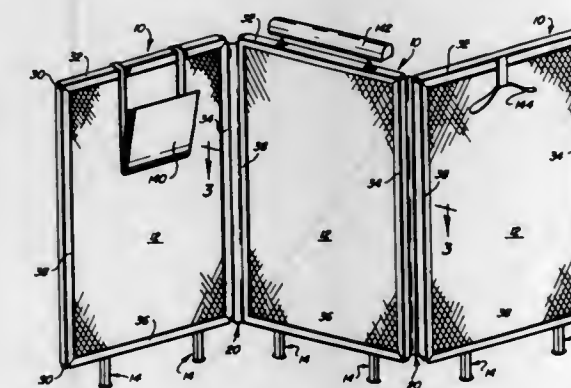
FREESTANDING ACOUSTICAL SPACE DIVIDER

James E. Aysta, Stillwater, and William H. P. Tacke, St. Paul, Minn., assignors to Conwed Corporation, St. Paul, Minn.

Filed Sept. 6, 1968, Ser. No. 758,048
Int. Cl. E04b 1/86, 1/343, 1/99

U.S. Cl. 181—30

2 Claims



This invention relates to a freestanding acoustical space divider in which an acoustically absorptive panel is supported around its periphery by a metal frame assembled without the use of the usual fasteners such as screws or bolts and in which adjacent sections are flexibly connected by means of a plastic hingelike coupling strip. The coupling strip has enlargements along each of its longitudinal edges which fit into appropriately shaped grooves in the frame of the sections.

3,592,290

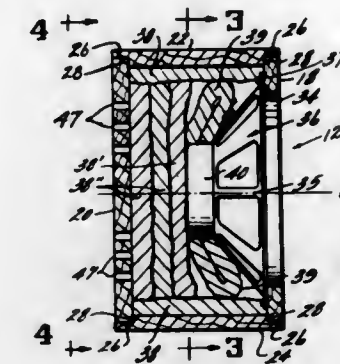
SPEAKER CABINET ENCLOSURE AND METHOD OF MAKING SAME

James C. Armstrong, 4017 Springrock Drive, Cincinnati, Ohio

Filed Nov. 21, 1967, Ser. No. 684,724
Int. Cl. G10k 13/00; H04r 1/28

U.S. Cl. 181—31

10 Claims



A speaker cabinet enclosure comprising a rectangular parallelepiped having a speaker unit in its front wall, a layer of insulation on each of its top, base and sidewalls, and a rear wall in which two sets of a plurality of apertures are disposed, each such set being a mirror image of the other in nature and disposition. Insulation is provided against the speaker unit frame above and below its magnet. A layer of insulation is provided directly behind the magnet of the speaker unit, and additional layers of insulation may be provided therebehind.

3,592,291

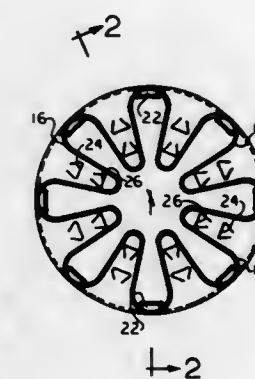
METHOD AND APPARATUS FOR SUPPRESSING THE NOISE AND AUGMENTING THE THRUST OF A JET ENGINE

George E. Medawar, San Diego, and Felix Hom, La Mesa, Calif., assignors to Rohr Corporation, Chula Vista, Calif.

Filed Nov. 17, 1969, Ser. No. 877,408
Int. Cl. B64d 33/06; F01n 1/14

U.S. Cl. 181—33 HC

5 Claims



Thrust gas of a jet engine is discharged through a lobed nozzle having apertures formed in the wall thereof at the crest of each lobe of the nozzle and at the bottom of each valley between the lobes. The apertures are in the form of flush inlet scoops so that slipstream air flowing past the nozzle enters said apertures and mixes with thrust gas flowing through the nozzle.

3,592,292

TAILPIPE EXTENSION SILENCER WITH VENTURI AIR EXTRAINMENT

James H. Lavalley, 2542 Front St., San Diego, Calif.

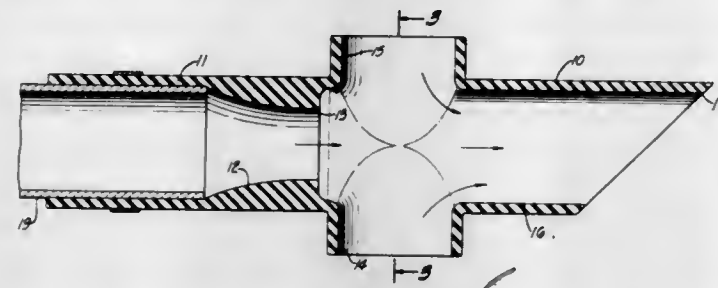
Filed June 24, 1970, Ser. No. 49,237
Int. Cl. F01n 1/08, 1/14, 7/20

U.S. Cl. 181—51

4 Claims

A tailpipe extension for vehicles with internal combustion engines is a one-piece tubular member having a venturi tube

portion formed therein and side openings immediately downstream from the waist of the venturi for inducing air to



mix with the exhaust gases. The exhaust opening is cut at an angle to divert exhaust gases downward.

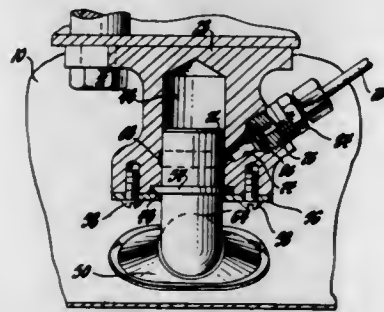
3,592,293 OIL PUMP WITH PRESSURE LUBRICATED SWIVELLING AUTO INLET MEANS

Frederick H. Frincke, Royal Oak, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 12, 1970, Ser. No. 2,081
Int. Cl. F01m 11/06

U.S. Cl. 184-6 B

6 Claims



An engine oil pump system including a swivel-mounted oil pickup tube adapted to move with the movement of oil in the engine oil pan under severe operating conditions in which the swivel joint of the oil pickup tube is pressure lubricated with oil from the oil pump to improve swivel action and to prevent the intake of air through the swivel joint into the oil pump inlet.

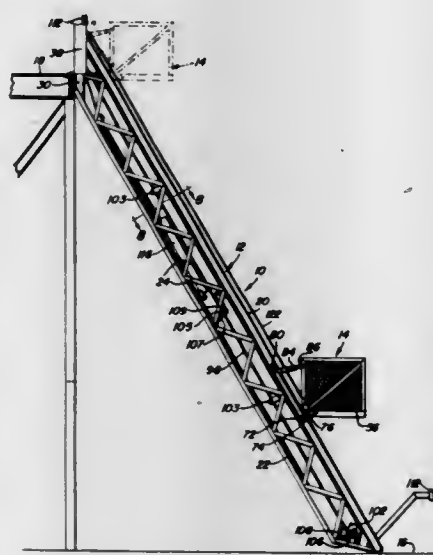
3,592,294 ELEVATOR

Marion F. Allen, P.O. Box 3387, Odessa, Tex.
Filed Dec. 6, 1968, Ser. No. 781,943

Int. Cl. B66b 9/06

U.S. Cl. 187-12

4 Claims



A construction elevator including an elongated structural framework incorporating a pair of laterally spaced tracks upon which a material and personnel carriage operates. The framework is adjustable so as to extend between the ground and a construction platform located at varying heights above

the ground through a variation in the angle of the framework. The carrier is angularly adjustable on the framework so as to assume a horizontal positioning thereof regardless of variations in the angle of inclination of the framework. A counterweight unit is engaged with the carrier and mounted within the framework for track-guided movement therealong in a direction opposed from the direction of movement of the carrier so as to act as a counterbalance therefor. The carrier and framework are so orientated as to allow free access to and egress from the carrier at both ground level and at the construction platform.

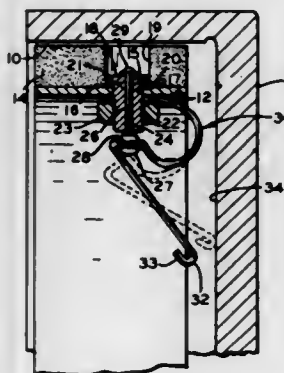
3,592,295 WEAR SIGNALLING DEVICE FOR VEHICLE BRAKE LINING

Richard Kennel, 43-77 165 St., Flushing, N.Y.
Filed July 8, 1969, Ser. No. 839,897

Int. Cl. F16d 66/02

U.S. Cl. 188-1 A

2 Claims



A device for indicating wear of a brake lining on a brakeshoe which contacts a brakedrum including an elongated wire spring of C-shape with means at one end for attachment to the brakeshoe and as an angular extension at its outer end whose terminal contacts the brakedrum attached to a rotating vehicle wheel, to produce an audible signal. The device has means for retaining the ends close to each other under a bending stress to space the second end from said drum, and means to release the wire when the brake lining has worn to a predetermined minimum thickness.

3,592,296 ELEVATOR FLOOR SELECTOR CORRECTION CONTROL

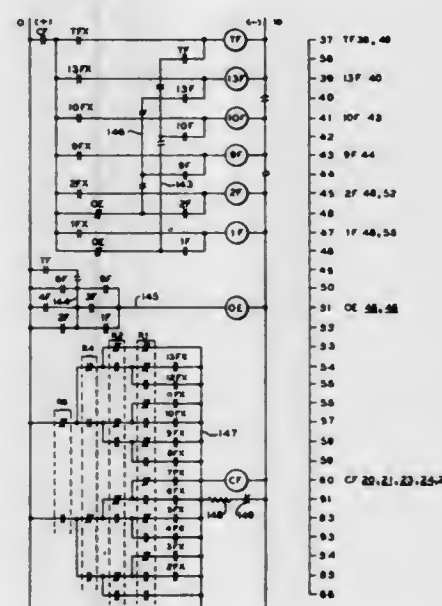
Robert E. Senn, Toledo, Ohio, assignor to Reliance Electric Company, Cleveland, Ohio

Filed Mar. 30, 1970, Ser. No. 23,795

Int. Cl. B66b 1/52

U.S. Cl. 187-29 R

10 Claims



Coincidence of true elevator car position with floor selector indicated car position is monitored at each stop of the

car. A lack of coincidence disables the control by the floor selector and causes it to institute hunting until it establishes coincidence with true elevator car position. Upon achieving coincidence hunting is stopped and its control reestablished.

3,592,297 DISC BRAKE COOLING

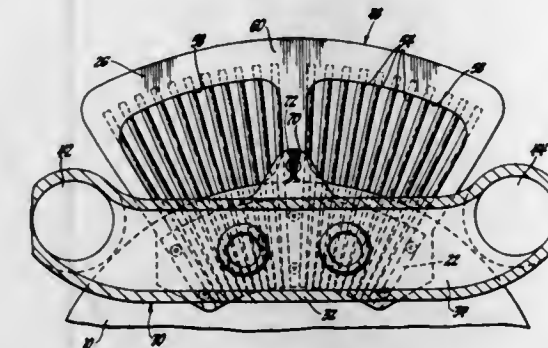
Charles B. Leffert, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 2, 1969, Ser. No. 838,518

Int. Cl. F16d 65/84

U.S. Cl. 188-71.6

5 Claims



A disc brake cooling arrangement in which the rotating brake disc friction surfaces are in heat transfer contact with the evaporator section of a heat pipe arrangement. The heat transferred during low levels of braking is transmitted to ambient air or other heat exchange means by conduction and convection. When sufficiently severe braking loads occur so that the conduction mode of heat transfer will not carry away the heat at a sufficient rate, the heat pipe liquid is vaporized and builds up vapor pressure to bring the heat pipe into efficient operation. As the cooling system quickly shifts into this mode of operation the entire heat pipe assembly in effect suddenly increases its thermal conductivity by several orders of magnitude and the heat is rapidly carried away to the heat pipe condenser section, where it is then removed by a suitable heat exchanger arrangement. The heat pipe assembly is provided as a part of each disc brake pad assembly, and is replaceable with the pad.

3,592,298 BRAKE HEAT PIPE COOLING

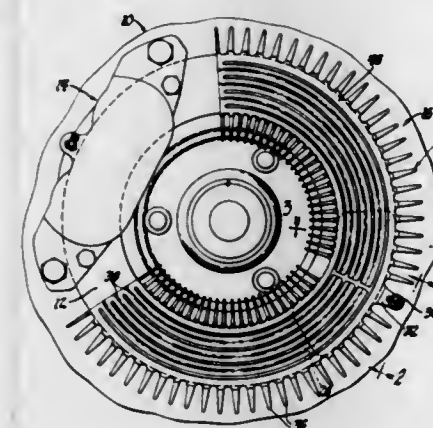
Charles B. Leffert, Troy, and Lawrence R. Hafstad, Bloomfield Hills, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed July 2, 1969, Ser. No. 838,583

Int. Cl. F16d 65/84

U.S. Cl. 188-71.6

4 Claims



A brake-cooling system in which the rotating brake friction surfaces are in heat transfer contact with the evaporator section of a heat pipe arrangement. The heat transferred during low levels of braking is transmitted to ambient air or other heat exchange means by conduction and convection. When sufficiently severe braking loads occur so that the conduction mode of heat transfer will not carry away the heat at a suffi-

cient rate, the heat pipe liquid is vaporized and builds up vapor pressure to bring the heat pipe into efficient operation. As the cooling system quickly shifts into this mode of operation the entire heat pipe assembly in effect suddenly increases its thermal conductivity by several orders of magnitude and the heat is rapidly carried away to the heat pipe condenser section, where it is then removed by a suitable heat exchanger arrangement.

3,592,299 HYDRAULIC DISC BRAKE ACTUATOR WITH A SELF- ADJUSTING MECHANISM

Hans Erdmann, Schonbornring, Germany, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

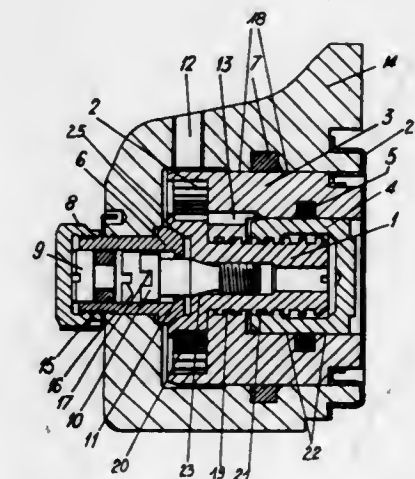
Filed Mar. 21, 1969, Ser. No. 809,330

Claims priority, application Germany, Apr. 4, 1968, P 17 50 176.7

Int. Cl. F16d 65/56

U.S. Cl. 188-71.9

10 Claims



A caliper-type disc brake actuator particularly suitable to automatic applications, which is operative in response to applied hydraulic pressure. A hollow-actuating piston located in an open-ended bore in a caliper housing is slidably mounted and obturated by a resilient "rollback" seal. A locknut or auxiliary piston of smaller diameter is coaxially and slidably located in the hollow actuating piston. Both the actuating piston and locknut are threaded to engage the threads of a coaxial spindle. A torsion spring operated to tend to rotate said spindle in a manner so as to cause its threads to abut against the threads of said actuating piston. This automatic adjustment presets the thread relationship thereby affording a close pad to disc spacing. A braking throw equal to the full axial thread play is available during the next braking action. A separate adjustment is provided for withdrawing the actuating piston for wear pad change, without opening the hydraulic system.

3,592,300 SELF-ENERGIZING DISC BRAKE

Thomas G. Thomas, Bedford, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 31, 1969, Ser. No. 872,963

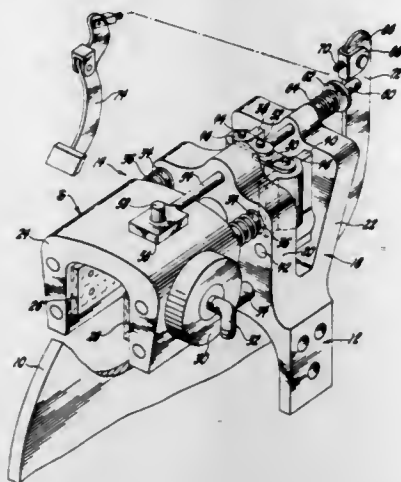
Int. Cl. F16d 55/14

U.S. Cl. 188-72.2

4 Claims

A disc brake is provided with primary and secondary friction-braking means, the brake reaction force from the primary friction-braking means acting through toggle arms to engage the secondary friction-braking means with the disc. The

actuating link which moves the toggle arms is also connected to be moved mechanically through a parking brake pedal to



engage the secondary friction-braking means with the disc and thereby provide a mechanically actuated parking brake.

3,592,301

FLOATING CALIPER DISC BRAKE

Reinhard Auth, Frankfurt am Main, Germany, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed July 7, 1969, Ser. No. 839,256

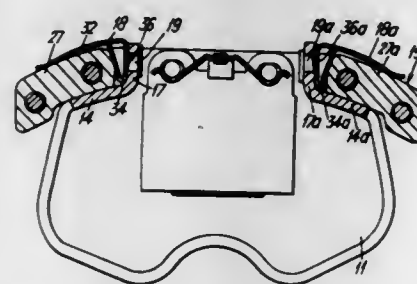
Claims priority, application Germany, July 11, 1968,

P 17 75 161.0

Int. Cl. F16d 65/00

U.S. Cl. 188—73.6

16 Claims



A floating caliper disc brake having a fixed U-shaped mounting frame adapted to fit around the edge of a rotatable brake disc and a brake-caliper assembly carried by the mounting frame and retained by means of springs so that the caliper assembly is relatively free to move in an axial direction while being resiliently restrained in the radial and peripheral directions.

3,592,302

TELESCOPIC SHOCK ABSORBERS

Fernand Stanislas Allinquant, 53, Avenue Le Notre, 92 Sceaux, France

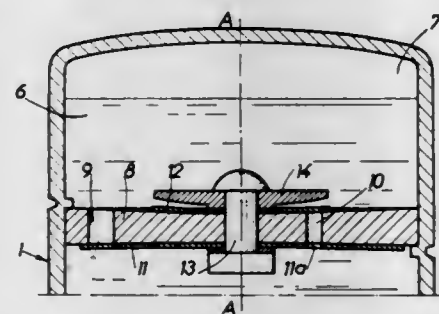
Filed Dec. 6, 1968, Ser. No. 781,778

Claims priority, application France, Dec. 8, 1967, 131,615

Int. Cl. F16f 9/348

U.S. Cl. 188—281

2 Claims



This invention relates to a telescopic hydraulic shock absorber in which flow of hydraulic fluid in the direction from

the working chamber of the shock absorber to a compensating chamber through an apertured element is controlled by a flexible valve shim which opens by flexing under the effect of a fluid pressure differential in said direction, and is characterized by the provision of a profiled stop which first limits opening of the shim to an extent which presents only a relatively small fluid flow area and then permits flexing of an outer region of the shim to afford opening to a greater extent which presents a larger fluid flow area.

3,592,303

BOOT PROTECTOR

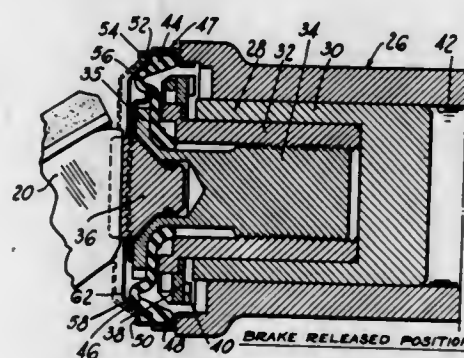
Burton M. Tinscher, South Bend, Ind., assignor to The Bendix Corporation

Filed June 18, 1969, Ser. No. 834,253

Int. Cl. F16d 65/78

U.S. Cl. 188—264 G

4 Claims



A heat shield protects a flexible boot that closes the actuator housing of a wedge brake. The shield includes an annular wall portion that overlies the outer peripheral portion of the boot and a lip portion extending from the annular wall portion. A retainer carried by the housing receives the lip to hold the heat shield in place. The annular wall is divided into a plurality of relatively movable units to permit flexing of the shield as the plunger extends.

ERRATA

For Classes 190—49, 192—3, 192—12, 192—18 see: Patent Nos. 3,592,314 thru 3,592,318

3,592,304

FLUID DELIVERY CONTROL SYSTEM

Charles H. Thompson, Pittsboro, Ind., assignor to General Motors Corporation, Detroit, Mich.

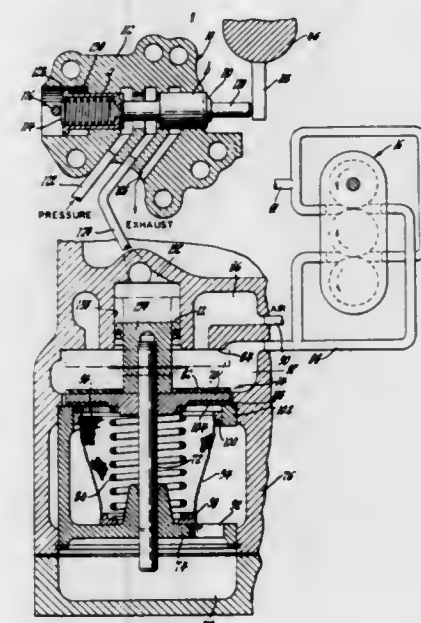
Division of Ser. No. 721,271, Apr. 15, 1968, abandoned.

Filed Apr. 3, 1969, Ser. No. 840,866

Int. Cl. F16d 65/78

U.S. Cl. 188—264 P

2 Claims



A fluid delivery control system is disclosed as controlling the delivery of coolant from a coolant pump to the output

brake of a tracklaying vehicle. The control system according to the preferred embodiment has a pilot valve operated by the brake's apply linkage to control the operation of a fluid motor. The motor effects positive action of a check valve in the coolant pump's suction line to air bleed the pump to prevent coolant delivery to the brake during brake disengagement. The check valve is spring biased to connect the coolant pump's suction line to the pump's reservoir during brake engagement.

3,592,305

PRICE AND CREDIT SENSING ARRANGEMENT

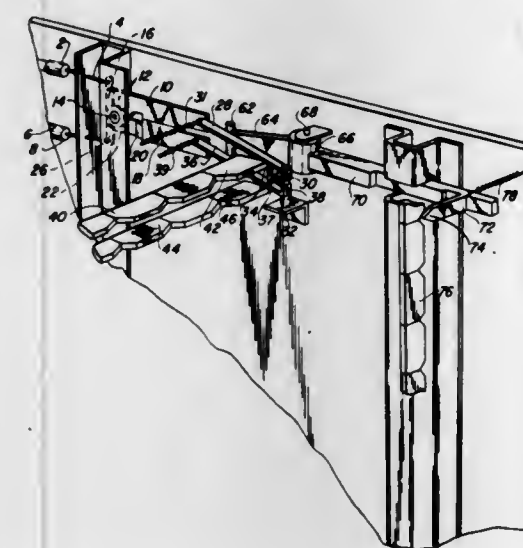
Owen J. Schwertfeger, Chicago, Ill., assignor to Walter E. Heller & Company, Chicago, Ill.

Filed Sept. 12, 1968, Ser. No. 759,463

Int. Cl. G07f 11/00

U.S. Cl. 194—2

8 Claims



3,592,307

COIN SELECTING AND SEPARATING ASSEMBLY

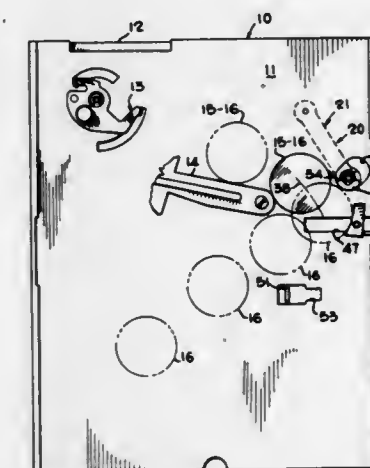
Kenneth E. Hammond, Scarborough, Ontario, Canada, assignor to Coin Acceptors, Inc., St. Louis, Mo.

Filed Sept. 10, 1968, Ser. No. 758,745

Int. Cl. G07f 3/02

U.S. Cl. 194—97

13 Claims



Apparatus for vending more than one article or service at specified credit levels includes an arrangement for preventing vending unless the proper credit is established and for preventing more than one vend at a time. An arrangement of credit levers permit displacement of a series of slidable members in response to operator selection when a proper credit has been established. The levers limit displacement of the slidable members to an extent such that only one selection is vended at a time.

The selector assembly includes a support plate and a rail adjacent thereto which directs a coin into a serration detector assembly. The serration detector assembly includes a pendulum arm pivoted to the support at one end and having a rotatable balance portion at the other end. A sensing finger, rotatable with the balance portion, engages the serrations of milled coins and rotates the balance portion and the arm selectively, thereby directing milled coins into a different path from that taken by smooth-edged coins. A kick plate below the detector assembly further determines the paths of the coins.

3,592,306

ROTARY COIN MOVER WITH SIZE TESTER HAVING NORMALLY CLOSED BOTTOM

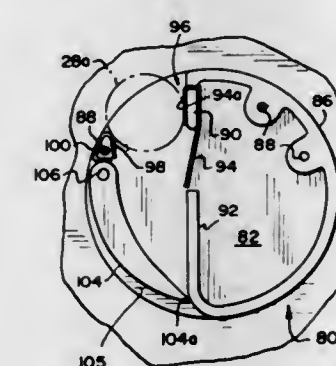
Lyman D. Dunn, Chicago, Ill., assignor to Marian Company

Filed Dec. 12, 1969, Ser. No. 884,585

Int. Cl. G07f 5/00

U.S. Cl. 194—61

9 Claims



3,592,308

COIN DISCRIMINATOR FORMED OF WIRE

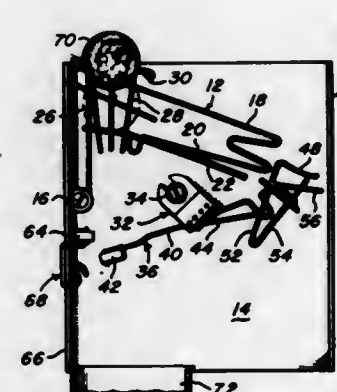
Mitchell A. Hall, Ft. Thomas, Ky., assignor to Monarch Tool & Manufacturing Company, Covington, Ky.

Filed June 26, 1969, Ser. No. 836,792

Int. Cl. G07f 3/02

U.S. Cl. 194—102

18 Claims



An improvement in a coin actuator for a vending machine of the type having a main rotor and a lock disc for preventing rotation of the main actuator rotor unless a coin of a predetermined value is received therein characterized by the provision of a bottomless coin receiving pocket and a swingable door thereunder so that coins of a smaller size than those

A magnetic field holds a pivotally mounted arm in a first position whereby the pivotally mounted arm has means to receive coins of a specific diameter and thickness from a wire runway or track. If the coin is of the weight of the coins to be directed to the selected area, the arm pivots away from its

receiving position to a position in which the coin is deposited in the selected area. A pivotally mounted retaining means, which has a different pivot axis than the arm, cooperates with the pivotally mounted arm to hold the coin, if it is of the desired weight, on the pivotally mounted arm until the coin is positioned by the arm for release to the selected area. At this time, the pivotally mounted retaining means has moved sufficiently relative to the pivotally mounted arm to cease to retain the coin on the pivotally mounted arm.

3,592,309

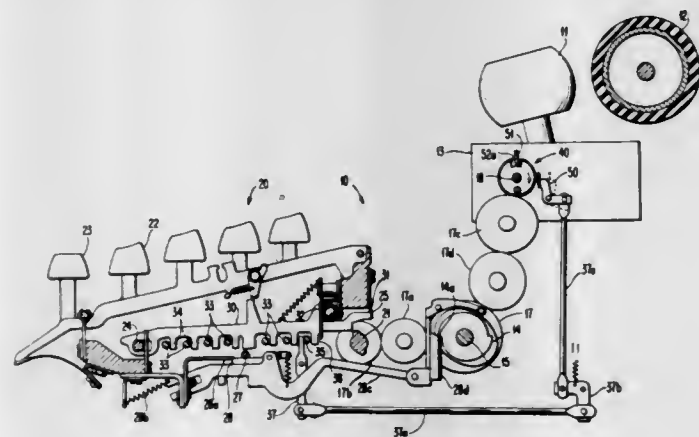
CYCLICALLY OPERABLE TYPEWRITER

James A. Craft, and John O. Schaefer, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 6, 1968, Ser. No. 781,790
Int. Cl. B41j 23/08

U.S. Cl. 197-16

7 Claims



A typewriter constructed to operate in sequential cycles in performing both print and functional operations is provided with a normally engaged clutch operable to interrupt a print operation after its initiation whenever nonprinting functions are selected. Mechanism is provided for restoring the partially actuated print mechanism to a preset home position prior to initiation of a subsequent typewriter cycle.

3,592,310

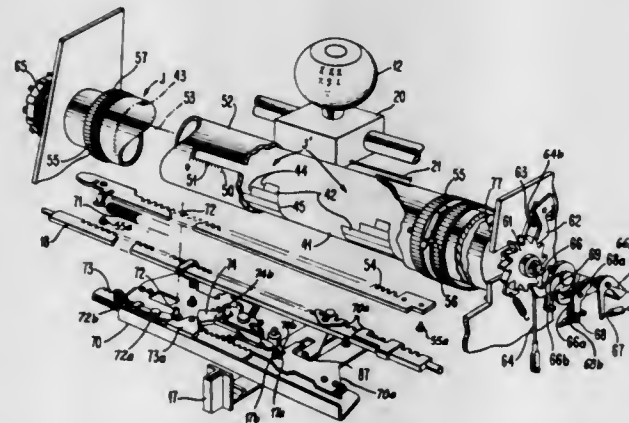
JUSTIFICATION DATA CALCULATOR AND DISPLAY DEVICE

Walter O. Cralle, Jr., Georgetown; Joseph S. Morgan, Lexington, and Bernard E. Toben, Lexington, all of Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 19, 1966, Ser. No. 580,478
Int. Cl. B41j 19/58, 29/42

U.S. Cl. 197-84 A

2 Claims



Spacing data for right-hand margin justification is graphically computed by a pair of intercooperating scales, one of which has biaxial color coded indicia, the other of which includes a uniaxial scale. The uniaxial scale is readable in conjunction with the biaxial color coding directly in terms of a justification problem solution. Also, a self-powered motion takeoff device is provided for automatically positioning one

of the two scales by following motion of a typewriter letter feeding device within a predetermined proximity of the right margin.

3,592,311

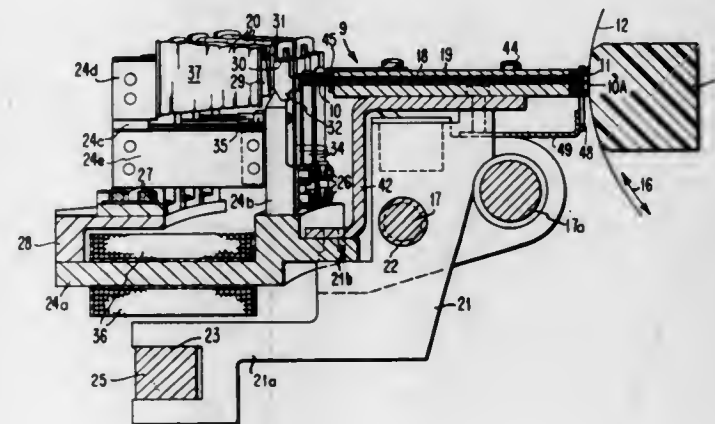
WIRE PRINTING HEAD

Albert S. Chou, Monte Sereno, and Edgar A. Brown, Saratoga, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 2, 1968, Ser. No. 764,474
Int. Cl. B41j 3/10

U.S. Cl. 197-1

13 Claims



A wire printing head comprising a plurality of magnetic actuators mounted on a single frame and having movable armatures to which is fixed a wire extending to the record medium. Each armature is spring-biased in one direction such that with a change in the magnetic field the armature is moved to actuate the associated wire longitudinally for impacting the medium. By the proper selection of the wires actuated at each print position, characters are printed.

3,592,312

TYPE ACTION DRIVE

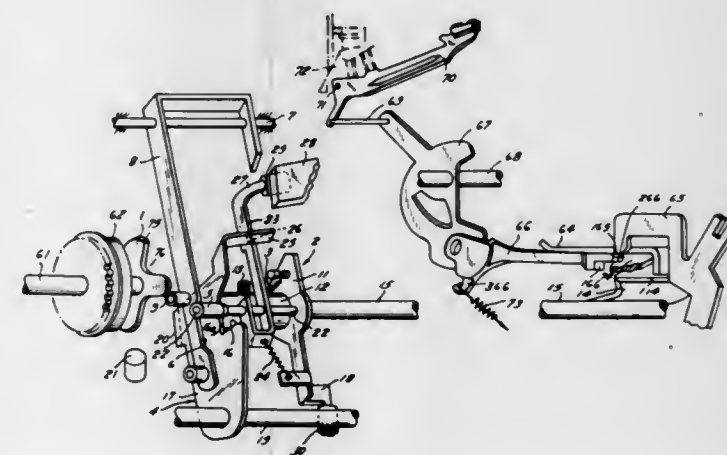
Kurt Chvatlinsky, Wilhelmshaven, Germany, assignor to Olympia Werke AG, Wilhelmshaven, Germany

Filed Aug. 13, 1969, Ser. No. 849,632
Claims priority, application Germany, Aug. 14, 1968, P 17 86 074.1

Int. Cl. B41j 23/08, 23/38, 7/02

U.S. Cl. 197-14

11 Claims



An actuated type action is driven when a spring biased drive bar is released and moves about a first axis along a first circular path. When the drive bar is again wound up by a motor and engaged clutch, it is first displaced by a control cam about a second axis to a position spaced a smaller radius from the first axis whereupon it moves along a second circular path having a smaller radius than the first path so that the drive bar does not interfere with another type action actuated in the meantime.

3,592,313

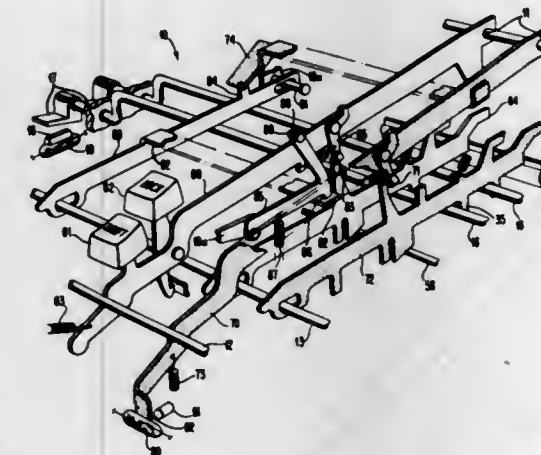
ENCODING KEYBOARD HAVING DUAL-OUTPUT SHIFT KEY

William H. Castle, Winchester, and Donald L. Greer, Lexington, both of Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 15, 1968, Ser. No. 744,752
Int. Cl. B41j 25/24

U.S. Cl. 197-71

11 Claims



An encoding keyboard constructed like that disclosed in U.S. Pat. No. 3,086,635, entitled "Keylever Storage Mechanism," issued Apr. 23, 1963, to Leon E. Palmer is provided with a novel dual keylever construction that properly time-sequences up and down shift code entries with respect to character entries. The stroke storage provided in the keyboard of U.S. Pat. No. 3,086,635 is expanded to provide storage for two characters, when necessary, to accommodate the characteristically rapid and arhythmic, three-stroke sequence, "upshift-print-downshift."

3,592,314

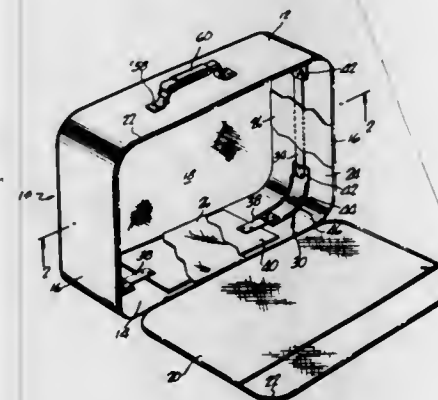
FRAME FOR ARTICLE OF SOFT-WALLED LUGGAGE

Abraham J. Jacobson, 285 East 91st St., Brooklyn, N.Y.

Filed Aug. 19, 1969, Ser. No. 851,273
Int. Cl. A45c 13/36

U.S. Cl. 190-49

6 Claims



A frame for the peripheral wall of an article of soft-walled luggage, which comprises top, bottom and end walls of the article, consisting of prefabricated corner pieces each comprising end portions connected at right angles to one another and each portion having a debossment formed therein opening into its end edge wherein bands forming the top, ends and bottom of the frame may be set in and secured, as by rivets engaged through preformed registering openings in the bottoms of the debossments and in the ends of the bands; the debossments formed to accommodate the width and thickness of the band ends.

3,592,315

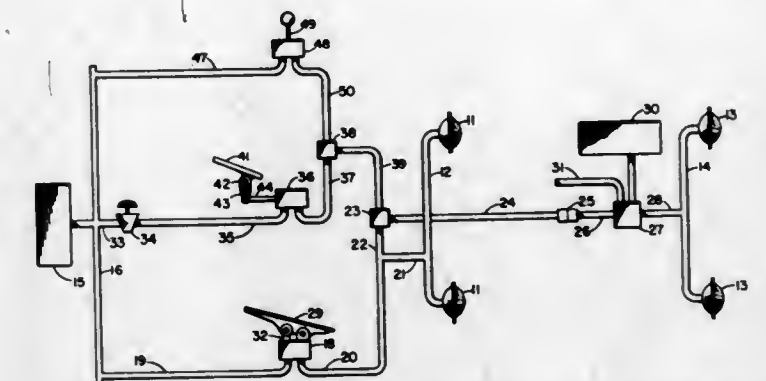
TRACTOR-TRAILER BRAKE SYSTEM

Henry B. Lewis, 2200 Gregory Lane, Waco, Tex.

Filed Nov. 20, 1969, Ser. No. 878,331
Int. Cl. F16d 67/00; B60t 13/26

U.S. Cl. 192-3 TR

12 Claims



The brake system includes conventional air brake actuators for the tractor and trailer, controlled from a source of pressurized air in the tractor by a brake pedal actuated control valve. Reduced pressure air is directed to the trailer actuators only through an automatic system controlled by a valve coupled to the engine foot throttle linkage. This valve is normally closed, but is opened when the foot throttle is released to partially apply the trailer brakes. The system may also include a manual control valve for applying the trailer brakes only.

3,592,316

CLUTCH AND BRAKE WITH ADJUSTABLE TRANSFORMER CONTROL

Heinz Daah, Darmstadt; Karl-Heinz Meier, Zeilhard Veher, Darmstadt, both of Germany, assignor to Quick-Rotan Becker & Notz, Darmstadt, Germany

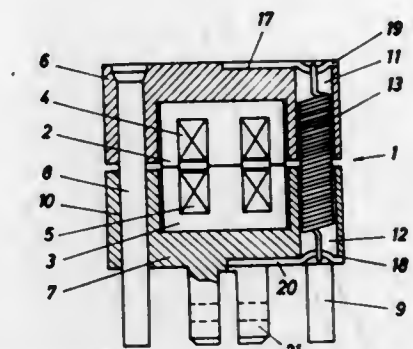
Filed July 3, 1969, Ser. No. 838,931

Claims priority, application Germany, July 9, 1968, P 17 63 645.2

Int. Cl. F16d 67/06

U.S. Cl. 192-12 D

3 Claims



A speed-regulating unit for an electric motor drive connected in a system with electromagnetically actuated clutch and electromagnetically actuated brake members, wherein at least the clutch is rendered operative in response to a control voltage generated by means of the regulating unit. The unit is characterized by a variable transformer with a primary coil energized by an AC voltage, and a secondary coil supplying the control voltage. The coupling factor of the unit is adjustable to effect variable transformer action.

3,592,317

SERVO ACTUATOR WITH MECHANICAL POWER AMPLIFIER AND MANUAL BYPASS

Charles W. Chilson, Wayne, and John S. Perryman, Kinnelon, both of N.J., assignors to Curtiss-Wright Corporation

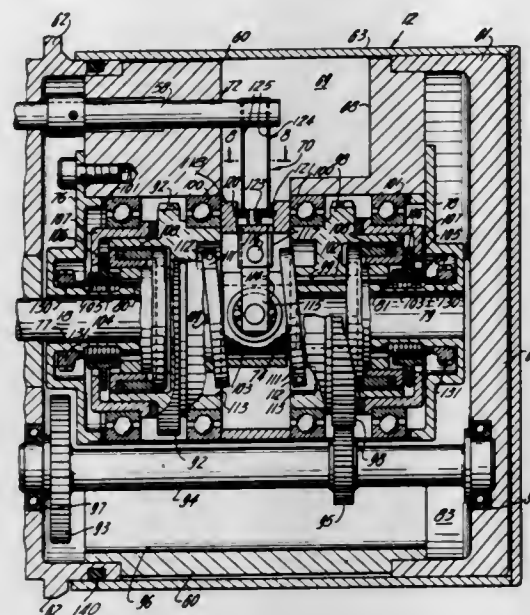
Filed Oct. 20, 1969, Ser. No. 867,510
Int. Cl. F16d 67/02; B64c 13/04

U.S. Cl. 192-12 BA

9 Claims

The servo actuator has a signal input device for providing signals of relatively small magnitudes and a mechanical

power amplifier operably connected to the input device. The mechanical power amplifier is constructed and arranged to produce output forces of relatively great magnitude in response and proportional to the input signals for effecting



the actuation of an output mechanism. A means coacting with the signal input device is also provided for bypassing or overriding the mechanical power amplifier for automatically effecting direct manual actuation of the output mechanism when the power amplifier fails to operate properly.

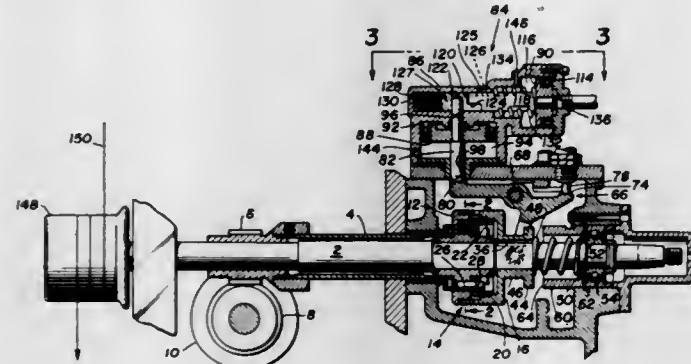
3,592,318 FLUID PRESSURE-OPERATED OVERLOAD CLUTCH AND BRAKE

Glen E. Lyons; Douglas J. Lamb, and Paul T. Howse, Jr., all of Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 18, 1968, Ser. No. 784,560
Int. Cl. F16d 67/04, 43/20

U.S. Cl. 192-18

9 Claims



A clutch connected between drive and driven shafts and linked to an electropneumatic control unit to effect an automatic, positive disengagement of clutch members and a braking of the driven shaft when a predetermined drive shaft overload torque is sensed by the clutch. The clutch combines frictional and gear-tooth clutch components arranged to operate cooperatively and sequentially.

3,592,319 ARTICLE FEED CONTROL

Roy S. Rousseau, 1731 Fairmeadows Drive, Bettendorf, Iowa; John R. Doyle, 1214 N. Elmwood, Davenport, Iowa, and Gary F. Roberts, 3345 4th St., East Moline, Ill.

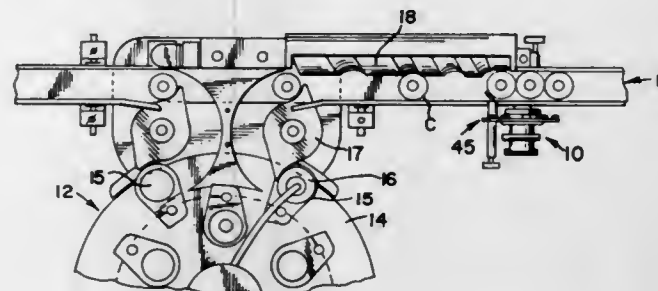
Filed Oct. 28, 1968, Ser. No. 770,971
Int. Cl. B23q 5/22, 7/00

U.S. Cl. 198-19

14 Claims

An apparatus for incorporating in a container feedline for a container-filling machine which comprises a movably

mounted can stop member adapted to be projected into the path of the cans advancing to the filling machine to momentarily hold back the cans, and a series of cams carried on a rotating disc or wheel which are manually settable on the wheel in either operative or inoperative position and which, in operative position, move the can stop member to can stopping position on each rotation of the wheel. There is a



cam on the wheel for each filling head or station on the filling machine and the rotation of the wheel is synchronized with the movement of the filling machine so that when there is a malfunctioning of a filling head on the filling machine the cam corresponding to the same may be set to interrupt the feed of the cans to that station, thereby enabling repair or adjustment to be delayed until a more convenient time when the machine may be shut down.

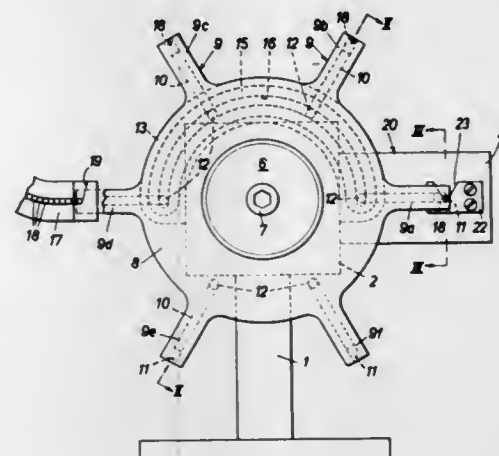
3,592,320 APPARATUS FOR FEEDING WORKPIECES FROM A MAGAZINE TO A LASER BEAM IMPACTING LOCATION

Hans Binggeli, Lerchenfeld B/Thun, Switzerland, assignor to Watch Stones Co. Ltd., Canton of Berne, Switzerland
Filed Dec. 30, 1969, Ser. No. 889,075

Claims priority, application Switzerland, Jan. 8, 1969, Jan. 8, 1969, 180/69; 181/69
Int. Cl. B23q 5/22

U.S. Cl. 198-19

5 Claims



A novel apparatus for feeding workpieces from a magazine to a laser beam impacting location is disclosed. The novel apparatus comprises a rotary feed means provided on its bottom surface with at least one suction opening, the feed means being planar shaped in the region of the suction opening. During rotation of the feed means, the suction opening passes by the outlet of a magazine channel in which the workpieces, such as watch stones are held, the workpiece being sucked into the suction opening and retained on the rear planar bottom surface of the feed means. Further rotation of the feed means brings the workpiece to a stripping or wiping member whereat the workpiece is removed or stripped from the feed means and accurately positioned within a V-shaped holding notch disposed diametrically opposite the magazine with the feed means bridging the gap between the magazine and the holding notch. Subsequently, the now positioned workpiece is acted upon and perforated by means of laser pulses and then is removed from the notch. The feed means continuously rotates and thus, the transport operation proceeds smoothly, free of the deleterious effects of prior art oscillatory feeding operations.

3,592,321 WARE STABILIZER

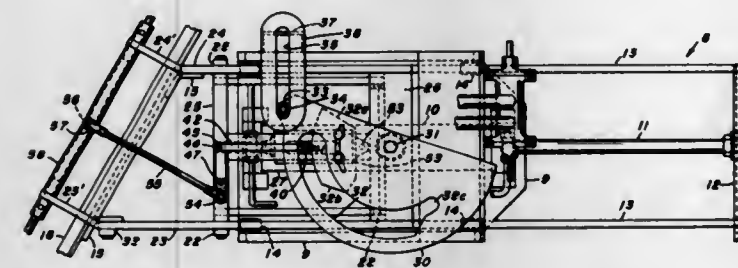
Ronald M. Corbet, Knox, Pa., assignor to Glass Containers Corporation, Fullerton, Calif.

Filed Apr. 29, 1969, Ser. No. 820,170

Int. Cl. B65g 47/00

U.S. Cl. 198-24

6 Claims



There is disclosed a ware stabilizer for use with a conventional push-type lehr loader by which glassware from a forming machine is transferred into the lehr. As the push bar of the loader engages a row of formed ware, on a suitable cross conveyor, to push the ware into the lehr, a stabilizer bar on the loader, which has been clear of the ware, moves into contact with the upper portion of the glass articles to prevent them from falling forward. At the end of the pushing stroke the stabilizer bar swings in a limited vertical arc, insufficient to contact a previously loaded row of articles, clear of the ware just placed in the lehr, and then lifts with the pusher on which it is carried to clear the ware on the cross conveyor, and opens out to its starting position. A cam operated by the pusher in conjunction with a cam follower held against the cam by air cylinder controls the operation of the stabilizer bar.

3,592,322 APPARATUS FOR BRAKING AND HOLDING CIGARETTES OR THE LIKE

Ulrich Riegger, deceased, late of Hamburg, Germany (by Isle Riegger, sole heir), assignor to Hauni-Werke Korber & Co. K.G., Hamburg-Bergedorf, Germany

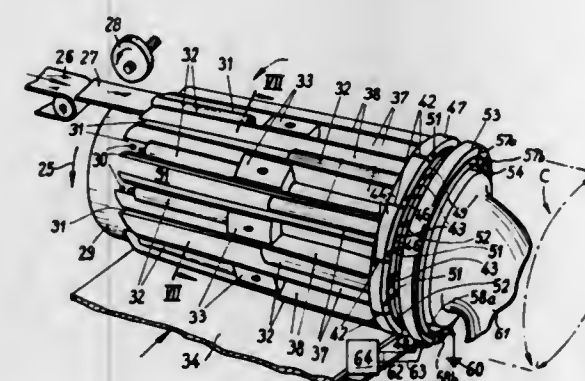
Filed Mar. 6, 1968, Ser. No. 750,381

Claims priority, application Great Britain, Mar. 7, 1967, 10 659/67

Int. Cl. B65g 47/00, 17/46

U.S. Cl. 198-25

7 Claims



Cigarettes, filter rods, cigars, tobacco ropes or like rod-shaped bodies are decelerated and/or held against movement with reference to one or more supporting surfaces by electrostatic forces. Such forces are produced (a) by applying to the bodies an electrostatic charge of a given sign and thereupon placing the thus charged bodies into an electrostatic field produced by a charge of the same sign so that the field repels the bodies and presses them against a supporting surface, (b) by placing the bodies in contact with pairs of electrodes

which are connected to different poles of an energy source so that the electrodes attract the bodies. The bodies may be braked while they travel axially, or such bodies may be held by electrostatic forces during lengthwise travel, during sidewise travel, or during a change in orientation.

3,592,323 ARTICLE-HANDLING METHOD AND APPARATUS

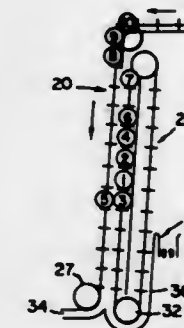
Edward E. Ross, San Rafael, Calif., assignor to Del Monte Corporation, San Francisco, Calif.

Filed Oct. 28, 1969, Ser. No. 871,863

Int. Cl. B65g 37/00

U.S. Cl. 198-76

15 Claims



A method and apparatus for handling various articles that are of comparable size and where the articles are received at a nonuniform rate. Two (i.e. first and second) conveying means are employed with paths of movement through a common transfer and accumulator region. In this region the articles are transferred in a random fashion from pockets of the first to pockets of the second conveying means. The transfer takes place at such a rate that all of the pockets of the second conveying means leaving the transfer region are filled whereby the second conveying means supplies the articles at a constant rate. The transfer region also serves as an accumulator in that a substantial number of articles are maintained in this region, thus accommodating substantial changes in the rate of supply of articles by the first conveying means without affecting the desired uniform rate of supply by the second conveying means. The embodiments disclosed include an apparatus making use of conveyors of the endless chain type, and apparatus employing wheels or discs having article receiving pockets. Also, one disclosed embodiment combines the accumulator means for orienting the articles.

3,592,324 FEEDING OF ARTICLES

Alan Caunt, Gainsborough, England, assignor to Rose Forgrove Limited, Gainsborough, Lincolnshire, England

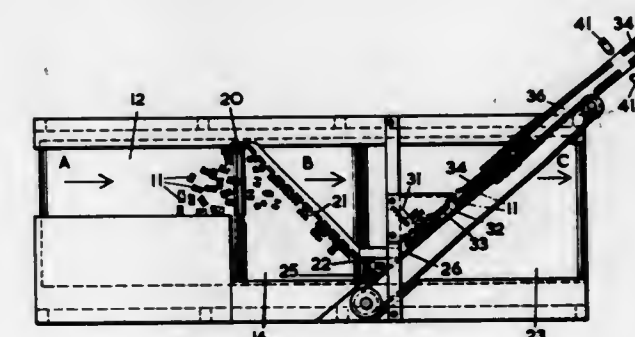
Filed Nov. 7, 1969, Ser. No. 874,916

Claims priority, application Great Britain, Nov. 28, 1968, 56420/68

Int. Cl. B65g 47/24, 47/26

U.S. Cl. 198-30

5 Claims



The invention is concerned with apparatus for the feeding of articles of a rectangular, oval or other shapes having major and minor dimensions from a promiscuous mass into single

file relationship for forwarding to an apparatus for further manipulation of the articles, e.g., a wrapping machine, the apparatus consisting essentially of a succession of feeding bands driven at progressively higher linear speeds, a diagonal deflector plate arranged over an intermediate band to guide the articles towards one side of that band and a deflector belt arranged for movement diagonally of the next successive band with one lap constituting one side of a guide channel so as to guide the articles into the channel as they are received by the band.

3,592,325

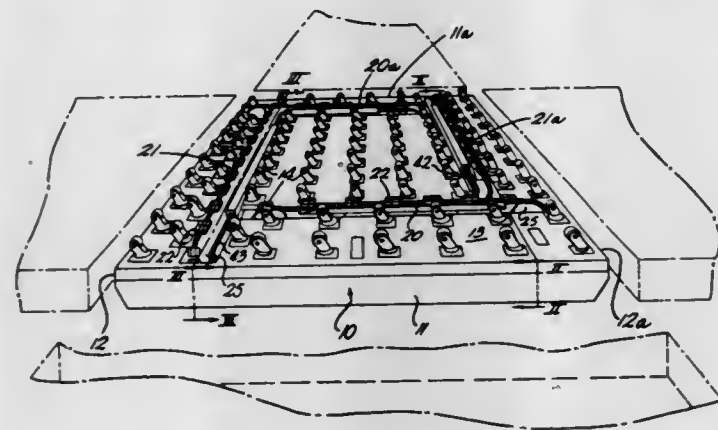
MODULAR CONVEYOR UNIT

Norman M. Sullivan, and Francis J. Fitzgerald, both of Grand Rapids, Mich., assignors to Rapistan Incorporated, Grand Rapids, Mich.

Filed Apr. 11, 1969, Ser. No. 815,398
Int. Cl. B65g 47/26

U.S. Cl. 198-31

15 Claims



A modular conveyor unit wherein the powered means includes endless chains arranged in pairs, one pair being normal to the other, with the chains of each pair offset lengthwise with respect to each other so that the end of one chain is immediately adjacent one edge of the unit and the other is adjacent the other and the opposite end of each chain is spaced sufficiently from the opposite edge of the unit to permit a chain of the pair normal there to pass between it and the adjacent side of the unit.

3,592,326

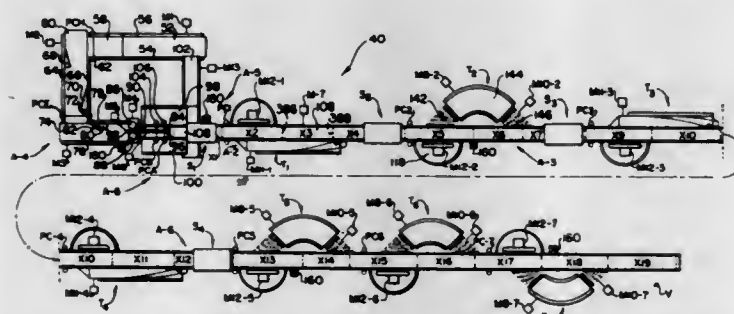
PARCEL POST SINGULATING AND ORIENTING APPARATUS

Donald F. Zimmerle, Dayton; Horace W. Weeks, Bellbrook, and Robert E. Fischer, Dayton, all of, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Jan. 31, 1969, Ser. No. 795,588
Int. Cl. B65g 37/00

U.S. Cl. 198-33 R

26 Claims



A singulating and orienting apparatus for handling a plurality of multisided items, with each item having an identifiable mark (a special stamp) located in one quadrant on one side thereof. The apparatus includes a plurality of conveyors designed to singulate or space the items along a main conveyor belt. Scanning means are used to search for the identifiable mark as the items are moved on said main belt. Conveyor-type manipulating means acting under control of signals from the scanning means rotate the items about their own horizontal and vertical axes, if necessary, so as to orient the side containing the mark in a predetermined orientation

on the main belt. Optical quadrature scanning means then search the oriented side to locate the mark in a particular quadrant thereon, and, thereafter, the item is rotated about its horizontal axis, if necessary, to position the quadrant containing the mark in a particular orientation on the main belt. The scanning means are operated in "phosphorescent" and "fluorescent" modes to detect the identifiable mark.

3,592,327

DEVICE FOR ORIENTING EGGS AND BRINGING THEM WITH THE NARROW END DOWNWARDS INTO TRANSPORT MEANS HAVING RECEIVING POCKETS

Heinrich Koch, Bad Salzungen; Kurt Hermesmeyer, Obernbeck, and Karl-Heinz Northoff, Herford, all of, Germany, assignors to Henry Y. Kuhl and Paul R. Kuhl, Flemington, N.J.

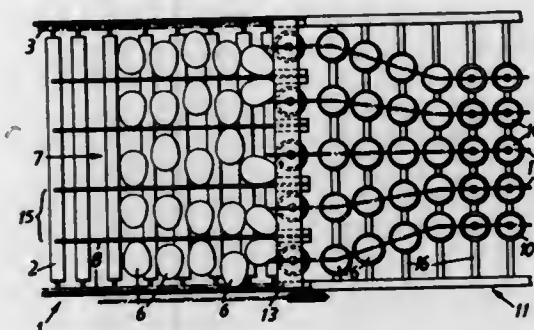
Filed June 11, 1969, Ser. No. 832,401

Claims priority, application Germany, June 19, 1968, P 17 61 636.3

Int. Cl. B65g 47/24

U.S. Cl. 198-33

3 Claims



The invention relates to a device in which eggs are conveyed on a conveyor having a plurality of parallel rollers, all rotating in the same direction to a transport means having receiving pockets. Each egg is carried by two rollers and moves laterally to the conveying direction in the direction of its narrow end until it comes up against a lateral defining wall. The eggs are thus lined up according to the position of the narrow end and the air chamber end. Guide tongues are provided to reorient the eggs as they pass over a conveyor deflection roller so that they turn with their narrow ends pointing downwardly into the receiving pockets of the transport means.

3,592,328

TRANSFER AND ORIENTING MECHANISM FOR ARTICLES

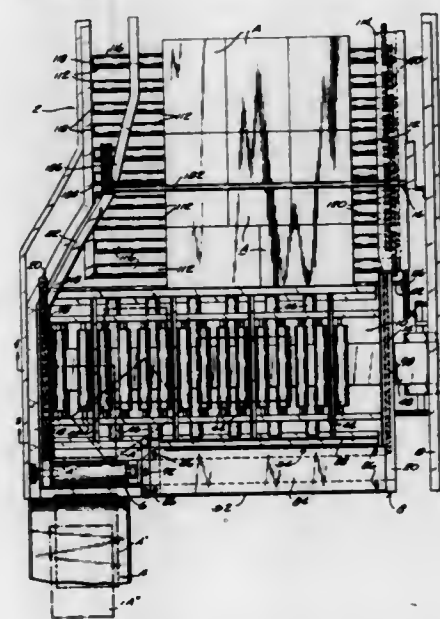
Gordon K. Sapp, Middletown, Ky., assignor to Logan Co., Louisville, Ky.

Filed Dec. 3, 1969, Ser. No. 881,812

Int. Cl. B65g 47/24

U.S. Cl. 198-33 AB

8 Claims



A transfer and orienting means for articles such as cases, cartons, boxes and the like, comprising a live roller-type con-

veyor defining a support and conveyance surface for the articles and means for feeding articles having a uniform axial orientation onto one end of the conveyor in a path of travel 90° to the longitudinal axis thereof, including a power-operated, rotatable feed drum disposed immediately alongside the conveyor in direct article-feeding relation thereto. The articles in passing from the drum onto the conveyor are urged by the thrust or force of the latter to a position of axial orientation 90° from the original orientation of the articles and by varying the speed of the articles as they move onto the conveyor by varying the drum speed the articles are selectively caused to accede to the action of the conveyor and to turn through 90° in passing onto the conveyor or to override the action of the conveyor and to pass thereonto without change in axial orientation.

3,592,329

DIFFERENTIAL PRESSURE CONVEYORS

Fred J. Fleischauer, Oakmont, Pa., assignor to General Logistics Corporation, Oakmont, Pa.

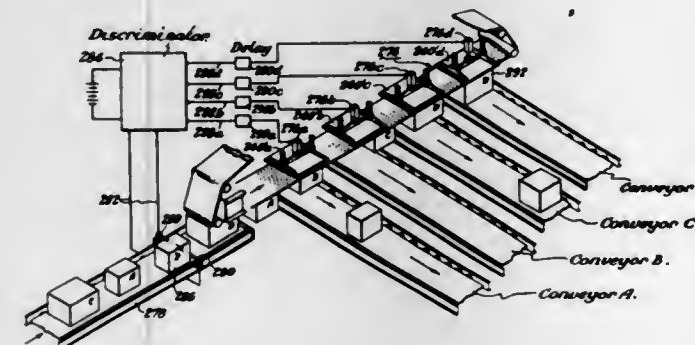
Division of Ser. No. 651,082, May 29, 1967, Pat. No. 3,477,588, which is a continuation-in-part of application Ser. No. 589,945, Oct. 27, 1966, now abandoned.

Filed Apr. 8, 1969, Ser. No. 814,342

Int. Cl. B65g 37/00

U.S. Cl. 198-81

25 Claims



The present invention utilizes air float and vacuum support principles in general conveying or transporting of articles, without the use of high-differential pressures, movable vacuum heads, and large leakage rates. The principles of the invention are adaptable to a variety of general conveying operations such as elevated or overhead conveying, elevating, diverting, unscrambling, stacking, unstacking, palletizing, accumulation and alignment. The invention also provides a foraminous conveyor with means for controlling leakage rates therethrough, and novel conveyor structures for supporting and moving the foraminous belt without extensive contact with apertured slide surfaces. In some cases the vacuum or air lift conveyor can be hooded, with the hood coupled to the blower inlet or outlet as the case may be, in order to increase the pressure differential across the foraminous belt and to reduce the volumetric load on the blower. Certain of the vacuum conveyor arrangements are shaped to engage irregular objects and/or are provided with novel release mechanisms to quickly equalize the differential pressures across the belt in order to release articles adhered thereto. Novel mechanisms are provided for cleaning the foraminous belt for either vacuum or air lift conveyors described herein. When a variety of articles are transferred by the air lift or vacuum conveyor, a discriminator and time delay circuit can be associated therewith for discharging the conveyed articles selectively to preselected discharge stackers or cross-conveyors. Novel lateral seals are provided for sealing the edges of the foraminous belt to the pressure chamber in either of the air lift or vacuum conveyors. A novel depalletizer is eliminated, is associated with a lifting feature of the vacuum conveyors.

3,592,330

ARTICLE-FEEDING SYSTEM AND METHOD

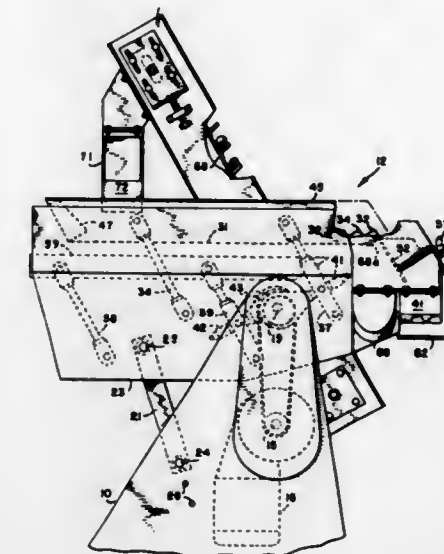
Traver J. Smith, San Jose, Calif., assignor to Genevieve I. Hanscom, Saratoga, Calif. and Genevieve I. Hanscom, Robert Magnuson, and Lois J. Thomson, Trustees of the Estate of Roy M. Magnuson, part interest to each

Filed Feb. 20, 1969, Ser. No. 801,080

Int. Cl. B65g 37/00

U.S. Cl. 198-85

6 Claims



The present feed mechanism and method is designed to handle small articles such as frozen foods and deliver a desired quantity of the particular articles such as grapes, cherries, pineapple segments and the like for filling into a container. The feed system employs a shuffle feed mechanism which is slanted or tilted toward one side so as to provide continuous rows of articles against a stop formed by a sidewall of the shuffle feed mechanism. An adjustable divider or baffle member divides each row of articles as discharged from the shuffle feed mechanism, directing one part as a count of articles into a hopper for filling into a container. The remainder or other part of the articles of each row are returned to the shuffle mechanism adjacent the sidewall or stop for refeeding as a part of the articles to be filled.

3,592,331

WATERMELON HARVESTING MACHINE

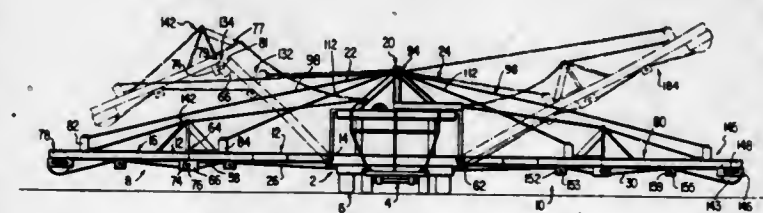
Charles H. Morgan, R.F.D. #1 Box 153, Springfield, S.C.

Filed Dec. 31, 1968, Ser. No. 788,130

Int. Cl. B65g 37/00

U.S. Cl. 198-115

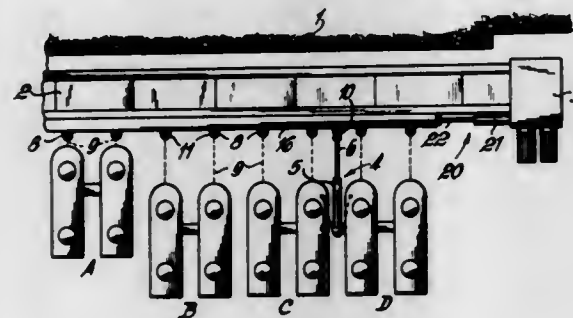
13 Claims



A mobile harvesting machine including a chassis with articulated conveyor frames mounted on opposite sides. Each conveyor frame includes inner and outer sections which are movable between laterally extended and folded positions. In order to accommodate for variations in terrain, the frames may be raised while the sections are extended and remain in substantial longitudinal alignment. A cable and pulley system supports each frame and controls its folding and terrain accommodating movement. A single feeding conveyor belt is

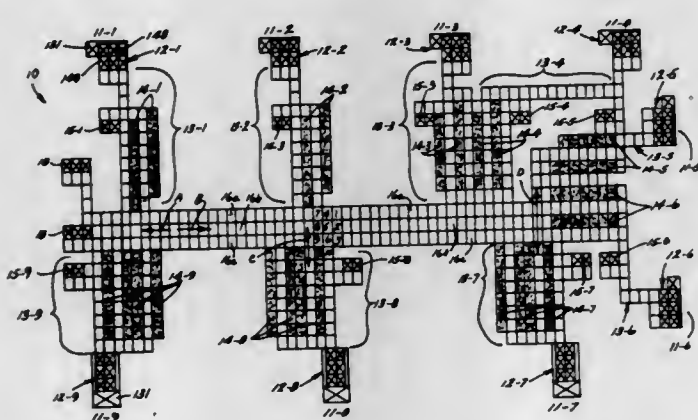
associated with each frame and has a concave cross section to cradle produce while transporting it to inclined conveyors on the chassis. The inclined conveyors include concave belts and flexible cleats that aid in moving the produce to a storage platform. A plurality of turning rollers are employed to transfer produce from the feeding belts to the inclined conveyors.

3,592,332
CONVEYOR DEVICE FOR MINING OPERATIONS AND ASSOCIATED CASING SUPPORT SYSTEM
Max Kuhn, Bochum-Langendreer, Germany, assignor to Klockner-Werke AG, Duisburg, Germany
Filed July 22, 1969, Ser. No. 843,445
Int. Cl. B65g 21/10, 41/00
U.S. Cl. 198—126



The invention relates to a device provided for conveyor means in mining and serving for the butting or forward pressing devices for the conveyors and/or of units of the roof support casing system, said device having several bearings to which the units of the roof support systems respectively are connected at predetermined distances. These bearings on the one hand maintain somewhat the spacing of the units of the casing system and, on the other hand, they provide a sufficiently fixed connection with the conveyor, to which the units respectively may move up.

3,592,333
CARGO-HANDLING SYSTEM AND METHOD
Norman M. Sullivan, and Francis J. Fitzgerald, Jr., both of Grand Rapids, Mich., assignors to Rapistan Incorporated, Grand Rapids, Mich.
Filed Jan. 23, 1968, Ser. No. 703,514
Int. Cl. B65g 17/00
U.S. Cl. 198—129

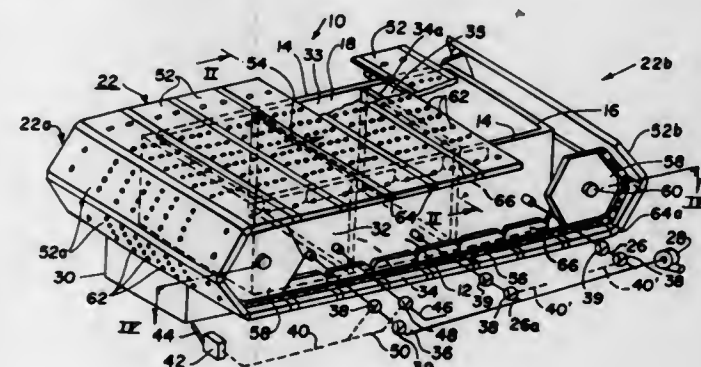


LEGEND
□ VERTICALLY SUPPORTABLE MODULE
■ OVERLAP MODULE
□ TRANSPARENT MODULE

An article-transporting system made up of a large number of individual modules, each of which is a complete and independent conveyor within itself. Each module provides a low-friction article-supporting bed and powered means for forcibly moving the articles over this bed. Articles are moved from module to module in "start-stop" fashion. The functioning of the entire system is integrated by a control system which selectively regulates the operation of the individual modules to function in cooperation with one module at one time and other modules at other times. The modules have a

minimum operating capability of two opposite directions and in many cases have a four directional operating capability. The entire system is capable of reorganization and expansion by the addition, deletion, or relocation of modules.

3,592,334
DIFFERENTIAL PRESSURE CONVEYORS
Fred J. Fleischauer, Oakmont, Pa., assignor to General Logistics Corporation, Oakmont, Pa.
Division of Ser. No. 651,082, May 29, 1962, Pat. No. 3,477,558, which is a continuation-in-part of application Ser. No. 589,945, Oct. 27, 1966, now abandoned.
Filed Apr. 9, 1969, Ser. No. 814,784
Int. Cl. B65g 15/00
U.S. Cl. 198—184

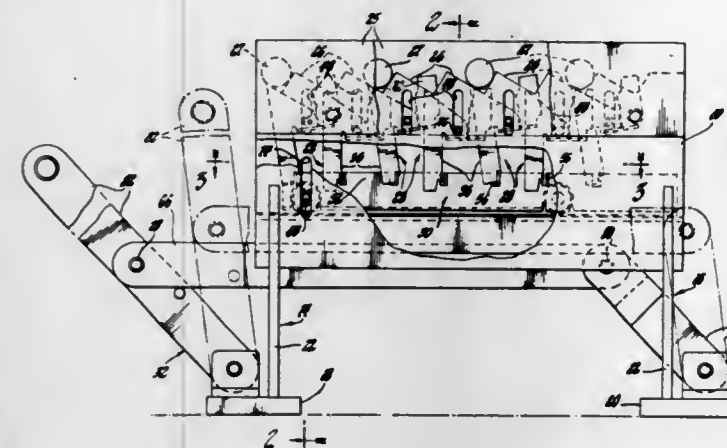


The present invention utilizes air float and vacuum support principles in general conveying or transporting of articles, without the use of high differential pressures, movable vacuum heads, and large leakage rate. The principles of the invention are adaptable to a variety of general conveying operations such as elevated or overhead conveying, elevating, diverting, unscrambling, stacking, unstacking, palletizing, accumulation and alignment. The invention also provides a foraminous conveyor with means for controlling leakage rates therethrough, and novel conveyor structures for supporting and moving the foraminous belt without extensive contact with apertured slide surfaces. In some cases the vacuum or air lift conveyor can be hooded, with the hood coupled to the blower inlet or outlet as the case may be, in order to increase the pressure differential across the foraminous belt and to reduce the volumetric load on the blower. Certain of the vacuum conveyor arrangements are shaped to engage irregular objects and/or are provided with novel release mechanisms to quickly equalize the differential pressures across the belt in order to release articles adhered thereto. Novel mechanisms are provided for cleaning the foraminous belt for either vacuum or air lift conveyors described herein. When a variety of articles are transferred by the air lift or vacuum conveyor, a discriminator and time delay circuit can be associated therewith for discharging the conveyed articles selectively to preselected discharges stackers or cross conveyors. Novel lateral seals are provided for sealing the edges of the foraminous belt to the pressure chamber in either of the air lift or vacuum conveyors. A novel depalletizer including a horizontally movable delivery plate having an inclined edge is associated with a vacuum conveyor and with an alignment conveyor. Another novel depalletizer, wherein the indexing requirement of conventional depalletizers is eliminated, is associated with a lifting feature of the vacuum conveyor.

3,592,335
CONVEY FOR CYLINDRICAL PARTS
Howard M. Meyer, Ypsilanti, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 25, 1969, Ser. No. 879,839
Int. Cl. B65g 25/04
U.S. Cl. 198—219

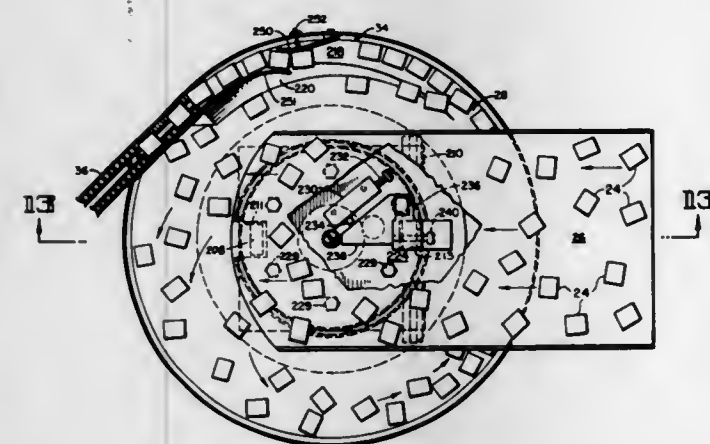
A conveyor for moving individual cylindrical members along an axis substantially perpendicular to the longitudinal axis of the parts. The conveyor includes a pair of parallel baseplates having a series of axially spaced notches for supporting the cylindrical parts. A series of carrier members are

supported between the baseplates and have a first portion located below one of the notches and a second portion extending into an axially adjacent notch. A drive member is provided for raising the carrier member so that the first portion will move a cylindrical part to an axially adjacent notch



when the latter is unoccupied. When the axially adjacent notch supports a cylindrical part, the latter actuates the second portion of the carrier member thereby causing disengagement between the drive member and the carrier member to prevent raising of the first portion.

3,592,336
VIBRATORY POWER-DRIVEN CONVEYOR
Franklin J. Thurston, Hartford, and Joseph M. Nazari, West Hartford, both of Conn., assignors to Kaman Aerospace Corporation, Bloomfield, Conn.
Continuation-in-part of application Ser. No. 595,447, Nov. 18, 1966, now Patent No. 3,456,424. This application May 5, 1969, Ser. No. 821,932
Int. Cl. B65g 27/00
U.S. Cl. 198—220

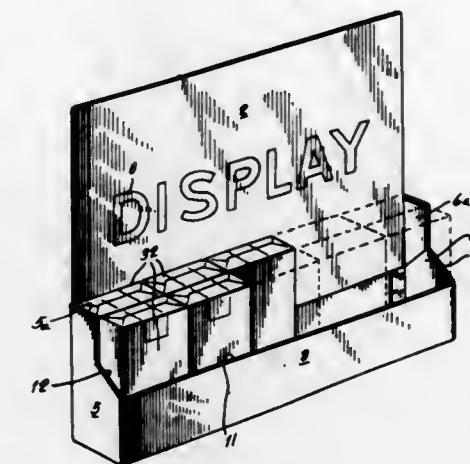


An article-handling apparatus is provided with an article-feeding means to feed individual articles, such as candies or other objects, to a transfer arm which places each article onto a conveyor. The article-feeding means is provided with a vibrating tray and bowl combination which feed and orient the articles.

3,592,337
DISPLAY CARTON
Floyd L. Phillips, Jr., Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Nov. 12, 1969, Ser. No. 875,788
Int. Cl. B65d 5/50
U.S. Cl. 206—44 R

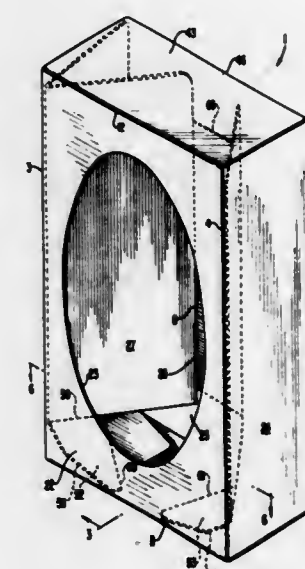
A display carton having an open-topped frame to enclose articles to be displayed, with a display panel extending upwardly from the backside of the frame. The blank for forming the carton is cut so that the upwardly extending display panel is formed as part of the front panel, but is folded back

and overlaps part of the back panel when the carton is set up, so that the back panel reinforces the display panel. The blank



is foldable so that it may be shipped flat. A modification has projecting end tabs which may be fastened down to an underlying surface with tape.

3,592,338
DISPLAY CARTON
Wallace E. Hanson, Springfield, Mass., and Mario A. Isoldi, Brooklyn, N.Y., assignors to U.S. Plywood-Champion Papers Inc., Hamilton, Ohio
Filed Aug. 15, 1969, Ser. No. 850,431
Int. Cl. B65d 25/00
U.S. Cl. 206—45.19

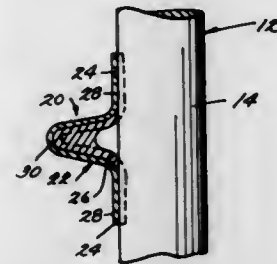


A display carton consisting of a shadow box made of one piece of sheet material having a plurality of serially connected panels that form an outer generally rectangular box unit and an inner shadow panel unit. The shadow panel unit includes a pair of shadow panels which are arranged to present oblique faces to the window opening in the carton.

3,592,339
NAIL PACKAGE HAVING EXTERIORLY RIBBED RETAINING STRIPS
Peleg B. Briggs, Jr., Mystic, Conn., assignor to Textron, Inc., Providence, R.I.
Filed Nov. 14, 1969, Ser. No. 876,810
Int. Cl. B65d 83/00
U.S. Cl. 206—56 D

A nail package of the type including a plurality of nails arranged in row formation with their shanks generally parallel and the heads of adjacent nails in lapped relation and a plurality of strips of material for securing the nails in the row formation operable to be progressively disintegrated as the nails are progressively driven from the row formation by a tool. Each of the strips is formed to provide relatively nar-

row, thin, elongated webs and a longitudinally coextensive central rib, the webs extending longitudinally in the direction of extent of the row formation and transversely in the direction of extent of the shanks and being adhesively



secured to the shanks on opposite sides of the row formation, the ribs extending longitudinally in the direction of extent of the row formation and transversely outwardly from the associated webs in a direction transverse to the direction of extent of the shanks.

3,592,340

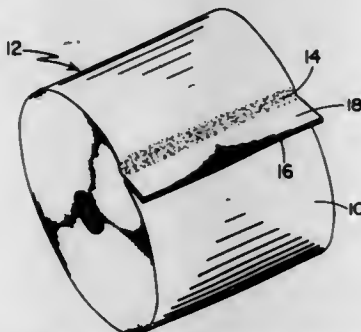
ROLL OF THERMOPLASTIC MATERIAL

Raymond M. Hoey, Barrington, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Sept. 4, 1969, Ser. No. 855,255
Int. Cl. B65d 85/66

U.S. Cl. 206-59

6 Claims



An elongated strip of thermoplastic material wound into a roll having a portion of the roll's ultimate convolution fused solely by strip material to only the penultimate convolution to provide a breakable connection therebetween which will break, to release the strip for unwinding, before the strip material tears.

3,592,341

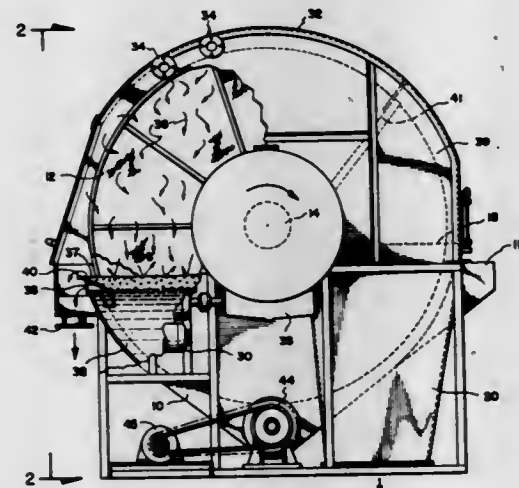
METHOD AND APPARATUS FOR STEAM DRYING FILTER CAKE

Robert C. Emmett, Jr., Dundee, Ill., and Donald A. Dahlstrom, Salt Lake City, Utah, assignors to Envirotech Corporation, Salt Lake City, Utah

Filed Jan. 5, 1970, Ser. No. 692
Int. Cl. B01d 37/00

U.S. Cl. 210-68

12 Claims



A method and apparatus is disclosed for steam-drying filter cake formed on a drum on disc-type vacuum filter which is

mounted for rotation in an enclosed feed slurry tank. To block heat loss and subsequent condensation of the steam within the enclosed area, an insulating barrier is floated on the feed slurry to maintain a thermal separation therebetween.

3,592,342

SEPTIC TANK EFFLUENT CHLORINATOR UNIT

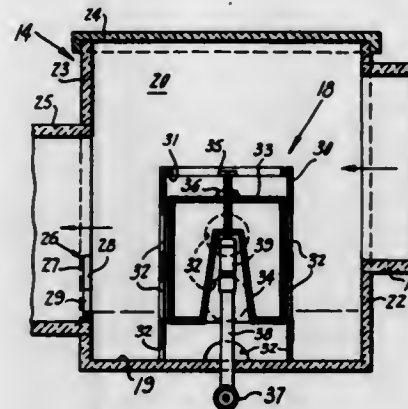
Joe L. Shankle, 1030 Bridge View Drive, Placerville, Calif.

Filed Oct. 24, 1969, Ser. No. 869,231

Int. Cl. B01d 57/00

U.S. Cl. 210-127

1 Claim



A chlorinator unit for the effluent of a septic tank in which a flow restrictor in the distributor box maintains a head of effluent and as the head rises a float actuated valve is opened to emit chlorinated water into the distributor box to mix with the effluent prior to its moving on to the septic tank field.

3,592,343

TRAVEL TIE HANGER

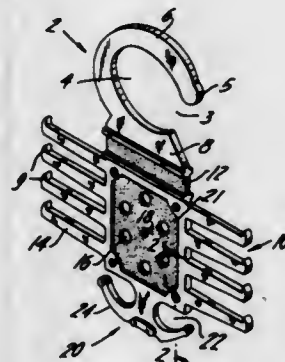
James B. Swett, Barrington, R.I., and Sidney Z. Smith, Worcester, Mass., assignors to Dart Industries, Inc., Los Angeles, Calif.

Filed July 16, 1969, Ser. No. 842,177

Int. Cl. A47J 51/24

U.S. Cl. 211-13

4 Claims



A travel tie hanger constructed in a manner to provide a convenient and accessible means of storage for not only neckties, but also cuff links, tie tacks, belts, tie clasps and other men's clothing accessories.

3,592,344

COLLAPSIBLE SECTIONAL BOOKCASE UNIT

Frank Stanley Schade, Holyoke, Mass., assignor to National Blank Book Company, Inc., Holyoke, Mass.

Filed Dec. 26, 1968, Ser. No. 787,186

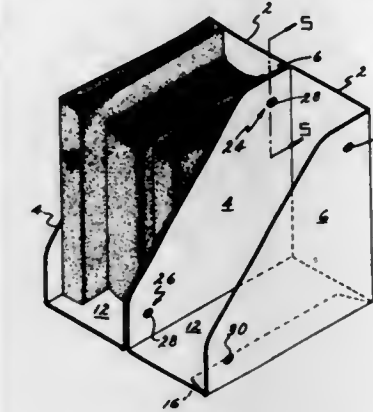
Int. Cl. A47b 63/00

U.S. Cl. 211-42

3 Claims

A collapsible folding bookcase construction for separate desk or tabletop use and as a sectional unit to be releasably assembled with like units, a foldable unit having hinged back, side, and bottom panels and an assembly or connector flap,

the side panels having recessed fastener means for joining like units side-by-side and the panels and flap being foldable



valve (preferably foot controlled) which will add to the normal flow in the "down" hydraulic conduit additional fluid from a supplemental source of supply which may be one not always available. The hydraulic fluid provided for another function of the crane, e.g. from a slewing pump, can be used. A check valve prevents reverse flow from the "down" conduit.

3,592,347

PIPE POSITION INDICATOR FOR PIPE RACKERS

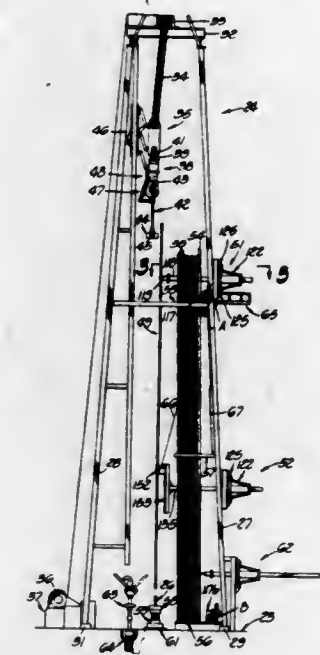
Robert R. Kelly, Hoffman Estates; James R. Tomashek, Wood Dale, and Donald H. Ward, Glen Ellyn, all of Ill., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Jan. 13, 1969, Ser. No. 790,643

Int. Cl. E21b 19/00

U.S. Cl. 214-2.5

11 Claims



into overlying relation against each other for flat compact storage or shipping purposes.

3,592,345

ERECTIBLE METAL SHELVING

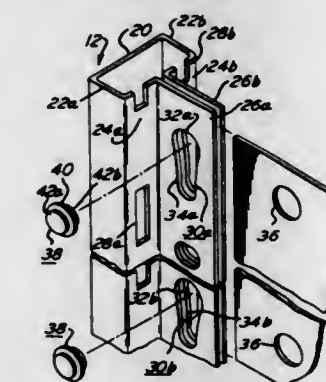
Bernard E. Featherman, Philadelphia, Pa., assignor to Bernard Franklin Company, Inc., Philadelphia, Pa.

Filed Apr. 4, 1969, Ser. No. 813,654

Int. Cl. A47b 9/14; A47f 5/10

U.S. Cl. 211-176

4 Claims



Erectible metal shelving having bracing members which extend horizontally between the supporting posts of the shelving and are relatively narrow so that the shelves of the shelving are accessible from all sides of the shelving. In addition, the bracing members can be secured to the posts without any special tool so that the shelving can be easily assembled and disassembled.

A pipe position indicator for pipe rackers, in which the position of a stand of pipe is shown for each of two axes on a pair of dials, one of which dials shows gross positioning and the other of which dials shows fine positioning, with respect to the well centerline and the racked positioned of the pipe stand.

3,592,348

LOAD CARRIER-LOAD SUPPORT MECHANISM IN AUTOMATIC WAREHOUSING SYSTEM

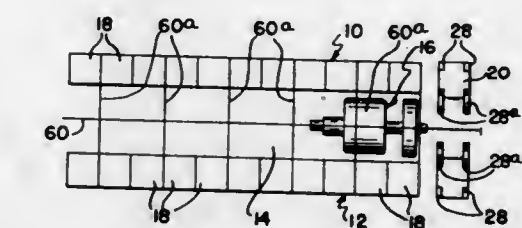
Wayne G. Atwater, Willoughby, Ohio, assignor to The Triax Company, Cleveland, Ohio

Filed Nov. 10, 1969, Ser. No. 875,474

Int. Cl. B65g 1/06

U.S. Cl. 214-16.4 A

15 Claims



An automatic warehousing system including a load carrier movable horizontally and vertically in a travel zone for depositing loads into and removing loads from a storage rack, with other load support structure coacting with the travel zone for supporting one or more loads in position to be handled by the load carrier for transmittal to the storage rack. The load carrier includes a cantilever section on which is mounted an extensible load-handling device or extractor. In one embodiment, the other load support structure comprises opposing pickup and discharge station structures having means thereon for supporting a load between the two sta-

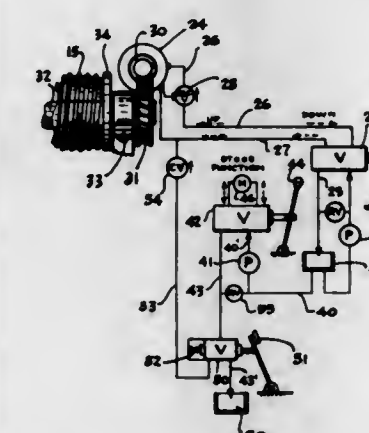
WINCHING WITH GREATER SPEED DOWNWARDLY
Wilburn Kelly Brown, Morton Grove, Ill., assignor to Pettibone Corporation, Chicago, Ill.

Filed June 28, 1968, Ser. No. 741,048

Int. Cl. B66c 23/54

U.S. Cl. 212-31

4 Claims



In a hydraulic crane in which the line or winch speed is usually limited by the output of a positive displacement hydraulic pump, a faster speed downwardly is provided by a

tions, with the cantilever section and load-handling extractor being adapted to be received in nested relation between the two stations for handling loads supported between said two stations as well as loads supported solely on one station. In another embodiment the other load support structure comprises a conveyor mechanism having a cutout section in which the cantilever section and load-handling extractor are adapted to nest, with a load being adapted to be positioned above said cutout section, for handling by the load carrier upon raising of the extractor thereof.

3,592,349

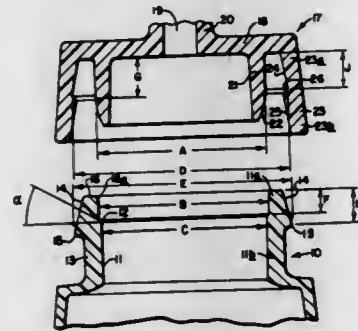
PLASTIC CONTAINER AND CLOSURE

William A. Baugh, Overland Park, Kans., assignor to Ethyl Development Corporation, Kansas City, Mo.
Filed May 22, 1969, Ser. No. 826,952

Int. Cl. B65d 41/22, 1/02

U.S. Cl. 215-41

9 Claims



A container and a plastic closure therefor which provides an essentially leakproof seal. The container has an opening surrounded by a continuous sidewall defining a cylindrical neck opening at its outer end. The cylindrical opening defined by the sidewall is provided with an annular band of increased diameter adjacent its upper end. In the preferred form a closure cap for the container neck is provided which has an integrally formed, depending outer skirt providing a retention groove on the interior surface thereof. The closure cap is provided with an inner, coaxial, depending annular skirt attached to the underside of the top of the cap and spaced inwardly from the outer skirt. The inner skirt is of generally annular configuration, has a diameter slightly larger than the maximum diameter of the cylindrical neck opening and is of sufficient resiliency to conform to the interior wall of the continuous sidewall of the container neck. When the cap is snapped onto the container neck, the inner skirt is squeezed into the cylindrical opening defined by the inner sidewall of the neck and conforms to the shape of the stepped opening to control compressive engagement thereby providing a substantially leakproof closure.

3,592,350

MOLDED-PLASTIC CARTONS FOR THE PACKAGING OF SMALL FRAGILE OR FLABBY FILLED SEALED CONTAINERS SUCH AS BOTTLES AND THE LIKE

Guido Martelli, Piazza XX Settembre 5; Nerio Martelli, Via Cavaloni 6, and Francesco Martelli, Piazza XX Settembre 5, all of Bologna, Italy

Filed Apr. 30, 1969, Ser. No. 820,368

Claims priority, application Italy, May 8, 1968, 7,010 A/68

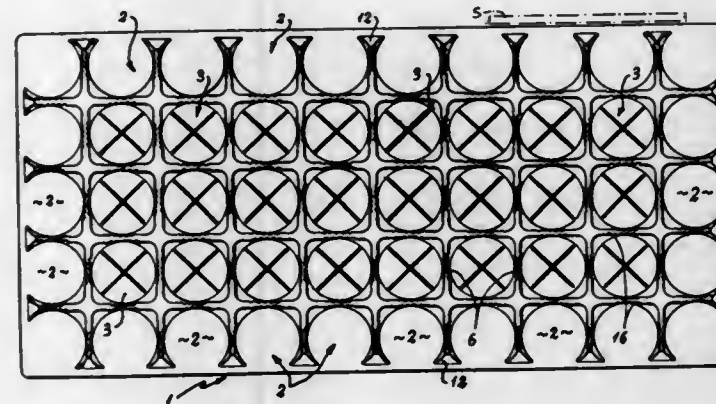
Int. Cl. B65d 25/02, 81/00

U.S. Cl. 217-19

6 Claims

Cellular cartons to be inserted in packaging boxes, for the packaging of bottles and manufactured by molding of thermoplastic material have peripheral cells provided with bottom sheets on which the bottles rest and inner cells having

their lower ends permitting the through passing of the bottle ends, whose bottoms rest upon the bottom of the packaging



box. The bottles inserted in the peripheral cells serve for anchoring the cartons in the packaging boxes.

3,592,351

CONTAINER CLOSURE

Arthur L. Johnson, Jr., Rockford, and Marlow W. Dodge, Loves Park, both of, Ill., assignors to Johnson Enterprises, Inc., Rockford, Ill.

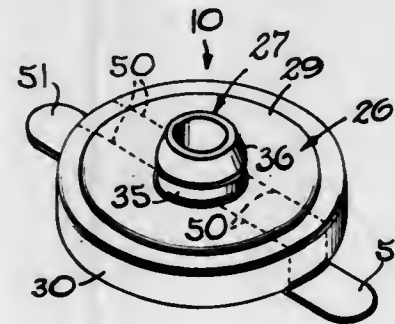
Continuation-in-part of application Ser. No. 660,265, Aug. 14, 1967, now abandoned. This application Sept. 23, 1969,

Ser. No. 871,435

Int. Cl. B65d 17/00

U.S. Cl. 220-27

16 Claims



For enabling cleaning, filling, and tapping of a container of pressurized liquid such as a barrel of draft beer through a single opening in the barrel, a closure unit covers and closes a relatively large filling and cleaning opening in the barrel. The unit comprises a removable main closure sized and shaped to close more than one-half the total cross-sectional area of the opening and a separate rubber sealing plug fitted snugly into a hole in the main closure, the sealing plug being adapted to receive a tube of a dispensing device for withdrawing beer from the barrel. The sealing plug is formed with a rubber membrane which closed the hole and seals the barrel until the barrel is tapped and which then becomes punctured and seals around the tube while the tube is in the barrel.

3,592,352

DEVICE FOR OPENING OR CLOSING A LID OF A JAR

Nobuo Shirae, 6-4 Tonoyamacho, Nishinomiya, Hyogo, Japan

Filed Sept. 23, 1969, Ser. No. 860,382

Claims priority, application Japan, Sept. 25, 1968, 43/83584

Int. Cl. B65d 45/18

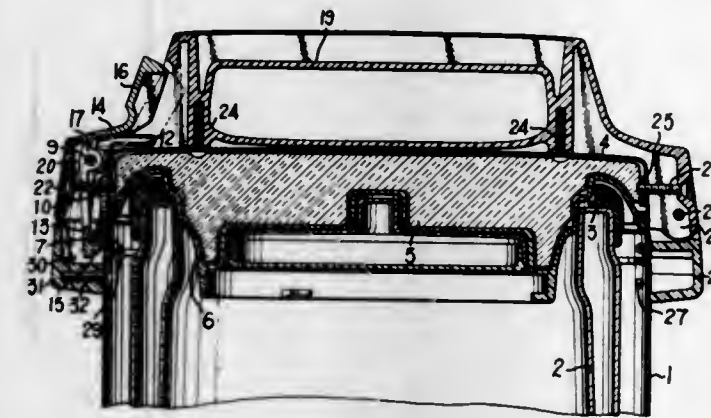
U.S. Cl. 220-55.7

1 Claim

A device for opening or closing a lid of a jar in which the tail end of a handle fixed to the upper surface of the lid is hingedly supported on an attaching member at the upper rear portion of the jar main body and a locking member mounted at the front end of the handle is adapted to be engaged with or disengaged from a holding member at the upper front portion of the main body. After the locking member is fixed to the outer cover of the lid, the handle is mounted on the outer cover. The handle and the locking member are constructed

independently of each other in their mechanical structures, whereby the load to be exerted on the handle due to its struc-

ing at the ends thereof wedgelike protuberances adapted to be engaged with the locking slots. The hinge straps are provided with wall sections of minimal thickness constituting a pair of spaced, parallel hinge lines about which the respective integrated portions of each strap move relative to each other to permit opening and closing of the two-piece container through an angle somewhat in excess of 180°.



3,592,355

DISPENSING DEVICE WITH ROTATABLE TURRET

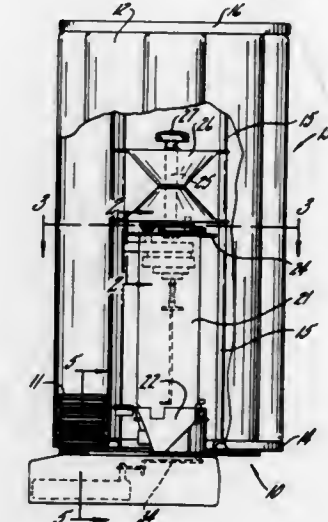
Marvin R. Manzer, and Donald E. Schmitt, both of Rockford, Ill., assignors to Reed Electromech Corp., Rockford, Ill.

Filed Dec. 8, 1969, Ser. No. 883,197

Int. Cl. G07f 11/12

U.S. Cl. 221-11

12 Claims



ture is reduced to make the device more durable and easier to assemble.

3,592,353

SEALING PATCH FOR EVAPORATED MILK CANS

Eldred W. Bowen, Brentwood, Mo., assignor to Pet Incorporated, St. Louis, Mo.

Division of Ser. No. 634,280, Apr. 27, 1967, Pat. No. 3,517,476.

Filed Sept. 2, 1969, Ser. No. 868,261

Int. Cl. B65d 7/42

U.S. Cl. 220-66

5 Claims



A can end closure with fill opening and a foil patch secured over said opening by means of a plastic adhesive.

The filler hole is larger than conventional and the profile of the can lid includes a protective wall around the filling opening defining a well into which the seal is placed to protect it from accidental removal. The principal purpose of the invention is to eliminate the use of solder in covering the filling opening which in the past occasionally has resulted in pellets of solder being deposited in the contents of the can.

3,592,354

HINGE CONSTRUCTION FOR TWO-PIECE CONTAINERS

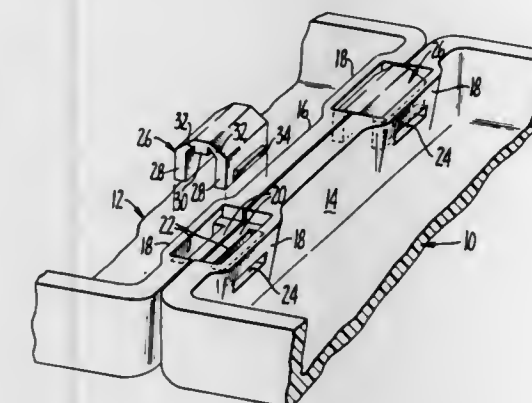
Elmer T. Nielsen, 155 Paraiso Place, San Francisco, Calif.

Filed Nov. 3, 1969, Ser. No. 873,212

Int. Cl. B65d 51/04; E05d 1/02

U.S. Cl. 220-315

2 Claims



An internally located and essentially out-of-sight hinge construction for a two-piece container, each of the container pieces having a pair of hinge sockets provided with locking slots, the adjacent hinge sockets of the container pieces being interconnected by one-piece flexible plastic hinge straps hav-

ing at the ends thereof wedgelike protuberances adapted to be engaged with the locking slots. The hinge straps are provided with wall sections of minimal thickness constituting a pair of spaced, parallel hinge lines about which the respective integrated portions of each strap move relative to each other to permit opening and closing of the two-piece container through an angle somewhat in excess of 180°.

3,592,356

APPARATUS FOR AUTOMATICALLY DIFFERENTIATING AND FEEDING FLEXIBLE WORKPIECES ONE AT A TIME FROM A STACK

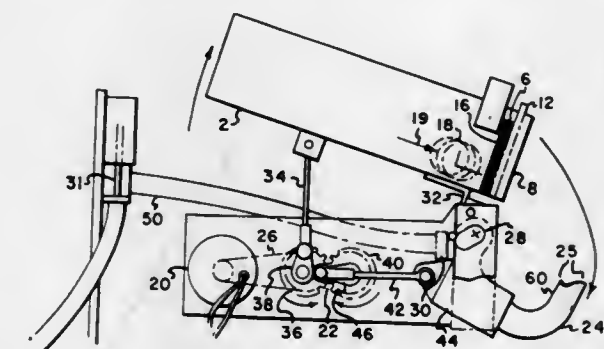
Herman Rovin, East Norwalk, Conn., assignor to Ivanhoe Research Corporation, New York, N.Y.

Filed May 6, 1969, Ser. No. 822,270

Int. Cl. B65h 1/08, 3/08; B65g 59/04

U.S. Cl. 221-36

9 Claims

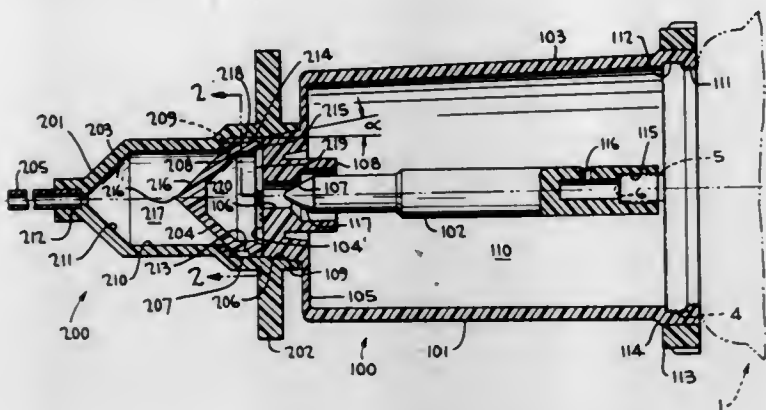


A hopper holds a stack of workpieces which are fed to a discharge mouth at one end of the hopper by intermittent pressure feed means, a movable suction head located near the discharge mouth, through which suction is applied, withdraws the end pieces, one at a time, from the stack away from the discharge mouth (at time intervals) during cycles of operation when the intermittent feed means relieves the pressure applied to the stack.

3,592,357
METHOD AND APPARATUS FOR DISPENSING CONTROLLED VOLUMES OF GAS
 Ralph A. Welch, 2470 Lane Road, Columbus, Ohio
 Filed May 14, 1968, Ser. No. 729,027
 Int. Cl. G01f 11/28

U.S. Cl. 222-1

24 Claims

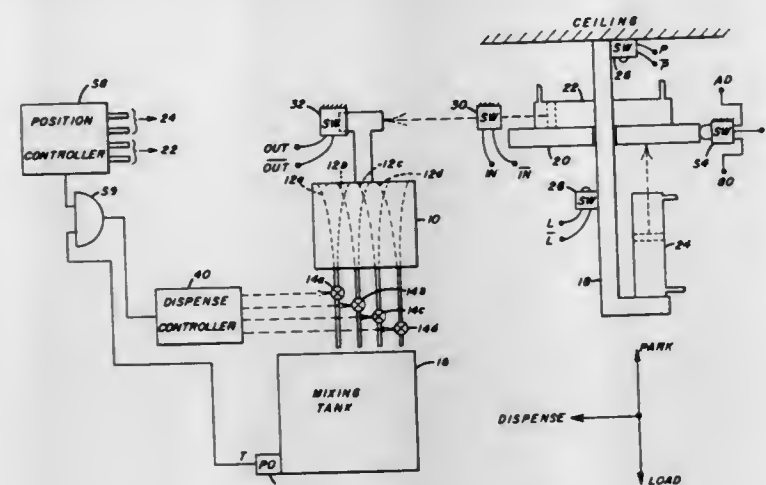


A method and apparatus for dispensing controlled volumes of gas at a predetermined pressure from a pressurized source. The dispensed gas may be introduced directly into a material-receiving chamber for the purpose of mixing with and ejecting material therefrom.

3,592,358
DISPENSING SYSTEM
 George P. Lugsdin, Woodbridge, Ontario, Canada, assignor to Eastman Kodak Company, Rochester, N.Y.
 Filed Aug. 1, 1969, Ser. No. 846,714
 Int. Cl. B67d 3/00

U.S. Cl. 222-52

7 Claims



Articulated apparatus for dispensing chemicals, or the like, into a vessel is disclosed. Dispensing of such chemicals can only occur if the position of the dispensing apparatus is complemented by a predetermined condition for the vessel, or its contents. The disclosure indicates the use of a "program" circuit which allows various quantities of chemicals to be mixed in accordance with a certain time sequence for the respective chemicals; and such mixing may occur without the attendance of a technician.

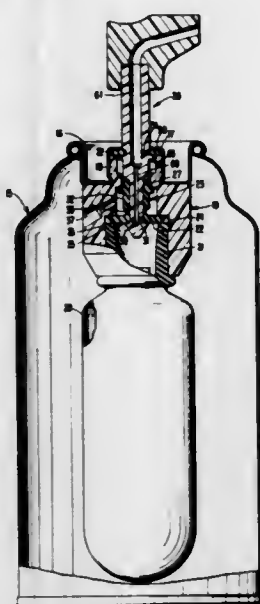
3,592,359
SPRING-VALVE MEMBER IN PRESSURIZED TWO FLUID DISPENSER
 Leonard L. Marraffino, 884 NE 42nd St. Oakland Park, Fort Lauderdale, Fla.
 Filed May 27, 1969, Ser. No. 828,203
 Int. Cl. B65d 83/14

U.S. Cl. 222-94

5 Claims

A nonresilient container for a pressurized primary fluid and an internal collapsible resilient holder for a secondary fluid, the fluids being placed in fluid mixing communication

in a slidable valve stem by a resilient valve member which is of a compliance and construction such that a normal valve stem movement is available even though only a minor movement under certain tolerances may be required for opening

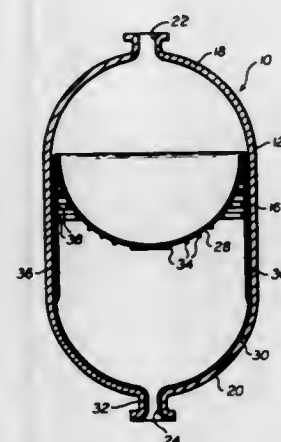


minute pinhole sized ports and accomplishing the discharge of very low viscosity fluids. The lost action or over movement of a part of the valve member enables the storage of sufficient energy to insure return of the valve stem to full closed position by the valve member.

3,592,360
CYLINDRICAL FLUID STORAGE AND EXPULSION TANK
 Benjamin J. Aleck, Jackson Heights, N.J., assignor to Arde, Inc., Paramus, N.J.
 Filed June 28, 1967, Ser. No. 649,704
 Int. Cl. B65d 35/28

U.S. Cl. 222-95

12 Claims



Means for preventing the radial collapse of a cylindrical portion of an expulsion bladder is secured to the bladder in such a way that the bladder can not be separated from the reinforcement in a normal direction by the application of actuation pressure but can be peeled away from the reinforcement by forces resulting from the actuation pressure.

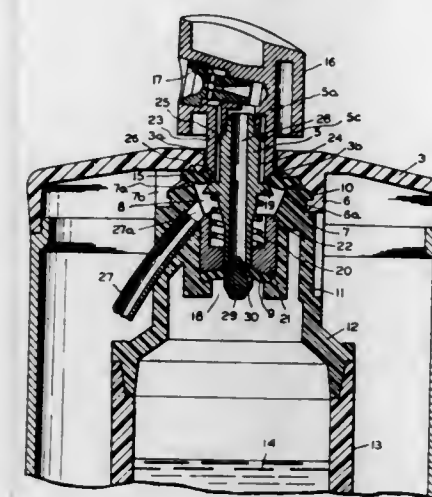
3,592,361
JOINT FOR JOINING PARTS OF AN AEROSOL-TYPE DISPENSER
 Jean Marand, St. Benoit, France, assignor to Geigy Chemical Corporation, Greenburgh, N.Y.
 Filed Apr. 23, 1969, Ser. No. 818,569
 Int. Cl. B67d 5/52

U.S. Cl. 222-136

7 Claims

A joint for joining parts of an aerosol-type dispensing device having a cap member and a valve assembly with a

valve member. The joint has a male joint means on one of said members and a female joint means on the other of said members. The male joint means has a radially extending portion and the female joint means has a radially extending portion. The radially extending portion of the male joint means is engaged over the radially extending portion of the female joint means between the radially extending portion of the

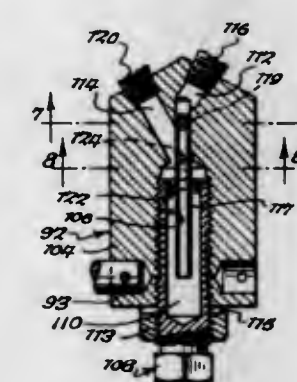


female joint means and the member on which the female joint means is positioned, and the radially extending portion of the female joint means is engaged over the radially extending portion of the male joint means and the member on which the male joint means is positioned. The cap member and the valve body member are thus tightly connected.

3,592,362
APPARATUS HAVING INVESTABLE METERING CHAMBER
 Kenneth G. Kane, Cheektowaga, N.Y., assignor to Pin Point Products Inc., Buffalo, N.Y.
 Filed Feb. 28, 1969, Ser. No. 803,359
 Int. Cl. G01f 11/00

U.S. Cl. 222-148

8 Claims

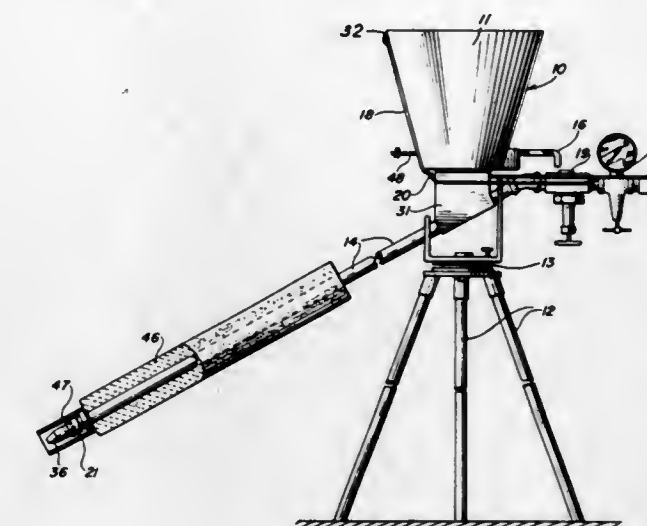


A wear-testing apparatus comprising a pneumatic system for feeding and discharging abrasive particles against a test specimen. The system includes a metering device having an adjustable gauge tube for measuring a charge of abrasive particles. An orifice is provided at the outlet end of the gauge tube for metering the rate of discharge flow of such charge at a controlled rate into the pneumatic feed system. The system includes a discharge nozzle utilizing a venturi tube for feeding the abrasive particles through the system and blasting the same against the test specimen. An elastic collar engageable with the surface of the test specimen, is mounted on the outlet end of the nozzle for confining the spent abrasive particles within the blast area and for recovering and collecting the spent particles.

3,592,363
DEVICE FOR ADDING FINE PARTICLE-SIZED SOLIDS TO A LIQUID STREAM
 Ronald W. Stout, Gary, Ind., and John R. Albrecht, Groese Point Park, assignors to Inland Steel Company, Chicago, Ill.
 Filed Feb. 12, 1969, Ser. No. 798,634
 Int. Cl. B67d 5/54

U.S. Cl. 222-194

4 Claims

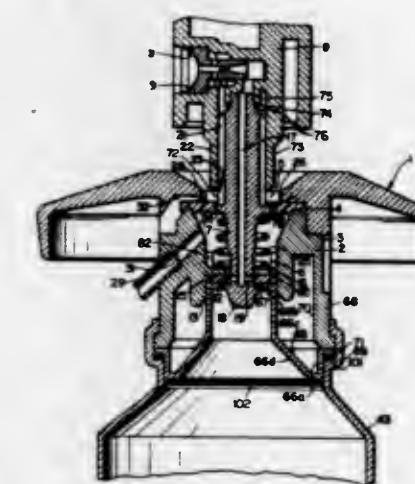


A device for adding fine particle-sized solids in a continuous casting operation whereby a uniform rate of addition of said solids is achieved by controlling the rate of flow of solids by means of a series of metering orifices in a feed bar attached to the bottom of a hopper and then propelling the particles through a series of tubes or conduits into the molten metal stream.

3,592,364
RETAINING RING INCORPORATING A CUTTING EDGE FOR USE IN AN AEROSOL DISPENSER VALVE ASSEMBLY
 Marvin L. Thornton, Bayside, N.Y., assignor to Geigy Chemical Corporation, Greenburgh, N.Y.
 Filed Aug. 27, 1969, Ser. No. 853,441
 Int. Cl. B67d 5/54

U.S. Cl. 222-193

4 Claims



A retaining ring assembly. A retaining ring which is adapted to be positioned between a propellant cartridge of an aerosol dispenser, which cartridge has particles of propellant-adsorbent material therein, and a stem-obturator gasket of the dispenser has an annular cutting edge on the bottom thereof. The retaining ring is dipped in adhesive and pressed against a sheet of filter material so that the disc-shaped filter element thus cut out of the sheet is secured in the retaining ring. The retaining ring assembly is then assembled with the remainder of the dispenser.

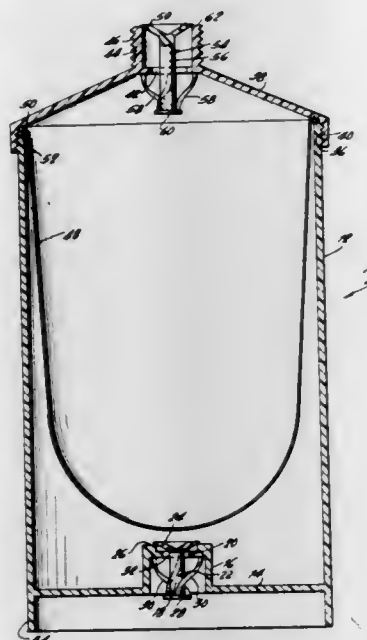
3,592,365

PUMP-TYPE DISPENSING APPARATUS

Gilbert Schwartzman, 20 Wilmet Circle, Scarsdale, N.Y.
 Filed Apr. 21, 1969, Ser. No. 817,946
 Int. Cl. B65d 37/00

U.S. Cl. 222-209

1 Claim



A dispensing apparatus comprising a squeezeable container having a bottom secured with a normally closed check valve adapted to open when the pressure in the container is less than atmospheric. An inflatable bag is disposed in the container and held in place by a cover detachably secured to the container. The cover has a dispensing opening therein defining a valve seat with a valve member disposed in the opening and having a valve head engaging the valve seat for closing the opening, said valve member including spring means integral with the cover.

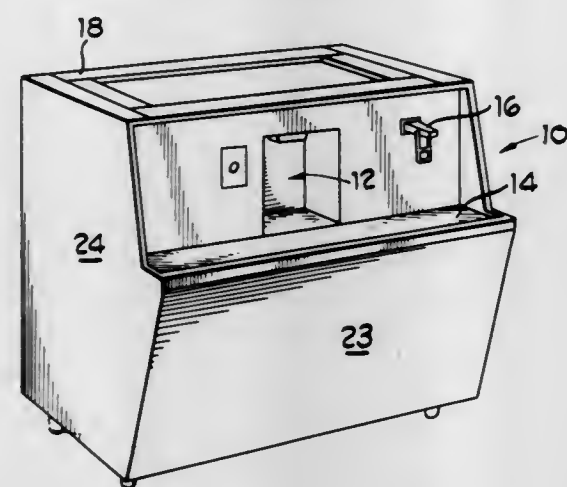
3,592,366

ICE STORAGE AND DISPENSING APPARATUS

William F. Markley, and David D. Hart, both of York, Pa., assignors to Borg-Warner Corporation, Chicago, Ill.
 Filed May 28, 1969, Ser. No. 828,497
 Int. Cl. G01f 11/20

U.S. Cl. 222-242

6 Claims



Apparatus for receiving and storing particulate ice, such as cubes, including a rotating dispenser which can be operated to release controlled quantities of ice on demand. A revolving disc carries lifters which provide small compartments for the receipt of ice discharged from a storage zone through apertures in the disc.

3,592,367

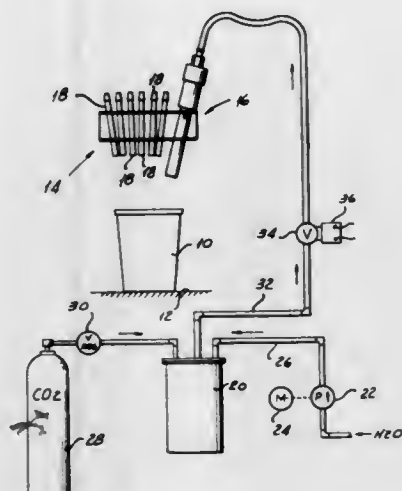
CARBONATOR NOZZLE ASSEMBLY FOR BEVERAGE-MERCHANDISING MACHINE

Bruce B. Landis, Long Valley, and Allan D. Barden, Lake Hiawatha, both of N.J., assignors to Rowe International, Inc., Whippany, N.J.
 Filed Feb. 27, 1969, Ser. No. 802,956
 Int. Cl. B65d 83/14

U.S. Cl. 222-394

Int. Cl. B65d 83/14

11 Claims



A nozzle assembly for delivering carbonated water from a supply to a cup in a carbonated beverage dispensing machine in which carbonated water from a supply flowing to the nozzle inlet through a solenoid-operated valve during the dispensing operation moves a valve in the nozzle away from its seat against the action of a spring to provide restricted flow of the carbonated water around the valve to the nozzle outlet. The position of the valve seat in the nozzle is readily adjusted to regulate the resistance to flow of carbonated water through the nozzle. The nozzle body and the seat-forming inlet member do not require close tolerances and are formed of synthetic resin having relatively good dimensional stability. The parts are easily disassembled for cleaning.

3,592,368

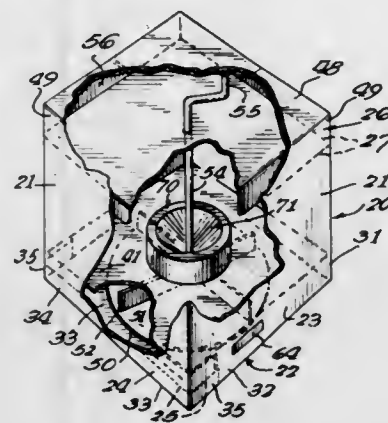
COMBINATION CONTAINER AND SPREADER PACKAGE FOR PARTICULATE MATERIAL

Christian Albert Huette, Fairbury, Ill., assignor to Honeggers & Co., Inc., Fairbury, Ill.
 Filed July 2, 1969, Ser. No. 838,536
 Int. Cl. G01f 11/20

U.S. Cl. 222-410

Int. Cl. G01f 11/20

14 Claims



A unit package including a shipping, display and storage container for particulate material, and one or more enclosed housings, at one or both vertical ends of the package, containing the components of a mechanical spreader. Each housing includes a removable portion detachable to expose the spreader elements and provide access thereto. Detachment of the removable portion from the lower housing exposes an opening through which particulate material may be expelled from the lower housing by the spreader element. In use, the package is carried by a strap slung around the neck of a person who manually operates the mechanical spreader.

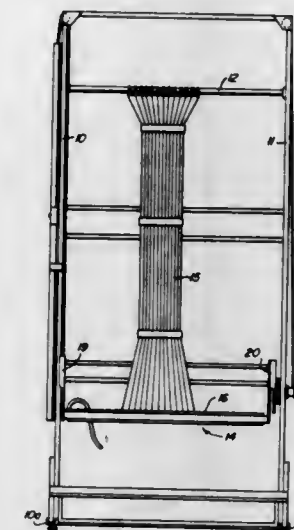
3,592,369

DRAPERY PLEATING AND FOLDING APPARATUS

John H. Hales, Aurora, Utah
 Filed May 8, 1970, Ser. No. 35,681
 Int. Cl. A41h 43/00; D06j 1/00

U.S. Cl. 223-32

10 Claims



An apparatus for pleating and stretching draperies after cleaning and when they are being folded and finished. The apparatus includes a pair of upright standards with an elongate horizontal drapery hanger bar extending between the standards and arranged for vertical travel along the standards. A plurality of drapery connectors are movable horizontally along the hanger bar and are arranged to suspend a drapery therefrom such that it can be positioned to be grasped by a pleater assembly that is also arranged to extend between the vertical standards. The pleater assembly is thus beneath the hanger bar and it is also mounted for vertical travel with respect to the upright standards.

The pleater assembly includes a pair of interacting pleater members adapted to clamp the pleats in the lower portion of the drapery. For this purpose, one of the pleater members has inflatable fingers expandable into pressing engagement with respect to interacting fingers of the other pleater member, thereby clamping the positioned drapery pleats between the interacting fingers and holding them as the hanger bar is elevated to stretch the drapery.

3,592,370

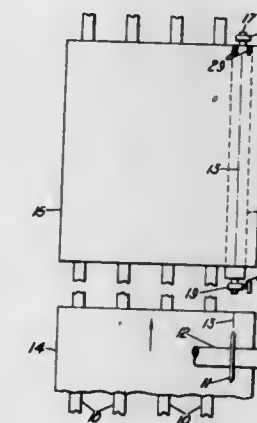
CUTTING OF GLASS SHEETS

Peter Boardman, Newton-le-Willows, England, assignor to Pilkington Brothers Limited, Liverpool, England
 Filed Nov. 6, 1969, Ser. No. 874,433
 Claims priority, application Great Britain, Nov. 14, 1968, 54,140/68

Int. Cl. B26f 3/00

U.S. Cl. 225-2

19 Claims



A glass sheet is divided along a required line of break delineated by a score line on the sheet by supporting the sheet on an elongated member disposed in the region of the required line of break and making line contact with the un-

derface of the sheet. One end of the member is then raised and a bending moment is applied across the raised end of the score line so as to effect a break which runs along the supported line.

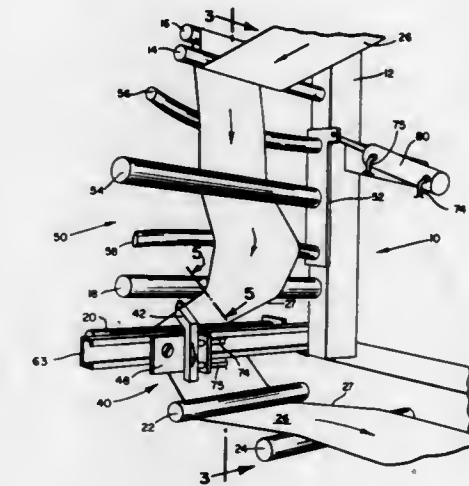
3,592,371

BAND WIDTH CONTROLLER

William Kirk Wyatt, Lansdale, and John R. Brownell, Telford, both of Pa., assignors to Turbo Machine Company, Lansdale, Pa.
 Filed June 23, 1969, Ser. No. 835,546
 Int. Cl. B65h 25/26

U.S. Cl. 226-18

6 Claims



A control means for the adjustment of the band width of a moving band of continuous material which passes over a plurality of tensioning bars and is subject to deviations in its width due to its inherent properties in such an environment, comprises at least one bar presenting a curved surface to one face of the continuously moving band, said surface, upon engaging said face, causing said band to spread or become narrower in accordance with the disposition of said curved surface. The bar is actuated by an amplifier-controller and servomotor which is constantly error sensitive in that error-measuring means are provided downstream being in engagement with said band to measure the error and effect the input signal to the amplifier-controller. In alternate embodiments a plurality of curved surfaces are presented to one or more faces of said band, said surfaces being movable by means which are controlled either independently or commonly.

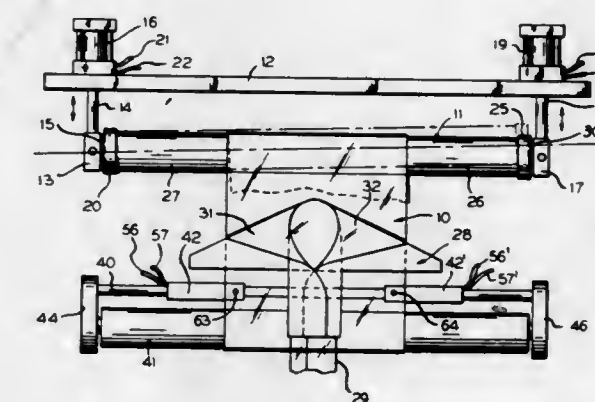
3,592,372

APPARATUS FOR WEB EDGE ALIGNMENT

Robert C. James; Walter H. Vogel, and Richard D. Sorenson, all of Sheboygan, Wis., assignors to Hayssen Manufacturing Company, Sheboygan, Wis.
 Filed Sept. 5, 1968, Ser. No. 757,600
 Int. Cl. B65h 25/08

U.S. Cl. 226-22

6 Claims



A web-edge-aligning system for aligning a web such as a plastic film which is to be formed into containers, is disclosed. A shiftable web guide roller has adjustable cylinders mounted at its opposite ends for independently adjusting the

ends of the roller so as to move the web as it passes over the roller. Fluid sensors are mounted on each side of the web after it passes over the roller and detect when the web edges are properly aligned. If the web is misaligned, the sensors control valves to operate the cylinders so that the film is again centered and aligned.

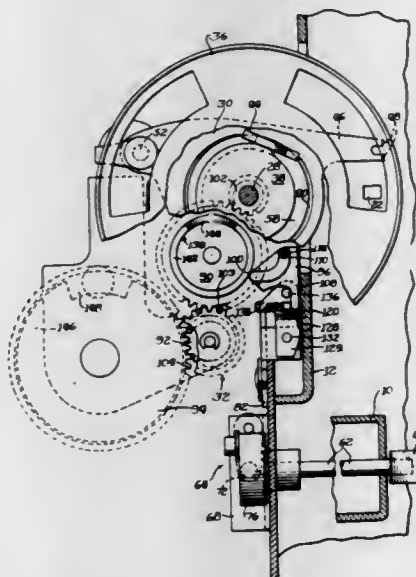
3,592,373

VARIABLE-SPEED FILM MOVEMENT MECHANISM
Raymond W. H. Kim, Morton Grove, and Arthur E. Nupnau, Chicago, both of, Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Oct. 6, 1969, Ser. No. 863,821
Int. Cl. G03b 1/28

U.S. Cl. 226-66

12 Claims



A variable-speed film movement mechanism for a motion picture projector is provided wherein a shuttle, adapted to move the film across the projection axis, is moved into and out of engagement with the film perforations at speeds that are related to, but may be different from, the rate of up-and-down movement of that shuttle. The mechanism includes a shaft having mounted thereon an up-and-down cam adapted to move the shuttle cyclically up and down at a predetermined rate, and a normal cam operatively connected to move the shuttle in and out of film engagement in synchronism with the movement of the shuttle. A control mechanism is adjustable to enable selection of other cams and mechanism to cancel selected actuations of the normal cam and to provide rates of film movement at slow motion and very slow or stop motion in addition to normal motion.

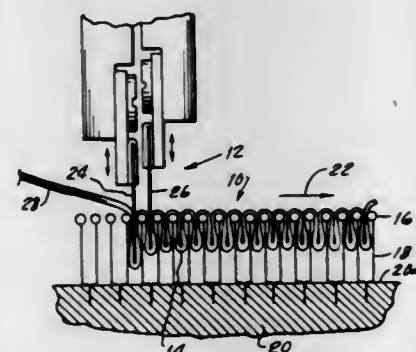
3,592,374

APPARATUS FOR PRODUCING A PILE FABRIC
Ralph M. Adler, New York, N.Y., assignor to Adler Process Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 793,842, Jan. 24, 1969, which is a continuation-in-part of application Ser. No. 520,402, Jan. 13, 1966, now Patent No. 3,424,632. This application Mar. 25, 1969, Ser. No. 810,306
Int. Cl. B65h 17/18

U.S. Cl. 226-104

4 Claims



An apparatus for the manufacture of nonwoven pile fabrics suitable for carpeting or the like includes an array of loop-

forming members arranged in paired relationship, the array being adapted to travel past a loop-forming station wherein loops of yarn are formed. Each of the loop-forming members comprises a relatively elongated bead portion upon which yarns are disposed to form loops when the yarns are inserted between a pair of said loop-forming members, and a relatively elongated flexible slat portion at one edge integral with the bead portion and adapted to be fixed at the other end to a dimensionally stable carrier.

3,592,375

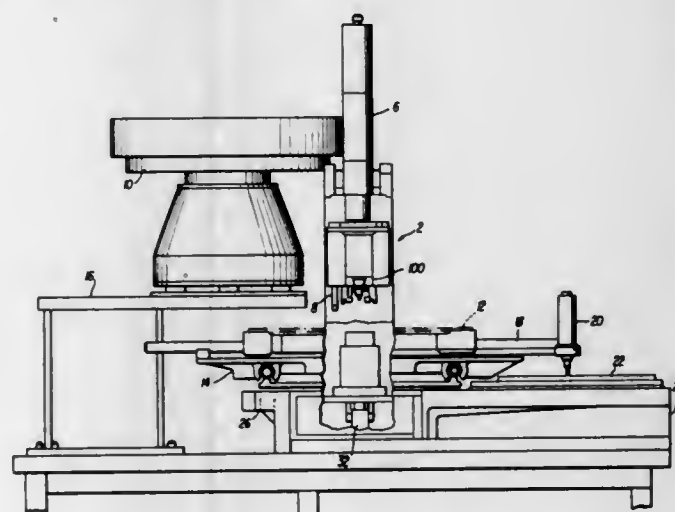
TRANSISTOR INSERTER

Albert W. Zemek, Binghamton, and Robert H. Holmes, Marathon, both of, N.Y., assignors to Universal Instruments Corporation, Binghamton, N.Y.

Filed July 8, 1969, Ser. No. 839,846
Int. Cl. H01r 43/00

U.S. Cl. 227-87

17 Claims



A transistor inserter mechanism for inserting transistors with leads which has lead-straightening blades, guide arms to align the leads with predrilled holes in a circuit board and an ejector plunger. A slide block and spindle are mounted in a retainer for joint and relative movement during which the straightening blades first engage and disengage the leads and the guides are employed. The guides are disengaged after the leads enter the holes but prior to the operation of the ejector plunger.

3,592,376

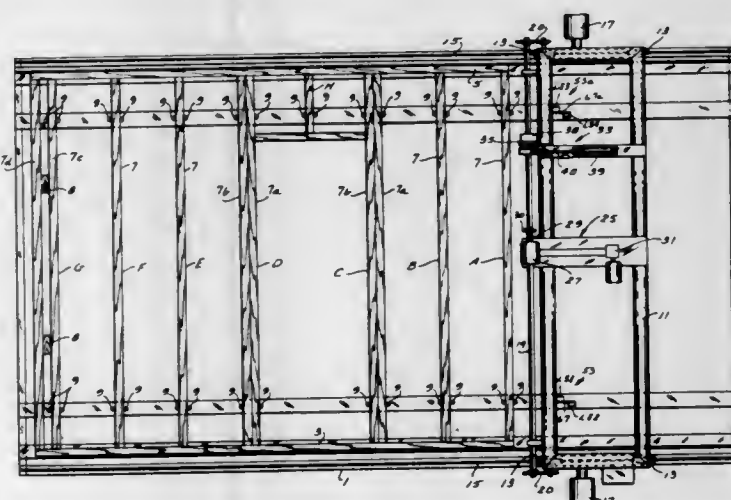
APPARATUS FOR PREFABRICATING WOODEN PANEL FRAMES

Walter George Moehlenpach, Ladue, Mo., assignor to Hydro-Air Engineering, Inc., St. Louis, Mo.

Filed Jan. 8, 1970, Ser. No. 1,395
Int. Cl. B27f 7/02

U.S. Cl. 227-101

12 Claims



Apparatus for prefabricating wood frames for walls, ceilings and floors of buildings, mobile homes and sectional or stack housing, comprising a jig on which transverse and longitudinal members may be laid out in position for being

nailed together, and a carriage carrying nailers movable along the jig in the direction of length of the longitudinal members for driving nails through the longitudinal members into the ends of the transverse members. The apparatus automatically senses the provision of multiple transverse member groups in a layout and provides automatically for movement of the carriage and operation of the nailers to nail not only the first but also the subsequent transverse members of such groups.

3,592,377

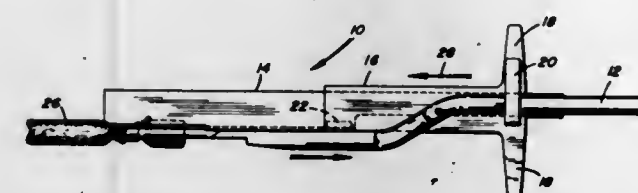
HEMOSTAT UNIT

David T. Green, Norwalk, Conn., assignor to United States Surgical Corporation, Baltimore, Md.

Filed Oct. 24, 1969, Ser. No. 869,242
Int. Cl. B25c 5/02

U.S. Cl. 227-120

9 Claims



A hemostat unit comprising, in combination, a hemostat and a staple carrying and ejecting system for clamping a fluid-carrying artery and stapling same so as to seal off the flow of fluid. A plurality of staples is positioned on respective threads of a screw, which screw is turned one revolution each time the unit is activated. A vertically oriented driver, slidably mounted in the forwardmost part of the stapling unit, serves to eject the staples one at a time and to force same against an anvil to shape the staples. The driver is moved in response to the movement of a rotatably mounted driver-activating member, which latter member is caused to pivot in response to the command of the operator.

3,592,378

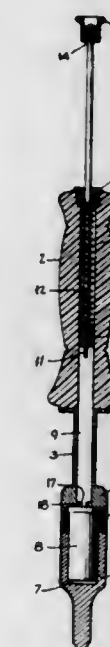
SOLDERING IRON

Frank A. Petraglia, New York, N.Y., assignor to Metro-Tel Corp., Westbury, N.Y.

Filed Oct. 21, 1968, Ser. No. 769,071
Int. Cl. B23k 3/02

U.S. Cl. 228-51

8 Claims



A portable soldering iron having a hollow chamber next to the soldering tip which holds a cartridge that contains heat-producing chemicals. A spring-pressed firing pin is placed in a bore in the handle of the iron and is adapted to pass through a small aperture to strike the cartridge causing the chemicals to ignite to produce heat which is conducted to the soldering tip.

3,592,379

SHOPPING BAG WITH STRING

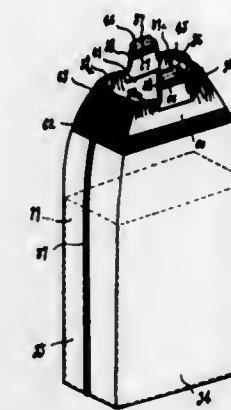
Toshio Nakamura, 27, 1-chome, Tanabe-nishinocho Higashi-sumiyoshihku, Osaka, Japan

Filed Sept. 4, 1969, Ser. No. 847,007

Claims priority, application Japan, Aug. 15, 1968, Mar. 20, 1969, Apr. 8, 1969, 43/58165; 44/21452; 44/27034
Int. Cl. B65d 33/06

U.S. Cl. 229-54

5 Claims



The present invention relates to the structure, the process and the manufacturing apparatus of the shopping bag with string, wherein both the surface and back sides of the bag are respectively turned back inward to form the double parts, into which are inserted said strings made of a synthetic resin, while in the upper and central part of the bag are perforated the separable gripping pieces, which will be pulled out together with the strings held by them, so that said bag can be closed in its mouth and carried by hand in safety.

3,592,380

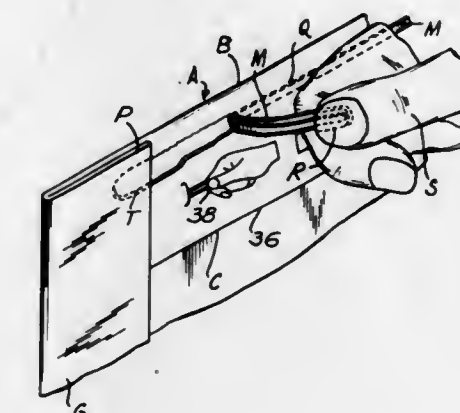
CUSHIONED SHIPPING BAG

George Gerard, Point Pleasant, N.J., assignor to Jiffy Manufacturing Co., Hillside, N.J.

Filed May 28, 1969, Ser. No. 828,651
Int. Cl. B65d 5/54, 5/70, 23/00

U.S. Cl. 229-66

5 Claims



The present disclosure relates to a cushioned shipping bag in which an enclosure for shipping objects subject to being damaged or otherwise undesirably affected by movement in the mails, parcel post, express shipments and the like may be placed in a container which will protect them through its construction from such injury. The bag is padded so that a filler is between two layers of flexible sheet material, particularly kraft paper forming a sleeve, one end of which is sealed and the other end of which is open for receipt of the article to be shipped. The bag along one side adjacent the edge thereof is provided with a tearsheet to permit ready opening thereof. This tear strip is desirably positioned adjacent the edge of the bag and adjacent the sleeve point or the junction point of the side of the tube.

3,592,381

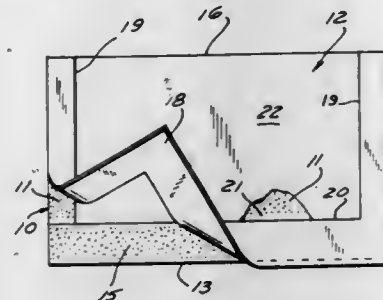
POCKET-FORMING DEVICE FOR LIBRARY CARDS
Arthur Brody, South Orange, N.J., assignor to Bro-Dart Industries

Filed Oct. 3, 1969, Ser. No. 863,621
Int. Cl. B65d 27/14

U.S. Cl. 229-74

2 Claims U.S. Cl. 235-200 PF

12 Claims



A rectangular sheet bears on its rear face a pressure-sensitive adhesive and a readily peelable covering equal in size to the sheet. The covering alone is cut along lines enclosing an area having the dimensions of the desired pocket and lying directly alongside the upper edge of the sheet. This area remains secured to the sheet when the marginal portion of the covering is peeled from the sheet to expose a U-shaped adhesive region. When the sheet is secured to a flat book surface by means of the adhesive region, the area of the covering defined by the cuts remains attached to the sheet to serve as the front wall of the pocket for accommodating a library card.

3,592,382

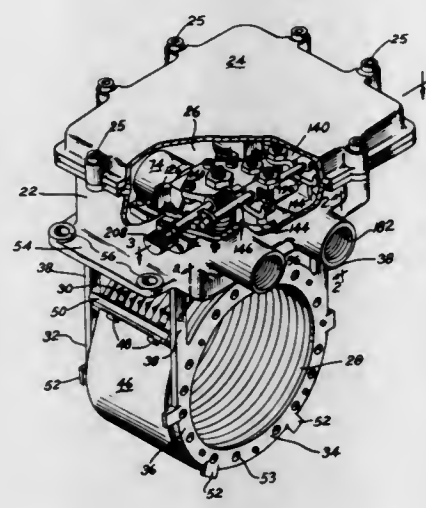
CONTROL APPARATUS HAVING REDUNDANT CONDITION-SENSING MEANS AND FAILURE INDICATOR

Boyd P. Byrer, South Bend, Ind., assignor to The Bendix Corporation

Filed Nov. 19, 1969, Ser. No. 878,123
Int. Cl. G05d 23/00

U.S. Cl. 236-86

9 Claims



A casing contains two fluid-pressure-responsive members each of which is responsive to an associated input fluid pressure which varies as a function of the same sensed variable condition. A servo valve actuated in response to the higher of the two outputs of the fluid-pressure-responsive members controls a servovalve which, in turn, establishes a control output which controlled servo pressure is applied to a separate feedback-fluid-pressure-responsive member associated with each of the two fluid-pressure-responsive members and connected to oppose the output thereof. A loss of input fluid pressure to either fluid-pressure-responsive member results in actuation of a visual failure indicator by the associated feedback-fluid-pressure-responsive member while the input fluid pressure to the remaining fluid-pressure-responsive member maintains the desired servo fluid pressure.

3,592,383

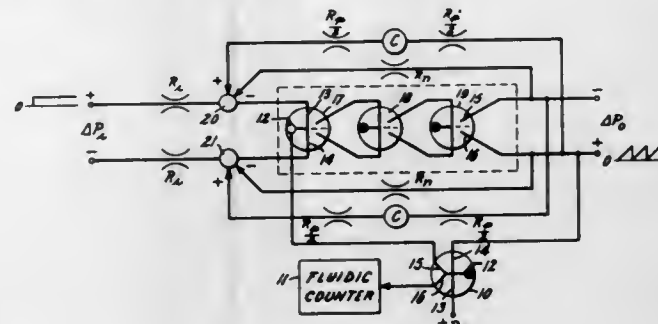
FLUIDIC RESET INTEGRATOR CIRCUIT

Carl G. Ringwall, Scotia, N.Y., assignor to General Electric Company

Filed Apr. 29, 1970, Ser. No. 32,990
Int. Cl. G06d 5/00

2 Claims U.S. Cl. 235-200 PF

12 Claims



The gain of a fluidic proportional integrator circuit is alternately reduced to zero to obtain a fluidic reset integrator having no moving mechanical parts. A rapid reduction to zero gain is achieved by alternately switching the output of a digital fluid amplifier from the power fluid inlet of a proportional fluid amplifier in the integrator circuit in accordance with the pressure magnitude at the output of the integrator circuit.

3,592,384

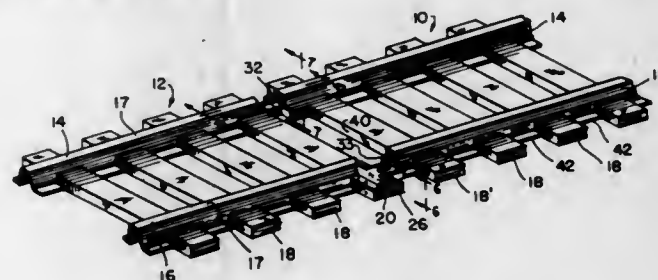
PORTABLE TOY TRAIN TRACK

Patrick M. Tomarò, Maplewood, N.J., assignor to Remco Industries, Inc., Harrison, N.J.

Filed Feb. 24, 1970, Ser. No. 13,503
Int. Cl. A63h 19/30

U.S. Cl. 238-10 E

10 Claims



A portable toy train track is described wherein sturdy portable lightweight track sections interlock with one another to form a train track for a toy train of a size sufficient to support the weight of a child. The train track sections are of unitary molded construction with molded flanges extending longitudinally from track sections to interlock with flange receiving recesses in adjoining sections.

3,592,385

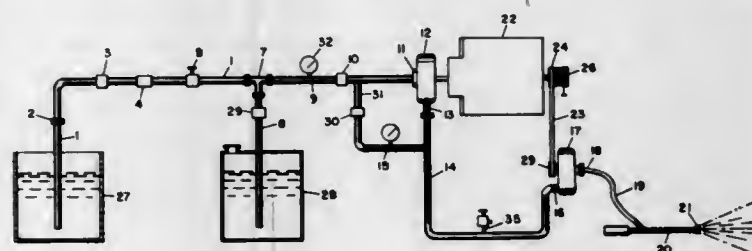
PROCESS FOR MAKING AND SPRAYING PESTICIDAL INVERT EMULSION

Ward Alan Smith, Louisiana, Mo., assignor to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of application Ser. No. 674,416, June 20, 1967, now Patent No. 3,499,606. This application Feb. 17, 1970, Ser. No. 11,996
Int. Cl. B05b 7/04

U.S. Cl. 239-10

6 Claims



Disclosed is a pesticidal invert emulsion making and spraying process in which the water phase is finely dispersed in the oil phase by mechanical rotary agitation in a mixing chamber

3,592,388

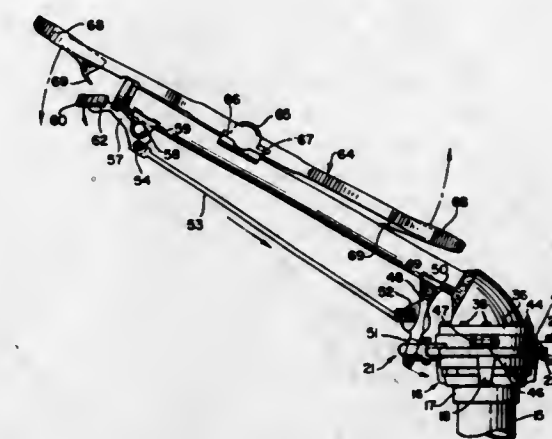
PART-CIRCLE SPRINKLER HEAD WITH BALL BEARING SWIVEL, ADJUSTABLE CAMS FOR DEFLECTOR SPOON AND OSCILLATING SPRAY DEFLECTOR

Richard F. Friedlander, P.O. Box 847, Moultrie, Ga.
Filed July 1, 1969, Ser. No. 838,080

Int. Cl. B05b 3/08

U.S. Cl. 239-233

5 Claims



A rugged and durable, lightweight sprinkler head features a ball bearing swivel of simplified and economical construction without the usual expensive machining. An improved camming system enables part-circle operation through any chosen angle with a very rapid return movement. The sprinkler head is easily convertible to full-circle operation. Bearing lubrication is provided.

3,592,389

FLAP LINKAGE

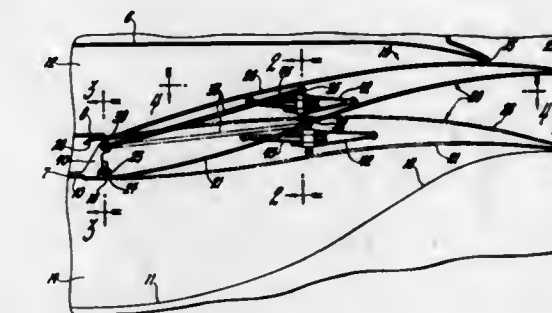
Douglas Johnson, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 24, 1969, Ser. No. 879,111

Int. Cl. B64c 15/06

U.S. Cl. 239-265.27

3 Claims



A ring of flaps acts as a freely floating valve member between two concentric ducts. The flaps are interconnected for joint equal radial movement by a linkage comprising a circular endless lazy-tongs linkage with one pivot on each flap and a parallelogram linkage for each pivot which maintains the pivot radial notwithstanding the swinging movement of the flaps.

3,592,390

SPRAYING APPARATUS AND MEANS FOR REFILLING SPRAY CANS

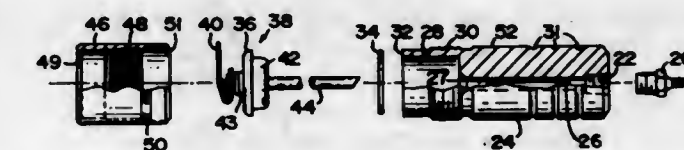
Albert R. Morse, Beachwood, Ohio, assignor to IMS Company, Cleveland, Ohio

Filed Apr. 1, 1969, Ser. No. 812,270

Int. Cl. B05b 1/12

U.S. Cl. 239-391

7 Claims



with an induced flow opposed to the flow of said phases into said chamber and under hydrostatic pressure sufficient to push invert emulsion out the outlet of said chamber through a conduit into a spray nozzle and out of said nozzle as a spray.

3,592,386

METHOD FOR SIMULTANEOUSLY IRRIGATING AND FERTILIZING AN AGRICULTURE FIELD

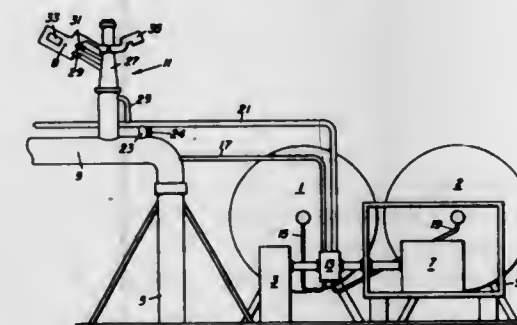
Jay Tschudy, Jr., Shawnee Mission, Kans., assignor to Precision Agricultural Machinery Company, Phoenix, Ariz.

Filed Jan. 23, 1969, Ser. No. 793,455

Int. Cl. B05b 1/26

U.S. Cl. 239-10

1 Claim



This invention relates to an agricultural process, and apparatus for carrying out the process, in which chemicals that are to be applied to a growing crop are admixed with irrigation water that is sprayed onto the crop. The irrigation water and the liquid chemicals (usually in the form of aqueous solutions, dispersions or emulsions) are delivered by separate lines to separate nozzles which are positioned in such a manner that the agricultural product streams issuing therefrom converge and mix exterior to the nozzles whereinafter the mixed stream falls upon the desired location.

3,592,387

HYDRAULIC-POWERED SCREW-DRIVEN PAINT SPRAYER

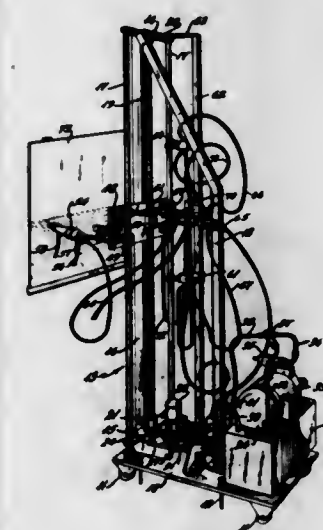
Ulysse J. Pilotte, and John P. Pilotte, both of 1519 Whittier, Ypsilanti, Mich.

Filed Dec. 24, 1969, Ser. No. 887,867

Int. Cl. B05b 3/18

U.S. Cl. 239-186

6 Claims



Apparatus including a carriage adapted to be moved rectilinearly along a desired plane by a rotatable screw-threaded shaft. The shaft is reversibly driven by fluid motor means supplied with fluid under pressure and adapted to be automatically reversed when a portion of the carriage engages limit switch means.

the molds. Fluid parting material under pressure exits from the lowermost portion of the container when in an operating position into a flexible conduit which conducts the fluid to a manually operable handgun having a conventional spray head and valve assembly clamped to a cylindrical body with a surge or vapor chamber therein. The actuation of the valve assembly also may be by a pneumatic or solenoid, automatic or semiautomatic control system.

An aerosol can having a spray head on each end and with each head including a flexible tubular inlet extending into the can to near the opposite end thereof.

Apparatus for refilling aerosol cans having a spray head on each end. The apparatus includes a large self-powered supply tank with a flexible tubular conduit attached to the lower end thereof. The distal end of the conduit is attached to a filler head at a filling station. The filling station includes a base with an upwardly extending rod and a reciprocable bracket secured to the rod above the base. Attached to the bracket is a filler head which accommodates the upper end of an aerosol can to be refilled. A support holds a handle in gear engagement with a bracket rod which extends upward from the bracket, through an aperture in the support adjacent the handle. Manual operation of the handle serves to reciprocate the bracket up and down to take the filler head into and out of operative engagement with a can. Removably fixed to the base is a vent block with a bleed hole therein for receiving the lower end of the spray can.

A container of parting material and propellant wherein the propellant is selected from the group comprising dichlorodifluoromethane, trichloromonofluoromethane, nitrogen, isobutane, dry air, carbon dioxide and mixtures thereof.

3,592,391

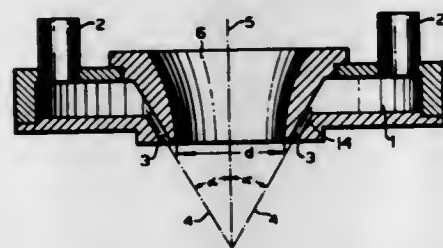
NOZZLE FOR ATOMIZING MOLTEN MATERIAL

Ludwig Bender, Bruhl near Cologne; Wilfried Gerhardt, Knapsack near Cologne, and Klaus Frank, Hermulheim near Cologne, all of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack near Cologne, Germany
Division of Ser. No. 543,156, Apr. 18, 1966, abandoned.
Filed Jan. 27, 1969, Ser. No. 794,274
No. 794,274

Int. Cl. B05b 7/10

U.S. Cl. 239-406

6 Claims



A nozzle for atomizing molten material includes annularly arranged outlet openings for an atomizing agent with a central aperture for the molten material. The axis of each outlet opening is inclined in the vertical plane with respect to the vertical axis of the central aperture at an angle α . Each outlet opening axis is also skewed with respect to the central aperture axis so that in the horizontal plane it deviates therefrom by the angle β . The angle α is between 20° and 50° and the angle β is between 10° and 40° with greater angles β being associated with greater angles α and with smaller angles α being associated with smaller angles β .

3,592,392

ELECTROMAGNETIC FUEL INJECTION SPRAY VALVE

Robert Huber, 14 Islerenweg 8126, Zumikon, Switzerland, assignor to Societe des Procedes Modernes d'Injection "SOPROMI", Les Mureaux, France
Filed June 24, 1969, Ser. No. 836,106

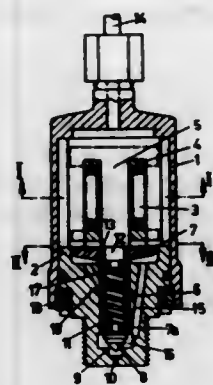
Int. Cl. B05b 1/30

U.S. Cl. 239-585

9 Claims

Valve has a disc-shaped armature with a hollow shaft con-

taining a compressed coil spring that holds the valve proper,



carried at the end of the shaft, closed, except when the magnet is energized.

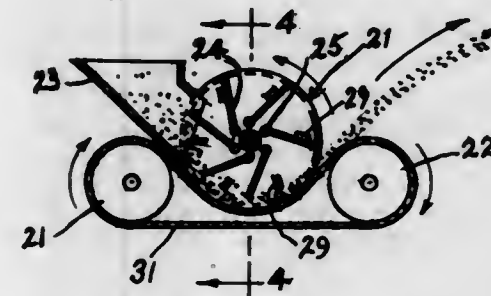
3,592,393

CENTRIFUGAL BELT THROWER

Alfred D. Sinden, 1348 Kensington Place, Aurora, Ill.
Continuation-in-part of application Ser. No. 635,197, May, 1967, now abandoned. This application June 24, 1969, Ser. No. 835,969
Int. Cl. A01c 17/00

U.S. Cl. 239-669

4 Claims



This centrifugal belt thrower is provided with pivoted vanes and supported in the discharge wheel, and in operation is extended substantially radially toward the belt but can pivot and retract from the belt as they encounter material carried on the belt.

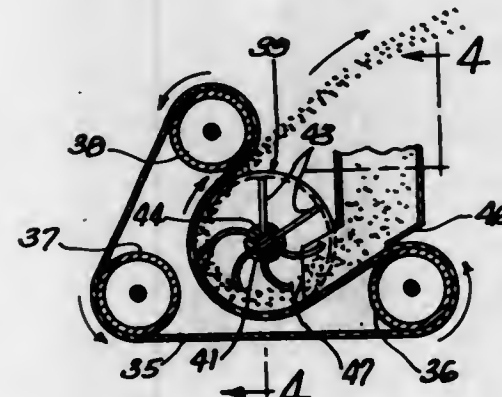
3,592,394

CENTRIFUGAL BELT THROWER

Alfred D. Sinden, 1348 Kensington Place, Aurora, Ill.
Continuation-in-part of application Ser. No. 635,197, May 1, 1967. This application June 24, 1969, Ser. No. 835,970
Int. Cl. A01c 17/00

U.S. Cl. 239-669

8 Claims



This centrifugal belt thrower is provided with very flexible flaps supported in the discharge wheel and extended toward the belt by centrifugal force into contact with the material to be thrown. They flex when they encounter material on the belt, and the material is fed directly onto the belt entering through the periphery of the wheel.

3,592,395

STIRRED FLUID-BED DRYERS

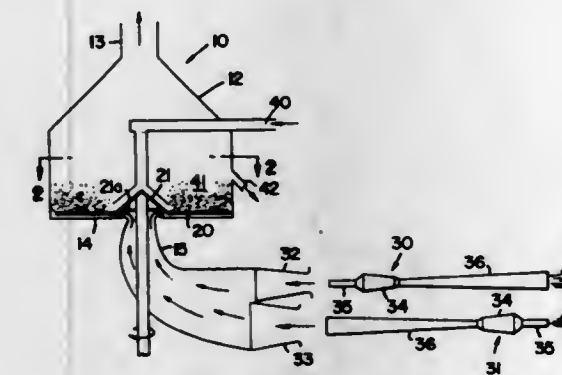
Raymond M. Lockwood, Los Altos, and David A. Graber, Menlo Park, both of Calif., assignors to International Dehydrating Corporation, Fullerton, Calif.

Filed Sept. 16, 1968, Ser. No. 759,959

Int. Cl. B02c 21/00

U.S. Cl. 241-18

20 Claims



A direct-heat-stirred fluid-bed dryer for fluidizing continuously changing portions of a slurry or other moist product to be dried while stirring the product and applying sonic energy to the product for efficient dehydration.

3,592,396

GRINDING AND APPARATUS THEREFOR

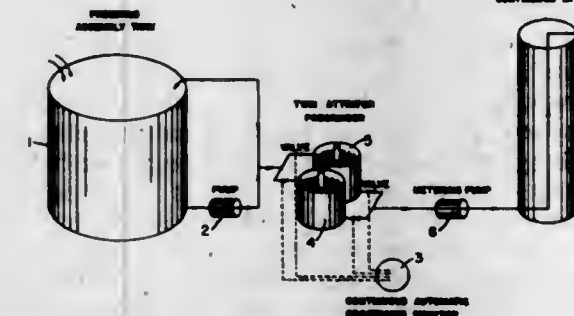
Andrew Szegvari, 201 Castle Blvd., Akron, Ohio
Division of Ser. No. 591,459, Nov. 2, 1966, Patent No. 3,493,182, which is a continuation-in-part of application Ser. No. 407,716, Oct. 30, 1964, now abandoned.

Filed July 14, 1969, Ser. No. 869,413

Int. Cl. B02c 17/16

U.S. Cl. 241-98

4 Claims

ATTRITOR PREMIX INSTALLATION
AUTOMATIC CONTROL

Apparatus for statistical grinding of material by grinding media maintained in motion by agitation means. The apparatus (1) may be for use on a batch basis or a continuous basis, or (2) may use grinding media of different sizes in a multistep operation, or (3) both. When using grinding media of different sizes, larger grinding media are first used, and then smaller grinding media, in separate vessels. In apparatus for a preferred operation larger grinding media are used in a batch operation, followed by smaller grinding media in a continuous operation.

3,592,397

BREAKER CONVEYORS

William H. Mathys, Oak Hill, W. Va., assignor to The Marmion Group, Inc., Chicago, Ill.

Filed July 18, 1969, Ser. No. 843,057

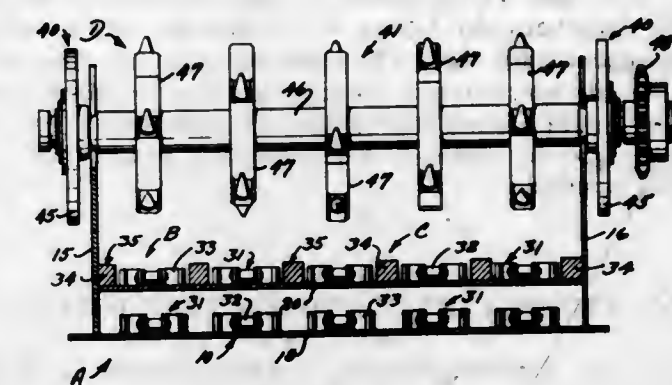
Int. Cl. B02c 13/06; 13/286

U.S. Cl. 241-187

7 Claims

A breaker-type conveyor including a plurality of conveyor

elements and wherein breaker bars are provided to each side



of the conveyor elements in position to relieve breaking loads on the conveyor elements.

3,592,398

APPARATUS FOR USE IN MAKING A FIBER BUNDLE FOR CONDUCTING OPTICAL IMAGES

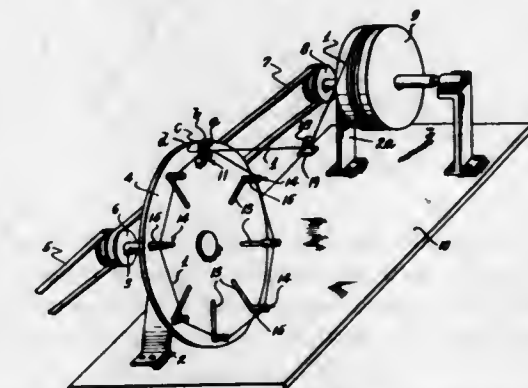
Kunihiko Mukai, Tsu, Japan, assignor to Nippon Glass Fiber Co., Ltd., Tsu, Mie Prefecture, Japan

Filed Nov. 3, 1969, Ser. No. 873,147

Int. Cl. B65h 54/00

U.S. Cl. 242-18

6 Claims



Apparatus for making a cable for conducting optical images from elongated glass fiber which comprises a rotatable support carrying projections which constitute a reel for the fiber and guide pins between two successive projections which constrain said fiber into a layer one fiber thick.

3,592,399

FRONT END CATCHER

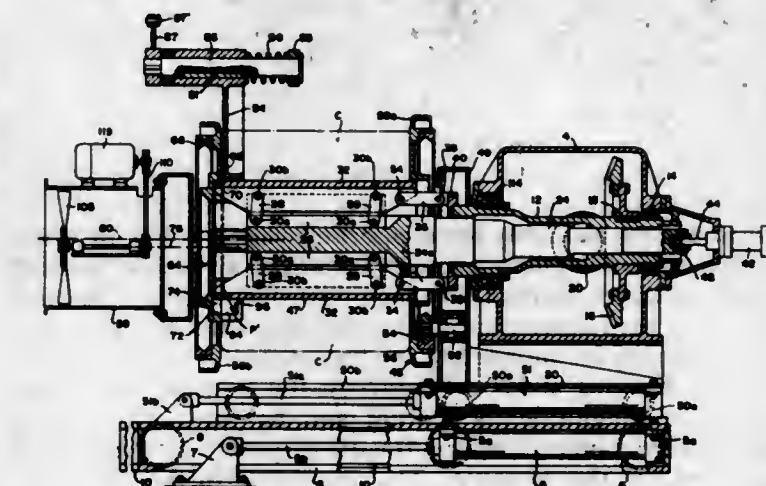
Harold E. Woodrow, Worcester, Mass., assignor to Morgan Construction Company, Worcester, Mass.

Filed Aug. 4, 1969, Ser. No. 847,078

Int. Cl. B65h 54/00, 75/28

U.S. Cl. 242-25

10 Claims



An apparatus for catching and winding the leading end of a product length on a rotating mandrel. The apparatus includes a rotatably clamping surface surrounding one end of the

mandrel. The rotational axis of the clamping surface is urged away from that of the mandrel, thus forming a clamping groove therebetween having its maximum and minimum widths spaced 180° apart. The clamping groove is closed by a pivotal guide which directs the leading end of each oncoming product length around the mandrel and diagonally into the clamping groove where it is gripped and wound onto the rotating mandrel.

3,592,400

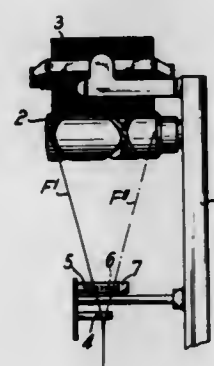
ELECTRONIC YARN GUARD FOR YARN-WINDING DEVICES

Walter Gith, Monchengladbach, Germany, assignor to Walter Reiners, Monchengladbach, Germany
Filed Nov. 22, 1967, Ser. No. 685,065
Claims priority, application Germany, Nov. 23, 1966, R 44

637
Int. Cl. B65h 63/00

U.S. Cl. 242-36

5 Claims



For use with a yarn-winding device wherein the yarn being wound is reciprocated between two spaced reversing nodes, an electronic yarn guard comprising a yarn-sensing member disposed in a region located between the reversing nodes.

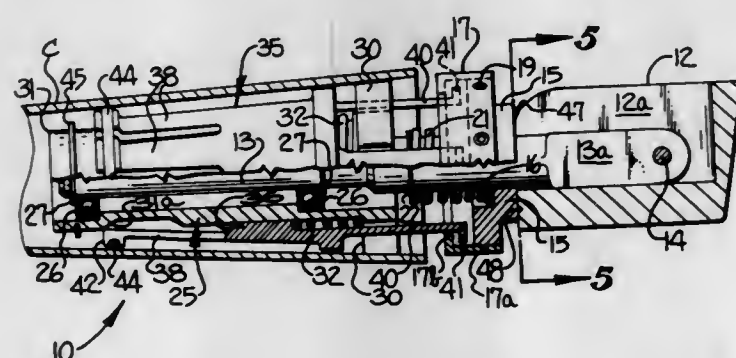
3,592,401

CHUCKING ASSEMBLY FOR WINDING MACHINES
Ashley P. Smith, William L. Wilson, and Ralph A. Caneer, all of Asheville, N.C., assignors to Northrop Carolina, Inc., Asheville, N.C.

Filed Oct. 15, 1969, Ser. No. 866,500
Int. Cl. B65h 75/30, 79/00

U.S. Cl. 242-46.3

18 Claims



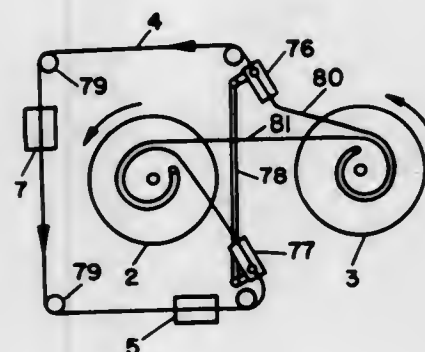
A chucking assembly for supporting yarn carriers in winding machines including an elongate shaft, a tubular housing concentrically mounted on the shaft for rotation relative thereto, a yarn carrier support projecting from the base end of the housing for supporting the base end of a yarn carrier, a tubular chucking slider mounted on the housing for sliding movement longitudinally thereof and having a plurality of radially expandible chucking fingers disposed away from the base end of the housing. The assembly further includes means for sliding the chucking slider relative to the housing and means for radially expanding the chucking fingers into a chucking condition when the chucking slider is slid, so that the fingers will engage and exert a radial pressure against the yarn carrier positioned on the chucking assembly.

3,592,402
TAPE WINDING APPARATUS FOR RECORDING AND/OR REPRODUCING OF INFORMATION ON AN ENDLESS TAPE

Johan Eric Hayden Westberg, Lidings, Sweden, assignor to AGA Aktiebolag, Lidings, Sweden
Filed Apr. 22, 1968, Ser. No. 723,053
Claims priority, application Sweden, Apr. 21, 1967, Sept. 26, 1967, Apr. 3, 1968, 5,664/67; 13,167/67; 4,418/68
Int. Cl. B65h 65/02

U.S. Cl. 242-55.16

10 Claims



The invention relates to a tape-winding device for moving a tape in a single direction relative to means for recording and/or reproducing information on said tape. The tape is endless and increased tape-running time is provided by a pair of spool means. The tape is wound in a doubled-back or bifilar manner on a first spool. A first section of tape is fed therefrom to the information recording and/or reproducing means and from there to the second spool. The second section of tape is wound directly onto the second spool element. After the tape is entirely unwound from the first spool and onto the second spool in this manner, the spool directions are reversed and the second tape section is unwound from the second spool to the information recording and/or reproducing means and from there to the first spool. The first tape section is unwound directly from the second spool to the first spool and when the second spool is empty, the spool directions are again changed and a cycle begins as before. A tape-advancing means continuously drives the tape in one direction relative to the recording and/or reproducing means. When a spool becomes empty, the spools change direction and, at that time, a loop of tape must be fed into engagement from the full spool to the empty spool for winding thereon. According to the present invention, the tape loop is guided to the empty spool by an airstream. The airstream may also be used to change the direction of rotation of the spools.

3,592,403

APPARATUS FOR REPLACING CORES AND SEVERING WEBS IN HIGH-SPEED MULTIPLE WINDING MACHINES

Walter Schmitt, Bad Pyrmont, and Wilhelm Schuttler, Klein Berkel, Germany, assignors to Maschinenfabrik Stahlkon-tor Weser Lenze KG, Gross Berkel/bei Hameln, Germany
Filed Apr. 8, 1969, Ser. No. 814,426
Claims priority, application Germany, Apr. 8, 1968, P 17 74 101.4

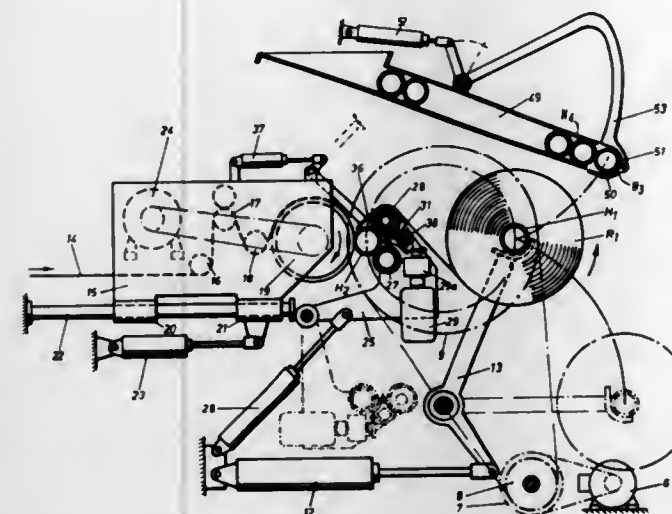
Int. Cl. B65h 19/20

U.S. Cl. 242-56

13 Claims

In a multiple-winding machine with continuously advanced web material, an empty core is positioned upstream of the almost-completed core and held against the running web by axially grasping winding shafts and by rolls forming a three-point support. A self-aligning knife transversally severs the web on said empty core onto which the web is subsequently

wound after an airstream maintains the new leading edge of the web thereon. The full core is then removed and two rolls



forming two points of said three-point support as well as said knife are swung away.

3,592,404

METHOD AND APPARATUS FOR IMPROVING THE FLATNESS OF ROLL FILM IN A CAMERA EXPOSURE APERTURE

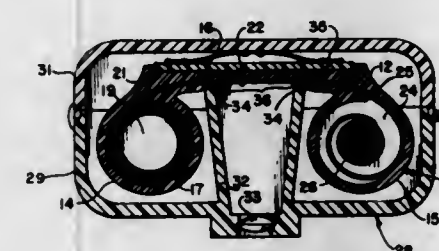
Hubert Nerwin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 24, 1968, Ser. No. 700,055

Int. Cl. G11b 23/10

U.S. Cl. 242-71.2

8 Claims



The film guide path from the roll to the aperture is in the form of a smooth spiral of continuously increasing radius. This improves film flatness by eliminating all abrupt curvature transitions from the film guide path whereby the next exposure frame to be advanced into the camera exposure aperture does not acquire any localized distortive curvature.

3,592,405

PNEUMATICALLY EXPANSIBLE MANDREL

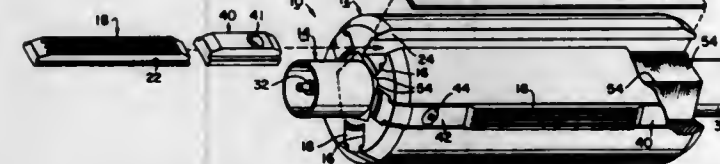
Michael M. Young, 510 Tea Rose Lane, Cherry Hill, N.J.

Filed Oct. 9, 1969, Ser. No. 865,003

Int. Cl. B65h 75/24

U.S. Cl. 242-72

8 Claims



A pneumatically expansible mandrel is formed in an extruded aluminum body section that is mounted on and surrounds an extruded tubular steel core section. Multifaceted outer and inner mating surfaces on the two sections ensure proper torque transmission. The overall unit has strength comparable to a solid steel construction but at lower cost and without appreciably greater weight than a solid aluminum construction.

3,592,406

STEEL REEL HAVING A POLYURETHANE COVERING

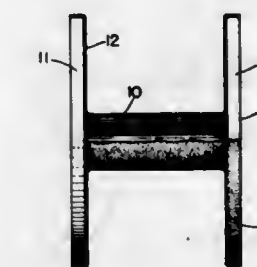
Roger C. Martin, Rockmart, Ga.; Richard L. Wert, Cuyahoga Falls, Ohio, and John A. Svaline, Prospect Heights, Ill., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 18, 1968, Ser. No. 722,289

Int. Cl. B65h 75/14

U.S. Cl. 242-77.3

4 Claims



An apparatus for storing wire cable wherein filaments or continuous wire are braided into a cable and the cable is stored on a steel reel having a polyurethane elastomeric covering.

3,592,407

YARN IDENTIFICATION MEANS

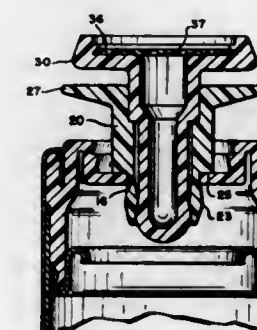
William G. Hagmann, Somerville, and Philip R. Worn, Princeton, both of, N.J., assignors to Baldt Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 832,672, June 12, 1969. This application Dec. 17, 1969, Ser. No. 885,892

Int. Cl. B65h 75/10

U.S. Cl. 242-118.3

13 Claims



Means for visually identifying the source, type and character of yarn wound on a textile bobbin is disclosed. The means comprises a two-piece device removably mounted on the top end cap of the bobbin, each piece having a distinctive, predetermined visual characteristic (e.g., color). The two main parts of the device comprise an annular sleeve member having a plurality of resilient tongue portions adapted to enter an opening formed in the top end cap of the bobbin, and a sleeve-locking member having an elongated shank portion adapted to enter the central opening of said annular sleeve member. When the shank portion of the locking member is fully inserted in the sleeve member the resilient tongue portions of the sleeve member are displaced radially outwardly and the sleeve member is thereby locked in place in the opening of the top and end cap.

3,592,408

SPINDLE

Louis Eickhoff, Hazelhurst, Ga., assignor to Standard Oil Company, Chicago, Ill.

Filed Apr. 30, 1969, Ser. No. 820,414

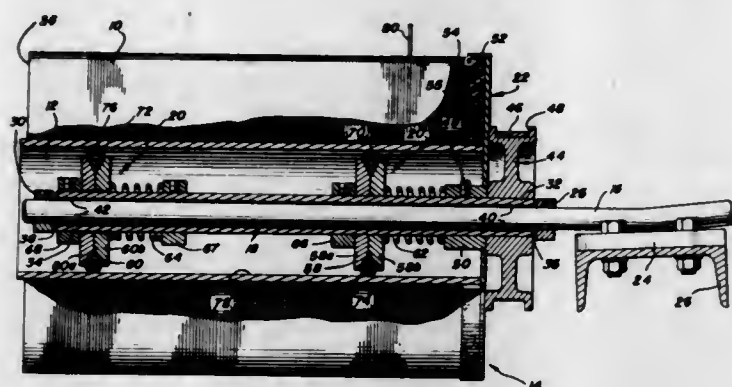
Int. Cl. B65h 49/02; D03J 5/08

U.S. Cl. 242-130

4 Claims

Disclosed is a spindle comprising a shaft, a sleeve rotatably mounted on the shaft by means of spaced bearings, means

coupled to the sleeve which is adapted to retain a core having yarn wound about it, and a disc near the end of the sleeve



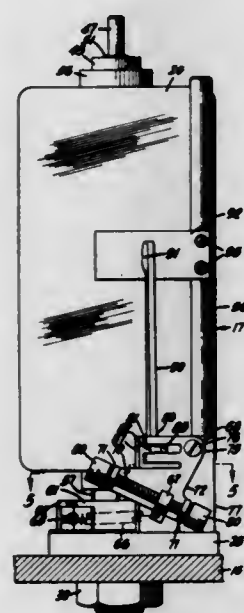
which engages the yarn when a core is being retained and prevents yarn from slipping laterally off the core.

3,592,409 YARN-TENSIONING MEANS FOR SPIRAL WINDING MACHINES

Robert H. Kaufmann, Temple, and John L. Willy, Reading, both of, Pa., assignors to North American Rockwell Corporation, Pittsburgh, Pa.
Filed July 14, 1969, Ser. No. 841,411
Int. Cl. B65h 59/38

U.S. Cl. 242-156.2

6 Claims



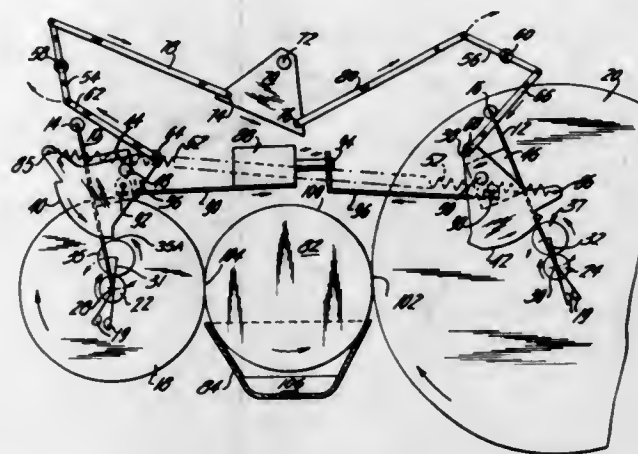
Mechanism for controlling the rotational letoff speed of a yarn supply bobbin to maintain substantially constant tension of the yarn used in fabricating machines such as spiral winders and the like. The tension-controlling means includes reader means for reading the diameter of the yarn supply which acts through resilient means between the reader means and brake means to control the rotation speed of the yarn supply in accordance with the diameter of the yarn supply.

3,592,410
TAPE TRANSPORT APPARATUS
Richard B. Kosten, Bayside, and Ralph Johnson, Huntington, both of, N.Y., assignors to Sylvania Electric Products, Inc.
Filed Nov. 28, 1969, Ser. No. 880,800
Int. Cl. G03b 1/04; G11b 15/32; B11b 15/32
U.S. Cl. 242-192

6 Claims
A tape transport utilizes a reversible rotatable capstan interposed between two spaced tape-wound spools and making resilient peripheral contact with a selected point on each spool. The direction of rotation of the capstan determines which spool acts as a supply and which spool acts as a takeup spool.

Cams, linkages, springs and drive rollers coupled to axial shafts extending through each spool establish a first pressure

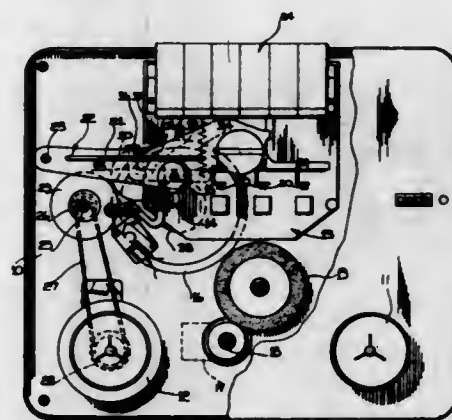
urging the takeup spool toward the capstan and applied at the point of arrival which is larger than and oppositely



directed to a second pressure urging the supply spool toward the capstan and applied at the point of departure.

3,592,411
TAPE RECORDER
Philip H. Evans, Stourbridge, Worcester, England, assignor to B S R Limited, Warley, Worcester, England
Filed July 24, 1969, Ser. No. 844,539
Claims priority, application Great Britain, July 25, 1968, 35,519/68
Int. Cl. B11b 15/32; G03b 1/04
U.S. Cl. 242-206

10 Claims

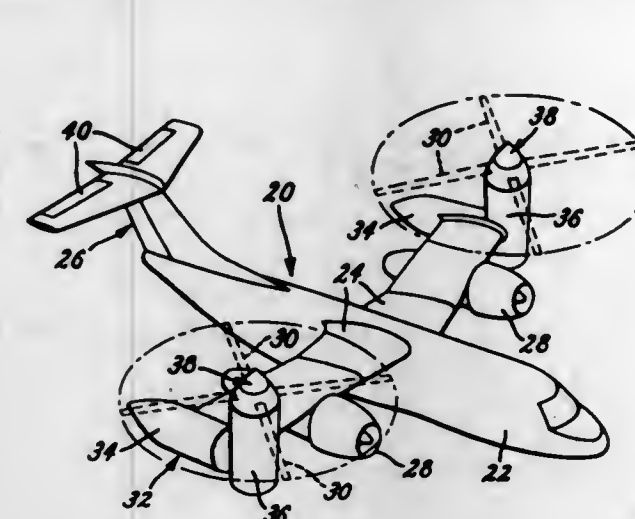


A takeup drive for a takeup spool of a tape recorder comprising a pulley, an endless belt engaged with the pulley to drive the takeup spool from the pulley, a friction wheel, a slipping clutch to transmit drive from the friction wheel to the pulley, and means for driving the friction wheel from the capstan spindle. The means for driving the friction wheel from the capstan spindle can comprise a second friction wheel interposed between the first friction wheel and the capstan spindle, and can be mounted so as to be moved into engagement therewith as a result of movement of an arm which carries the pressure roller of the tape recorder.

3,592,412
VERTICAL TAKEOFF AND LANDING AIRCRAFT
Edward W. Glatfelter, Newtown Square, Pa., assignor to The Boeing Company, Seattle, Wash.
Filed Oct. 3, 1969, Ser. No. 863,721
Int. Cl. B64c 27/22
U.S. Cl. 244-7

15 Claims
A rotor hub assembly for aircraft adapted to hover, climb, and descent like a helicopter, yet also adapted to cruise in the manner of a conventional fixed-wing airplane. The rotor hub assembly includes rotor blades which are movable between extended, operational positions during the hover mode and retracted, inoperative positions during the cruise mode such that they are flush with outer surfaces of their associated nacelles mounted at outer extremities of fixed wings. Upon commencement of the folding sequence, the blades as-

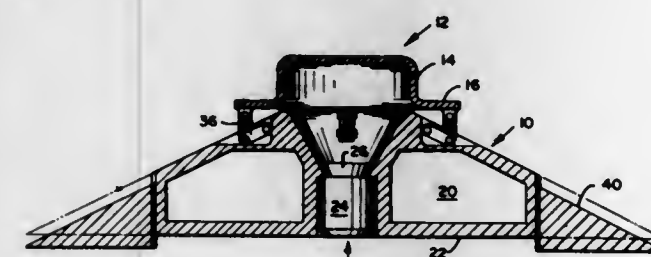
sume feathered positions. A scheduling mechanism controls rotation of the blades about their pitch axes as they are folded and maintains the blades in their feathered positions



until they nearly retracted, at which time the blades are rapidly rotated about their pitch axes to a substantially flat pitch as they settle into associated cavities provided in the nacelles.

3,592,413
VERTICAL LIFT MACHINE
Raymond V. Thompson, Simsbury, Conn., assignor to Chandler Evans Inc., West Hartford, Conn.
Filed June 25, 1969, Ser. No. 836,393
Int. Cl. B64c 29/00
U.S. Cl. 244-12

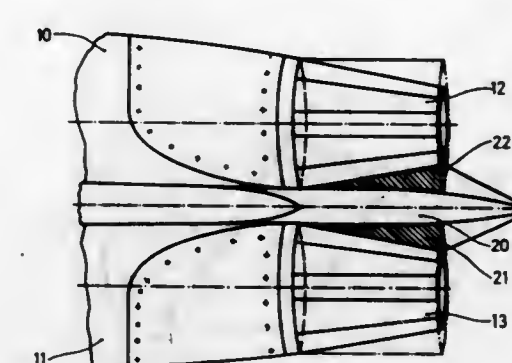
10 Claims



A maneuverable lifting body wherein pressurized gas is discharged at supersonic velocity over the surface of a downwardly sloping surface, the supersonically flowing gas separating and thereafter reattaching to the surface to provide a low-pressure region intermediate the points of separation and reattachment. The low-pressure region created on the upper surface, in cooperation with atmospheric pressure on the bottom of the body, results in vertical lifting forces which add to the vertical component of the momentum forces of the gas.

3,592,414
VARIABLE CONTOUR AIRCRAFT TAIL CONE ASSEMBLY
Felix Aulehla; Gunter Broll, and Gerhard Kopp, all of Munich, Germany, assignors to Entwicklungsring Sud GmbH, Munich, Germany
Filed Sept. 27, 1968, Ser. No. 763,110
Claims priority, application Germany, Oct. 2, 1967, P 15 31 399.2
Int. Cl. B64d 29/04
U.S. Cl. 244-55

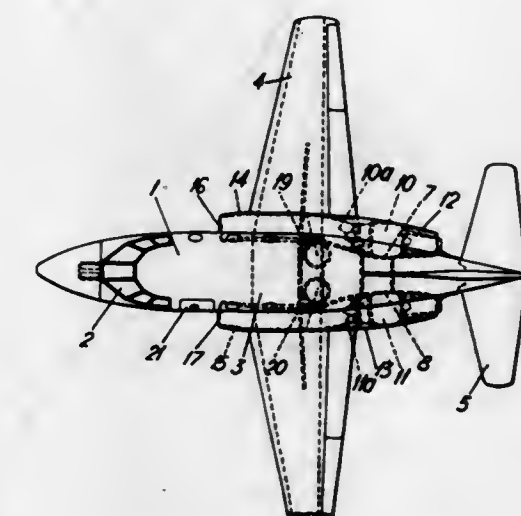
3 Claims
A tail cone assembly is located between two adjacent variable area engine nozzles. The assembly includes a plurality of panels mounted upon the ventral surface of the tail and



justable relatively smooth transition between the exterior surface of the tail and the nozzle.

3,592,415
AIRCRAFT
Gerald David Walley, Elksmere, Whittingham Road, Long Ridge, Preston; Thomas William Smith, 26 Ribley Avenue, Wrea Green, Preston, and Geoffrey Stott, 49 Jepps Avenue, Barton, Preston, all of, England
Filed May 13, 1969, Ser. No. 824,118
Claims priority, application Great Britain, May 14, 1968, 22918/68
Int. Cl. B64c 7/02
U.S. Cl. 244-55

4 Claims

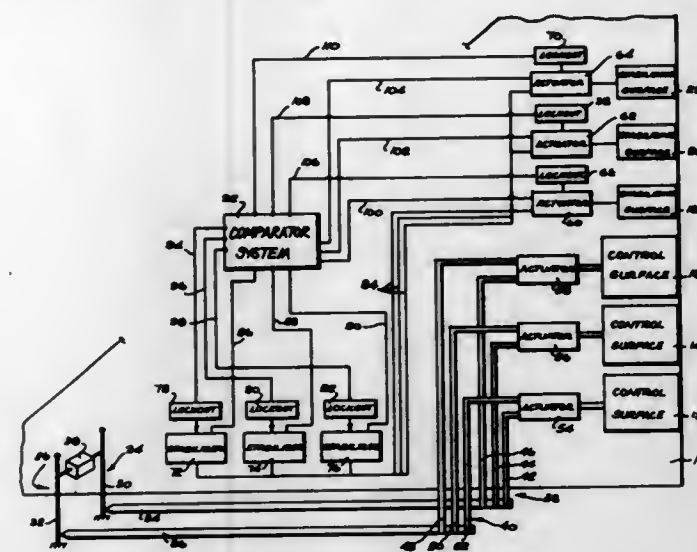
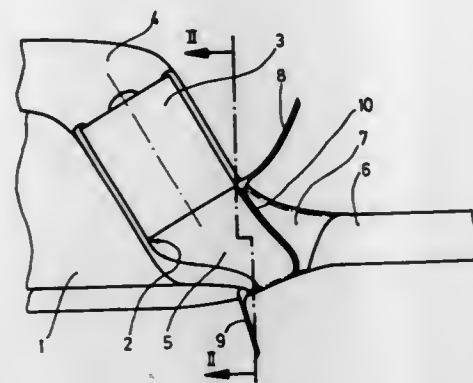


A low wing jet-engined aircraft having at least one aft-mounted engine on each side of the fuselage, and an air intake duct for each engine extending forward of the engine over the wing to an intake mouth positioned adjacent to, or forward of, the wing-leading edge.

3,592,416
VERTICAL TAKEOFF AND LANDING AIRCRAFT
Hans Richard Rikus, Ottobrunn, Germany, assignor to Entwicklungsring Sud GmbH, Munich, Germany
Filed June 3, 1969, Ser. No. 829,965
Claims priority, application Germany, June 5, 1968, P 17 56 548.9-22
Int. Cl. B64d 27/20; B64c 29/04
U.S. Cl. 244-54

4 Claims
A vertical takeoff and landing aircraft having a lift engine positioned within the fuselage adjacent the base of a wing, an intake duct connecting the intake of the engine with the dorsal surface of the fuselage and an exhaust duct connecting the outlet of the engine with the ventral surface of the wing proximate the base thereof. An air duct is included which passes from the upper surface to the ventral surface of the wing and which is in communication with the exhaust duct from the engine. Adjustable doors are provided for selective-

ly obstructing the inlet and outlet orifices of the air duct, and a vane is positioned within the air duct so as to control the



and which are responsive to automatically generated stabilizing signals.

mixing of the gases passing from the engine and flowing through the air duct.

3,592,417

AERIAL RECOVERY SYSTEM FOR AUTOPILOT/FLIGHT DIRECTOR SYSTEM

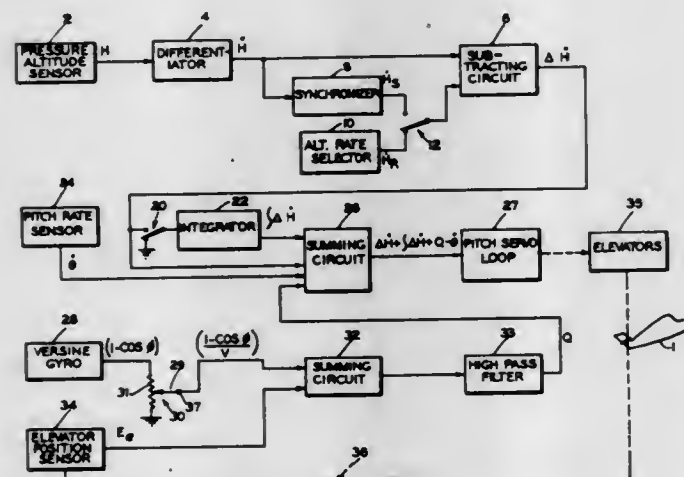
Arthur Simon, Fairlawn, N.J., assignor to The Bendix Corporation

Filed June 19, 1969, Ser. No. 834,701

Int. Cl. B64c 13/18

U.S. Cl. 244-77 B

15 Claims



A flight control system whereby an automatic pilot, or human pilot through a flight director, controls the flight of an aircraft for accomplishing an aerial recovery mission by initially matching aircraft vertical velocity and position with vertical velocity and position of a falling target. Subsequently, fly-by or other loss of target is negated by the system and it directs the human or auto pilot in a controlled air mass turn and descent maneuver to bring the aircraft over the target.

3,592,418

AIRCRAFT STABILITY CONTROL SYSTEM

Derek Wood, Sun Valley, Calif., assignor to Bell Aerospace Corporation

Filed Aug. 8, 1969, Ser. No. 848,552

Int. Cl. B64c 13/40

U.S. Cl. 244-85

6 Claims

An aircraft control system utilizing redundant major control surfaces which are mechanically under pilot control and

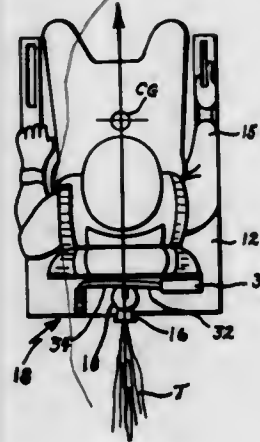
3,592,419
ROCKET TWO-WAY CENTERING BUNGEE
Ralph E. Hantzsch, Los Alamitos, Calif., assignor to the United States of America as represented by the Secretary of the Air Force

Filed Dec. 10, 1969, Ser. No. 883,709

Int. Cl. B64d 25/10

U.S. Cl. 244-122

3 Claims



Stabilization system for preventing rotation of a pilot seat and its occupant which becomes operative only after ejection and when it is in the air and free from the air or space craft. A linkage system set up between a gyro and the rocket motor duct keeps the direction of rocket thrust aligned with the center of gravity of man and seat. The gyro is sensitive to both clockwise and counterclockwise motion. When a yaw or spinning motion begins to take place the gyro, operating through a linkage system, rotates the rocket duct either clockwise or counterclockwise, as demanded by the gyro, to change the direction of rocket thrust to counteract the spin.

The linkage system comprises a harness or frame secured to the center of the rocket duct system, and two links to connect the gyro to the harness and effect limited rotary movement of the duct system. One of the links has slidable connection to, and operates against the spring of a bungee element.

3,592,420

MAT FOR LINING BEAMS IN MINE CONSTRUCTIONS

Hans Reiter, Pestalozzistrasse 23, 4354 Datteln, Germany

Filed Apr. 28, 1969, Ser. No. 819,661

Claims priority, application Germany, May 7, 1968, P 17 58

284.2

Int. Cl. E01c 5/16

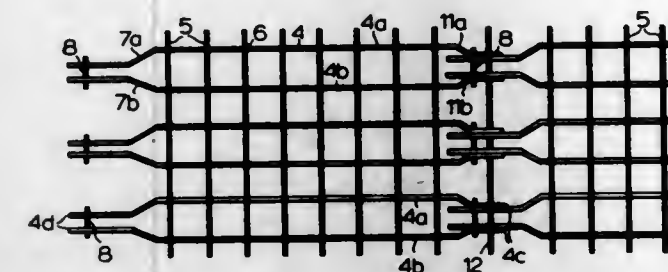
U.S. Cl. 245-9

2 Claims

The disclosure relates to a wire mesh mat intended for the lining of supporting beams in mine roadways and tunnel con-

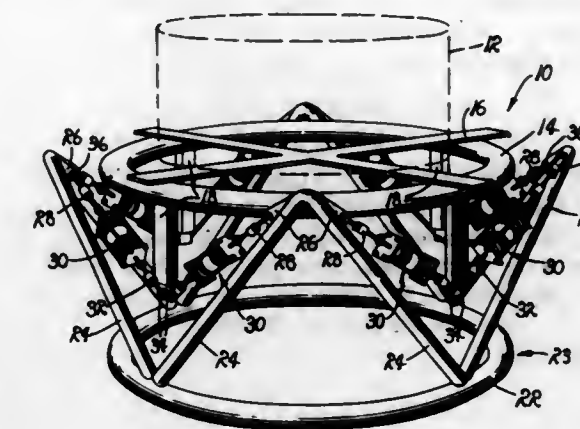
structions, and consisting of mat sections each having longitudinal and transverse rods welded together at their intersection points, the longitudinal rods having hooks at their ends, while the longitudinal rods are assembled together in

suspension members are subjected to tension, whereby a test object may be supported for operation substantially free from



pairs and have transverse rods at both ends of the mat section, whose welded joints are subject to shearing stress, but the spacing distances at opposite ends being different so that the mat sections can be successively interengaged with each other.

the effects of environmental vibration through an employment of a system of minimal bulk and complexity.



3,592,421

APPARATUS FOR MOUNTING JET ENGINES

Gerhard Kopp, Munich, Germany, assignor to Entwicklungs-

ing Sud GmbH, Munich, Germany

Filed July 1, 1968, Ser. No. 741,591

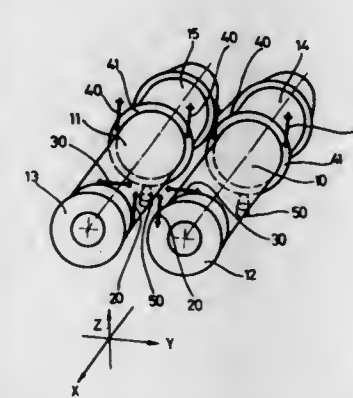
Claims priority, application Germany, July 18, 1967, E 34

414 XI/62b

Int. Cl. B64d 27/00

U.S. Cl. 248-5

11 Claims



A mounting apparatus for supporting the jet engines of a vertical takeoff and landing aircraft. The engine is supported by mounting rods which are oriented in planes normal to each other. Supporting the engine rearwardly of the mounting rods are thrust pins which include locking means to prevent their accidental loosening. The rods and thrust pins are retained in their desired positions after removal of the engine to facilitate maintenance of the engine and remounting.

3,592,422

VIBRATION ISOLATION SYSTEM USING COMPRESSION SPRINGS

T. O., Administrator of the National Aeronautics and Space Administration in respect to an invention of Paine, and Robert M. Norman, Glendale, Calif.

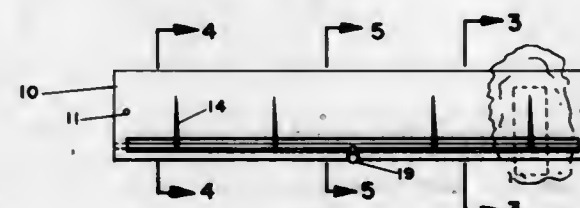
Filed July 29, 1969, Ser. No. 845,807

Int. Cl. F16f 15/06, 3/00

U.S. Cl. 248-18

8 Claims

A vibration isolation system for isolating loads from the effect of vibrational forces transmitted to supporting structures, either from the load or from the environment, particularly suited for isolating loads from the effects of vibration normally encountered in test operations performed in environmental test chambers, and further characterized by a plurality of suspension members, each of which includes a pair of coaxially arranged, helical compression springs so mounted as to be separately subjected to compression as the

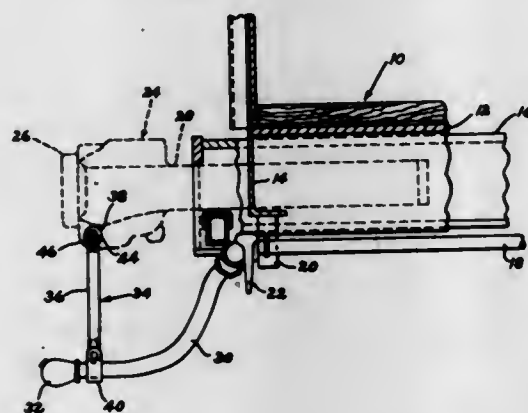


A flower spray holding device for use in the holding room of a funeral home, said holding device comprising a backboard adapted to be mounted to the wall of the holding

room, said device also including a multiplicity of spikes for receiving a block of styrofoam around which funeral sprays are built, said spikes being normally folded upwardly against said backboard by spring action and held outwardly in a receiving position upon mounting a single spray, the spikes being returned automatically to a normal, safe position when the last of the sprays has been removed from the device.

3,592,425

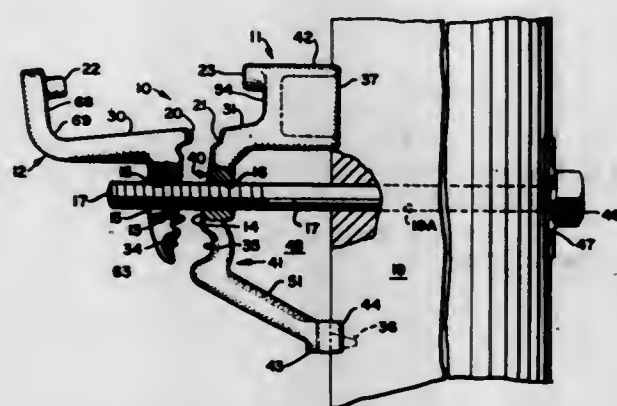
AIR HOSE SUPPORT FOR RAILWAY CARS
Robert W. Randolph, St. Charles; James C. Hammonds, St. Charles, and Richard H. Dugge, St. Louis, all of Mo., assignors to ACF Industries, Incorporated, New York, N.Y.
Filed Sept. 5, 1969, Ser. No. 855,654
Int. Cl. F16l 3/16; B61h 13/38
U.S. Cl. 248—53 2 Claims



A resilient air hose support for railway cars extending beneath the coupler between the coupler head and the air hose therebeneath. The support is formed of a rubberlike material and has a lower end portion connected to the air hose. The lower end portion of the support has a relatively wide intermediate section extending about the hose, an eye adjacent one end of the intermediate section, and a protuberance adjacent the other end of the intermediate section fitting within the eye and releasably holding the support in position about the circumference of the air hose.

3,592,426

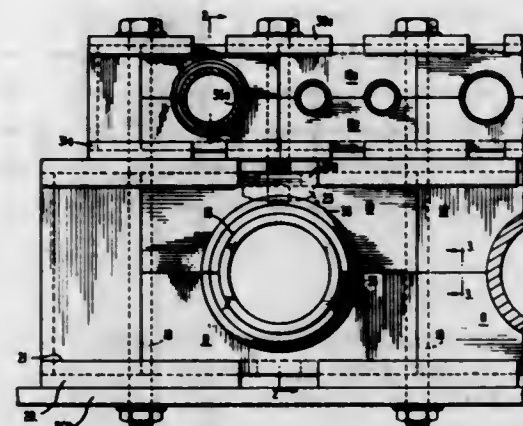
MULTIPURPOSE POLE LINE CLAMP
George A. Dubey, Branford, and Edwin C. Taylor, New Haven, both of Conn., assignors to MIF Industries, Inc., Branford, Conn.
Filed Feb. 18, 1969, Ser. No. 800,100
Int. Cl. F16l 3/10
U.S. Cl. 248—67.5 7 Claims



A multipurpose pole line clamp for stringing and clamping utility cables. The clamp comprises a bearing member and a clamping member, assembled together on a through bolt securing them to the pole. Facing surfaces of the bearing and clamping members cooperate to clamp a messenger cable securely anchored in its installed position alongside each pole. Each member incorporates a trunnion support post, and these posts engage and secure a stringing block during installation of the utility wire.

3,592,427

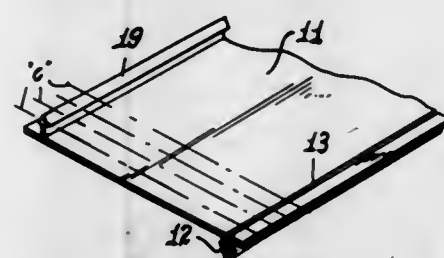
ADAPTABLE MODULE, CONDUIT AND TUBE SUPPORT
Louis J. Misuraca, 1359 Romulus Drive, Glendale, Calif.
Filed Jan. 9, 1969, Ser. No. 790,039
Int. Cl. F16l 3/22
U.S. Cl. 248—68 8 Claims



The invention consists primarily of an adaptable module, conduit and tube support system which, in turn, provides the foundation for the many conduits, tubes and other carriers employed in the distribution of gases, fluids, semisolids or other media as may need to be transported under various pressures and temperatures; to provide such support in efficient, workmanlike manner by utilizing structure of minimum weight and high strength ratio in the form of basically channel-shaped modules employing conduit straddling yoke portions; the same being securely retained and aligned in fixed locating rails and substantially immobilized therein by appropriate fastening elements.

3,592,428

CABLE CLAMPS
Le Roy F. McFarlane, 718 Crane Road, St. Charles, Ill.
Filed Nov. 4, 1968, Ser. No. 773,163
Int. Cl. F16l 3/14, 3/22
U.S. Cl. 248—74 7 Claims



A cable clamp formed of extruded resilient thermoplastic material and having mating elements on one or both faces so as to enable the clamp to be secured about a bundle of wires or the like and/or to a support surface.

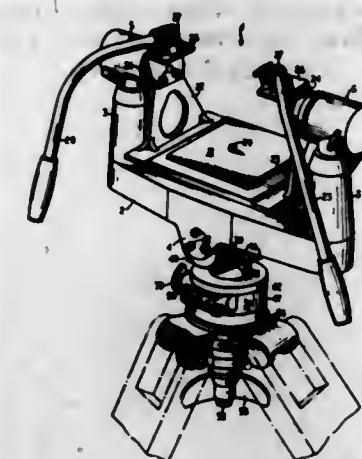
3,592,429

GIMBAL MOUNTING FOR INSTRUMENTS AND MACHINES
Robert Eric Miller, 2 Ian Street, Rose Bay, New South Wales, and Eric Miller, 1 Wharf Road, Vaucluse, New South Wales, both of Australia
Filed Mar. 5, 1969, Ser. No. 812,531
Claims priority, application Australia, Mar. 6, 1968, 34644/68
Int. Cl. F16m 11/12
U.S. Cl. 248—179 4 Claims

A gimbal mounting for instruments used on unstable bases such as aircraft, boats or vehicles includes a U-shaped base mounted on a support and a U-shaped cradle swingably mounted on the base. The base mounting comprises two interconnected units disposed one above the other each including pistons rotatably mounted in liquid filled cylinders, the longitudinal axes of the pistons being coplanar and at right angles to each other. The lowermost of the two units is cou-

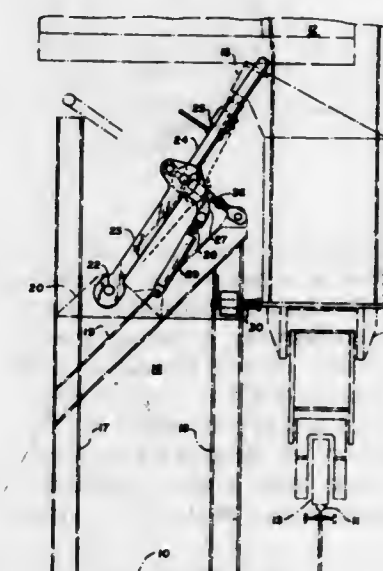
pled to a support such as a tripod, whereas the uppermost unit is secured to the underface of the base bottom. Exteri-

hanger displaced vertically therefrom, and also including a discrete hanger support for use in cooperation with two hangers whereby such two hangers are displaced vertically with respect to each other.



3,592,432

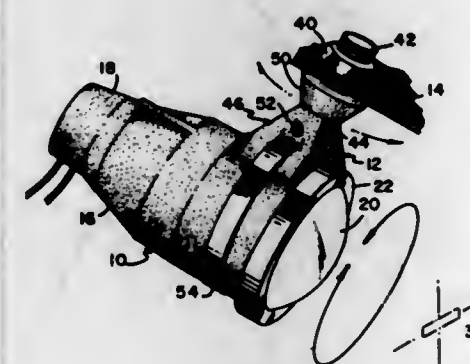
TIE DOWNS
Robert E. Kotzbacher, Alliance, Ohio, assignor to The Alliance Machine Company
Filed July 9, 1969, Ser. No. 840,407
Int. Cl. B65j 1/22
U.S. Cl. 248—361 7 Claims



only adjustable brake means are disposed within the cylinders for engagement on the peripheries of the pistons.

3,592,430

STRAP SWIVEL MOUNT
Peter M. Coombs; N. H. Newton, and George D. Lawson, all of Georgetown, Mass., assignors to Sylvania Electric Products Inc.
Filed Oct. 16, 1969, Ser. No. 866,977
Int. Cl. B60q 1/00
U.S. Cl. 248—289 2 Claims

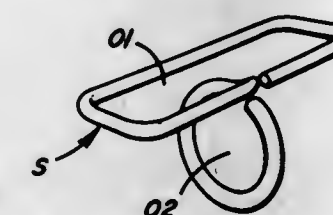


A tiedown mechanism is provided for holding an object to a surface having a first link means pivoted at one end to said surface, a tiedown rod pivoted at one end on the other end of said first link means, and having engaging means on the other end engaging the object to be held and extensible means pivoted at one end on the surface and at the other end adjacent the pivotal connection between said first link means and said tiedown rod.

The invention involves an adjustable mounting arrangement for an automotive accessory driving light having a cylindrical shape. The mounting can be disposed on most any irregular surfaces and thereafter the light can be adjusted to produce a light pattern that conforms with acceptable safety light spreads.

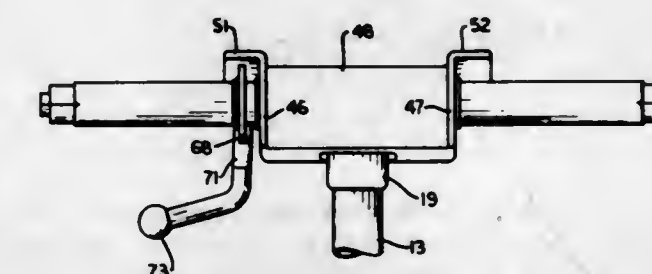
3,592,431

HANGER SUPPORT APPARATUS
Earl P. Daldone, 201 E. 42nd St., New York, N.Y.
Filed Apr. 9, 1969, Ser. No. 814,683
Int. Cl. A47q 29/00
U.S. Cl. 248—302 1 Claim



Apparatus for supporting a plurality of hangers, for example coat hangers, displaced vertically from each other such that the amount of hanger rack space required for a given number of hanger supported items (e.g. clothes) is reduced, and such that the hanger supported items are more readily observable. Such apparatus including an improved hanger having structure integral therewith for supporting a second

TORSION BAR CHAIR CONTROL
Peter A. Fuhrman, Waterloo, Ontario, Canada, assignor to Bliss & Laughlin Industries, Incorporated, Oak Brook, Ill.
Filed Feb. 25, 1969, Ser. No. 802,021
Int. Cl. A47c 3/023
U.S. Cl. 248—373 7 Claims



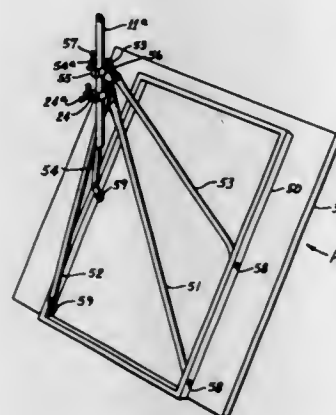
Upstanding arms of a U-shaped spindle-mount, support a tube extending horizontally to one side of the mount. A main frame, also U-shaped, has a pair of spiders rockable on the tube and associated with another tube through a tensioning arm and adjustment screw. The tubes are end-to-end, separated by a bushing, and receive a torsion bar therethrough, the outer end of each tube being crimped onto the opposite square ends of the torsion bar.

3,592,434 PROJECTION SCREEN APPARATUS

Louis Daniel Murray, 5216 Ponderosa Way, Dallas, Tex.
Filed Dec. 26, 1967, Ser. No. 693,477
Int. Cl. G03b 21/56

U.S. Cl. 248-480

6 Claims



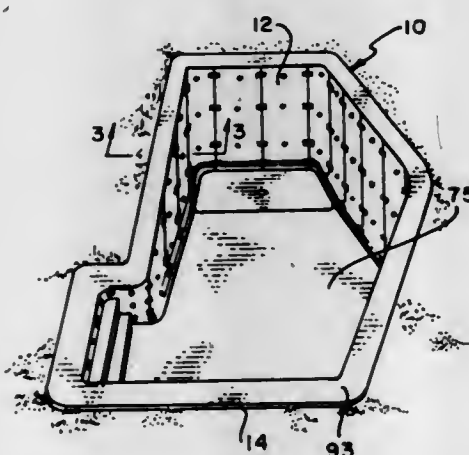
This invention is a projection screen apparatus basically comprising a telescoping adjustable mast, and a bracket arrangement for adjustably securing the screen to the mast. Vertical adjustment of the screen is provided by divergent support arms attached at their upper ends to a clamp slidable on the mast and pivotally attached at their lower ends to the screen. Adjustment of the tilted position of the screen is provided either by a wire means or additional support arms slidably clamped to the mast and pivotally attached to the screen.

3,592,435 FORM STRUCTURE

Charles D. Mattingly, Wichita, Kans., assignor to Mattingly, Inc., Wichita, Kans.
Filed Sept. 9, 1968, Ser. No. 758,255
Int. Cl. E02b 1/00

U.S. Cl. 249-1

4 Claims



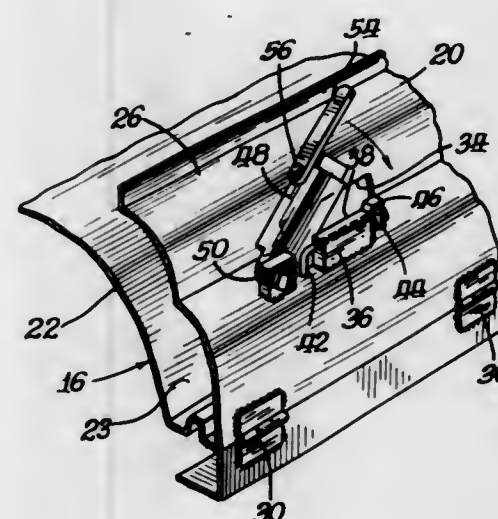
This invention is a form structure of lightweight construction so as to be readily movable during various stages of construction while providing a rigid structure operable for construction of concrete walls without warpage. More particularly, this invention is a form structure including (1) a main body of vinyl foam core having exposed surfaces covered by layers of fiberglass material and the concrete contacting surface provided with a Black Gel coat of polyester resin, (2) upright edges provided with interlocking joint members whereupon adjacent form structures can be secured to each other through the use of latch and hook assemblies; and (3) a plurality of horizontally extended tie-hole assemblies are provided for interconnecting adjacent, cooperating front and back form structures in a spaced relationship for pouring concrete or like materials therebetween.

3,592,436 BURIAL VAULT MOLD WITH HANDLE POSITIONING MEANS

Wesley Miles Chandler, and Paul Fred Heuser, both of Saint Paul, Minn., assignors to Wilbert, Inc., Broadview, Ill.
Filed Mar. 28, 1968, Ser. No. 716,806
Int. Cl. E04h 3/00

U.S. Cl. 249-94

6 Claims



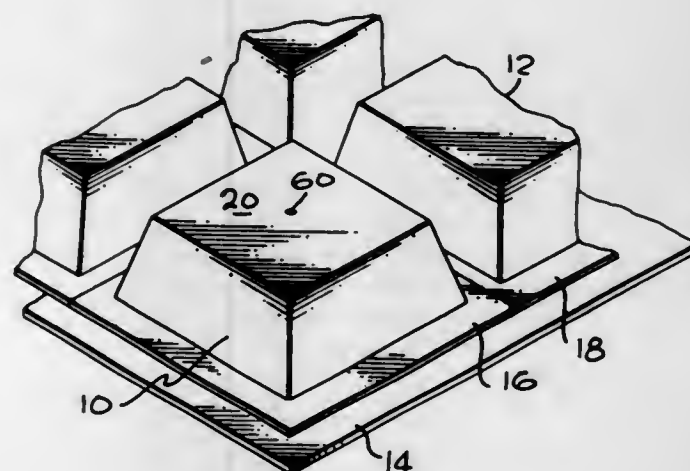
A burial vault cover mold having fixture means associated therewith for holding a plurality of cover handles in place while the cover is being poured so that the handle will be imbedded in a predetermined position in the finished molded article.

3,592,437 CONCRETE FORM

Stephen S. Dashew, Box 630, Venice, Calif.
Filed Aug. 8, 1968, Ser. No. 751,307
Int. Cl. B28b 7/06, 7/28, 7/16

U.S. Cl. 249-175

5 Claims



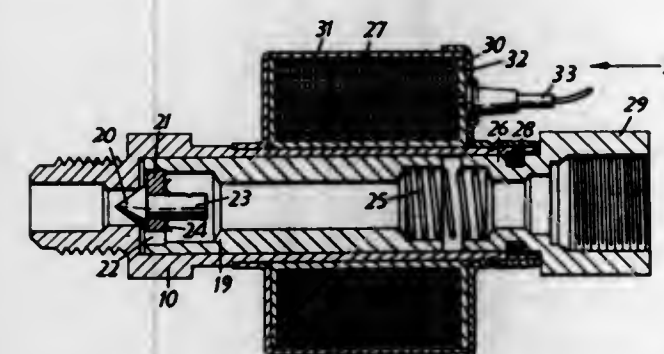
A pan-shaped structural concrete form wherein the top and each side of the pan is internally braced by a framework of metal tubes, some of which serve as hand holds for removal of the pan. In pans with flanges, the flanges are of flexible construction and are molded with a definite angle from the horizontal, so they become horizontal when the pan is turned upside down and pressed down by the weight of concrete. Other pans without flanges employ a lock-in rubber strip at the bottom to form a seal with the construction deck on which the pans are laid.

3,592,438 SOLENOID VALVES

Greenwood, Thomas Eric, and Farnfield, Ronald Edward, both of Plymouth, England, assignors to Tecalemit (Engineering) Limited, Plymouth, England
Filed June 13, 1969, Ser. No. 832,895
Claims priority, application Great Britain, June 14, 1968, Dec. 16, 1968, 28586/68; 29734/68
Int. Cl. F16k 31/06

U.S. Cl. 251-84

3 Claims



A solenoid-operated valve including an elongated, continuous, fluid conduit having a valve seat adjacent one end and a pole piece adjacent the other. A hollow armature sleeve is slidably disposed in the fluid conduit for movement between the valve seat and pole piece and the sleeve is biased away from the pole piece toward the seat. A solenoid coil is mounted around and exteriorly of the fluid conduit offset longitudinally of the pole piece and a self-centering valve member is carried at the end of the armature sleeve for movement toward and away from the valve seat.

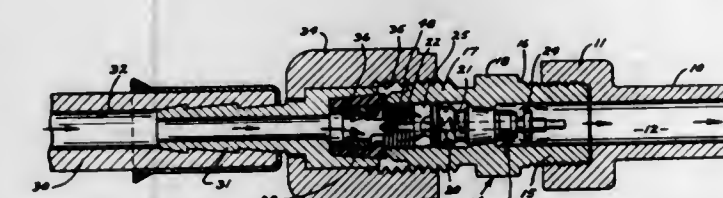
3,592,439

FLUID LINE COUPLING WITH CHECK VALVE OPENER
John R. Ritchie, Jr., c/o Ritchie Engineering Co. 999 E. 79th St., Minneapolis, Minn.

Filed Aug. 15, 1969, Ser. No. 850,533
Int. Cl. F16l 37/10, 37/28

U.S. Cl. 251-149.6

3 Claims



An inflation valve coupling wherein the valve-opening element in the female-coupling member is threaded into a surrounding sealing gasket of resilient material to securely position the element and enable axial adjustment thereof for opening engagement with inflation valve stems of varying axial positions within their valve housings.

3,592,440

BALL VALVE

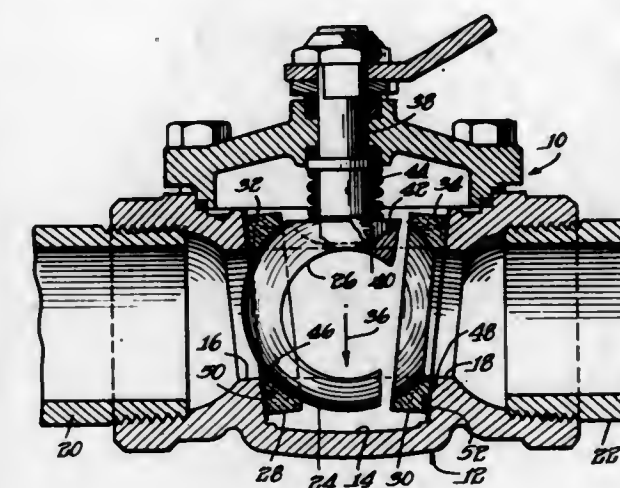
Rolland McFarland, Crystal Lake, and Werner K. Priese, Barrington, both of, Ill., assignors to Hills-McCanna Company, Carpentersville, Ill.
Continuation-in-part of application Ser. No. 573,121, Aug. 17, 1966, now abandoned. This application Oct. 16, 1969, Ser. No. 868,289
Int. Cl. F16k 25/00, 5/20

U.S. Cl. 251-170

9 Claims

A ball valve of the type wherein the flow control ball member is supported by valve seats and is free to "float" in the sense that it can move axially under fluid pressure and transversely of its axis under either mechanical or fluid pressure. This latter transverse movement is employed in conjunction with and relative to the support means for the seats

to maintain the seats in firm sealing contact with the ball surface. To facilitate the maintaining of sealing contact, and to permit unrestricted free movement of the seats, the respective contiguous surfaces on said seats and said support means



are defined by a low-friction plasticlike material. Further, there is provided a novel seat construction which, in addition to attaining the aforementioned mode of operation, provides increased load support for the ball, and will function when the valve is exposed to excessive heat.

3,592,441

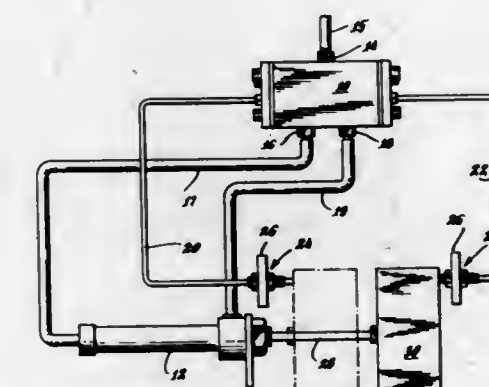
FITTINGS FOR ANCHORING PILOT AIR CONDUIT IN OPERATIONAL POSITIONS

Miroslav J. Piroutek, Stamford, Conn., assignor to Self-Matic Valves Corporation, Stamford, Conn.

Filed Apr. 23, 1969, Ser. No. 818,627
Int. Cl. F16k 25/00

U.S. Cl. 251-364

9 Claims



The disclosed fittings are used in conjunction with back pressure actuated control valves having pilot conduit for conveying pilot air of exceptionally low volume and pressure bled from each end of the valve. The fittings serve to anchor the pilot conduit in positions to be engaged by external members for the purpose of blocking the escape of pilot air therefrom. Sufficient pilot air back pressure is thus developed for shifting the control valve spool from one position to another.

3,592,442

DEVICES TO APPLY TENSION IN A CABLE, CHAIN OR ROPE

Frank Zumbo, 1938 E. 1st St., Brooklyn, New York, N.Y.
Filed Nov. 25, 1968, Ser. No. 778,698
Int. Cl. B66f 3/00

U.S. Cl. 254-77

11 Claims

The distal ends of the tines of an elongated clevis straddling a wheel journaled in a peripheral ring, are pivotally linked to the wheel on an eccentric axis pin extending therethrough. A plate in front of one tine, secured to the wheel on said pin, and by another pin, has an elongated handle extending therefrom. Said plate carries a spring latch.

The bight of the clevis and a radial lug extending from said ring, each have a releasable attachment means for interposing the device in a spanned cable, chain or rope. When the handle is moved to turn the wheel a partial rotation in one direction, the device will contract, the clevis will be stopped



at a position a bit past dead center, and said tine will cam the latch into a position to lock the clevis. To bring the device to extended condition after such immobilization, the latch is pulled by hand to clear the said tine, and the handle is turned in the opposite direction.

3,592,443

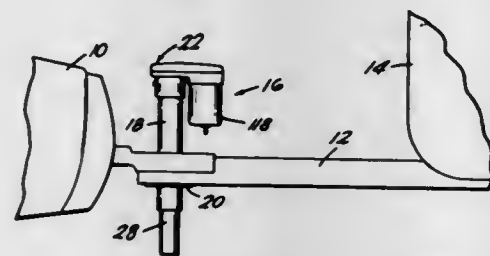
ELECTRIC JACK

Jack C. Budrow, and Glenn A. Reed, both of Battle Creek, Mich., assignors to H & H Engineering Division, Battle Creek, Mich.

Filed July 29, 1969, Ser. No. 845,698

Int. Cl. B60s 9/08

U.S. Cl. 254-86



A jack powered by a reversible electric motor preferably for use with trailers for the support of the trailer tongue. The jack includes a column telescopically received within a supporting tube utilizing a threaded shaft and nut system to extend the column. The electric motor is connected to the shaft by means of a speed-reducing transmission incorporating a slip clutch responsive to predetermined torque operative upon the column reaching its extremes of movement to prevent stalling and stressing the motor and transmission.

3,592,444

MIXING APPARATUS

Kostas Savas Arvanitakis, Chicago, Ill., assignor to George Goutos, Chicago, Ill., a part interest
Continuation of application Ser. No. 689,451, Jan. 17, 1968, now abandoned. This application Sept. 15, 1969, Ser. No. 858,191

Int. Cl. B01f 5/00, 7/20, 15/04

U.S. Cl. 259-4

6 Claims

The instant mixing apparatus includes a vessel for holding particles of a solid material, a beater positioned in the lower portion of the vessel and an apertured plate positioned below the beater. An auger connected to the beater and mounted above the plate positively displaces the particles from the vessel through the apertured plate into a basin positioned

below the apertured plate. The basin holds a liquid and receives the powdered material. A drive is positioned below



the basin and extends through the basin and is connected to the auger to drive the auger and beater simultaneously.

3,592,445

GELATIN DIP POT

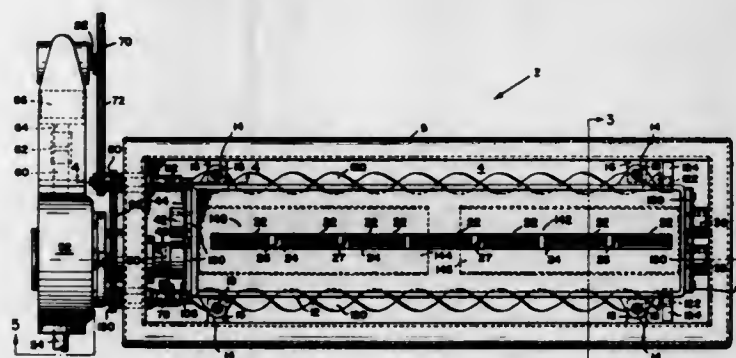
Allen E. Whitecar, Westville, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

Filed Nov. 26, 1968, Ser. No. 779,180

Int. Cl. B01f 7/02; B29b 1/10

U.S. Cl. 259-6

8 Claims



A conventional gelatin dip pot for making capsules having a dip tank suspended in a reservoir tank and a gear pump drawing from along the length of the reservoir tank to supply the dip tank is provided with means having a single inlet opening to provide for the supply of gelatin from a single location in the reservoir tank and is provided with longitudinal helical mixing paddles mounted in the reservoir tank along side the dip tank.

3,592,446

METHOD AND APPARATUS FOR CONTINUOUS BLENDING OF GRANULAR MATERIALS

Max Leva, 1030 Dallet Road, Pittsburgh, Pa.

Filed May 19, 1969, Ser. No. 825,570

Int. Cl. B01f 7/18

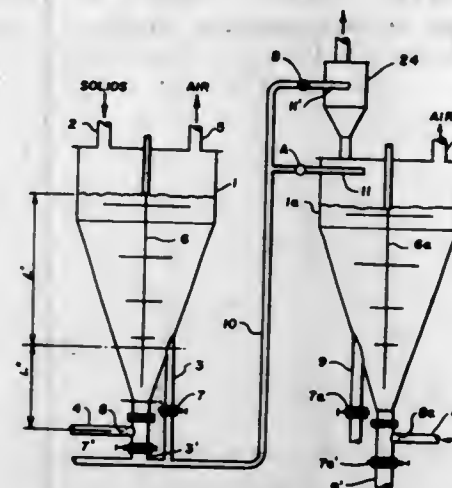
U.S. Cl. 259-67

9 Claims

This invention relates to a method and apparatus for continuous blending of granular materials having the same or different particle size or density, comprising one or more containers tapered downwardly and inwardly, each having a stirrer rotatable about a vertical axis for stirring the granular

material at the same time air is passed therethrough. Two or more stages in series may be arranged, either side-by-side or

is introduced into the drum either from a tank under pressure or by encapsulation to take up the ullage space caused by the shrinkage of the concrete mix. Paddles are mounted on the shaft so that as the drum is towed at a fast clip toward a



vertically in tandem, between which stages solids may be conveyed pneumatically or by gravity flow.

3,592,447

APPARATUS FOR HANDLING AND CONDITIONING GRAIN

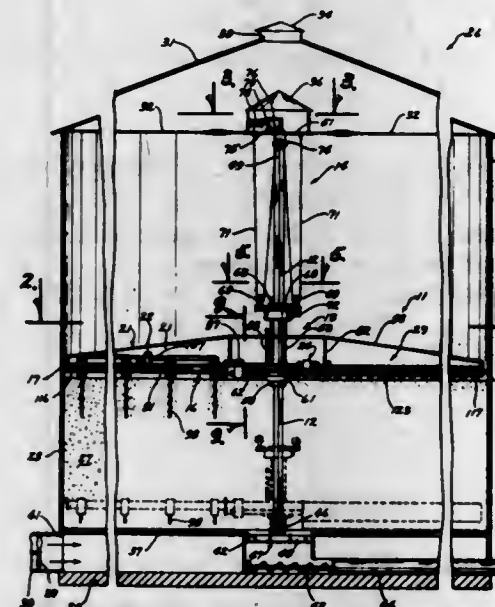
Sylvester L. Steffen, 264 S. Walnut, New Hampton, Iowa

Filed Sept. 12, 1969, Ser. No. 857,417

Int. Cl. B01f 7/24

U.S. Cl. 259-102

15 Claims



Apparatus for leveling, stirring, and unloading granular material from a circular bin wherein an upright post is centrally mounted in the bin. A yoke is mounted on the post for vertical and rotational movement and rotatably supports a horizontal support member. Stirring bits which are inclined forwardly and downwardly are mounted on the support member. A horizontally disposed leveling and unloading means is also mounted on the support member. At least a portion of the support member can be rotated to lift the stirring bits from the grain.

3,592,448

GROUND ACTUATED DRUM FOR MAKING BATCH OF CONCRETE SLURRY

Karl F. Stevenson, 2680 Camino Place West, Kettering, Ohio

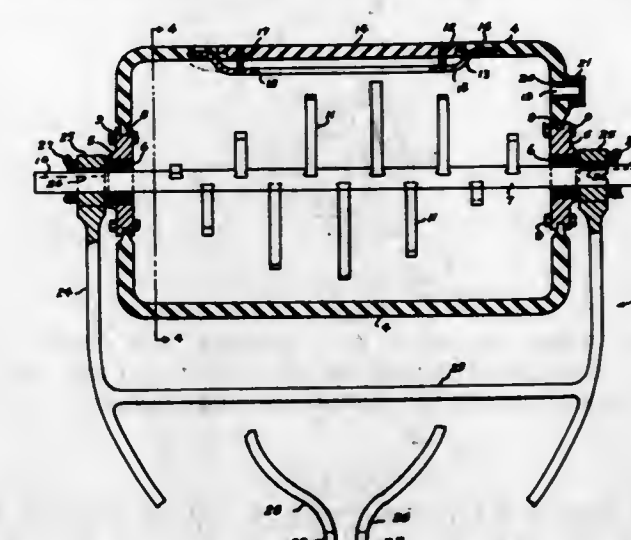
Filed Aug. 28, 1969, Ser. No. 853,872

Int. Cl. B28c 5/22

U.S. Cl. 259-153

1 Claim

A cylindrical rubber drum containing a "fast fix" cement and water in proper proportion and having metal ends for receiving ball bearings. A stationary shaft passes through the drum and a towing hitch is applied to the shaft. An inert gas



damaged runway, the mixture is churned into a slurry of proper consistency and can be used immediately in leveling and hardening the fill which previously been dumped into the crater.

3,592,449

FUEL-CONTROLLING DEVICE

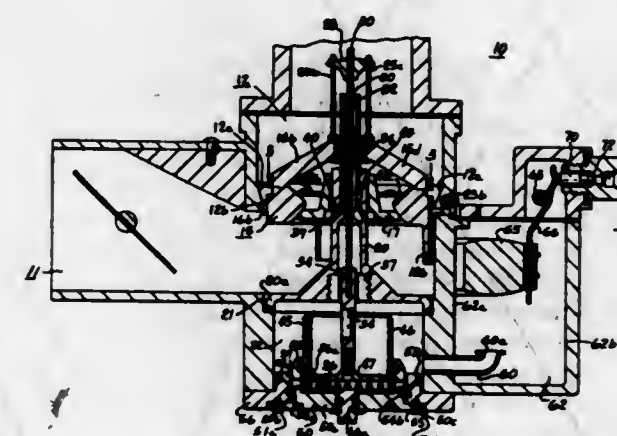
Kirrillos B. Elgohary, Pittsburgh, Pa., assignor to Energy Transmission Corp.

Filed Aug. 5, 1968, Ser. No. 750,175

Int. Cl. F02m 9/02

U.S. Cl. 261-36

1 Claim



An air valve is disposed in the air flowing through a carburetor to the intake manifold of an internal combustion engine. A fuel valve controls the fuel flow to a mixing chamber which produces a suspension of fuel particles which are entrained in the airflow. The air valve is operably connected to the fuel valve through the mixing chamber.

3,592,450

FLUID CIRCULATOR

George Maxwell Rippon, Apple Trees, Smarden, Kent, England

Filed Dec. 3, 1968, Ser. No. 780,722

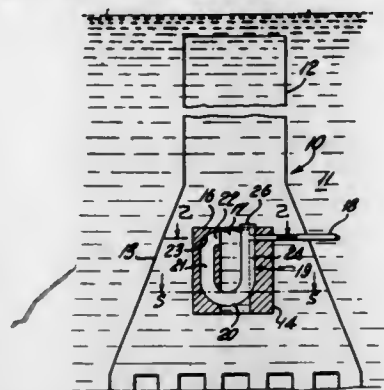
Int. Cl. B01f 3/04

U.S. Cl. 261-123

10 Claims

A liquid-circulating device includes a vertical stack submerged in liquid and provided with a large bubble generator adjacent its bottom opening. The bubble generator comprises an open bottomed gas chamber and an inverted tubular siphon including a first vertical leg communicating with the upper part of the chamber, a second leg extending upwardly to a bubble discharge opening above the chamber, and a

curved elbow located above the chamber opening. A tubular member is provided for guiding a cleaning tool into the



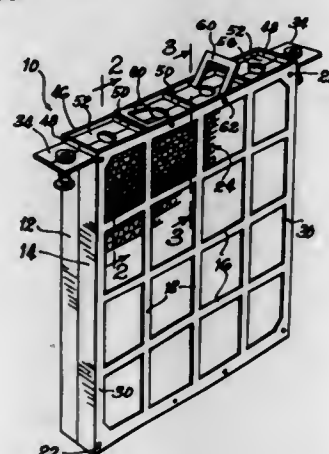
siphon through one of its end openings. The chamber and siphon are enclosed in a casing with openings registering with the chamber opening and siphon discharge opening.

3,592,451

ABSORBENT PAD STRUCTURES FOR HUMIDIFIERS
Richard Lee McDuffee, R.R. #1, Box 732 L, Aurora, Ill.
Filed Mar. 12, 1969, Ser. No. 806,548
Int. Cl. B01f 3/04

U.S. Cl. 261-103

12 Claims



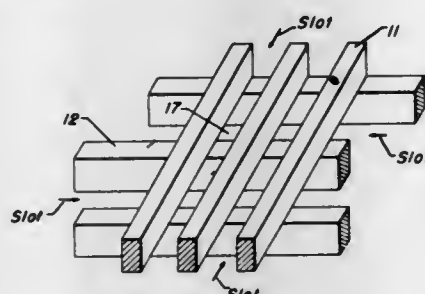
Absorbent pad structures for humidifiers wherein the pads are formed of a block of corrugated absorbent material with passages in the corrugated block providing openings for an airstream. A water trough is located at the top of the pad, and water is passed through openings in the trough for absorption by the corrugated material. In one form, the material forming the corrugations extends vertically and a wick is provided across the top of the pad to distribute the water. Means are alternatively provided for supporting the corrugated block between frame members and for leveling the structure. The passages in the pad may be positioned so that "uphill" movement of water is required to minimize the collection of free water by the airstream.

3,592,452

FLUID-CONTACTING DEVICE
Surinder K. Katyal, Harwood Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Dec. 27, 1969, Ser. No. 794,191
Int. Cl. B01f 3/04

U.S. Cl. 261-109

3 Claims

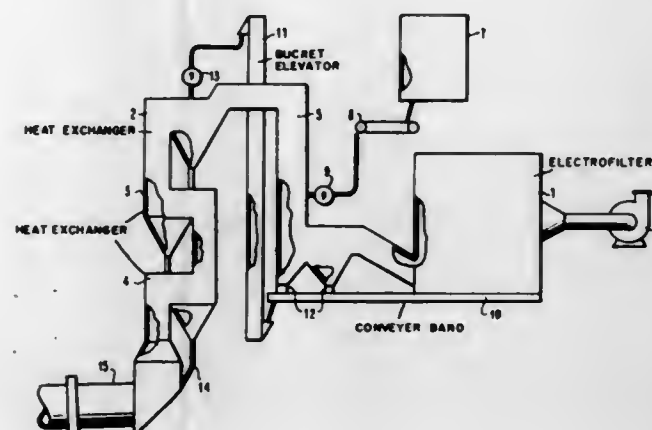


Fluid-contacting device having means associated therewith for varying the open or hole area in a plate element.

3,592,453
SYSTEM FOR DRYING AND PREHEATING FINE-GRAINED MATERIAL, SUCH AS CEMENT RAW MATERIAL PARTICULARLY
Heinz Jager, Bochum, Germany, assignor to Westfalia Dinendahl Groppe Aktiengesellschaft, Bochum, Germany
Filed June 13, 1969, Ser. No. 832,984
Int. Cl. F27b 7/00

U.S. Cl. 263-32

4 Claims

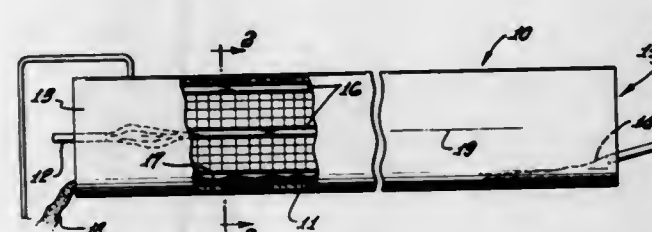


Device for drying and preheating fine-granular material includes an electrofilter, a hot gas supply duct connected to the electrofilter and formed with an advance precipitation chamber, means for supplying fine-granular material directly to the duct for precipitating a portion thereof in the chamber, bucket elevator means adjacent the chamber and the electrofilter for receiving precipitated material from both thereof and for transporting the precipitated material to a heat exchanger stage connected upstream of the duct.

3,592,454
FORMLESS INSTALLATION OF MATERIALS LIFTERS AND KILN LINING
George F. Olsen, Colton, Calif., assignor to California Portland Cement Company, Los Angeles, Calif.
Filed Aug. 7, 1969, Ser. No. 848,235
Int. Cl. F27b 7/20

U.S. Cl. 263-33 R

8 Claims



The disclosure concerns apparatus and methods enabling rapid installation of lining including brickwork in a kiln, and without forms.

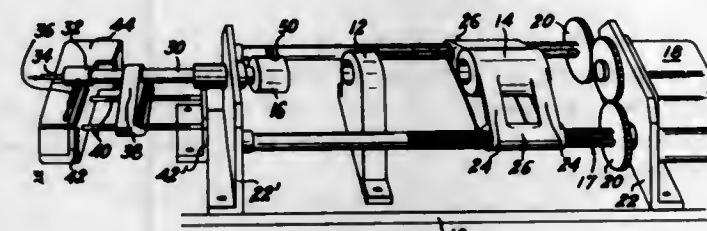
3,592,455
DEVICE FOR THE DISPLACEMENT OF A SOLIDIFICATION SOLID-LIQUID INTERFACE
Jean Gallet, St-Martin D'Heres, and Yves Malmejac, Grenoble, both of, France, assignors to Commissariat a L'Energie Atomique, Paris, France
Filed Nov. 25, 1969, Ser. No. 879,761
Claims priority, application France, Dec. 18, 1968, 178,906
Int. Cl. C22b 41/00

U.S. Cl. 266-24

6 Claims

Device for growing monocrystals of a material comprising an elongated container for the material and two ovens through which the container is circulated. A first oven maintains the position of the material which confronts it at a tem-

perature close to the phase change point. The second oven, located before the first, heats the material to the liquid state.

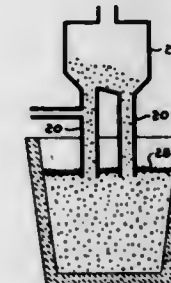


The temperature gradient in the interface zone is stabilized by displacing the second oven with respect to the first.

3,592,456
SLAG BREAKER SHIELD FOR DEGASSING APPARATUS
Louis F. Miklos, 6151 Delaware St., Lake County, Ind.
Filed Jan. 30, 1970, Ser. No. 7,184
Int. Cl. C21c 7/10

U.S. Cl. 266-34 R

6 Claims



This invention is a shield and slag breaker device for application to the nozzles of degassing apparatus which shields the nozzle ends until penetration is made through the slag crust. It comprises a unitary member of sheet metal material having a shallow cone body, a base of which extends radially outwardly to form an annular ring. The peripheral edge of the annular ring is upturned and means are provided on the upturned edge for supporting the device of this invention so that the annular ring abuts against the annular end of the nozzle of the degassing vessel.

3,592,457
PROCESS AND COMPOSITION FOR SEALING AND DISCHARGING METALLURGICAL FURNACES AND OTHER VESSELS
Horace Freeman, Cap de la Madeleine, Quebec, Canada, assignor to Freeman Corporation, Cap-de-La-Madeleine, Canada
Filed Nov. 20, 1968, Ser. No. 777,369
Int. Cl. C21b 7/12

U.S. Cl. 266-42

4 Claims

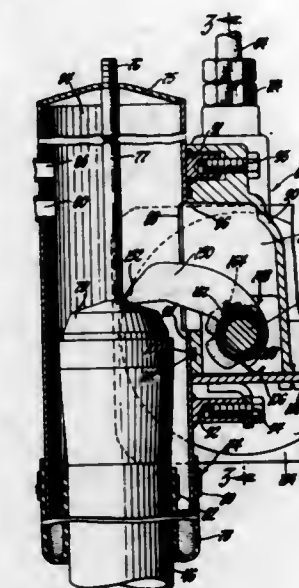
One aspect of this invention concerns a moldable composition including finely divided, ferro-alloy metallic particles, iron powder, and an inert agent for use in plugging tap holes in furnaces, which composition may be included in an iron pipe for insertion into a tap hole. The invention also concerns a method of removing the contents of metallurgical or similar vessels employing the above compositions by subjecting the tap to a jet or stream of oxygen.

3,592,458
EXHAUST AND RELIEF VALVE ASSEMBLY
George W. Jackson, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed May 23, 1969, Ser. No. 827,427
Int. Cl. F16f 5/00

U.S. Cl. 267-65

8 Claims

In a preferred form, a valve assembly including an inlet and an outlet. The valve includes an oscillatable, damped

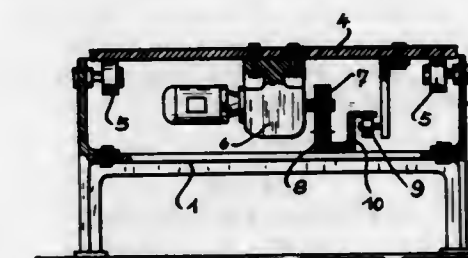


tion so as to communicate the inlet and outlet. In a second control position, the cam operator is positioned to maintain the valve closed. Further, in the second position, the valve includes means responsive to a predetermined pressure at the inlet to open the valving element independently of the cam operator so as to relieve the pressure buildup by communicating the inlet with the exhaust.

3,592,459
LARGE AREA OR CROSS-BEAM CUTTING MACHINE
Werner Golter, and Helmbrecht Muller, both of Pirmasens, Germany, assignors to Firma Schon & Cie. Gesellschaft Mit Beschränkter Haftung, Pirmasens, Germany
Filed Jan. 17, 1969, Ser. No. 791,916
Claims priority, application Germany, Feb. 27, 1968, P 19 86 620
Int. Cl. B23q 5/22

U.S. Cl. 269-61

12 Claims



An improved large area or crossbeam cutting machine comprising a table-guiding frame with a crossbeam, a table movable along the frame and a drive unit therefor, the power takeoff of the drive unit interacting with a longitudinal drive element in which said drive unit is provided on said movable table so as to move in conjunction therewith and said longitudinal drive element is positioned on said table-guiding frame.

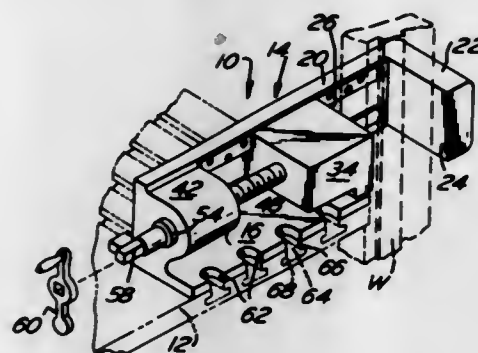
3,592,460
VICE FOR USE WITH MACHINE TOOLS
Willison L. Lower, Camden County, N.J., assignor to Duffield Machine Shop, Inc., Gloucester City, N.J.
Filed Dec. 2, 1968, Ser. No. 780,506
Int. Cl. B23q 3/04

U.S. Cl. 269-101

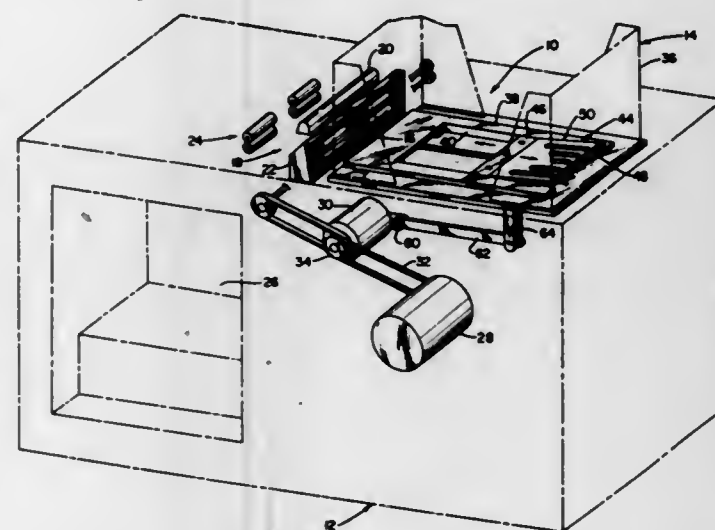
5 Claims

A vice providing vertically oriented gripping surfaces, comprising a base member adapted to be placed at a corner of a supporting surface and having a slide portion and an anvil having a vertically oriented gripping face, and a jaw

coupled to the slide portion and having a vertically oriented gripping face opposed to the gripping face of the base, the

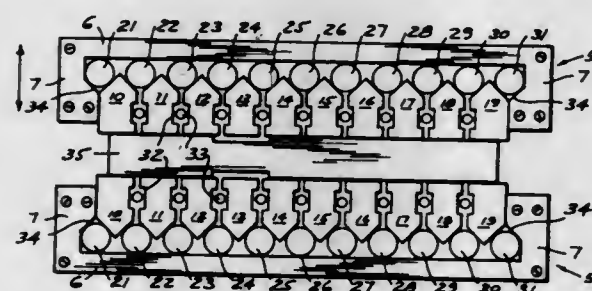


3,592,463
TRANSPORT MEANS FOR RECORD CARDS
Robert W. Bonnema, Denver, and Lawrence V. Cote, Littleton, both of Colo., assignors to Uptime Corporation, Englewood, Colo.
Filed June 12, 1969, Ser. No. 832,720
Int. Cl. B65h 1/06
U.S. Cl. 271-44 14 Claims



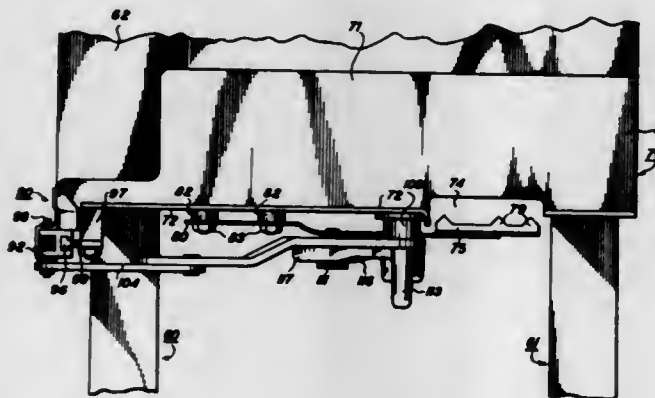
gripping faces being positioned to accommodate vertically elongated workpieces.

3,592,461
SELF-ADJUSTING VISE JAW
Umberto Lauriti, Olive Bridge, N.Y.
Filed June 2, 1969, Ser. No. 829,316
Int. Cl. B25b 1/24
U.S. Cl. 269-267 4 Claims



This invention is directed to a self-adjusting vise jaw in which a plurality of laterally aligned clamp blocks are mounted within a frame with their inner ends bevelled to define a series of vertical V-notches within which are freely fitted a corresponding series of actuating rods having a diameter such that portions thereof extend beyond the inner ends of the clamp blocks toward tangential contact with the back of the frame. Any clamp block that faces a thin section of a workpiece held in the vise will be pushed into contact therewith by the two actuating rods adjacent the inner end of the clamp block while the remaining clamp blocks engage the thicker sections of the workpiece.

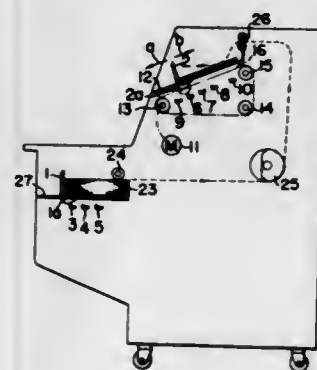
3,592,462
GATED PAPER SNUBBER
George E. Fackler, Louisville, Ky., assignor to Xerox Corporation, Rochester, N.Y.
Filed July 3, 1969, Ser. No. 838,780
Int. Cl. B65h 3/00, 3/16
U.S. Cl. 271-18 9 Claims



Apparatus to separate individual sheets fed from the top of the stack having a snubber-type stripper arranged to coact

Transport means sequentially picks bottom cards from deck in supply hopper and moves them across platform bottom of hopper into engagement with drive rolls to pass them across the read station of the card reader. Picking means reciprocated by carriage is made of resilient sheet metal with individual fingers extending in direction of reciprocation. Fingers normally extend above platform to engage card deck and yield to its pressure. Pickers at finger ends have detent portions to engage edge of bottom cards to pull them across platform. Detents extend in line perpendicular to fingers to engage major portion of length of card edge and reduce unit loading to avoid tearing or chipping. Pickers and fingers yield individually in bending and torsion to accommodate cards which are bowed either convex or concave to produce maximum engagement.

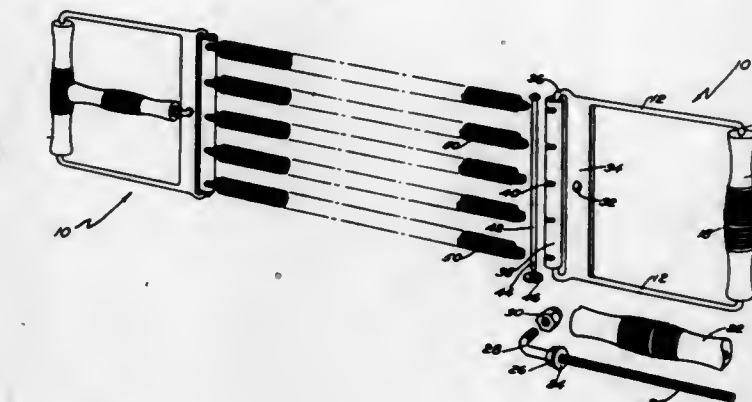
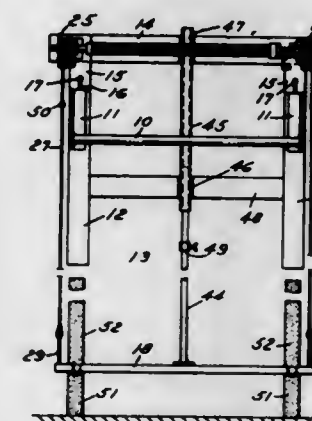
3,592,464
AUTOMATIC PAPER SHEET ALIGNMENT PLATE POSITIONING DEVICE FOR USE IN PAPER SHEET DISCHARGE SECTIONS OF BUSINESS MACHINES AND THE LIKE
Satoshi Kanda, Yokohama-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Nov. 18, 1969, Ser. No. 877,712
Claims priority, application Japan, Nov. 22, 1968, 43/102,155
Int. Cl. B65h 31/20 1 Claim



An automatic paper sheet alignment plate positioning device for use in paper sheet discharge sections of business

machines and the like in which when an end plate and/or sideplates for alignment of the side edges of paper sheets stacked in the paper sheet feed section are positioned according to the size of the sheets, the similar sheet alignment end and/or sideplates in the paper sheet discharge section are automatically positioned in response to the positions of the end and/or sideplates in the feed section.

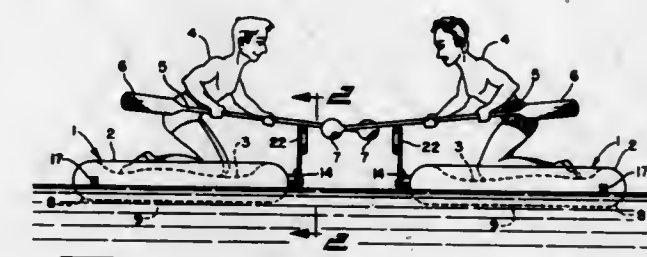
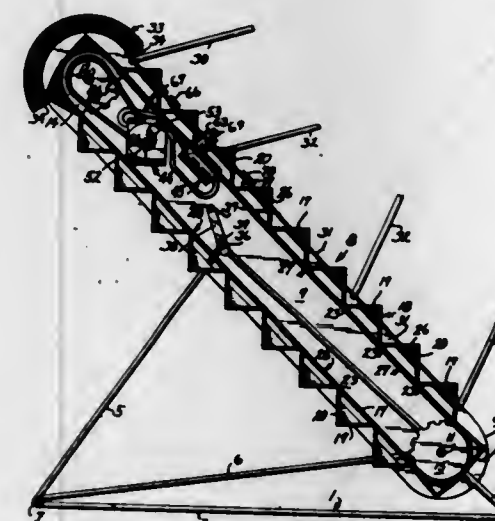
3,592,465
CHINNING APPARATUS WITH UPWARDLY BRAISED FOOT PLATFORM
Fred Fulkerson, Jr., 12607 Beech Daly, Detroit, Mich.
Filed Aug. 14, 1968, Ser. No. 752,525
Int. Cl. A63b 1/00
U.S. Cl. 272-62 17 Claims



A muscle-building device which adds additional exercises to the conventional stretchable exercising device by the use of uniquely designed handles having transversely positioned handgripping members running parallel to the stretchable members, these handgripping members being detachably connected to the conventional gripping member and the frame to which the stretchable members are attached.

An exercising apparatus for performing chinning exercises including a horizontal bar and a foot platform that is supported by cables and yieldingly urged upwardly to assist the person performing the exercise. Means are supplied for guiding the foot platform for vertical movement.

3,592,466
REVOLVING STEP EXERCISER WITH ADJUSTABLE SLOPE
Billie D. Parsons, Milesville, S. Dak.
Filed Jan. 21, 1969, Ser. No. 792,440
Int. Cl. A63b 23/06
U.S. Cl. 272-69 2 Claims



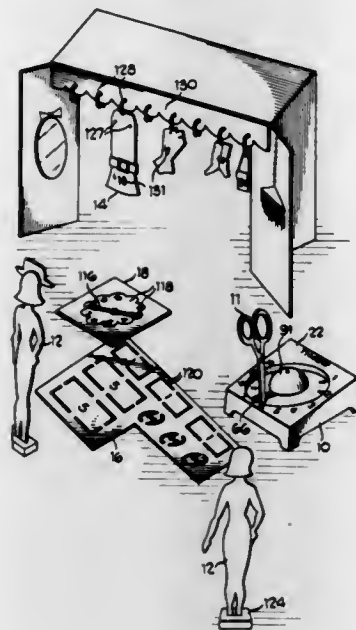
A pair of jousting poles and a pair of inflatable rafts each raft having a flexible wall for supporting a water sport player in the inflated condition and for collapsing and letting the player down or tipping him into the water in the deflated condition. An escape valve is mounted on the wall of the raft and this valve is connected to an arm supporting a target. When the target is hit by a jousting pole carried by an opposing water sport player, the arm is moved and opens the escape valve causing the raft to deflate and collapse.

3,592,469
CUTTING GAME WITH TIMER
Marvin I. Glass, and Jeffrey D. Breslow, both of Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Feb. 10, 1969, Ser. No. 797,928
Int. Cl. A63f 9/00
U.S. Cl. 273-1 R 4 Claims

An upwardly and rearwardly sloping treadmill, having steps thereon, mounted in a supporting structure for adjustment of the slope of the treadmill. Fluid pressure means includes a control valve and a pump operatively connected to the treadmill and operated thereby to generate resistance of the treadmill against working force applied thereto by the user.

Game apparatus comprising paper sheet material having currency outline markings which may be cut apart for use in purchasing wearing apparel for dressing doll figures. A timing device is provided for limiting the time period during which the player may use the scissors. The timing device includes a

movable pointer and a number of openings for receiving the blades of the scissors. When the blades are inserted into an



opening, the sound timer is rendered inoperative until they are removed.

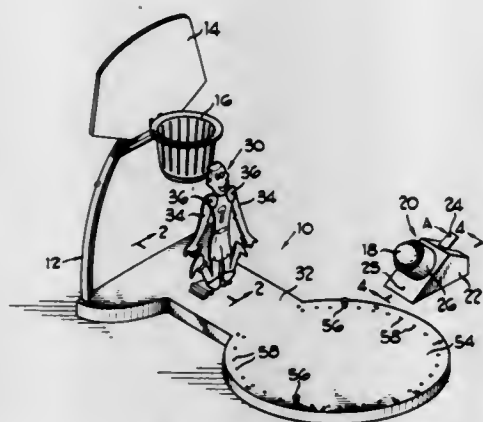
3,592,470 BASKETBALL GAME

Jeffrey D. Breslow, Chicago, Ill., assignor to Marvin Glass & Associates

Filed Jan. 12, 1970, Ser. No. 2,336
Int. Cl. A63b 65/12

U.S. Cl. 273-101

12 Claims



A skill-type game of the type resembling a basketball game having a raised goal or basket, means operable by a first player for propelling a ball toward the basket in an attempt to cause the ball to enter the basket, and a simulated basketball player having arms movable from lower rest positions to raised positions blocking the basket. The arms of the simulated player are actuatable by a second player for movement to their raised positions in an attempt to block the ball preventing it from entering the basket, but the arms return immediately by gravity back to their lower rest positions thereby preventing any control by the second player over the duration of time that the basket is blocked by the arms, thus requiring a degree of timing and coordination.

3,592,471 GRAVITY PROJECTOR GAME DEVICE

Ernest J. Swimmer, New York, N.Y., and Alan A. Hicks, Weston, Conn., assignors to Western Publishing Company, Racine, Wis.

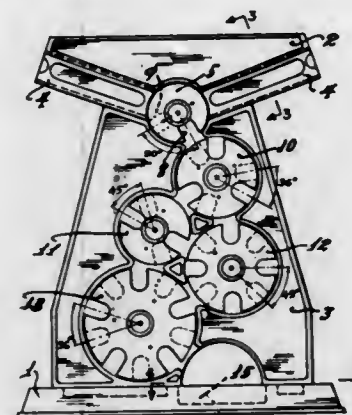
Filed Aug. 6, 1969, Ser. No. 847,888
Int. Cl. A63d 3/02

U.S. Cl. 273-120 R

4 Claims

The structure of the Game is an elevated stand having a top section and opposed flat sides below the same. Each side

is adapted for play by one or two players, the top section having two chutes for discs or similar playing objects leading to an appropriate one of the sides for progressive reception in peripheral cavities of a succession of manually operated wheels. Each wheel is connected for rotation with a wheel on the opposite side of the elevated stand, and the wheel cavities at one side of the stand are offset from those on the opposite



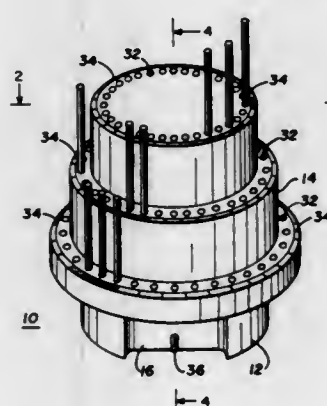
side. Each wheel carries a finger piece for rotation thereof, and when an overhead wheel has its peripheral cavity in register with an immediately under wheel, the disc or allied playing object will fall into the under wheel, and so on until the playing object is discharged from the lowermost wheel. In the embodiment illustrated two chutes are shown at each side of the top section, enabling play by four but two can play, as opposed, one at each side of the stand.

3,592,472 DOWEL DISPENSING AND RECEIVING INSTRUCTIVE TOY

Harry W. Kent, 2306 Scottswood, Garland, Tex.
Filed Aug. 29, 1968, Ser. No. 756,125
Int. Cl. A63f 3/06

U.S. Cl. 273-135 R

6 Claims



A child's instructive toy having a number of dowels of various colors contained in an enclosed cavity therein, with a channel communicating with the exterior of the toy dimensioned to receive one dowel at a time and located at the bottom of the cavity, and with an ejector pin positioned slidably in the channel; holes arrayed in circles in the wedding-cake-shaped outside surfaces of the top are color coded to correspond with the colors of the dowels, so that dowels may be placed in a hole of corresponding color as they are ejected one by one from the cavity. A mode of play for the toy is provided which involves filing the holes in a predetermined sequence by ejection of dowels one at a time until a dowel of color of a hole to be filled has been ejected.

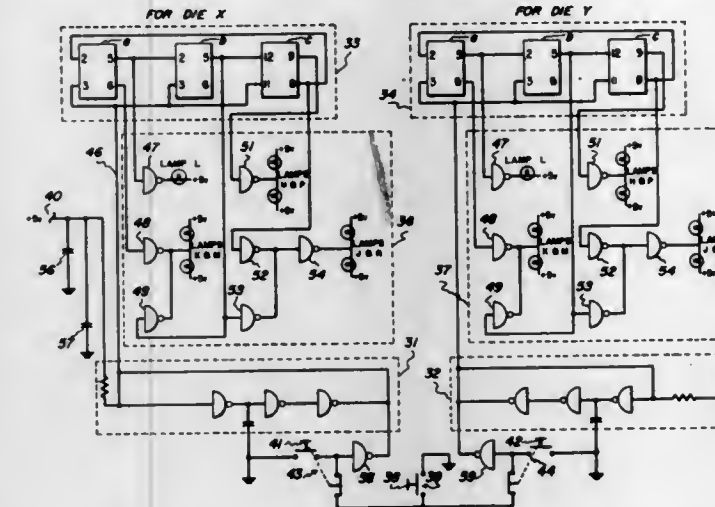
3,592,473 DICE GAME HAVING TRULY RANDOM NUMBER GENERATION

George Jernakoff, Loudonville; Michael J. Moore, Schenectady, and Donald B. Sorensen, Scotia, all of N.Y., assignors to General Electric Company

Filed Dec. 5, 1969, Ser. No. 882,511
Int. Cl. A63f 5/04; A63b 7/106

U.S. Cl. 273-138 A

4 Claims



A pair of electronic oscillator/feedback shift register/decoding circuitry combinations are used for a game of dice. Each of these combinations is arranged to randomly generate numbers in six states (1-6) and to independently display the numbers so generated by each combination upon actuation by the player, as by pressing a button. The states prevailing in the separate feedback shift registers upon cessation of pulse input are decoded and displayed to represent the results of a dice throw by the player.

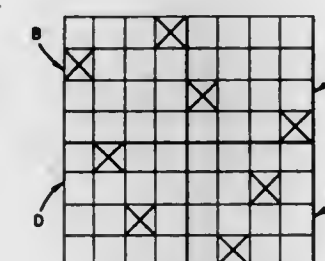
3,592,474 PUZZLE

James R. O'Neill, 1600 36th Ave., San Francisco, Calif.
Filed Mar. 18, 1970, Ser. No. 20,573

U.S. Cl. 273-157 R

Int. Cl. A63f 9/10

3 Claims



A puzzle is provided which consists of four playing squares each of which has 16 small squares thereon, i.e. is divided into four columns and four rows, each playing square having two markers thereon. Preferably the puzzle consists of thin sheets which are printed on both sides. The object of the puzzle is to place the four playing squares into a large square wherein there is not more than one marker in any row, any diagonal or any column.

3,592,475 APPARATUS FOR PRACTISING GOLF

Raymond Terry, Tunbridge Wells, England, assignor to Playrite Sportsgear Limited, Tonbridge, Kent, England

Filed Aug. 15, 1969, Ser. No. 850,366

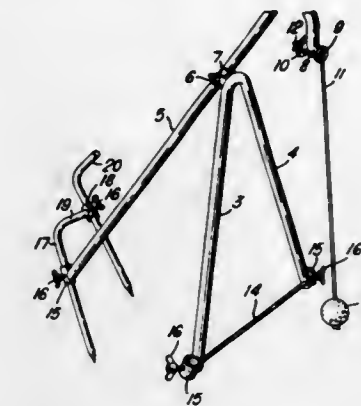
Claims priority, application Great Britain, Aug. 26, 1968, 40626/68

U.S. Cl. 273-200

8 Claims

The disclosure is concerned with apparatus for providing driving practice for golfers. The apparatus has a tripod frame in the form of a substantially inverted V-shaped yoke the

arms of the V forming two legs of the tripod. The third leg of the tripod is pivoted to the top of the yoke and extends beyond the plane of the yoke as a supporting arm from which a golf ball is suspended at the end of a cord. The lower end of each leg includes a bushing through which a spike may be inserted to anchor the frame to the ground. An L-shaped



spike is used to anchor the third leg in position and the laterally extending part of this spike includes another bushing through which another ground anchoring spike may be inserted in nonparallel relation to the L-shaped spike. The ball supporting cord is secured to the supporting arm through a bushing of low friction material having an outer concave end face.

3,592,476 INDICATOR AND SHUTOFF FOR CARTRIDGE-TYPE TAPE RECORDERS

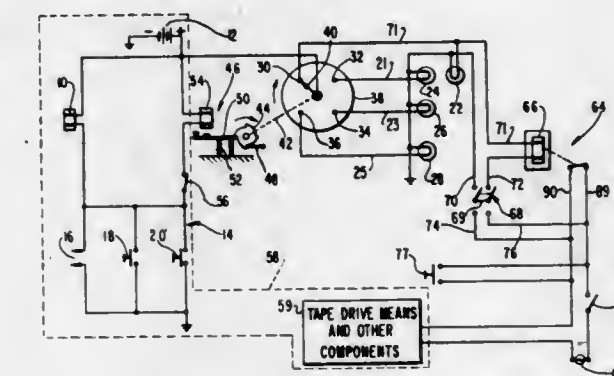
Donald K. MacDonald, 1203 Belknap Court, Cupertino, Calif.

Continuation-in-part of application Ser. No. 657,555, Aug. 1, 1967, now abandoned. This application Feb. 3, 1970, Ser. No. 8,223

U.S. Cl. 274-4

Int. Cl. G11b 5/78

10 Claims



Apparatus for indicating the track being traversed by a magnetic record or playback head of a conventional endless loop cartridge-type tape recorder machine, and for shutting off the recorder machine when the tracks available for recording are exhausted or the cartridge-type recorder has completed its automatic head switching cycle to return the conventional endless cartridge continuous loop to its relative beginning or end, depending on its mode of operation, i.e., record or playback.

3,592,477 AUTOMATICALLY CORRECT-SPEED TURNABLES

William M. Winn, 66 Foster Hollow Road, Bradford, Pa.

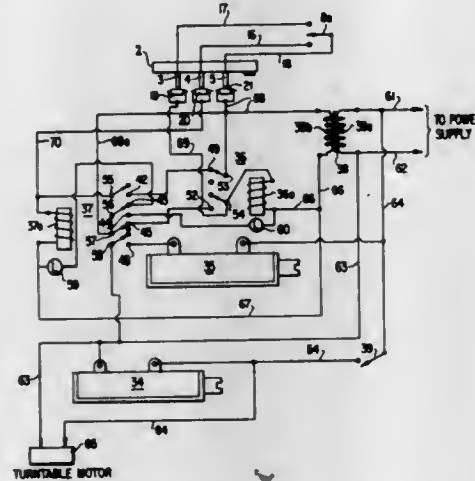
Filed Sept. 19, 1969, Ser. No. 859,511

U.S. Cl. 274-9 A

10 Claims

A turntable has a hole therethrough at a distance from the axis of rotation greater than the radius of the 45-r.p.m. records and less than the radius of the 33½-r.p.m. records. Three concentric annular metal rails insulated from each other and from the turntable are mounted coaxially of the

turntable on the underside thereof. A microswitch is mounted on the underside of the turntable and has an arm extending upwardly through the hole adapted to be depressed by the weight of a low-speed record when placed thereon, the microswitch having a normally closed terminal, a normally open terminal, and a common terminal connected respectively to the three rails. A plastic member is pivoted to a fixed part of the record player below the turntable and carries three metallic rollers adapted to contact the three rails respectively when the member is swung upwardly. A spring yieldably urges the member to swing upwardly, and a sole-



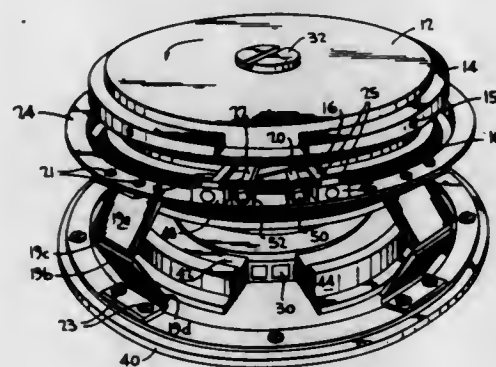
noid is adapted when activated to swing the member downwardly. A relay memory electric circuit is provided including the microswitch terminals, rails, rollers, turntable motor, solenoid, and a source of electric current, also a main switch, whereby when the switch is turned "off" and the turntable is motionless and a record is placed on the turntable, the position of the arm will preset the relay memory circuit according to the diameter of the record, so that when the switch is subsequently turned "on" the rollers will be retracted away from the turntable and the latter rotated at the correct speed for that record.

3,592,478

HELICAL RECORDER ARRANGEMENT FOR MULTIPLE CHANNEL RECORDING ON BOTH SIDES OF THE TAPE
Pleasant T. Cole, Oxon Hill; Philip A. Stüder, Silver Spring, and Allen L. Tyler, Baltimore, all of Md., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed May 7, 1969, Ser. No. 822,534
Int. Cl. G11b 5/78, 21/02

U.S. Cl. 274-4 R

8 Claims



There is disclosed a recorder employing a column of tape wrapped in a helix around a supporting drum. A direct drive torquer rotates the drum-tape assembly. Tape separators and heads are mounted on a traversing system such that they are completely supported by the tape. The separators flex the tape at an angle sufficient to allow the heads to clear the tape stack. As the tape rotates, the archimedes screw effect causes the heads to track up and down the tape stack thus traversing the entire length of the tape.

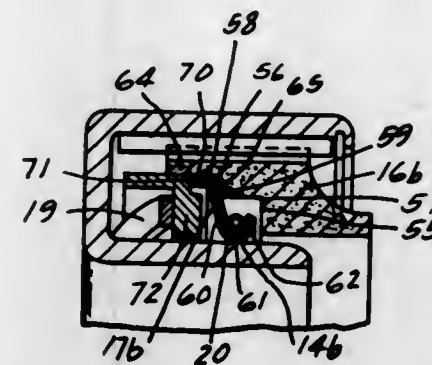
3,592,479

SHAFT SEAL

Raymond H. Andresen, Barrington, Ill., assignor to Gits Bros. Mfg. Co., Chicago, Ill.
Filed Mar. 5, 1969, Ser. No. 804,498
Int. Cl. F16j 15/40, 15/54

U.S. Cl. 277-40

1 Claim



A shaft seal having a U-shaped cross section ring housing adapted to encircle the shaft, the "U" opening axially, a carbon nose member projecting from the open end and urged axially by a spring force, a J-shaped cross section secondary seal ring having the long leg thereof urged axially against the back side of the nose member within the housing and the bight thereof urged radially against the inner diameter wall of the housing, the secondary seal being positioned so as to be urged into greater sealing contact in dependent response to the pressure contained.

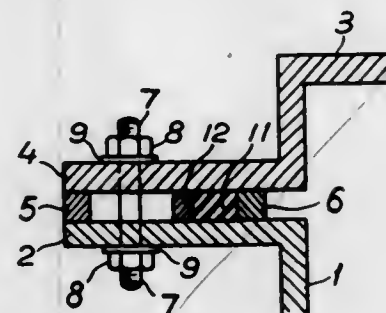
3,592,480

ADJUSTABLE GASKET

Robert Koranyi, Ludvika, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Apr. 28, 1969, Ser. No. 819,632
Claims priority, application Sweden, May 2, 1968, 5906
Int. Cl. F16j 15/02

U.S. Cl. 277-147

4 Claims



An adjustable gasket for sealing the space between two flanges which are arranged at a certain distance from each other with the help of a first and a second spacer, comprising a ribbon of elastic material arranged between the two spacers and close to the second spacer, a resilient strip of steel or the like arranged between the first spacer and the ribbon close to the ribbon, a number of pressure means situated between the flanges and arranged to press the strip and the elastic ribbon against the second spacer.

3,592,481

PIPE COUPLING

Warren C. Jeffery, and Sidney P. Teague, both of Birmingham, Ala., assignors to McWane Cast Iron Pipe Co., Birmingham, Ala.
Continuation-in-part of application Ser. No. 529,776, Feb. 24, 1966, now abandoned. This application May 3, 1968, Ser. No. 726,287

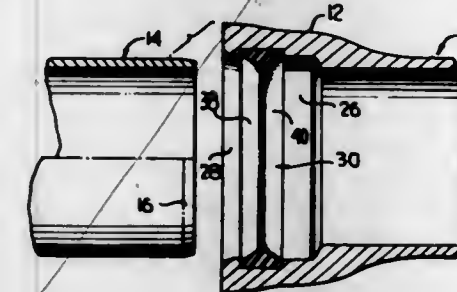
Int. Cl. F16j 15/00; F16k 41/00

U.S. Cl. 277-207

5 Claims

This disclosure relates to bell and spigot pipe joints wherein the bell includes an annular recess in which is posi-

tioned an elastomeric sealing member. The sealing member in transverse cross section includes a generally rectangular base portion received in the recess and a generally apex portion projecting radially outwardly beyond an inner surface of



the bell. The ratio of the width of the base portion to the maximum depth of the sealing member is approximately between 1.75 to 3.0 while the ratio of the width of the base portion to the depth of the base portion is approximately 10 to 1.

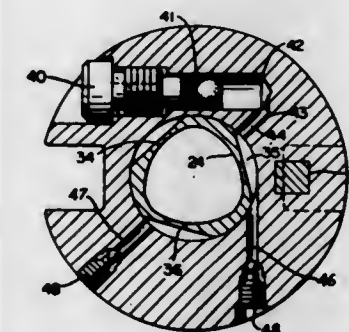
3,592,482

HYDRAULIC CHUCK

Bernard R. Better, Chicago, and Joseph W. Kosinski, Riverside, both of Ill., assignors to Scully-Jones Company, Chicago, Ill.
Filed May 27, 1968, Ser. No. 732,408
Int. Cl. B23b 31/30

U.S. Cl. 279-4

12 Claims



A hydraulic type chuck or holder for receiving and driving a lobed shank of a tool or other operated part, the chuck having a sleeve which has a straight passage of lobed configuration and which is so formed as to have annularly spaced thick wall portions alternating with annularly spaced thinner deformable portions which can be expanded into gripping and centering engagement with the driven shank when fluid pressure is applied to fluid pressure chambers defined in part by the outer side of the shell.

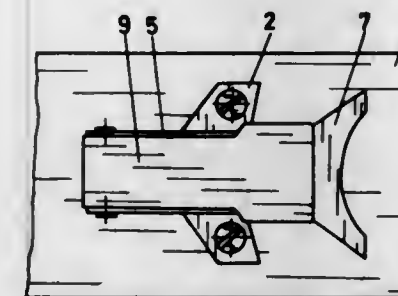
3,592,483

FRONT PORTION OF A SAFETY SKI BINDING

Norbert Pfretschner, Innsbruck, Austria, assignor to Geratebau Huber Kommanditgesellschaft, Major Ellensohnstrasse, Götis, Austria
Filed Mar. 17, 1969, Ser. No. 807,664
Claims priority, application Austria, Mar. 15, 1968, 2572/68
Int. Cl. A63c 9/00

U.S. Cl. 280-11.35

4 Claims



In the front portion of a safety ski binding having a front jaw swingable about a vertical axis, which can be latched into

a normal position, there is provided a sole retainer swingable about a horizontal transverse axis, wherein the device for swinging the front jaw about its vertical axis and the device for swinging the sole retainer about its horizontal transverse axis are each mechanically coupled to one another in such a manner that the sole retainer swings upward about its horizontal transverse axis upon the sidewise swinging of the front jaw.

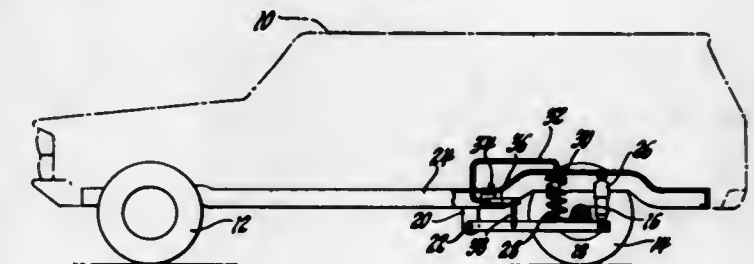
3,592,484

FIXED VANE ROTOR-TYPE PUMP ASSEMBLY

Harold J. Burke, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 28, 1969, Ser. No. 880,782
Int. Cl. B60g 11/26

U.S. Cl. 280-124

6 Claims



In preferred form, a hydraulic pump for an automotive self-leveling suspension system having a generally cylindrical semiannular rotor within a cylinder in the pump housing. A generally sector-shaped chamber bounded by the semiannular rotor and the pump housing is divided into dual compression chambers by a stationary vane extending from the pump housing toward the rotor. Relative movement between the sprung and unsprung masses of the associated vehicle pivots an arm connected to a shaft which oscillates the rotor within the pump housing. Inlet and outlet valves direct fluid flow from a reservoir into the compression chambers and hence to hydraulic cylinders at the vehicle's rear suspension. A normally closed dump valve between the hydraulic cylinders and the reservoir is opened to depressurize the cylinders and resultantly level the vehicle in response to the relative spacing between the vehicle's sprung and unsprung masses. A cammed surface on the pump shaft actuates the dump valve.

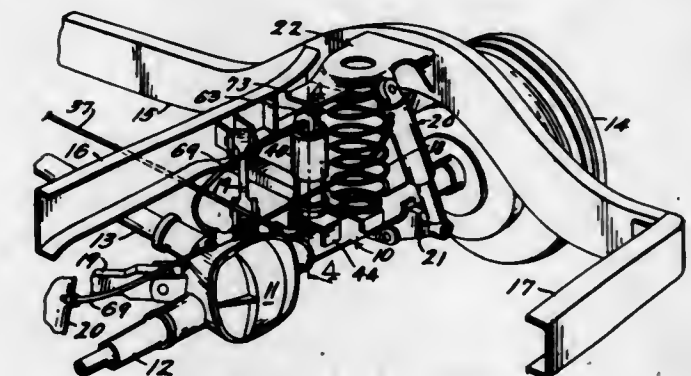
3,592,485

MANUALLY ACTIVATED LEVEL CONTROL FOR AUTOMOBILES

Walter T. Buhl, Ann Arbor, Mich., assignor to Ainsworth Industries Corporation and Harold F. Hadley, Toledo, Ohio
Filed Oct. 22, 1969, Ser. No. 868,471
Int. Cl. B60g 9/02

U.S. Cl. 280-124 F

8 Claims



A manually activated level control for an automobile suspension system having pneumatic support means, such as air springs or shock absorbers, and a source of air under pressure which is connected to the support means as necessa-

ry to compensate for changes in vehicle load in order to maintain a predetermined spatial relationship between the sprung body and the axle and wheels. The level control has a manually actuated pushbutton valve which supplies air under pressure to a feeler. The feeler has two relatively movable parts. The base of the feeler is mounted on either the sprung part of the vehicle (i.e., the chassis or body) or on an unsprung part, such as the rear axle, and the other part is extended by the air supplied to the feeler into contact with the other one of the chassis body or axle. If the axle is too close to the chassis, the feeler opens a port which connects the air under pressure to the support means, thus to raise the chassis relative to the axle. If the chassis and axle are too far apart, the feeler opens a port to vent the support means, thus to lower the chassis. Air is fed into or vented out of the pneumatic support means only when the pushbutton valve is actuated and only enough to bring the chassis and body to the desired, nominally "level" position relative to the axle and wheels.

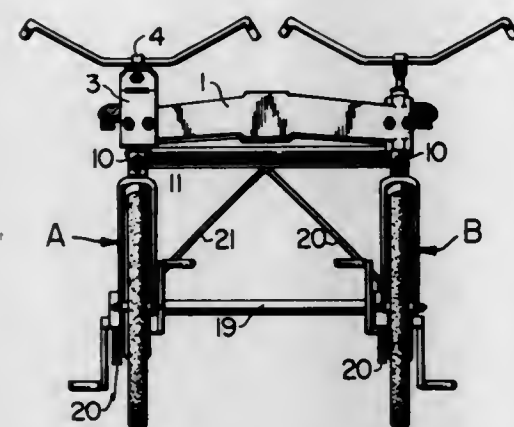
3,592,486

APPARATUS FOR CONNECTING TWO BICYCLES IN SIDE-BY-SIDE RELATION

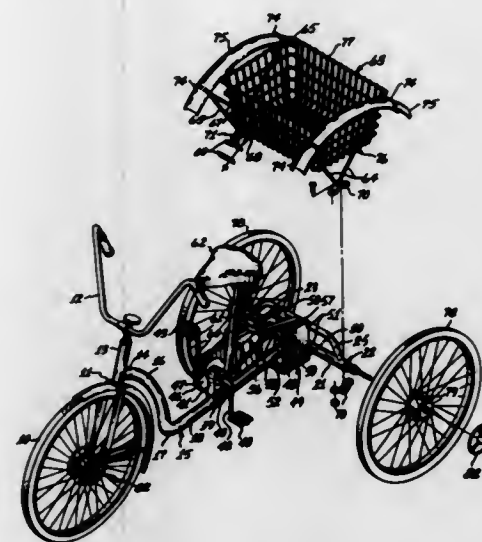
James M. Fox, 2238 Phillipi St., Sarasota, Fla.
Filed July 16, 1969, Ser. No. 842,277
Int. Cl. B62k 13/06

U.S. Cl. 280—209

6 Claims



tricycle, quick and easy changing of the rear tires, and having



a novel basket-and-rear-fender assembly that can be quickly attached and removed from the chassis.

3,592,488

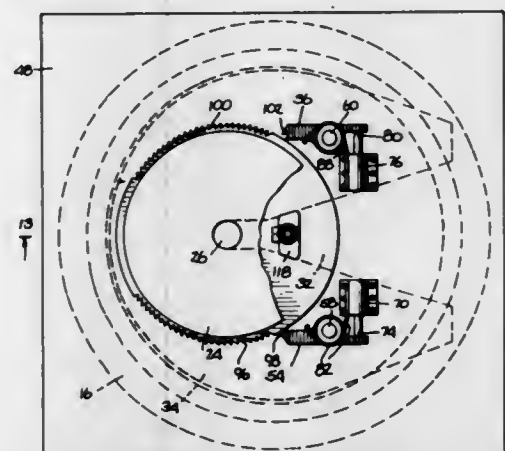
ANTI-JACKKNIFE DEVICE

Robert M. Holloway, 408 Springland Ave. and Robert L. Ludington, Stop 34, Ovneland Beach, both of Michigan City, Ind.

Filed May 22, 1969, Ser. No. 826,806
Int. Cl. B62d 53/10

U.S. Cl. 280—432

20 Claims



An anti-jackknife device for a "semitruck" including a ratchet device which is arranged and mounted so as to prevent additional articulation when activated, but allows return movement of the tractor and trailer units to their respective in-line positions.

3,592,489

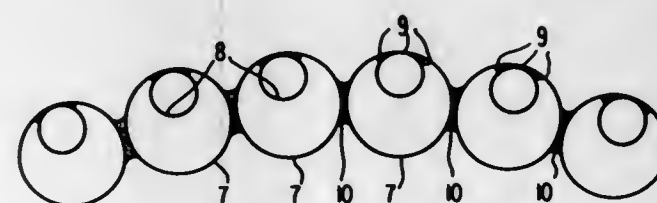
HOUSINGS WITH CONTRACTABLE WELL CASING HANGER SEATS

Benton F. Baugh; Bobby H. Nelson, Houston, Tex., and Carl F. Huntsinger, Ojai, Calif., assignors to Vetco Offshore Industries, Inc., Ventura, Calif.

Filed Mar. 17, 1969, Ser. No. 807,730
Int. Cl. F16l 55/00

U.S. Cl. 285—18

20 Claims



A housing having a seat for a casing hanger, which seat is initially in an outer or expanded position to avoid restrictions

3,592,487

TRICYCLE CHASSIS

Richard C. Mansperger, Peoria, Ariz., assignor to Gobby Mfg., Inc., Glendale, Ariz.

Filed July 25, 1969, Ser. No. 844,747
Int. Cl. B62k 5/04

U.S. Cl. 280—261

3 Claims

A tricycle chassis arranged for ease of operation of the

projecting into the housing. Fluid pressure acts on a piston device to effect contraction or constriction of the seat, causing it to project into the housing and serve as a landing shoulder for a casing hanger.

3,592,490

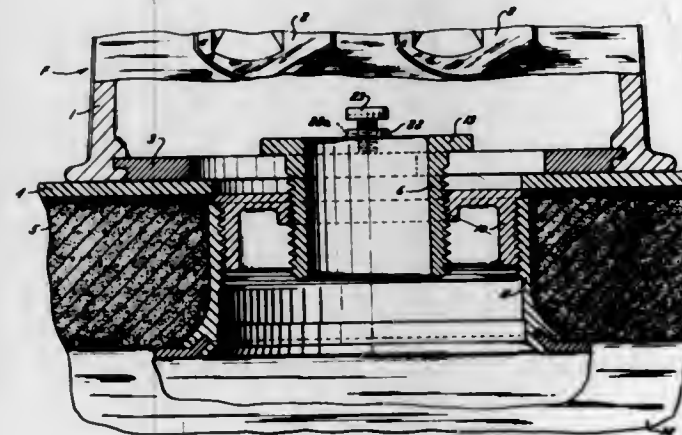
MEANS FOR RENDERING FLOOR FITTINGS NONROTATABLE

William H. Harding, Wood County, W. Va., assignor to Textron, Inc., Providence, R.I.
Continuation of application Ser. No. 658,840, Aug. 7, 1967, now abandoned. This application Mar. 21, 1969, Ser. No. 809,364

Int. Cl. F16l 19/02

U.S. Cl. 285—90

5 Claims



In a floor fitting a headed nipple provided with means holding a locking screw which engages the fitting base and develops static friction forces to maintain the fitting in fixed position.

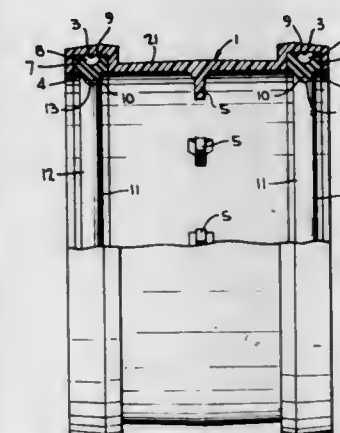
3,592,491

PIPE COUPLINGS

John Benjamin Glover, Hazlehead, near Sheffield, England, assignor to The Hepworth Iron Company Limited
Filed Apr. 10, 1968, Ser. No. 720,083
Int. Cl. F16l 21/02

U.S. Cl. 285—230

4 Claims



A synthetic plastic coupling sleeve for clayware, pitch-fibre or asbestos-cement plain-end pipes has a corrugation at each end forming inwardly facing recesses for sealing rings, each recess having a rectangular cross section, and each sealing ring comprising a body portion filling its recess except for a portion corresponding to an annular groove of semicircular cross section in the sealing ring midway between the ends of the recess and adjacent the wall of the recess, and an annular sealing head having at least the side facing the outer end of the recess—but preferably both sides of the head—bevelled and spaced from the outer side of the body portion, the volume of the sealing head being appreciably greater than the volume of the groove.

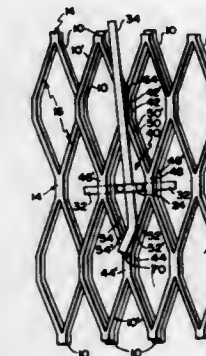
3,592,492

CONSTRUCTION FASTENER

Willard H. Lind, c/o General Matrix Corporation 257 Newtonville Ave., Newton, Mass.
Filed Jan. 3, 1969, Ser. No. 788,875
Int. Cl. F16b 19/00

U.S. Cl. 287—189.35

8 Claims



A fastener for securing a first sheet of expanded metal having repetitive diamond shaped holes to a second, structural member having an aperture when the aperture is in registry with one of the diamond holes. The fastener includes a clip having a loop which is positioned in the registered holes to receive the midportion of an elongated rod disposed lengthwise of the diamond hole and means engageable with the second, structural member for retaining the loop in position. The ends of the rod bear against lengthwise opposed bridges of the hole and the loop is disposed transversely to the rod so that the rod must be bowed to simultaneously bear against the bridges and pass through the loop. The direction in which the rod is bowed forces the expanded metal sheet and structural member together.

3,592,493

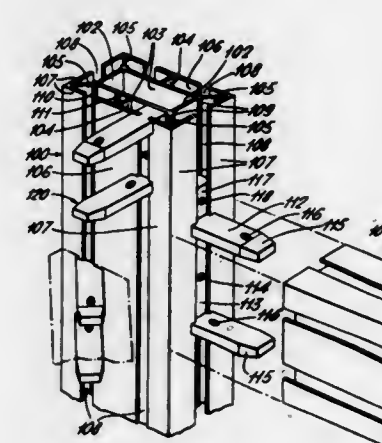
CONSTRUCTIONAL SYSTEMS

Alan Charles Goose, Sheffield, England, assignor to Aluminum Systems Limited, Yorkshire, England
Filed May 27, 1969, Ser. No. 828,242
Claims priority, application Great Britain, May 30, 1968, 25,978/68

Int. Cl. F16b 3/00

U.S. Cl. 287—189.36H

6 Claims



Connection members for constructional systems, based on extrusions having at least one channel formation in at least one of the sides thereof, are characterized by having a base member which fits into the channel formation of one extrusion and at least one side member which fits into the channel formation of another extrusion to be connected to the first, securement of the connection member to join the extrusions to draw them together.

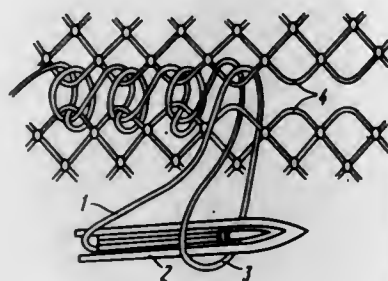
3,592,494

A METHOD OF SEWING NET SHEETS TOGETHER
 Manivald Maximovich Pajulaid, ulitsa Roo, 10, kv. 6, and
 Khugo Gustavovich Tooming, ulitsa Gakhu, 8, kv. 24, both
 of Tallin, U.S.S.R.

Filed Oct. 15, 1968, Ser. No. 767,679
 Int. Cl. B65h 69/04

U.S. Cl. 289-1.5

2 Claims



A machine for sewing net sheets together includes a shuttle carrier having a shuttle for jointing thread. A device is provided for pulling a loop out of the shuttle and a device is provided for threading the loop taken therefrom through the meshes of the net sheets. Still further there is provided a mechanism for expansion of the loop and a mechanism for tightening the knot formed as a result of the shuttles passing through the loop.

3,592,495

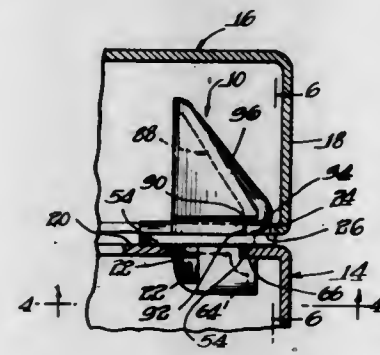
LATCHING DEVICE

Julian V. Fisher, Carpentersville, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed July 23, 1969, Ser. No. 844,106
 Int. Cl. E05c 19/06

U.S. Cl. 292-76

9 Claims



A latching device molded in one piece from a tough resilient plastic material for securing one member such as a top to a second member such as a washing machine cabinet, which latching member has a relatively strong and unyielding shoulder portion on a shank insertable through and engageable beneath the second member, resiliently collapsible shoulder portions on the shank for engaging behind the second member, and shoulder and abutment means on an outwardly extending head portion of the device positioned over the relatively rigid shoulder from the shank for engaging the flange of the first member for holding the first member down and preventing lateral shifting thereof.

3,592,496

VEHICLE DOOR LATCH

Leonard K. Ploughman, Rockford, Ill., assignor to Atwood Vacuum Machine Company, Rockford, Ill., Continuation-in-part of application Ser. No. 650,062, June 29, 1967. Continuation-in-part of application Ser. No. 748,124, July 1, 1968, Continuation-in-part of application Ser. No. 751,194, Aug. 8, 1968. This application Sept. 4, 1969, Ser. No. 855,320

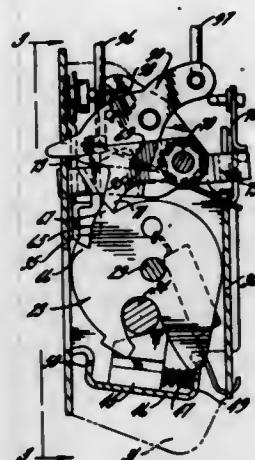
Int. Cl. E05c 3/26

U.S. Cl. 292-216

4 Claims

A single preset latch adapted to be concealed entirely within a vehicle door. The latch includes a pivoted pawl, con-

tactor and locking lever disposed in closely spaced side-by-side relation and mounted to turn about axes which parallel



3,592,497

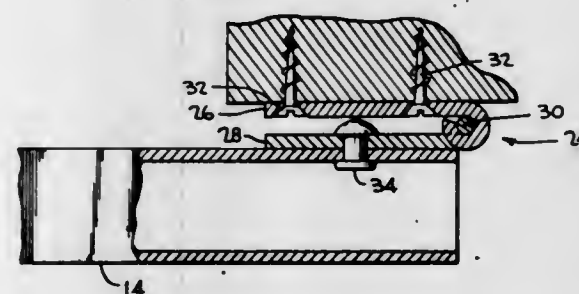
DOOR BAR LATCH

Emanuel L. Logan, Jr., 10317 Summit Ave., Kensington, Md.
 Filed Sept. 29, 1969, Ser. No. 861,934

Int. Cl. E05c 19/18

U.S. Cl. 292-259

3 Claims



A door bar latch comprising a bar having a mounting member affixed at one end and a slot to receive a keeper at the other end. The mounting member is formed of a pair of hinged plates and is rotatably connected to the bar to permit the bar to pivot along two axes.

3,592,498

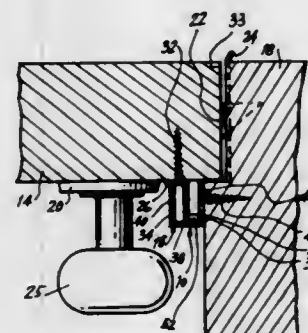
JIMMY-PROOF DOOR GUARD

Thomas S. Raccuglia, Sr., 14 Woodsend Drive, Matawan, N.J.
 Filed Aug. 29, 1969, Ser. No. 854,099

Int. Cl. E05b 17/00

U.S. Cl. 292-346

6 Claims



A jimmy-proof door guard comprises an assembly of a channel member and an angle bar. The channel member is secured laterally to a door jamb and the angle bar is secured to the outside of the door. The assembly is located at the height of the lock on the door. When the door is closed, the

angle bar fits into the channel member so that the bolt of lock cannot be reached and pried open. The channel member and bar are so arranged that the angle bar covers holding the channel member of the door jamb and the channel member covers screws holding the angle bar on the door.

3,592,499

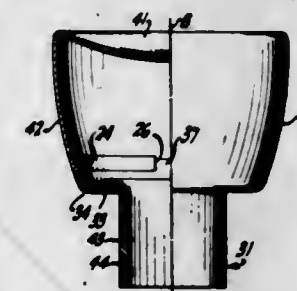
DOOR KNOB AND METHOD OF MAKING THE SAME

Kenneth Raeburn Nelson, West Vancouver, British Columbia; Popel Leslie William, North Vancouver, British Columbia, and Karl Greinacher, North Vancouver, British Columbia, all of Canada, assignors to Schlage Lock Company
 Filed July 12, 1968, Ser. No. 744,387

Int. Cl. E05b 1/06; B21d 53/38; F16d 1/06

U.S. Cl. 292-347

8 Claims



A doorknob and method of making it concern a circular shell having a rim with an edge. Material of the rim is peeled by a relatively rotating tool and is distributed around the interior periphery of the rim to form an inwardly extending tongue having an interruption. An originally separate shank has a flange disposed within the peeled rim and shouldered against the tongue, being held permanently by the turning of the rim edge. A tab on the shank is fitted into the interruption in the shell.

3,592,500

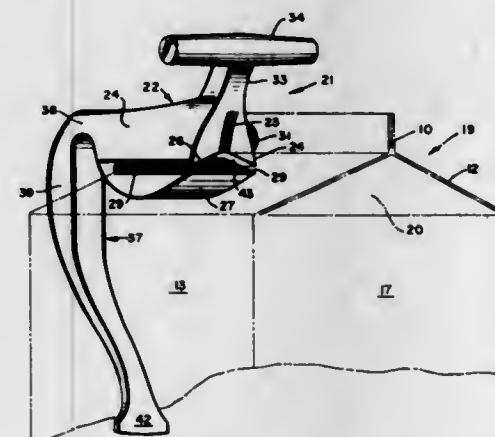
REMOVABLE HANDLE FOR PORTABLE CONTAINERS

Paul C. Setzler, Jericho Road, Sherman, Conn.
 Filed June 2, 1969, Ser. No. 829,371

Int. Cl. A47j 45/00

U.S. Cl. 294-27

5 Claims



A removable and reusable handle to be secured on milk cartons and similar portable containers for convenient lifting of filled cartons and also for dispensing contents therefrom. The handle may be removed and reused with many successive cartons.

3,592,501

HOLDER FOR A DISPOSABLE BEVERAGE CONTAINER

John Bryan Stokes, 82 Coppice Road, Will Aston, Nantwich, Cheshire, and Alan Roger Griffiths, 23 Harewood Road, Marlow, Buckinghamshire, both of England

Filed Nov. 20, 1968, Ser. No. 777,427

Claims priority, application Great Britain, Nov. 21, 1967, 52967/67

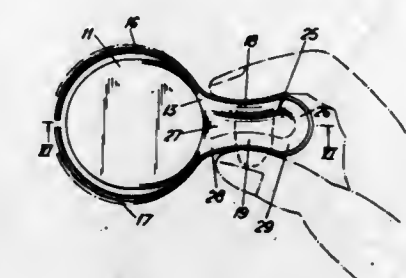
Int. Cl. A47j 45/07

U.S. Cl. 294-32

5 Claims

A holder for disposable beverage containers is provided with a platform to support the base of the container and

resiliently curved arms which embrace the sidewalls of the container, the curved arms being connected to a hairpin-shaped handle which is sufficiently flexible to provide aggressive engagement of the resilient curved arms on the sidewalls of the container when the hairpin limbs of the handle are gripped by a user.



3,592,502

SLING

Adolf Bolliger, Landvetter, Sweden, assignor to Goteborgs Bandvaveri AB, Goteborg, Sweden

Filed Jan. 10, 1969, Ser. No. 790,238

Claims priority, application Sweden, Jan. 10, 1968, 279/68

Int. Cl. B66c 1/12

U.S. Cl. 294-74

4 Claims



A multiple-ply, flexible load-lifting sling of improved strength capable of lifting heavier loads for the same size band plies comprises two superposed woven bands or belts, preferably of synthetic material, which are interwoven together during the fabrication of the respective bands. The two separate bands are formed in concentric but oppositely formed loops without folds or any mutual tension causing creases, and are interwoven and stitched only in intermediate areas or near the loop ends and not throughout the loop portions of the sling.

3,592,503

SWIVEL-MOUNTED GRAPPLE APPARATUS WITH DAMPING ACTION

John P. Lundberg, Washburn, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed Apr. 9, 1969, Ser. No. 814,616

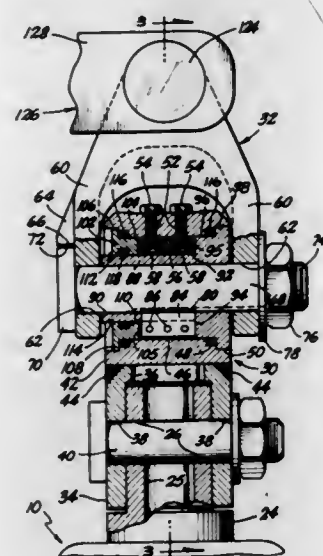
Int. Cl. B66c 1/00

U.S. Cl. 294-86 R

7 Claims

A grapple mechanism is suspended in a pendulous manner from the free end of a boom. To prevent free swinging, one vane member is associated with the grapple mechanism so as to move therewith. This vane, together with a stationary

vane, project into a chamber or compartment containing a liquid having a desired viscosity to provide resistance to the



movement of the vane associated with the grapple mechanism and thereby provide the damping action.

3,592,504

DUAL-ACTION TAILGATE

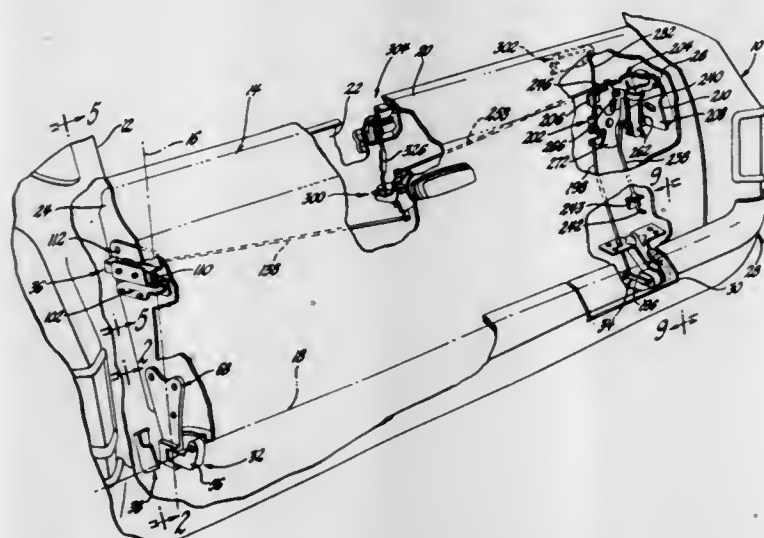
Bela Sandor, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 28, 1969, Ser. No. 845,422

Int. Cl. B60j 5/10

U.S. Cl. 296-50

3 Claims



A dual-action tailgate for a conventional station wagon type vehicle is mounted on the vehicle body for swinging movement into and out of the rear opening thereof about a vertical axis as a door, or about a horizontal axis as a dropgate, by a biaxial multihinge and by a pair of hinge-latches each of which hinge-latches provides a pivotal connection about one of the two axes and is releasable to allow swinging movement of the tailgate about the other of the two axes. The operating arrangement for the tailgate includes a main latch for maintaining the tailgate in a closed position and having a pair of operating levers connected by rigid links to the hinge-latch assemblies for release of the main latch simultaneously with release of either hinge-latch. Blocking means on the operating levers function independently of the condition of the main latch to prevent simultaneous or concurrent release of both hinge-latches by sensing, through the rigid links the condition of the hinge-latches.

3,592,505

COLLAPSIBLE APOLLO COUCH

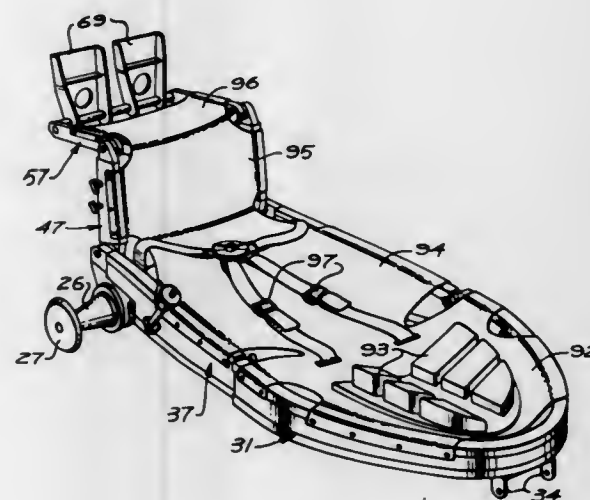
Paine, T. O., Acting Administrator of the National Aeronautics and Space Administration with respect to an invention of; David L. Johansen, Northridge, Calif.; Walter E. Cooper, San Fernando, Calif., and Liborio J. Ferrara, La Cresenta, Calif.

Filed Feb. 4, 1969, Ser. No. 796,358

Int. Cl. A47c 1/022, 1/031

U.S. Cl. 297-68

6 Claims



A couch system for manned space vehicles comprising a separable main frame structure and three individually foldable couches detachable therefrom, each supported by highly articulated couch frames which may be manipulated by individual occupants. The main frame and the couches may be dismantled, either completely or partially, and compacted for storage when not in use to provide more room for the occupants of the vehicle. One couch is additionally adjustable to a more upright position to facilitate operation of various controls and improve the occupant's view through a window.

3,592,506

CONVERTIBLE PLAY BENCH

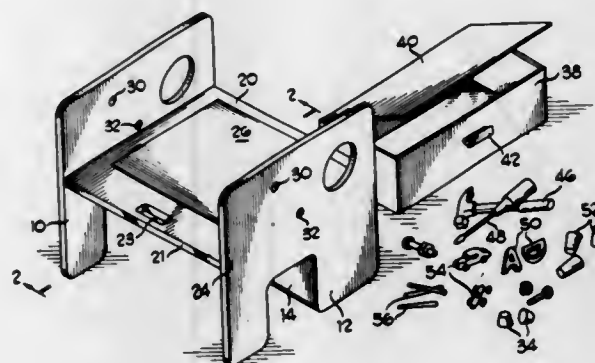
Jeffrey D. Breslow, Chicago, Ill., assignor to Marvin Glass and Associates, Chicago, Ill.

Filed Apr. 23, 1969, Ser. No. 818,544

Int. Cl. A47c 7/16

U.S. Cl. 297-193

3 Claims



This invention relates to children's furniture which may be used as a chair, table, activity desk or as a toy. The invention includes a pair of side panels which are connected together by a pair of fixed wall panels, and a pivotally mounted panel which may be selectively placed in any of several positions to present either of its two surfaces for use by the child or to serve as a closure for a storage compartment, a drawer or storage container is removably positionable within a storage compartment formed by the fixed wall panels and the pivotally mounted panel.

3,592,507

RESTRAINT BELT LOCK

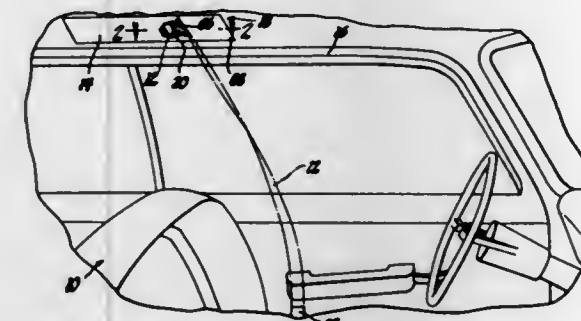
Edmond R. Gionet, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 15, 1969, Ser. No. 850,564

Int. Cl. A62b 35/60

U.S. Cl. 297-388

5 Claims



A belt lock includes a cam having a generally planar locking surface portion, a rib surface portion, and a circular surface portion. The cam is pivotally mounted between the walls of a support and biased to an unlocked position. The walls also pivotally mount therebetween a roller. A restraint belt from a spring-biased retractor passes along a base surface of the support, around the cam, around the roller, and exits the lock. The belt slides freely through the lock except when accelerated above a predetermined rate. When the belt is accelerated above the predetermined rate, the friction of the belt and the drag force of the retractor act on the cam to pivot the cam to an intermediate position where the rib surface portion slightly pinches the moving belt against the base surface to pivot the cam to the locked position where the generally planar locking surface portion is in generally parallel relationship with the base surface to frictionally hold the belt.

3,592,508

POWER ACTUATED HEADREST ASSEMBLY

Frederick Druselkis, Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 14, 1970, Ser. No. 2,862

Int. Cl. A47c 7/36

U.S. Cl. 297-410

4 Claims



A power actuated headrest assembly for a motor vehicle includes a headrest having a downwardly extending support

member that slidably engages a guide member carried interior of a seat back. A plastic tape extends along the support member and has a lower end connected to the guide member and a free upper end that extends into the headrest. An electric motor carried by the headrest includes gear means that drivingly engage the tape for selectively vertically moving the headrest relative to the seat back with the tape serving as a columnar load bearing member.

3,592,509

CONTINUOUS PAVEMENT CUTTER

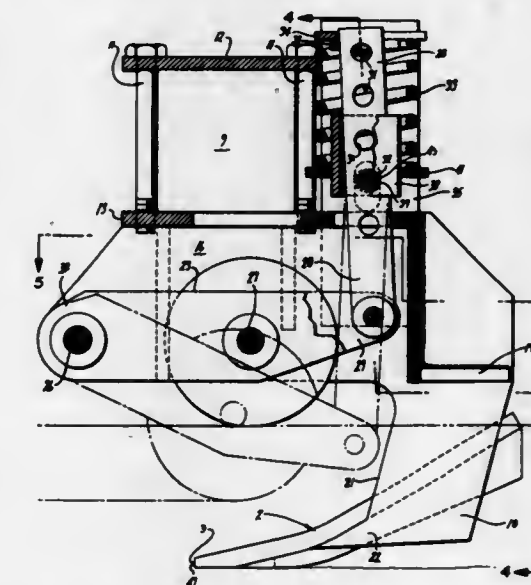
Vernon R. Soderlund, 6514 Lucas Ave., Oakland, Calif.

Filed Dec. 5, 1969, Ser. No. 882,417

Int. Cl. E01c 23/09

U.S. Cl. 299-36

18 Claims



An apparatus used in conjunction with the ripper bar of a prime mover for removing a section of overlying asphaltic pavement preparatory to digging a trench or repairing a street which consists of a cutting member having a leading edge which slices a thickness of pavement from the subgrade, a side edge in combination with a pavement engaging wheel which cuts a side of the pavement; the cutting member being curved upwardly and rearwardly to lift and break the pavement.

3,592,510

WHEEL ASSEMBLY

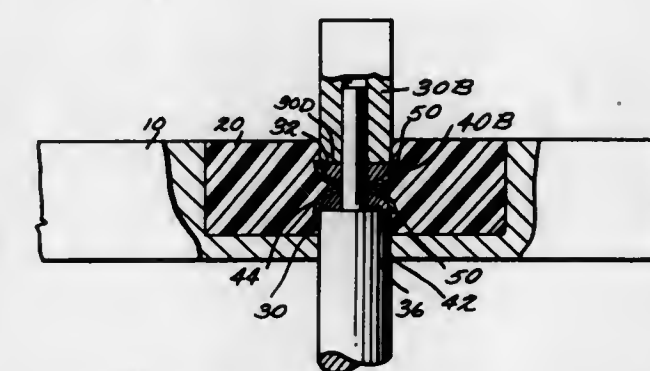
Vernon D. Heltfield, Leesburg, Va., assignor to Aerospace Industrial Associates, Inc., Purcellville, Va.

Filed Apr. 1, 1969, Ser. No. 812,466

Int. Cl. B60b 5/02

U.S. Cl. 301-5.7

10 Claims



A wheel assembly having a wheel portion of a similar plastic, with integrally cast bearing races and method of casting same whereby said bearing races are secured and maintained in proper alignment within said wheel portion through exploitation of the inherent characteristics of said plastic and by means of the unique design of said races. The characteristics exploited include shrinkage of the plastic material to properly treated metal surfaces.

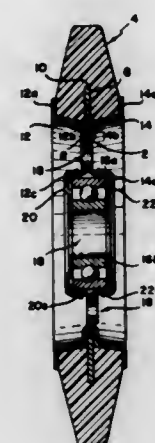
3,592,511

HIGH SPEED WHEEL

John C. Hudelson, Fairview Park, Ohio, assignor to American Koyo Corporation, Cleveland, Ohio
Filed May 27, 1969, Ser. No. 828,191
Int. Cl. B60c 9/00

U.S. Cl. 301-63

4 Claims



A high-speed wheel including a rim, a resilient tire mounted concentrically on the rim, and annular washer means for positively maintaining the tire on the rim, the inner and outer peripheries of the washer extending into corresponding slots contained in the outer and inner peripheries of the rim and tire respectively. The washer is bonded to the tire and has a higher modulus of elasticity than that of the tire, whereby upon expansion of the tire relative to the rim during high-speed operation, the wheel can withstand shocks and distortion without the tire coming off of the rim.

3,592,512

SLURRY STORAGE AND LIQUID INJECTION ARRANGEMENT FOR PREVENTING PLUG FORMATION IN A SHUT-DOWN SLURRY PIPELINE
Moye Wicks, III, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Sept. 23, 1969, Ser. No. 860,342
Int. Cl. B65g 53/30

U.S. Cl. 302-14

3 Claims



Method and apparatus for preventing plug formation in a shut-down slurry pipeline. Upon pipeline shutdown, slurry is removed from those portions of the pipeline in which plug formation caused by slumping and compacting of the slurry solid phase under the force of gravity is likely to occur. Substantially simultaneously with this operation, slurry liquid phase material, i.e., the slurry carrier, is introduced into the pipeline.

3,592,513

PRESSURE DISCHARGE CONTAINERS

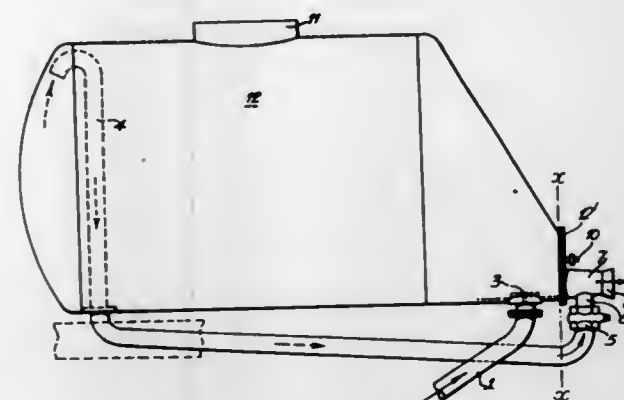
Ralph Murfitt, Wisbech, England, assignor to R. Murfitt Limited, Wisbech, England
Filed Aug. 19, 1968, Ser. No. 753,600
Claims priority, application Great Britain, Aug. 31, 1967, 39,907/67
Int. Cl. B65g 53/40

U.S. Cl. 302-53

8 Claims

Means for use in discharging powder materials from containers, particularly bulk transport vehicles in which a pres-

sure-operated valve is provided in the base of the vehicle for



admitting air or other gas to the container so that the material is aerated at or adjacent the discharge outlet.

3,592,514

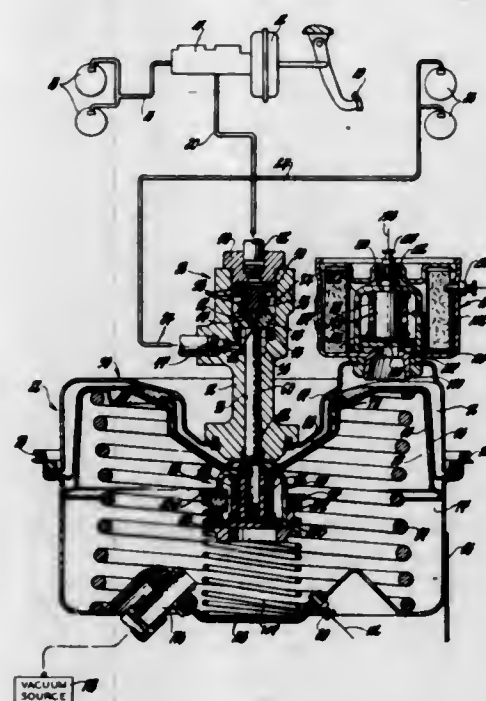
PRESSURE MODULATOR

Edward J. De Hoff, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed July 11, 1969, Ser. No. 841,001
Int. Cl. B60t 8/02

U.S. Cl. 303-21 F

5 Claims



A brake pressure modulator in which the pressure controlling signals are received electrically by a release valve and a hold valve. The hold valve is mounted on the modulator power wall and is normally open to admit vacuum from the modulator vacuum chamber to the modulator variable pressure chamber. The release valve is mounted on the variable pressure chamber housing section and is normally closed. In the normal condition, the modulator provides for a direct connection between the master cylinder of a brake system and the wheel brakes to be controlled by the modulator. In the release stage of operation, the release valve is opened and the hold valve is closed. The modulator power wall moves to disconnect the brake master cylinder and the wheel brakes being controlled, and upon sufficient modulator power wall movement, the pressure is decreased at the wheel brakes by increasing the brake fluid volume. The modulator provides for a hold stage in which both valves are closed, thereby positioning the power wall to maintain a brake pressure at the wheel brakes. The modulator will return to the brake apply stage when the signals to the valves return them to their normal positions. The modulator is used in an antilock brake system.

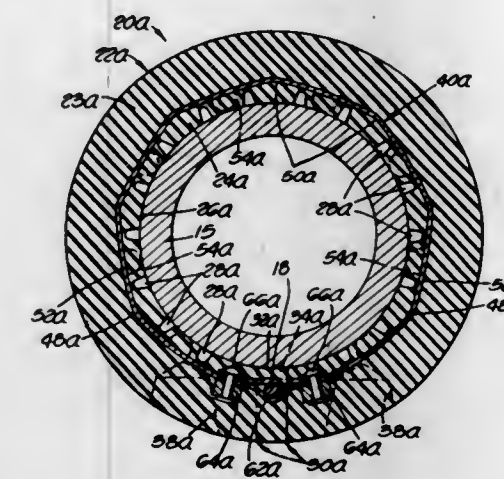
3,592,515

PIPE COLLAR WITH POLYGONAL-TYPE INSERT

John C. Grant, Huntington Park, Calif., assignor to Byron Jackson Inc., Long Beach, Calif.
Filed Sept. 23, 1969, Ser. No. 860,288
Int. Cl. F16c 17/00

U.S. Cl. 308-4 A

11 Claims U.S. Cl. 308-26



A generally cylindrical collar or protector adapted to be clamped onto a drill pipe, and having adhesively bonded and embedded in the elastomeric body of the protector a generally cylindrical spring insert band with substantially polygonal wall portions which are pliant, so that when the protector is constricted and secured onto the pipe, flexing of the pliable wall portions and displacement of the elastomeric material between the band and the pipe allow the collar to adapt or conform to the pipe of varying diameters.

3,592,516

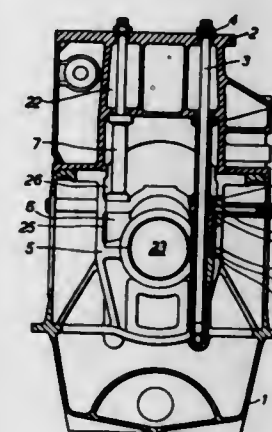
RETAINING DEVICE FOR CRANKSHAFT BEARINGS OF INTERNAL COMBUSTION ENGINES

Hans Standhardt, Magdeburg, Germany, assignor to Veb Schwermaschinenbau "Karl Liebknecht" Magdeburg, Magdeburg, Germany

Filed Apr. 7, 1969, Ser. No. 813,889
Int. Cl. F16c 3/06

U.S. Cl. 308-23

7 Claims



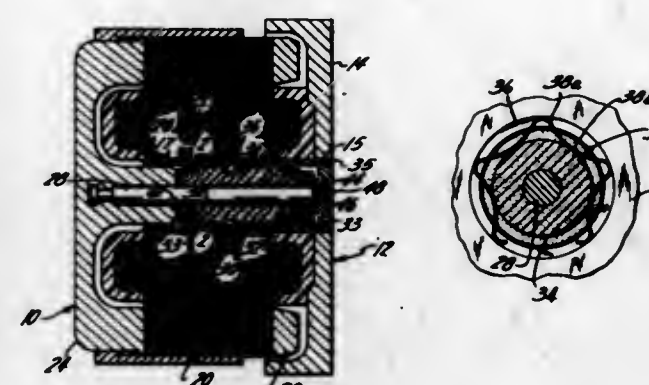
A shaft-bearing structure, mainly for the crankshaft of an internal combustion engine, where the engine has a cylinder block and a base plate. The bearing structure comprises an upwardly facing bearing block, integral with the base plate, and a downwardly facing bearing cover, downwardly spaced from an end of the cylinder block by an intermediate space. Tension-resistant connecting rods extend through the cylinder block, the intermediate space, and the bearing cover, into the bearing block to aid in uniting the cylinder block with the base plate. Compression-resistant sleeves coaxially surround the connecting rods, in the intermediate space, to releasably press the bearing cover against the bearing block, at points close to the axis, as defined by said rods, while allowing the bearing cover and sleeves to be upwardly removed from the bearing blocks, through the intermediate space, to facilitate inspection and repair of the shaft-bearing structure.

3,592,517

BEARING MOUNTING ARRANGEMENT

Dwight E. Harris, Woodstock, N.Y., assignor to Rotron Incorporated, Woodstock, N.Y.
Filed Apr. 8, 1969, Ser. No. 814,253
Int. Cl. F16c 27/00

5 Claims



A mounting arrangement for a sintered sleeve bearing is described, in an electric motor environment. A bore in the motor structure is of slightly larger diameter than the outside diameter of the bearing and the latter is held against rotation in the bore by a snug-fitting resilient O-ring at each end. The sleeve is secured against axial movement in the bore by a corrugated retaining spring that engages aligned annular grooves in the bore and around the sleeve.

3,592,518

BEARING FOR THE SHAFT OF AN ELECTRIC MOTOR

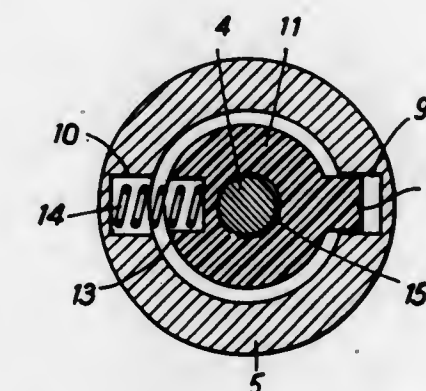
Pierre-Frederic Pfister, and Kurt Rubner, both of Sonceboz, Switzerland, assignors to Societe Industrielle de Sonceboz S.A., Sonceboz, Canton of Berne, Switzerland

Filed June 18, 1969, Ser. No. 834,332
Claims priority, application Switzerland, June 27, 1968, 9568/68

Int. Cl. F16c 27/00

U.S. Cl. 308-26

5 Claims



The bearing comprises two bearings, or bearing elements, proper, one of which is stationary and the other of which a spring holds pressed against the motor shaft.

3,592,519

SPLIT ANTIFRICTION-BEARING CONSTRUCTION

Steven T. Martin, West Hartford, Conn., assignor to Textron Inc., Providence, R.I.

Division of Ser. No. 741,731, July 1, 1968. This application
Oct. 29, 1969, Ser. No. 870,929

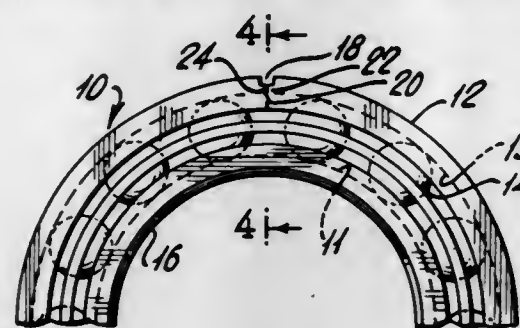
Int. Cl. F16c 13/02

U.S. Cl. 308-196

6 Claims

A method for fabricating a bearing structure of the splitting type is described. The bearing outer race ring, after formation and hardening, is split to define a seam, and the fractured ends are separated to preassemble the bearing with anti-friction elements and an inner race ring. The fractured ends are then joined by fusion-welding at the seam with an electron beam. In one method, the beam is directed axially at a radially outer portion of the seam, and in another method the

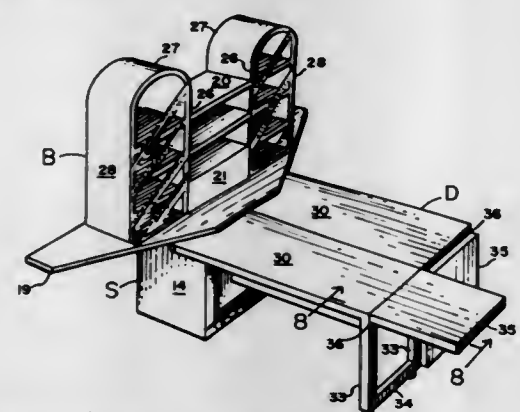
beam is directed radially inwardly at the periphery, to effectively fuse the outer peripheral portions of the fractured ends



to one another. In both methods, the fusion-welding is sufficiently localized to leave intact the original finish and heat treatment of the fractured ring.

3,592,520 COMBINED BREAKFRONT, DINING TABLE AND CHAIRS

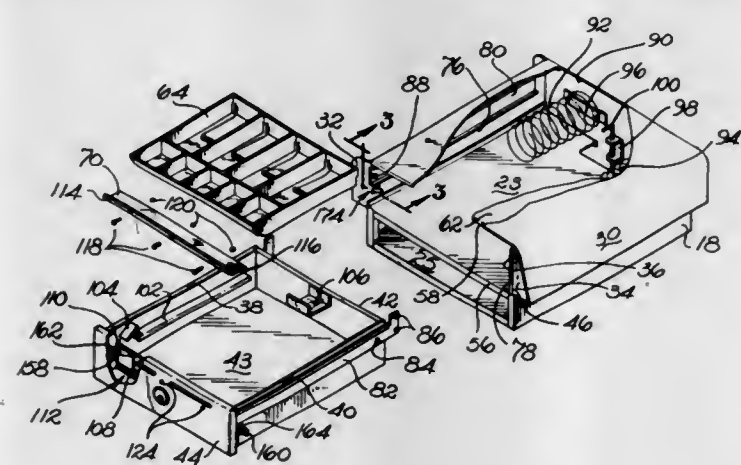
Rocco E. Marino, 4747 Collins Ave., Miami Beach, Fla.
Filed June 23, 1969, Ser. No. 835,426
Int. Cl. A47b 85/00, 83/00, 39/00
U.S. Cl. 312-241 1 Claim



A combined breakfront and dining table and chairs consisting of a rectangular cabinetlike support section, a breakfront section and a table-and-chair section. The breakfront section is mounted above and is spaced relation to the support section in which space a pair of table tops are positioned in end-to-end relation. Pivot pins permit the table tops to swing approximately 90° to side-by-side relation to form a dining table with legs supporting the ends of the tables and chairs normally positioned beneath the table tops on each side of the support section when the table tops are in end-to-end relation.

3,592,521 LOCKBOX

Donald E. Cox, Rolling Hills Estates, Calif., assignor to Coxwells, Inc.
Filed Feb. 2, 1970, Ser. No. 7,547
Int. Cl. A47b 88/20
U.S. Cl. 312-333 14 Claims

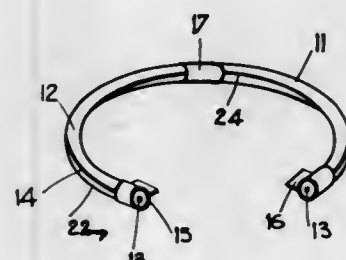


A drawer-type lockbox for service stations and the like in which key-operated reciprocating locking bars engage spring-

loaded keepers. A cover plate is secured to the front wall of the drawer over the locking bar mechanism and one or more slits are defined through the front wall over the cover and in line of sight with the space between the bottom wall of the drawer and a cash tray in the drawer.

3,592,522 METHOD OF MANUFACTURING TUBES FOR TUBULAR ELECTRON-MULTIPLIERS

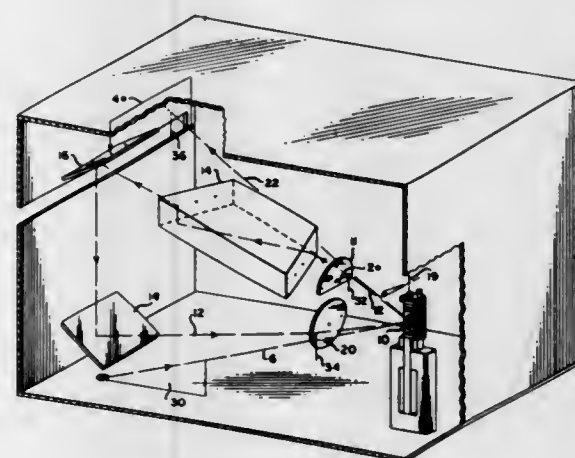
Henri Rougeot, Paris, France, assignor to Thomson-CSF
Filed June 12, 1969, Ser. No. 832,750
Claims priority, application France, July 2, 1968, 157,477
Int. Cl. H01j 9/38 3 Claims



The tube is cut along two of its generatrices 14 and 24, over the whole of its length, and the two halves 12 and 22 thus obtained receive a secondary electron emissive coating on their inner walls. The two halves are then replaced in their initial position relative to one another.

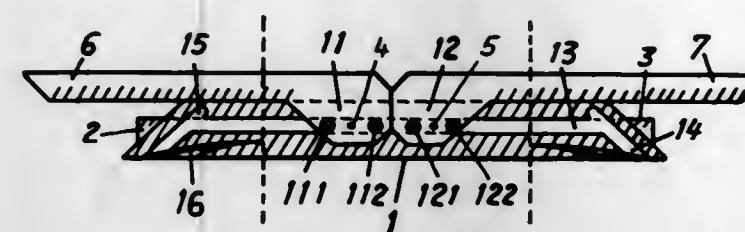
3,592,523 ANGLE MULTIPLIER APPARATUS

Paul Shang Yu Wu, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
Filed May 19, 1969, Ser. No. 825,702
Int. Cl. G02b 17/00 2 Claims



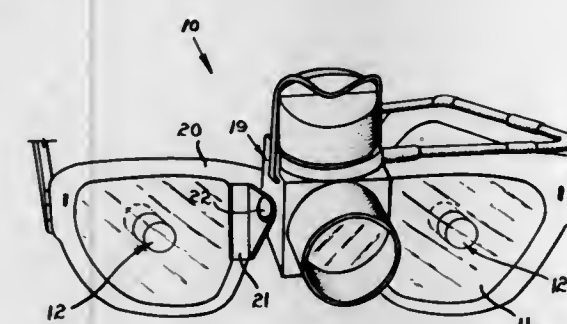
The present invention relates to an angle multiplier apparatus, which increases the angle at which an incident beam, in an incident plane, is deflected by a beam-deflecting means with respect to said incident plane. An incident beam is deflected by the deflecting means at a first selected angle with respect to the incident plane. The deflected beam is redirected back onto the deflecting means from a side of the incident plane opposite from the deflected beam, and is reflected. The redeflected beam is deflected at a greater deflection angle with respect to the incident plane than the deflected beam, due to a shift of the deflected beam across the incident plane prior to its reflection. By use of the angle multiplier apparatus of the present invention in a beam-scanning apparatus, the overall angle through which a beam may be scanned is increased.

3,592,524
COLLAPSIBLE REFLECTING STEREOSCOPE
Roland Schlenger, Heerbrugg, Switzerland, assignor to Wild Heerbrugg Aktiengesellschaft, Heerbrugg, Switzerland
Filed Feb. 2, 1970, Ser. No. 7,750
Claims priority, application Switzerland, Oct. 14, 1969, 15389/69
Int. Cl. G02b 27/24, 27/22
U.S. Cl. 350-137 4 Claims



A collapsible reflecting stereoscope comprising a lens holder and two magnifying lenses carried by said lens holder. The lens holder has two lengthwise surfaces provided with groove means. A pair of outer deflecting mirrors having shaft means are mounted displaceably and pivotally in said groove means, and there are also a pair of inner deflecting mirrors having frame means and equipped with shaft means for pivoting said two inner deflecting mirrors transverse to said lengthwise surfaces of said lens holder. The lens holder has a recess with two inclined surfaces for receiving the upper ends of the frames of the pivoted-out inner deflecting mirrors.

3,592,525
ILLUMINATING HEADPIECE FOR SPECTACLES INCLUDING SECONDARY MAGNIFYING LENSES
Donald Herbert Schultz, Black Forest, South Australia, Australia, assignor to Sola International Pty. Ltd., Black Forest, South Australia, Australia
Filed May 13, 1969, Ser. No. 824,159
Claims priority, application Austria, May 16, 1968, 37953/68
Int. Cl. G02b 25/02; A61b 3/12
U.S. Cl. 350-146 4 Claims



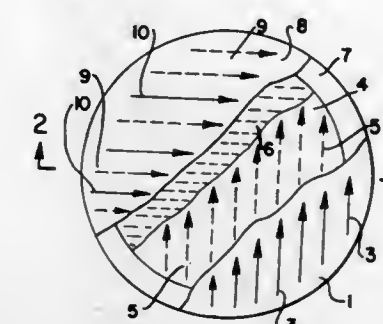
An illuminating headpiece suitable for use by dentists wherein a pair of secondary lenses extend through apertures in respective spectacle glasses in a frame so as to be closer to the pupil of the user than the spectacle glass. The spectacle frame carries on it a lamp housing for illuminating the object to be viewed through the secondary lenses. The secondary lenses may each be constituted by a single lens having an inner lens surface of toroidal or spherical shape and an outer lens surface of aspherical shape.

3,592,526 MEANS FOR ROTATING THE POLARIZATION PLANE OF LIGHT AND FOR CONVERTING POLARIZED LIGHT TO NONPOLARIZED LIGHT

John F. Dreyer, c/o Polacoat Incorporated 9750 Conklin Road, Cincinnati, Ohio
Filed July 15, 1969, Ser. No. 841,857
Int. Cl. G02b 5/30 9 Claims

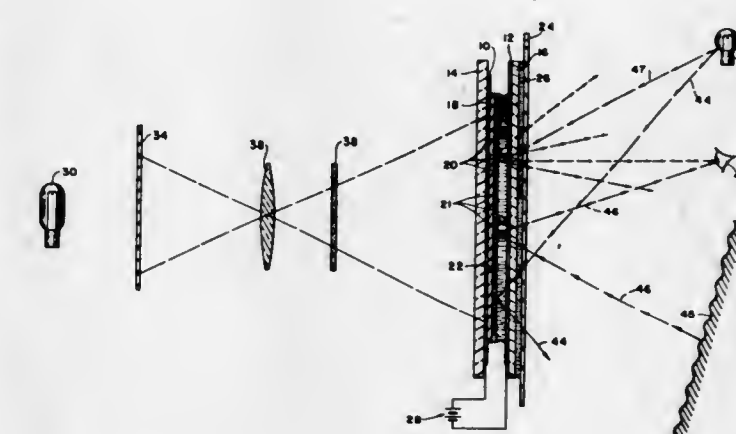
A light transmissive device which will rotate the plane of polarized light and will also depolarize plane polarized light passed through the device, said device comprising a pair of

directionally oriented supporting surfaces, such as unidirectionally rubbed glass or plastic plates, rotatable relative to each other and separated by a thin film of a nonoptically active nematic liquid crystal material, the device acting to rotate the plane of the polarized light when the directionally oriented surface first contacted by the entering light is either parallel or perpendicular to the plane of



polarization of the entering light and the remaining directionally oriented surface is rotated so as to bring its oriented surface to the desired plane of polarization for the exiting light, the device also acting to convert plane polarized light to nonpolarized light when the oriented surface first contacted by the entering light lies at an angle of 45° with respect to the plane of polarization of the entering light and the directionally oriented surfaces are parallel to each other.

3,592,527
IMAGE DISPLAY DEVICE
Gary H. Conners, and Paul B. Mauer, both of 901 Elmgrove Road, Rochester, N.Y.
Filed Nov. 12, 1969, Ser. No. 875,751
Int. Cl. G02f 1/28 14 Claims

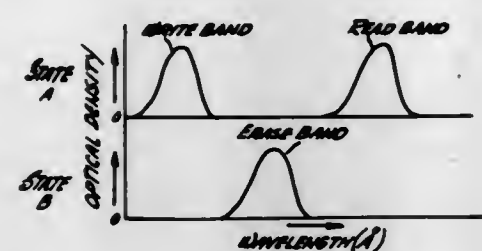


A display device utilizes a liquid crystal in a layered structure as a display screen. This structure includes in order a first transparent electrode, a photoconductive layer, a specular conductive mosaic layer, a liquid crystal layer and a second transparent electrode. The electrodes are connected to a DC source to provide an electric field therebetween. A radiation pattern to be displayed, is projected onto the photoconductive material through the first electrode rendering the photoconductive material conductive in exposed areas to cause a change in the degree of transparency of the liquid crystal film to form an image corresponding to the radiation pattern. This image can be viewed through the first electrode by ambient or artificial light reflected from the specular mosaic layer. To avoid undesirable reflections, a black background or a circular polarizer may be used.

If a nematic liquid crystal is used, the display is erased when the electric field is removed, whereas if a mixture of nematic and cholesteric materials is used, the image remains on the liquid crystal for a period of time after removal of the electric field.

3,592,528 PHOTOCHROMIC DISPLAY DEVICE

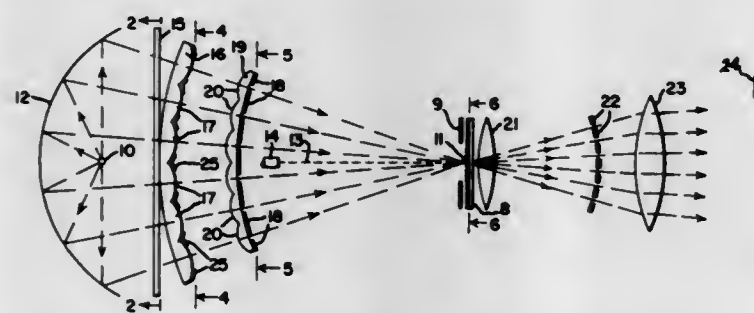
Zoltan J. Kiss, Belle Mead, N.J., assignor to RCA Corporation
Filed Mar. 26, 1968, Ser. No. 716,032
Int. Cl. G03c 1/00
U.S. Cl. 350-160 4 Claims



A photochromic information display and storage device comprises a photochromic target having two absorption states, one of which includes a nondestructive readout band. The target comprises, for example, cerium or lanthanum-doped calcium fluoride crystals. The device also includes means for switching the target from one absorption state to the other and means for directing light in the nondestructive readout band onto the target for the purpose of reading the information stored thereon. The device may also include means for detecting that portion of the light in the nondestructive readout band which is not absorbed by the target and/or means for switching the absorption state of the target back to its original state.

3,592,529 LENTICULAR LENS ARRAY FOR OPTICAL PROJECTION SYSTEM

Lawrence A. Juhlin, Jr., Greenville, Ill., and Michael Graser, Jr., Bedford, Mass., assignors to General Electric
Filed Mar. 4, 1970, Ser. No. 16,421
Int. Cl. G02b 27/38
U.S. Cl. 350-162 R 8 Claims

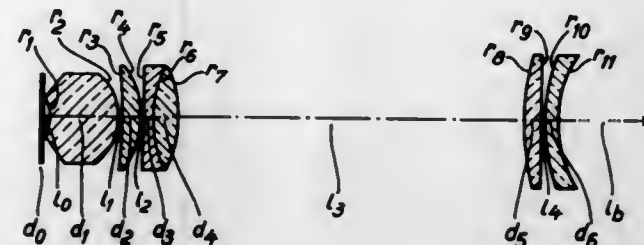


In light valve projection apparatus employing a light-modulating medium and a Schlieren optics input mask having two sets of slots, each set oriented in a different direction and illuminated by light of a different color emanating from a common source so as to produce light of both colors on the medium, center-to-center spacing of the slots in one set is made independent of center-to-center spacing of the slots in the other set. Lenticular lens of two different aspect ratios image the source in either color, respectively, onto the slots of either set, respectively, through an additional mask.

**3,592,530
ANASTIGMATIC MEDIUM-POWER MICROSCOPE OBJECTIVE PROVIDING A FLATTENED IMAGE FIELD**
Walter Klein, Wissmar, Kreis Wetzlar, Germany, assignor to Ernst Leitz G.m.b.H., Wetzlar, Germany
Filed June 25, 1964, Ser. No. 377,912
Claims priority, application Germany, July 9, 1963, L 45292 IXa/42h
Int. Cl. G02b 9/34, 9/60, 21/02
U.S. Cl. 350-216 5 Claims

The invention provides an anastigmatic medium-power microscope objective which provides a flattened image field and which consists of a small number of lenses divided into two groups for correcting substantially all image errors. The first group of lenses comprises a thick meniscus lens having

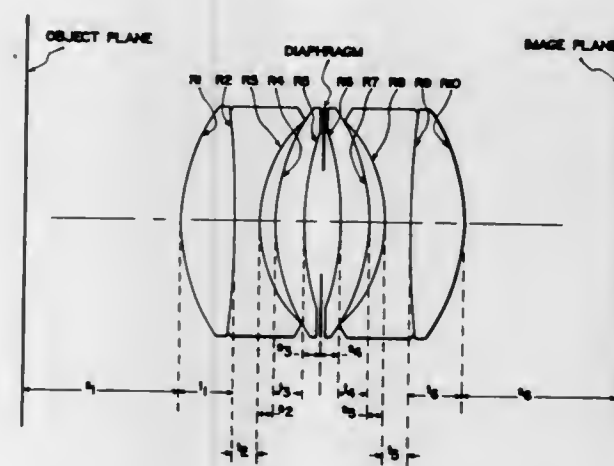
positive refractive effect next to the object, and one or two converging lens members arranged close to each other, at least one of the latter being a doublet having a convex cemented surface facing the object. The second group of lenses consists of a simple converging lens and a simple diverging



lens following the lenses of the first group along the optical axis from the object. The spacing of the two groups of lenses is appropriately designed for the desired purpose of providing an anastigmatic flattened image with these groups of lenses and is at least half the axial distance between the object and the apex.

3,592,531 SPLIT DAGOR-TYPE OF SYMMETRICAL COPYING LENS SYSTEM

George L. McCrobie, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Continuation-in-part of application Ser. No. 856,730, Sept. 10, 1969, now abandoned. This application Mar. 26, 1970, Ser. No. 23,048
Int. Cl. G02b 9/34
U.S. Cl. 350-220 7 Claims

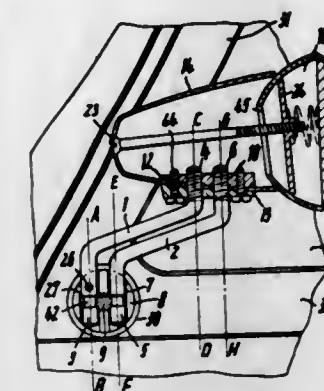


A Split Dagor-type of symmetrical copying lens system having front and back compound lens components with a centrally located diaphragm therebetween adapted to an optical system of a copier which can be used at both 1:1 and 1:1.6 magnifications, and all magnifications therebetween. The front lens component has three lens elements including, in the following order, a first lens element of positive power, a second lens element of negative power cemented to the first lens element and a third lens element of positive power disposed between the second lens element and diaphragm, and the back lens component having three similar lens elements positioned so that the lens system is symmetrical.

**3,592,532
REAR VIEW MIRROR FOR VEHICLES**
Yorck Talbot, Eberstrasse 80, Berlin 62, Germany
Filed Dec. 13, 1968, Ser. No. 783,777
Claims priority, application Germany, Dec. 15, 1967, P 16 55 466.8
Int. Cl. G02b 5/08
U.S. Cl. 350-307 9 Claims

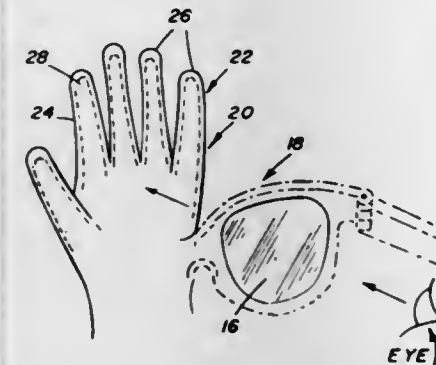
A rear view mirror for mounting on the coachwork of a vehicle having a longitudinal axis. A base member is adapted to be mounted on the vehicle coachwork. An elongated mirror-head assembly is provided and has an axis. Mounting

means mounts the mirror-head assembly on the base member for pivoting movement with reference to the latter in direction transversely of the longitudinal axis of the vehicle be-



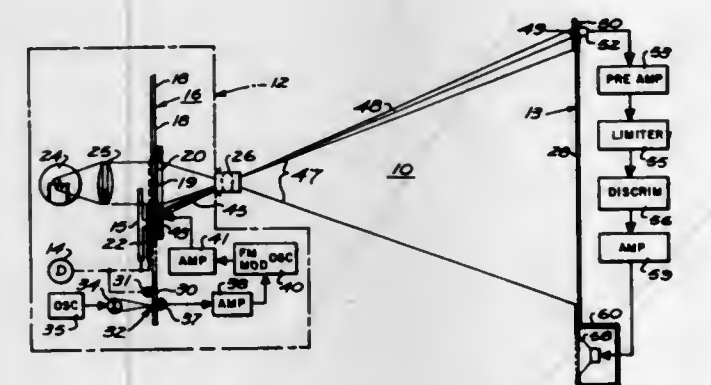
tween a plurality of positions in each of which the axis of the mirror-head assembly is in parallelism with the longitudinal axis of the vehicle on whose coachwork the rear view mirror is mounted.

**3,592,533
OPTICAL DEVICE FOR SIMULATING OPTICAL IMAGES**
Harold N. Braunhut, c/o Honey Toy Industries Inc. 200 Fifth Ave., New York, N.Y.
Filed June 25, 1969, Ser. No. 836,412
Int. Cl. A63h 33/22
U.S. Cl. 350-321 10 Claims



Optical means for simulating an X-ray image comprising a lens formed of a transparent stressed thermoplastic material.

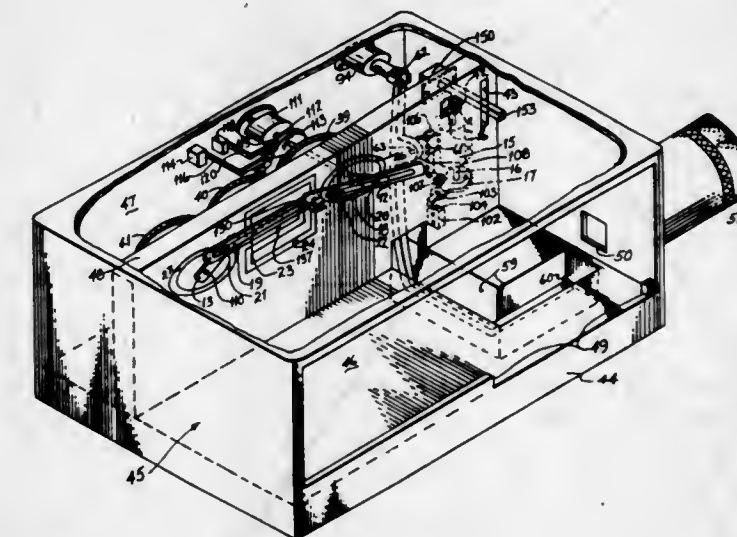
**3,592,534
AUDIOVISUAL DISPLAY SYSTEM**
Sherman W. Duck, and Robert K. Willardson, both of Arcadia, Calif., assignors to Bell & Howell Company, Chicago, Ill.
Filed Apr. 7, 1969, Ser. No. 814,098
Int. Cl. G03b 31/02, 31/04
U.S. Cl. 352-28 25 Claims



An audiovisual display system in which a projection lens projects recorded images from an image plane as well as opti-

cal radiations modulated by sound accompaniments for the images. The sound accompaniments are picked up at a location displaced from the image plane or are picked up by external playback equipment and are presented at a location within optical reach of the projection lens for simultaneous projection by the same projection lens. The optical radiations are preferably invisible and time modulated by the sound accompaniments.

**3,592,535
SOUND-SYNCHRONIZED CAMERA-PROJECTOR**
Martin E. Gerry, 13452 Winthrop St., Santa Ana, Calif.
Continuation-in-part of application Ser. No. 644,022, June 6, 1967, now abandoned. This application Oct. 24, 1968, Ser. No. 784,498
Int. Cl. G03b 31/04
U.S. Cl. 352-31 14 Claims

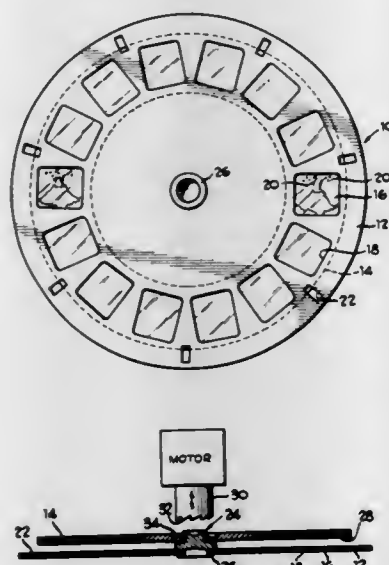


The invention deals with the addition of sound to a still camera and to a still camera-projector combination. Two basic variations include in one case a sound tape which is stationary with a scanning head for producing the sound, and in another case where for each photographic frame a given distance of tape is used to record and reproduce the sound; the sound is synchronized with each photographic frame so that a predetermined length of tape is used for each frame. Another feature is the use of a mechanically synchronized cam gear which has a number of high portions to permit the head to move to a different height with respect to the sound tape so that in effect the length of tape is effectively multiplied by the number of high portions on the cam gear. This allows a large quantity of photographic slides with sound to be stored in a small cartridge which is part of the invention. The cartridge is in two parts which disconnect from each other for developing the film part of the cartridge.

**3,592,536
STEREOSCOPIC TRANSPARENCY UNIT WITH ANIMATION**
Gunars Lichts, Lombard, and Marvin I. Glass, Chicago, both of, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Dec. 11, 1969, Ser. No. 884,064
Int. Cl. G03b 35/26
U.S. Cl. 352-57 7 Claims

A stereoscopic transparency holder unit which provides for animation of the illustrations on photographic transparencies. The unit includes a circular disc mounting a plurality of pairs of photographic transparencies adjacent the outer circumferential portion of the disc, and a rotatable circular member is disposed in coaxial arrangement with the disc and includes polarizing material overlying the path of the transparency.

The transparencies include polarizing segments or portions, or copying paper and wherein the heater is in circuit with the lamp to permit the preliminary heating of the lamp prior to



the transparencies there is a resulting animation of the illustration being viewed.

3,592,537

CARTRIDGE-TYPE CINE-PROJECTOR

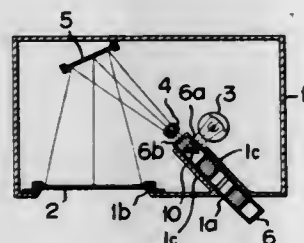
Tokusaburo Kakiuchi, and Hideaki Akiyama, both of Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Ota-ku, Tokyo, Japan

Filed May 27, 1969, Ser. No. 828,192

Claims priority, application Japan, June 3, 1968, 43/46369
Int. Cl. G03b 21/10, 23/02

U.S. Cl. 352-72

3 Claims



A cartridge-type cine-projector having on its front panel a screen and a separate opening having wall means that slant inwardly toward the screen at an angle of about 50°. A film cartridge having an included light source reflecting mirror is insertable into said opening and an image from the film is projected onto an angled mirror mounted rearwardly from the screen so that the image reflected from the angled mirror appears on the screen.

3,592,538

PHOTOGRAPHIC COPYING APPARATUS

Takeshi Ukal, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

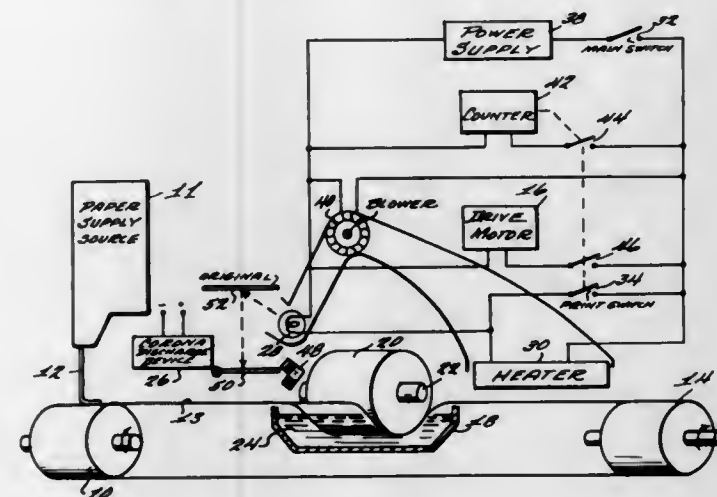
Continuation-in-part of application Ser. No. 644,140, June 7, 1967, now abandoned. This application Dec. 17, 1969, Ser. No. 885,726

Int. Cl. G03g 15/00

U.S. Cl. 355-3

4 Claims

Photographic copying apparatus having a heater employed in conjunction with a lamp for drying the recording element



full lighting thereof so as to reduce the inrush of current to the lamp when full voltage is applied thereto.

3,592,539

RECORDING APPARATUS

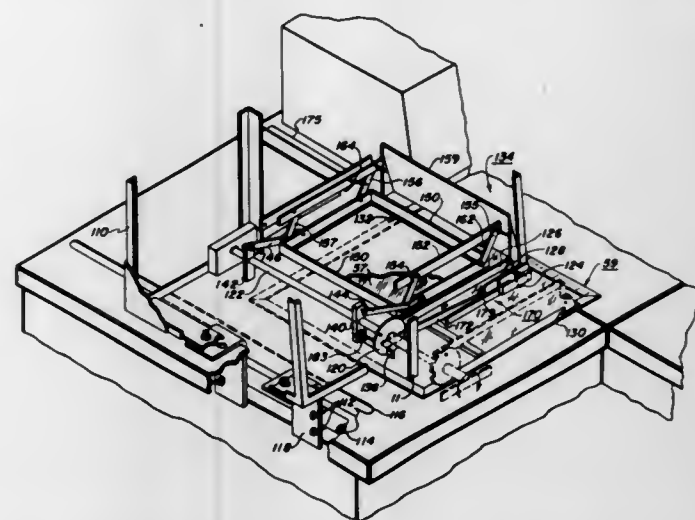
Peter Haslam, Fairport; Alan G. Kendall, Rochester, and Douglas W. Shaffer, Penfield, all of, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Feb. 3, 1969, Ser. No. 795,814

Int. Cl. G03g 15/04

U.S. Cl. 355-11

4 Claims



Recording apparatus which reproduces enlarged copies of microfilm and/or document material by controlling the position of a reader screen and a lens-positioning assembly in relation to a copier platen. The lens-positioning assembly includes a fixed frame and a movable frame supported from the fixed frame for swinging a lens member toward and away from the focal plane of the apparatus. Control apparatus including sensing devices are used to position the lens member into and out of the focal plane according to whether the recording apparatus is used in the microfilm or document copying mode of operation.

3,592,540

COPYING APPARATUS AND CONTROL THEREFOR

Georg Cranskens, Wedel/Holstein; Otto Kretschmar, and Richard Palm, Hamburg, all of, Germany, assignors to Lomoprint Zindler K.G., Hamburg, Germany

Filed Apr. 26, 1968, Ser. No. 724,553

Claims priority, application Germany, May 2, 1967, P 15 72 291.5

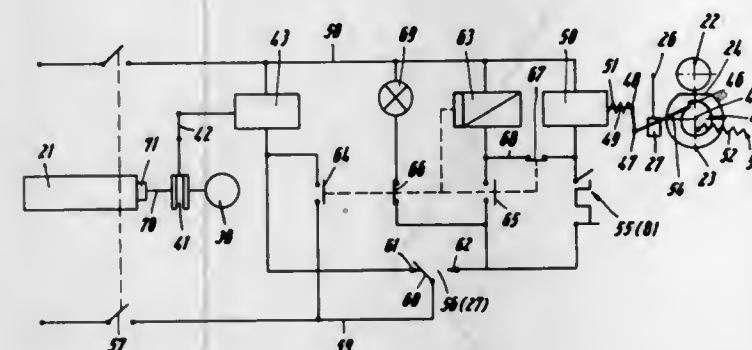
Int. Cl. G03g 15/00

U.S. Cl. 355-14

13 Claims

An improved copying apparatus has control means for transporting sheets of copying material from a stack and has

an exposure device along which an original can be guided. By actuation of a switch, when an original is inserted, a copy paper is moved, by rollers associated with the stack of copy paper, from a ready position in order to transport the copy paper, synchronously with the original, through the exposure device and through processing devices upstream and



downstream of the exposure device. The ready position of the copy paper is determined by a switch in the path of the copy paper, and this switch is actuated by the arrival of the copy paper and stops the withdrawal means. The switch is released after the passage of the copy paper so that one copy paper follows another in succession into the ready position.

3,592,541

COPYING SYSTEM USING ELECTROGASDYNAMICS

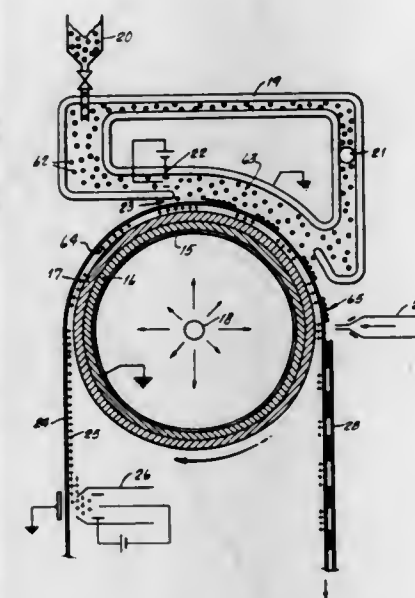
Meredith C. Gourline, West Orange, N.J., assignor to Gourline Systems, Inc., Essex, N.J.

Filed Sept. 30, 1968, Ser. No. 763,722

Int. Cl. G03g 5/02

U.S. Cl. 355-17

10 Claims



An apparatus and method for reproducing an image on a dielectric sheet, such as paper or the like, comprising the use of an electrostatic generator as a spray gun for producing a space charge cloud of ionized ink in the vicinity of one side of the dielectric sheet whose other side has been provided with an electrostatic charge image produced through the use of a conventional xerographic plate and process, whereby an improved quality ink image is produced on the sheet by virtue of the tendency of electrostatically produced particles to achieve a uniform charge distribution on the dielectric surface. Undesirable fringing effects are avoided and the process is speeded up over the conventional xerographic process by reducing the number of mechanical operations required, such as, eliminating the need for cleaning toner from the xerographic plate. The method may be adapted to produce either negative or positive images and for use with high-speed printing systems.

3,592,542

COPYING APPARATUS WITH LENTICULAR OPTICAL SYSTEM

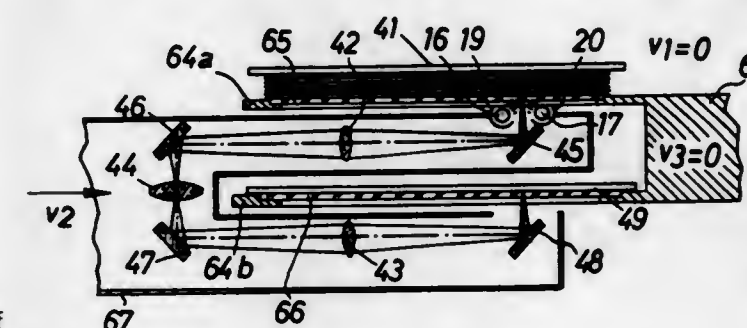
Helmut Kaufer, Metzhausen, Upper Bavaria, Mettmann; Erich Burger, Unterhaching, Munich, and Hans-Peter Huber, Munich, all of, Germany, assignors to AGFA-Gevaert AG, Munich, Germany

Continuation of application Ser. No. 508,258, Nov. 17, 1965, now abandoned. This application June 11, 1968, Ser. No. 739,897

Claims priority application Germany, Nov. 20, 1964, A47,647
Int. Cl. G03b 27/50

U.S. Cl. 355-50

27 Claims



An optical system composed of pairs of lenticular bars, each of which has a row of lens portions with spherical and planar faces, scans successive strips of an original which moves relative to a copy sheet. Strip-shaped erected images of the scanned strips are projected onto successive strip portions of the copy sheet where a complete image of the original is formed.

3,592,543

DEVICE FOR MAKING MICROFILM PHOTOGRAPHS

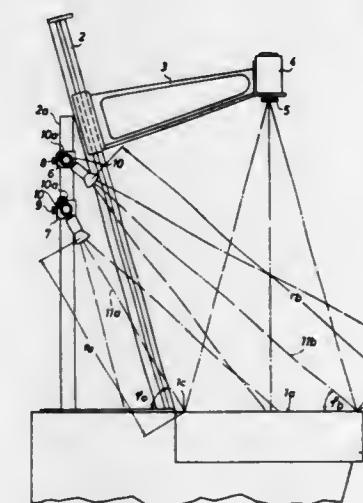
Horst Bickl, Munich, and Josef Pfeffer, Unterhaching, both of, Germany, assignors to AGFA-Geraert Aktiengesellschaft, Leverkusen, Germany

Filed Nov. 19, 1968, Ser. No. 777,034

Claims priority, application Germany, Nov. 30, 1967, A57,545
Int. Cl. G03b 27/56

U.S. Cl. 355-67

4 Claims



A device for making microfilm photographs, and in particular an illuminating assembly for the device. The device includes a support which has a supporting surface on which the item to be photographed is located. A camera stand situates a camera over this surface, and the illuminating assembly is located in its entirety to one side of this surface, so that where the surface is rectangular, for example, it is freely accessible at its other three sides. The illuminating assembly is composed of two rows of lamp means for respectively providing light beams the intensity of which is controlled to a great degree by the angle of emission of the light beams. An adjusting means coacts with the rows of lamp means for directing the axes of the beams issuing from one row of the lamp means to that edge of the photographed item which is nearest to the one row, while the other row of lamp means is

adjusted so that the axes of the beams issuing therefrom extend along the opposed edge of the item. In addition, the adjusting means is capable of adjusting the distance between the rows of lamp means and the supporting surface.

3,592,544

EXPOSURE DEVICE

Karl Brendel, Rellingen, Holstein, Germany, assignor to Lumoprint Zindler KG, Hamburg, Germany

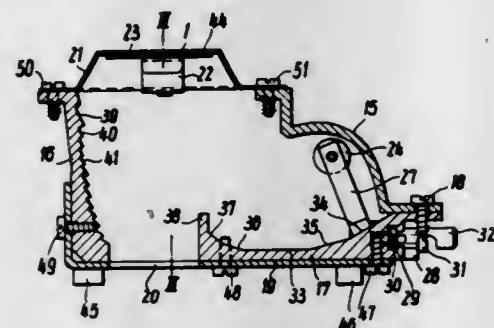
Filed Apr. 25, 1968, Ser. No. 724,117

Claims priority, application Germany, Apr. 28, 1967, 56 381

Int. Cl. G03b 27/54

U.S. Cl. 355-70

11 Claims



An exposure device for copying apparatus, with a light source and a reflector assembly, which reflector assembly is divided into a plurality of reflector surfaces which are of elongated shape and are provided with their longitudinal axes parallel to one another in a channellike arrangement, wherein the light source is displaced relative to the projection of an exposure opening and a reflector, with at least a part at the side of the device where the exposure opening is arranged about the light source, so that the light source is screened by this reflector surface from the exposure opening and wherein the reflector surfaces are so arranged that a part of the light beam is directed by means of two reflector surfaces to the exposure opening.

3,592,545

APPARATUS FOR REMOTE MEASUREMENT OF DISPLACEMENT OF MARKS ON A SPECIMEN UNDERGOING A-TENSILE TEST

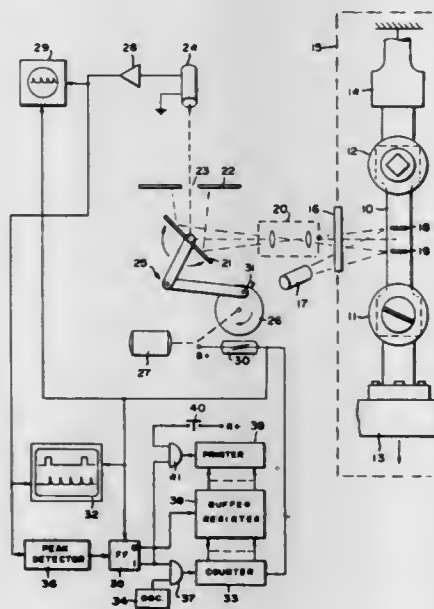
T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Robert H. Silver, 1217 N. Berendo St., Los Angeles, Calif.

Filed Oct. 13, 1969, Ser. No. 865,909

Int. Cl. G01b 11/16; G01n 3/08

U.S. Cl. 356-32

3 Claims



Apparatus is disclosed for measuring displacement of marks on a specimen undergoing a tensile test comprising means for illuminating the field of marks, means for scanning the illuminated field with an oscillating mirror, or the like, a

photosensitive detector, and means for recording in analog or digital form the time between detecting marks as the specimen undergoing testing is continuously scanned.

3,592,546

CONDENSATION NUCLEI DETECTOR

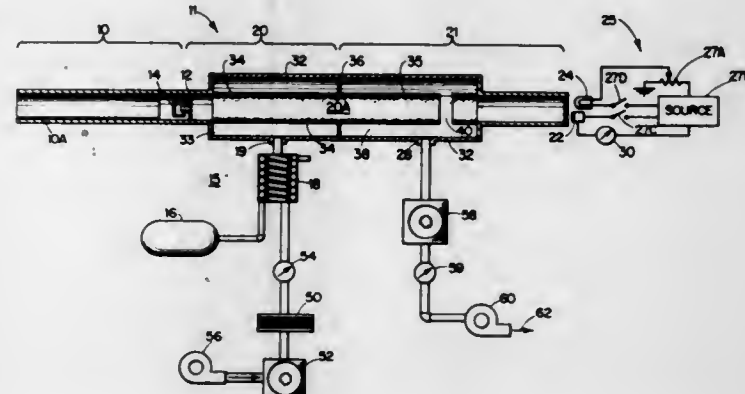
Robert A. Gussman, 12 Greenwood Road, Canton, Mass.

Filed Nov. 21, 1969, Ser. No. 878,801

Int. Cl. G01n 1/00, 15/00

U.S. Cl. 356-37

13 Claims



A condensation nuclei particle detector is provided that is capable of continuous operation. An air sample possible containing nuclei is humidified and then passed to a contact chamber in which a water droplet is formed about each nuclei by introducing supercooled nuclei-free air into the chamber. The contact chamber has associated with it, (1) a porous, annular, outer chamber through which the supercooled air is radially introduced to the contact chamber to cause the supersaturation of the humid air, (2) optical or other means for indicating the nuclei concentration of the air sample, and (3) an exhaust port through which the sample exits.

3,592,547

OPTICAL MATRIX-PROCESSING SYSTEM AND OPTICS

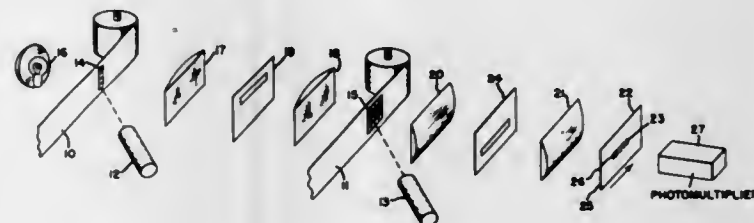
Milton L. Noble, Liverpool, N.Y., assignor to General Electric Company

Filed Mar. 14, 1968, Ser. No. 713,218

Int. Cl. G06k 9/08

U.S. Cl. 356-71

4 Claims



An optical processing system which performs a general matrix transformation. Analog data to be transformed is entered as a first set of inputs written upon a first writing medium in the form of diffraction-grating lines in a column arrangement of a plurality of resolution elements. The matrix transform function is entered as a second set of inputs written as diffraction-grating lines on a second writing medium in a column, row arrangement of resolution elements. With respect to said first and second sets of inputs, magnitude information is contained in the transmissivity of the resolution elements, and phase information may be contained in the spatial frequency of the grating lines. A matrix processing of said first set of inputs by said second set of inputs is optically performed by imaging spatially filtered light from individual resolution elements of the first medium upon corresponding rows of resolution elements of the second medium by means of a first anamorphic telecentric lens arrangement, and by imaging spatially filtered light from the resolution elements of the second medium as a single row of resolution elements in an output image plane by means of a second anamorphic telecentric lens arrangement.

3,592,548

HOLOGRAPHIC METHOD OF DIMENSIONAL INSPECTION

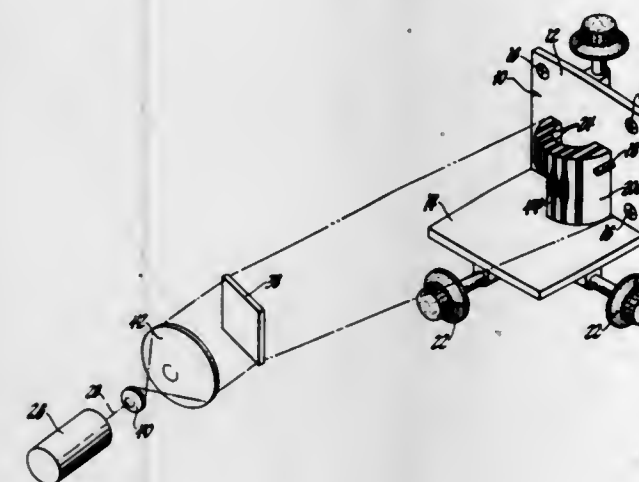
Richard F. Majowski, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 22, 1969, Ser. No. 792,916

Int. Cl. G06k 9/08; G01b 9/02, 11/00

U.S. Cl. 356-71

10 Claims



To dimensionally compare one contour surface with another, one surface is provided with a contrast pattern and a hologram is made of that surface. Then the hologram is reconstructed and the image of the contrast pattern is superposed on the other surface. The contrast pattern will register with the other surface only to the extent that the two surfaces are alike. Where the surfaces are not alike, the amount of the difference is determined by moving the second surface through a measured distance until the pattern is registered with the surface.

3,592,549

INTENSITY-MEASURING APPARATUS USING POLARIZATION INTERFEROMETRY

Robert Hoffman, 12 Copper Beech Place, Merrick, N.Y.

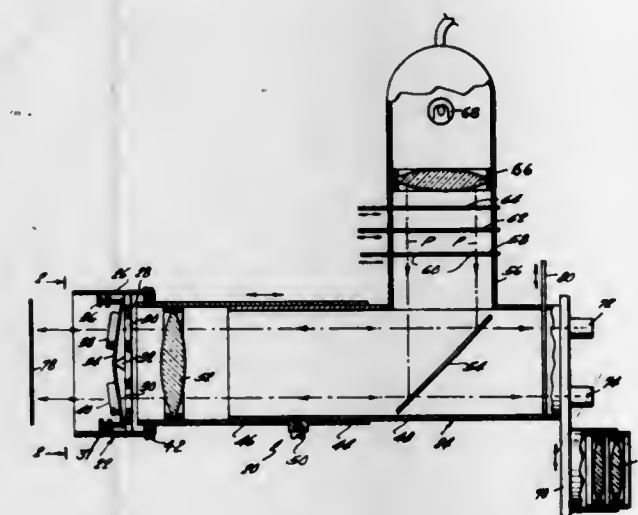
Filed May 19, 1969, Ser. No. 825,704

Continuation-in-part of Ser. No. 712,011, Mar. 11, 1968

Int. Cl. G01b 9/02; G02b 21/06

U.S. Cl. 356-110

5 Claims



An optical system for precision angular measurement using polarization interferometry comprising a light source, a specimen, and a focusing system for directing light rays. Adjustable spaced birefringent elements are provided for splitting and displacing light rays from the focusing system and for receiving light rays from the specimen. An analyzer is provided for causing light rays from each of the spaced birefringent elements to interfere, and detectors and provided for measuring the relative light intensity of each of the interfering light rays.

3,592,550

OPTICAL TRACKING SYSTEM

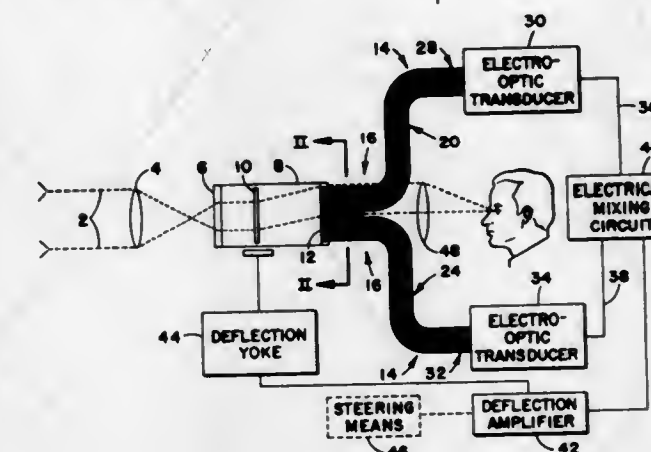
Calvin J. Christmann, Mount Clemens, Mich., assignor to LTV Aerospace Corporation, Dallas, Tex.

Filed June 26, 1968, Ser. No. 740,214

Int. Cl. G01b 11/26

U.S. Cl. 356-152

4 Claims



A target acquisition and tracking system including an image converter tube with optical means for receiving light from a target area and creating an image on the tube's photocathode, a plurality of light-transmitting fibers arranged to receive light from the tube's phosphor screen and means to sense the light level from these fibers to in turn control tube deflection.

3,592,551

AEROSOL CHARGED TOOTHBRUSH

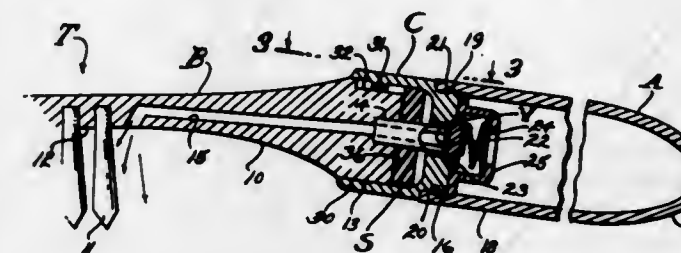
Carl O. Muglia, 1028 Pearl Street, Apt. C, Santa Monica, Calif.

Filed July 24, 1969, Ser. No. 844,441

Int. Cl. A46b 11/02

U.S. Cl. 401-190

9 Claims



Especially a toothbrush having a brushing head separable from a handle and wherein the handle is an aerosol container that controllably liberates and aerates dentrifice into the brushing head and the aerosol handle being shiftably coupled for actuating the aerosol valve and adapted to be locked for brushing manipulation.

3,592,552

WRITING INSTRUMENT

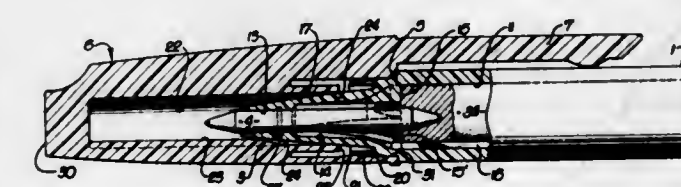
Curtis L. Malm, Norwalk, Calif., assignor to The Gillette Company, Santa Monica, Calif.

Filed May 16, 1969, Ser. No. 825,190

Int. Cl. B43k 8/00

U.S. Cl. 401-202

5 Claims



A writing instrument having a forward writing point portion and a removable cap therefor, the cap and writing portion

tions each including internal thin-walled collarlike cylindrical portions whose free ends cooperate with sections of the opposite removable port to provide a tight seal.

3,592,553

BORING TOOL ASSEMBLY

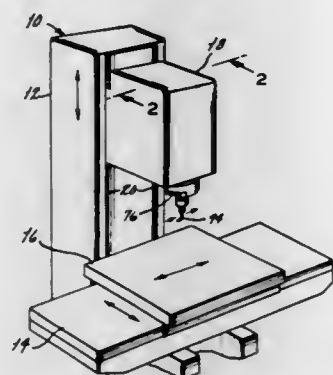
Charles K. Hetzer, c/o United Engineering Company P.O. Box 165, Imperial, Mo.

Filed Nov. 12, 1968, Ser. No. 774,675

Int. Cl. B23b 29/03

U.S. Cl. 408—124

6 Claims



A boring tool assembly is comprised of a vertically disposed spindle rotatably mounted within a spindle housing about a vertical axis, spindle drive means adapted to rotate the spindle, a horizontal guide track rigidly secured to the bottom of the spindle, a block member movably received in the guide track, a cutting tool operatively secured to the block member, and a movable block adjustment means within the spindle engaging the block member for moving it along the guide track. The block adjustment means includes a shaft member movably mounted within the spindle and bearing against a bearing portion of the block member. The shaft member is movable between a first position and a second position by a drive means so that movement of the shaft member forces the block member to move horizontally along the guide track.

3,592,554

TREPAN BORING TOOL

Akio Takahara, No. 49-40, Oaza Otogane, Ohno-machi, Chikushi District, Fukuoka, Japan

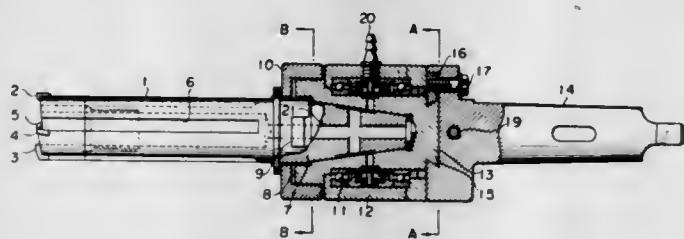
Filed July 22, 1969, Ser. No. 843,342

Claims priority, application Japan, Aug. 5, 1968, 43/55341

Int. Cl. B23b 51/04

U.S. Cl. 408—204

3 Claims



A trepan boring tool comprises a blade-holding cylinder provided on its free end face with a plurality of blades projecting from said end face, the first cutting blade having its tip projecting radially outwardly of the outer periphery of said blade-holding cylinder, the second blade spaced away from said first blade through an angle of about 180° and having its tip projecting radially inwardly of the inner periphery of said cylinder, the remaining blades being arranged to be performable work upon an intermediate part of thickness of a workpiece between the paths of said first and second blades, and means for laterally shifting the axis of said cylinder with respect to a tool shank axis which may be fitted in the machine, the arrangement being such that said cylinder is allowed to be eccentrically rotated upon rotation of the main spindle axis of the machine and therefore the adjustment of the cut or cutting inner and outer radii can be effected at will, resulting in an improvement of cutting operation.

ected at will, resulting in an improvement of cutting operation.

3,592,555

DRILL WITH DISCONTINUOUS CUTTING LIPS

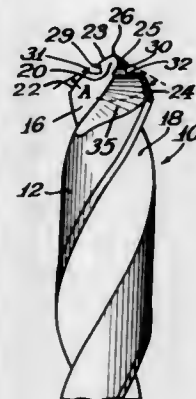
Bruce A. Mackey, Sr., Mundelein, Ill., assignor to Radial Lip Machine Corporation

Filed May 2, 1969, Ser. No. 821,199

Int. Cl. B23b 51/02

U.S. Cl. 408—225

4 Claims



A drill having discontinuous cutting lips defined by a characterized recess formed in each cutting lip adjacent the tip of the drill to provide for longer drill life with improved drilling characteristics in both hard and soft materials.

3,592,556

CONVEYOR WITH NUB BELT

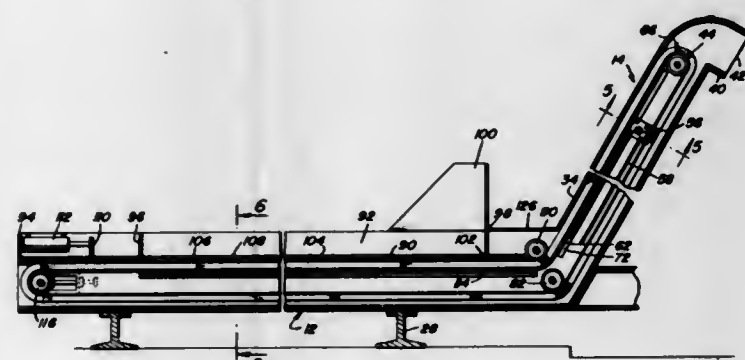
David R. Campbell, Salt Lake City, Utah, assignor to David R. Campbell; Charles N. Campbell and Doyle L. Green, part interest to each

Filed Nov. 21, 1966, Ser. No. 596,003

Int. Cl. F04b 19/14; B65g 47/18; F04b 19/16

U.S. Cl. 415—129

8 Claims



A means and method of elevating liquids and semiliquids employing a conveying belt having nubs projecting from the working face, the nubs are not oriented in transverse alignment but are mismatched in a particular manner depending upon the materials being conveyed; the belt may have a confined area in which to travel in the form of a rectangular tube, thereby allowing virtually no space for roll back of the materials.

3,592,557

DEVICE FOR AXIALLY FIXEDLY AND RADially DISPLACEABLY MOUNTING TURBINE CASING PARTS

Horst Haas, and Axel Remberg, both of Mulheim-(Ruhr) Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Filed Dec. 2, 1969, Ser. No. 881,443

Claims priority, application Germany, Dec. 3, 1968, P 18 12 490.18

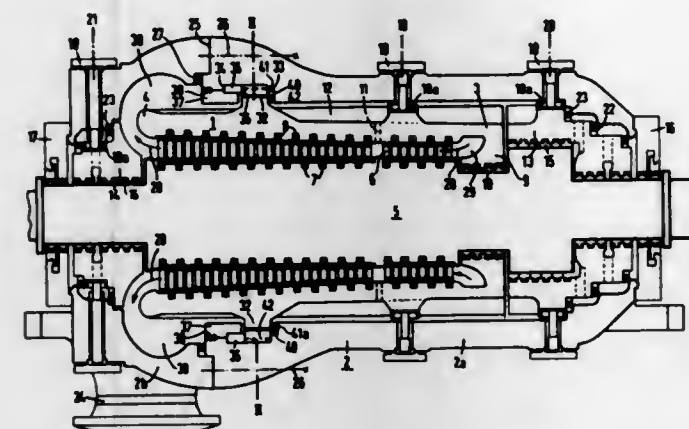
Int. Cl. F01d 25/26

U.S. Cl. 415—136

7 Claims

Device for mounting the inner casing shell of a turbomachine of multishell construction so that it is axially fixed

and radially displaceable and is centered with respect to the outer casing of the turbomachine includes an annular collar located on an annular shoulder formed at the inner periphery of the outer casing for holding the inner shell radially displaceably centered and steamtight, a ring member slidable over the outer periphery of the inner shell from one side of the annular collar facing the steam exhaust side of the turbomachine so as to axially fix the annular collar against displacement by steam pressure from the other side of the annular collar which faces the steam inlet side of the tur-



bomachine, the ring member being anchored to the outer casing, the inner periphery of the outer casing being formed with an annular groove axially adjacent the one side of the annular collar, a closed holder ring having a plurality of axially extending divisions therein and comprising a plurality of ring parts radially insertable in the annular groove and form-lockingly assemblable into the closed holder ring so that a face area thereof abuts the annular collar and fixes the inner shell against axial displacement, and a support ring at least partly overlapping the inner periphery of the holder ring for fixing the latter against radial displacement.

3,592,558

PRESSURE FLUID OPERATED MOTOR

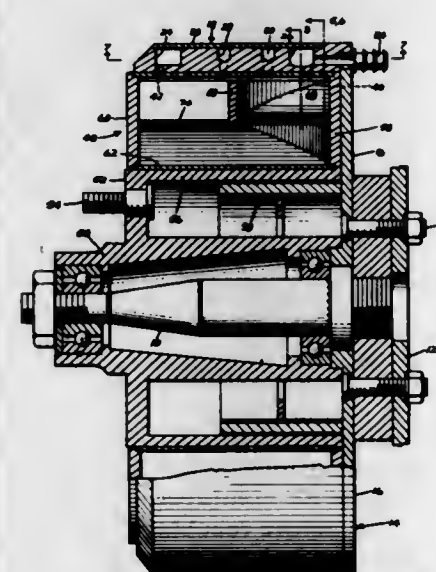
Robert G. Bandy, 10206 Lima Road, Fort Wayne, Ind.

Filed Dec. 10, 1969, Ser. No. 883,812

Int. Cl. F01d 1/02, 1/30

U.S. Cl. 415—186

14 Claims



The present invention is an air motor adapted especially for use in propelling automobiles. It includes a rotor having a plurality of circumferentially arranged pressure chambers closed on all sides and bottom but open at the rotor periphery. A stationary housing at least partially encloses the rotor, the latter being rotatably mounted therein. The housing includes a cylindrical shroud which completes the closure of said chambers at the rotor periphery. The chambers are arranged in laterally adjacent pairs, each chamber being of triangular shape. There are a plurality of said pairs circum-

ferentially contiguously arranged around the entire rotor. Means are provided for introducing and exhausting pressure fluid selectively to and from said chambers. One circumferential series of said chambers, consisting of one chamber of each pair, serve in propelling the rotor in one direction and the remaining chambers serving as a second series to propel the rotor in the opposite direction.

The means for introducing and exhausting pressure fluid to and from said chambers, respectively, are in the form of passages in the housing shroud, these passages being equally spaced circumferentially about the shroud with the exhaust passage being alternated with the inlet passages. The spacing between adjacent inlet and exhaust passages is such that as pressure fluid is being introduced into one chamber, pressure fluid from an adjacent chamber is being exhausted. Circumferentially adjacent chambers are separated by radially disposed walls which serve as impellers and over which a pressure differential can be created for causing movement of the rotor in a predetermined direction.

The chambers and air passages communicating therewith are so constructed as to conserve pressure fluid in the development of the rotational forces.

3,592,559

VARIABLE GEOMETRY ROTOR SYSTEM

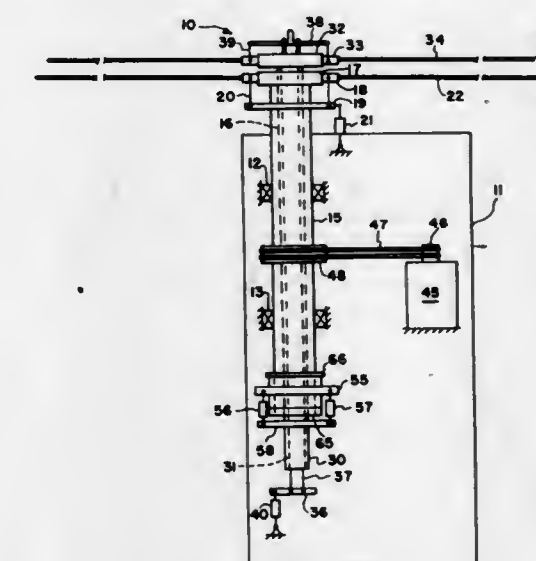
John F. Ward, Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Aug. 28, 1969, Ser. No. 853,746

Int. Cl. B64c 27/10, 27/80

U.S. Cl. 416—121

10 Claims



This rotor system is designed to control the nonuniform wake shed from a given rotor blade impinging upon the other blades of the rotor system. The rotor system utilizes blade sets which are of a different diameter than another blade set in the system. The azimuth spacing between the blade sets can be varied while the aircraft is in flight. The vertical spacing between the blade sets can also be changed. Mechanism is provided for collective pitch control of the blade sets. The plan form of blade sets, as well as the configuration of their tips, are varied.

3,592,560

AIR-OPERATED EDUCTOR CONTROL

Ryan D. Mitchell, Oklahoma City, Okla., assignor to Davis Industries, Inc., Thomasville, Ga.

Filed Apr. 7, 1967, Ser. No. 629,325

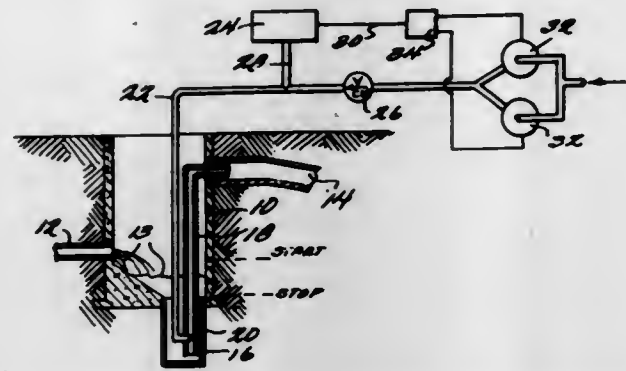
Int. Cl. F04b 49/06; F04f 1/18

U.S. Cl. 417—44

9 Claims

A liquid waste collection tank is provided with an airlift for periodically pumping out the waste. The airlift comprises an upright eductor pipe dipping into the waste, an air supply line connecting with the submerged portion of the eductor pipe and a blower system for delivering compressed air to the supply line. The air pressure in the supply line varies with the liquid level in the tank, and a pressure responsive control

system is operative to activate and deactivate the blower system at predetermined high- and low-liquid levels in the tank, respectively. A loss of pressure in the supply pipe occa-



sioned by a leak will render the normal control elements inoperative, but a safety element responsive to a pressure drop will activate the blower system to prevent flooding of the tank.

3,592,561

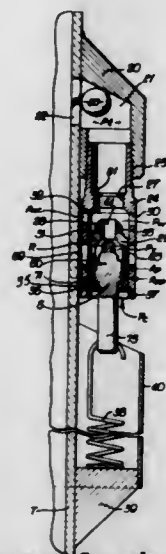
DIFFERENTIAL CONTROL GAS LIFT SYSTEM

David V. Chenoweth, Houston, Tex., assignor to Baker Oil Tools, Inc., Commerce, Calif.

Filed Nov. 25, 1968, Ser. No. 778,721

Int. Cl. F04f 1/18

U.S. Cl. 417-114



A well bore gas lift system for elevating well bore liquids through a tubing string to the surface of the well bore. A main pressure differential valve controls the feed of gas from the tubing-casing annulus into the tubing string, the main valve containing a pilot pressure differential valve that also controls the gas feed from the tubing-casing annulus into the tubing string. The pilot or normal high differential pressure valve opens to admit gas to the tubing string on reduction of the casing-to-tubing differential pressure. This action further reduces the casing-to-tubing differential pressure, causing opening of the main valve, both valves then being open. The pilot valve first opens, assisting opening of the main valve. The main valve first closes, assisting closing of the pilot valve.

3,592,562

TAKEOFF FOR HOT DUSTY GASES

Heniz Spliethoff, 668 Wellesweiler, Auf den Hanbuchen, Germany

Filed Nov. 12, 1969, Ser. No. 875,732

Claims priority, application Germany, Nov. 14, 1968, P 18 08 886.3

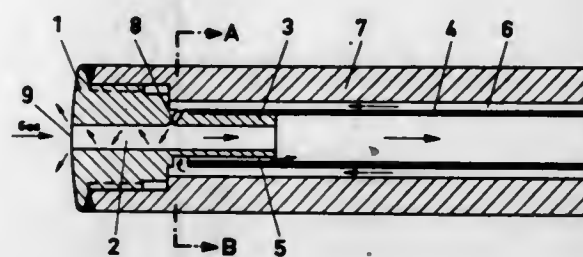
Int. Cl. F04f 5/44; G01n 1/24

U.S. Cl. 417-160

5 Claims

A takeoff using injector action to aspirate dirty furnace gas from a sample zone and force it to an analyzer. Part of the water used for injector action is used to scavenge and rinse

the walls of the gas takeoff passageway, with centrifugal force of water rotation holding the major cross-sectional area



3,592,563

FILTER PURGING APPARATUS

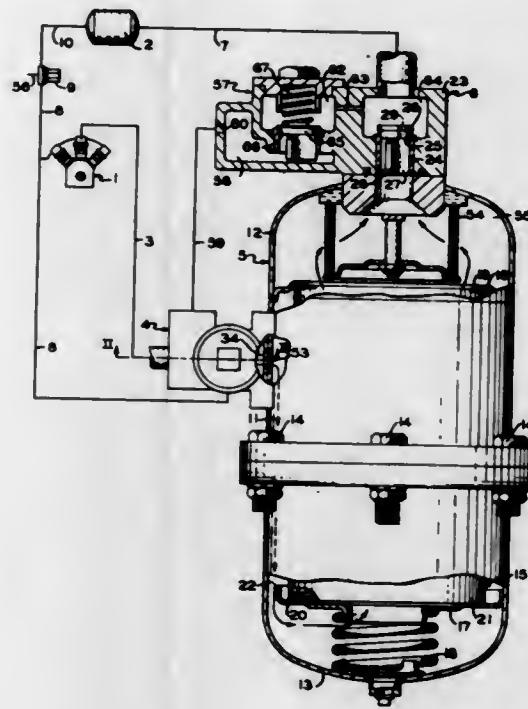
William H. Glass, and Robert J. Bridgum, both of Pittsburgh, Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Dec. 30, 1968, Ser. No. 787,895

Int. Cl. F04b 19/00

18 Claims U.S. Cl. 417-307

3 Claims



A filter purging apparatus used in conjunction with a desiccant-type dryer device which is interposed in a compressed air system between the air compressor and the storage reservoir for drying the air before reaching the reservoir, the purging apparatus includes a control valve device arranged in the system in such manner as to be responsive to supply of compressed air from the compressor during the cut-in stage of the compressor for effecting flow of said compressed air to the storage reservoir through the dryer, and responsive to control pressure supplied thereto, upon operation of the governor device in cutting out the compressor, for cutting off charging of the storage reservoir and opening a restricted passage to atmosphere via which dry air from the reservoir flows reversely through the dryer device to atmosphere, at a restricted rate, for purging the desiccant in the dryer of moisture accumulated therein, such reverse flow and purging continuing until the governor device restores the compressor to its cut-in or compressing stage.

3,592,564
MOVABLE PUMP WITH FLANGE HAVING SEALING MEANS THEREON

William J. Conery, Ashland, Ohio, assignor to Hydr-O-Matic Pump Company, Hayesville, Ohio

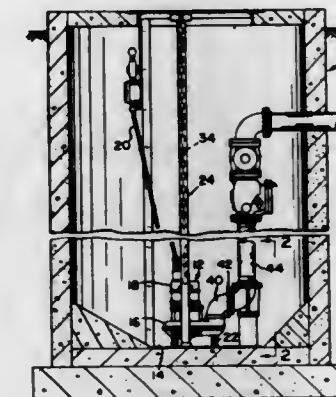
Filed Feb. 24, 1970, Ser. No. 13,282

Continuation-in-part of Ser. No. 853,337, Aug. 27, 1969

Int. Cl. F04d 13/02; B67d 5/40; F16l 25/00

U.S. Cl. 417-360

7 Claims



Movably positioned pumps, particularly sump pumps, are provided where the pump is accurately positioned on fixed guide means for controlled vertical movement into and out of a sump. The pump has a discharge member with an end flange thereon, and a fixedly positioned discharge tube means having an end flange thereon is present whereby when the pump is operatively positioned, its discharge opening is aligned with and immediately adjacent the end flange on the discharge tube means. A flexible seal means is carried by the discharge member flange and is forced into sealing engagement with the adjacent flange when the pump is in service.

3,592,565

ARMATURE PUMP

Siegfried Kofink, Zell (Neckar), Germany, assignor to J. Eberspacher, Esslingen (Neckar), Germany

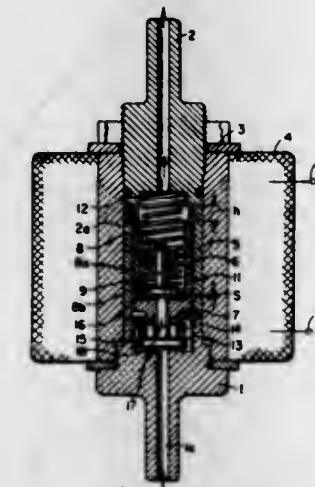
Filed July 8, 1969, Ser. No. 839,815

Claims priority, application Germany, Dec. 5, 1968, P 18 12 830.8

Int. Cl. F04b 35/05

U.S. Cl. 417-417

4 Claims



An oscillating armature pump comprises a reciprocable armature piston having a pumping passage defined therethrough with a valve seat. The pump includes a housing having an inlet with an inlet valve seat which is closed by a suction valve member having a stem which extends through the piston opening and holds a piston valve off the seat of the piston opening in the inoperative position of the pump piston. The pump piston advantageously includes an extension through which it transmits a closing force to the suction valve in the inoperative position of the piston as a result of the biasing action of the main pump spring. The valve stem extension of the suction valve itself, also acts on the piston valve to maintain it off its seat by a small gap in the inopera-

tive position. The piston valve is advantageously acted upon by the combined force of a pump spring and a pressure valve spring which is confined within a cage which is under biasing contact by the pump spring. The piston has a sleeve portion which is adapted to engage with the outlet member of the housing to limit the pump stroke.

3,592,566

ELECTRIC VACUUM CLEANER WITH TURBINE-TYPE SUCTION PUMP

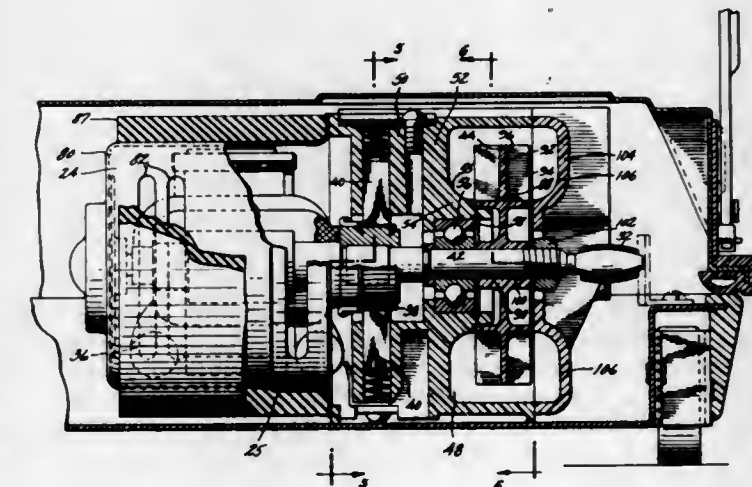
Robert M. Beardslee, Willowick, Ohio, assignor to General Electric Company

Filed July 17, 1969, Ser. No. 842,550

Int. Cl. F04d 25/06, 17/08; A47l 5/00

U.S. Cl. 417-423

13 Claims



An electric vacuum cleaner with a "turbine-type" suction pump wherein an integrally molded member forms a substantial part of the pump chamber and the electric motor housing.

3,592,567

SUBSURFACE PUMP

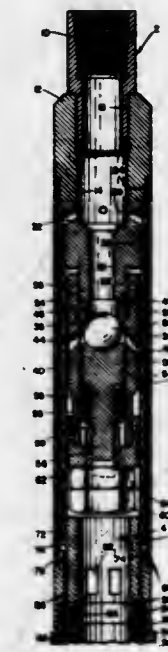
Clifford C. Tolbert, 907 McKinley Street, Seminole, Okla.

Filed Dec. 5, 1969, Ser. No. 882,614

Int. Cl. F04b 21/00, 47/00, 39/10

U.S. Cl. 417-432

10 Claims

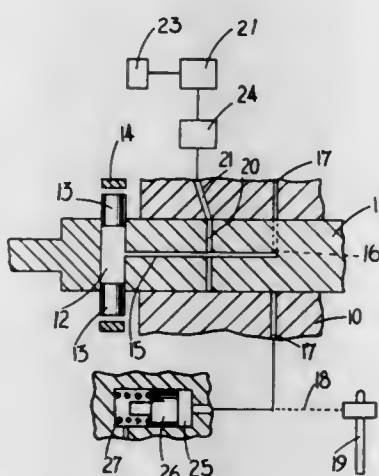


A subsurface pump for a producing oil well, and the like, wherein a passageway is provided for directing a lubricant into the annulus between the working barrel and pump plunger for facilitating the reciprocation of the plunger.

3,592,568

LIQUID FUEL INJECTION PUMPING APPARATUS
Ivor Fenne, Greenford, England, assignor to C.A.V. Limited, London, England

Filed Aug. 4, 1969, Ser. No. 847,163
Claims priority, application Great Britain, Aug. 13, 1968, 38603/68
Int. Cl. F04b 11/00; F02m 39/00
U.S. Cl. 417-540 1 Claim

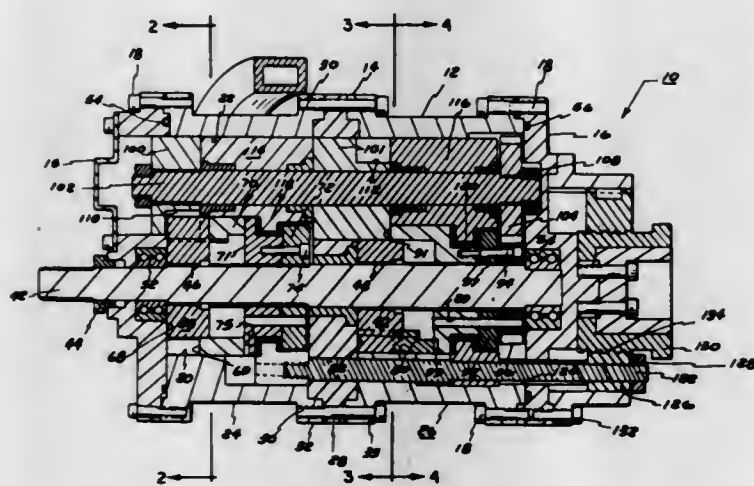


In a rotary distributor fuel injection pump having outlet ports connected to injection nozzles by way or pipelines respectively, accumulator chambers including a plunger slidable in a cylinder and having one end connected to the associated outlet port are provided. The plungers are loaded by springs towards the end of the cylinder connected to the output and the action of the accumulator chambers is to stabilize the pressure existing in the outlet and the pipeline at the end of injection of fuel.

3,592,569

VARIABLE DISPLACEMENT FLUID DEVICE
Doyle V. Rowland, 13909 Gottschalk Road, Plymouth, Mich.
Filed Aug. 22, 1969, Ser. No. 852,268

Int. Cl. F01c 21/16, 1/08, 1/100
U.S. Cl. 418-21 10 Claims



A rotary fluid pressure energy translating device of the variable displacement type having inlet and outlet ports connected by means of a pair of working chambers each of which has a single vane primary rotor, rotatably mounted on an input shaft, the axis of which coincides with the axis of the working chambers. The single vane on each primary rotor engages the circumferential walls of its associated working chamber in a fluid sealing engagement. A secondary rotor is associated with each of the working chambers and extends therein to form a fluid sealing engagement with the inner and outer circumferential walls of the working chamber and the outer periphery of the rotor is rotatably mounted about a second shaft the axis of which is parallel to but displaced from the primary rotor input shaft. Each of the secondary rotors is provided with a recess which comes into position at the appropriate time to permit the vane to pass thereby,

while maintaining the required fluid seal during the balance of the cycle of the device. Each of the working chambers has one of its circumferential walls axially shiftable relative to the opposite circumferential wall of its associated working chamber so as to vary the axial length of the working chamber and thereby reduce the effective displacement of the device. The single vanes mounted on each of the rotors are so arranged that they alternately engage the walls of their associated working chambers so as to provide a continuous displacement of fluid between the inlet and outlet ports of the device.

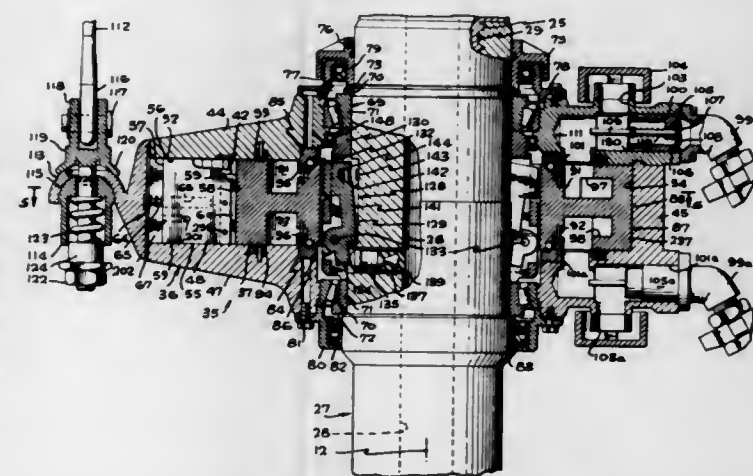
3,592,570

REVERSIBLE FLUID-DRIVEN MOTOR
Josef Bartos, Anaheim, Calif., assignor to Abegg and Reinhold Co., Los Angeles, Calif.

Division of Ser. No. 787,113, Dec. 26, 1968, which is a division of Ser. No. 648,913, June 26, 1967, Pat. No. 3,461,974.
Filed July 6, 1970, Ser. No. 052,262
Int. Cl. F01c 1/00

U.S. Cl. 418-186

7 Claims

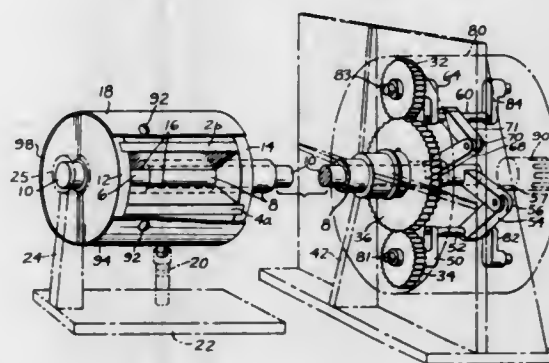


A reversible fluid-driven motor having two selectively usable fluid inlet passages for introducing pressure fluid to the motor to drive it in two opposite directions, with each passage being vented to atmosphere during periods when fluid is being admitted to the motor through the other passage, and with two valve units being provided between a source of pressure fluid and the two passages respectively and each operable automatically when pressure fluid is supplied thereto to close off a vent to atmosphere from the associated passage.

3,592,571

ROTARY VOLUMETRIC MACHINE
Chauncey R. Drury, 1308 Stonewall, Louisville, Ky.
Filed Dec. 8, 1969, Ser. No. 883,178

Int. Cl. F01c 1/42
U.S. Cl. 418-36 14 Claims



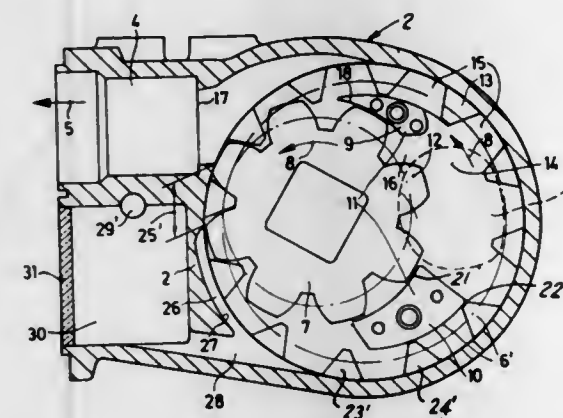
Rotary volumetric machines of the type having spaced pairs of oppositely disposed sector-shaped pistons can be adapted as pumps, compressors, and engines. This machine is driven by a simplified and direct driving means due to the unique piston supporting means. One pair of pistons is held by a quill shaft and the other pair by a hollow shaft or sleeve

surrounding the shaft, the construction being such that the shaft and sleeve can be directly driven. The driving motion is transmitted to the solid shaft and to the hollow shaft by off-center devices.

3,592,572

PUMP PARTICULARLY FOR PASTY MEDIA
Karl Schnell, Karlstrasse, 7065 Winterbach, Germany
Filed June 4, 1969, Ser. No. 830,591

Claims priority, application Germany, June 4, 1968, Sch 45 022
Int. Cl. F01c 1/10
U.S. Cl. 418-169 11 Claims

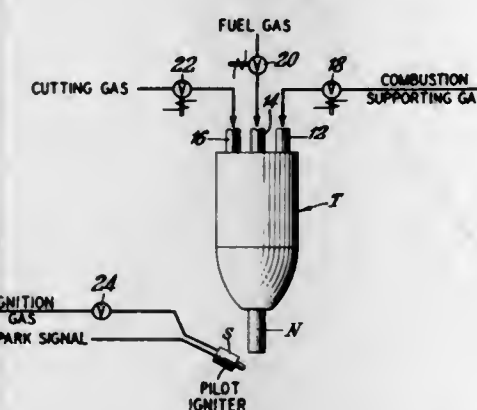


A pump, particularly for pasty media, includes a housing having a suction inlet and a compression discharge passage and an intermediate vacuum exhaust outlet. An outer planetary gear is arranged within the cylindrical space of the housing and a pinion is maintained in engagement with the planetary gear by means of peripherally arranged spaced guide pieces. The rotation of the two gears permits the taking in of the material through the suction and the delivery through the outlet passage. The housing is arranged so that there is a peripheral portion between the suction and the outlet which provides an outer guide for the planetary gear and which forms a spacing between the inlet and outlet which is at least equal to the width of the space between the teeth of the planetary gear. In addition, there is a similar housing portion defined between the outlet and the vacuum exhaust outlet.

3,592,573

FLAME IGNITION SYSTEM FOR CUTTING MACHINES
George H. Tikiljan, Maplewood, and Alexander Jordan, Cranford, both of N.J., assignors to Union Carbide Corporation, New York, N.Y.
Filed June 20, 1969, Ser. No. 834,996

Int. Cl. F23c 3/02
U.S. Cl. 431-1 2 Claims

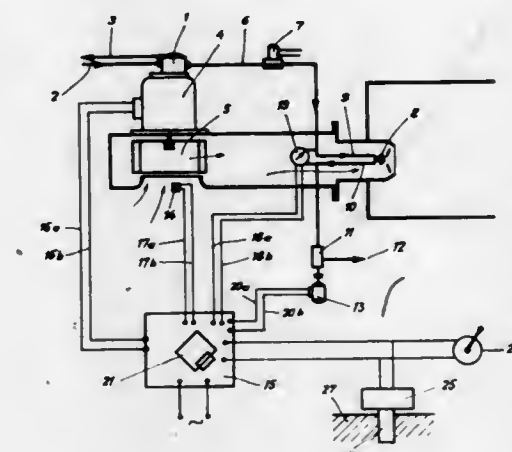


A method of establishing a self-sustaining high-velocity oxy-fuel preheat gas flame comprising pulsating the flow of the preheat gas while igniting same, at a rate such that the average gas velocity is rendered nearly equal to the rate of flame propagation.

3,592,574

FUEL BURNER WITH FUEL FEED CONTROL MEANS RESPONSIVE TO AIR AND FUEL FLOW
Kurt Zenkner, Hertzstrasse 12, Ettlingen, Germany
Filed Nov. 5, 1968, Ser. No. 773,543

Claims priority, application Germany, Nov. 6, 1967, P 15 51 993.4
Int. Cl. F23n 1/02
U.S. Cl. 431-90 1 Claim

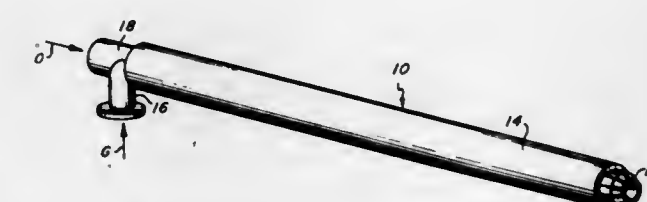


A fuel burner has a spray nozzle with fuel feed means and a blower for producing a flow of combustion air to the nozzle. The device includes a return line returning from the nozzle to the fuel source and a valve in this line which is controlled by comparing the actual value of the fuel flow or air flow with a predetermined desired value. The fuel flow is measured by a device which is connected both to the inlet and return lines of the fuel nozzle.

3,592,575

BURNER NOZZLE TIP
Kurt S. Jaeger, Hurst, and Ross Forney, Dallas, both of Tex., assignors to Forney Engineering Company, Dallas, Tex.
Filed July 25, 1969, Ser. No. 844,859

Int. Cl. F23d
U.S. Cl. 431-114 2 Claims



A fuel burner is provided in which the nozzle tip is formed with a frustoconical end wall integrally connected to a cylindrical outer wall and the walls have a common central axis. The outer walls are formed with a series of orifices which comprise equally spaced apart rows of orifices, positioned in straight lines that are parallel to the central axis of the walls.

3,592,576

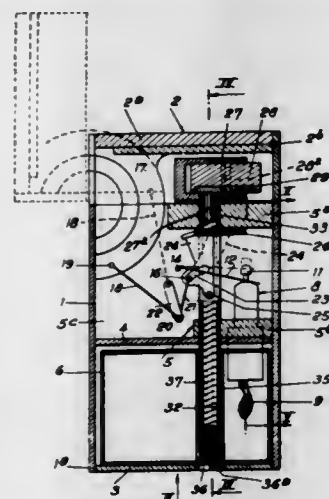
MECHANISM FOR REGULATING THE FLAME HEIGHT IN A GAS LIGHTER

Robert Raymond Hocq, Boulogne-Billancourt, France, assignor to Societe Franco-Hispano-Americaine, Franciscam, Paris, France

Filed Mar. 26, 1969, Ser. No. 810,532
Claims priority, application France, Mar. 29, 1968, 146,320
Int. Cl. F23q 2/08, 2/16

U.S. Cl. 431-131 9 Claims
A gas lighter having a screw which is employed to perform four functions, namely, securing in position a removable baseplate, permitting the supply of a new flint without

removal of the baseplate, replacement of an empty or faulty gas reservoir by a full or properly working one after removal



of the baseplate, and regulation of the flame height with the baseplate secured in position.

3,592,577

APPARATUS FOR PROMOTING COMPLETE COMBUSTION

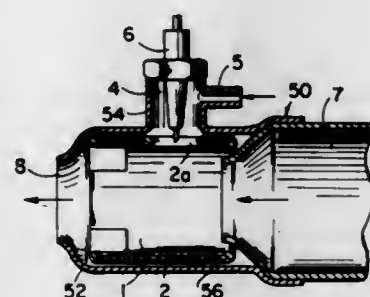
Siegfried Kofink, Zell (Neckar), Germany, assignor to J. Eberspacher, Esslingen am Neckar, Germany
Filed July 3, 1969, Ser. No. 838,737

Claims priority, application Germany, Oct. 18, 1968, P 18 03 815.8

Int. Cl. F23d 13/24

U.S. Cl. 431-263

3 Claims



Apparatus for insuring that combustion within a combustion chamber of an apparatus such as a heater, boiler, furnace, and the like, includes arranging the fuel, air and ignition means in a combustion chamber such that combustion takes place in the vicinity of a heat-conducting and heat-equalizing device in order to insure an even temperature zone at the combustion space and to minimize the danger of carbonizing or coking. The heat-conducting and heat-equalizing device comprises preferably a hollow body made of a material providing good heat conduction and heat-equalizing characteristics, such as a mass of a metal material having a capillary action on liquid contacted thereby. The hollow body is advantageously filled with a liquid such as sodium and the material of the metal body, for example, a spun copper or a braid metal material is such that by capillary action the heat is distributed by the liquid uniformly over the entire surface of the body. The heat-conducting and heat-equalizing body is arranged directly in a space where the major portion of the combustion is to take place.

3,592,578

GAS BURNERS

Richard N. Weatherston, Saint Paul, Minn., assignor to Weather-Rite Manufacturing, County of Ramsey, Minn.
Filed Jan. 23, 1970, Ser. No. 5,166

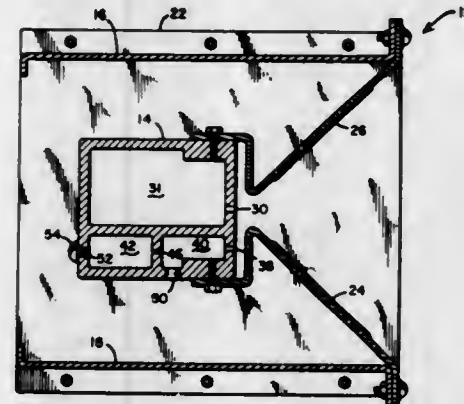
Int. Cl. F23q 9/00

U.S. Cl. 431-278

5 Claims

A gas burner formed from an elongated hollow extrusion having three manifolds formed therein. One of the manifolds

comprises a high-pressure manifold delivering raw gas through a series of apertures to the main flame while the second manifold delivers a combustible gas and air mixture through a second series of apertures to the pilot or low-heat flame. The third manifold delivers high-pressure gas through



a series of transfer apertures to the second manifold periodically along the entire length of the second manifold. A series of air admission apertures along the second manifold allow air to pass into the gas in the second manifold under the influence of aspiration.

3,592,579

LIGHTER USING LIQUEFIED GAS AS FUEL

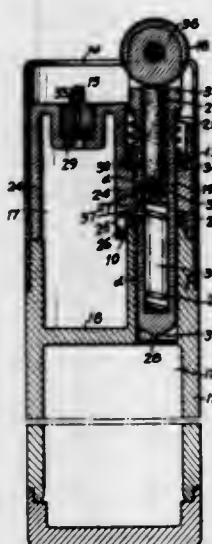
Yoshinao Wakamatsu, Tokyo-to, Japan, assignor to Yasuhisa Ebine, Ota-Ku, Tokyo-to, Japan
Filed Feb. 3, 1970, Ser. No. 008,234

Claims priority, application Japan, Feb. 13, 1969, 44/10862

Int. Cl. F23q 1/04

U.S. Cl. 431-254

17 Claims



A lighter using liquefied gas as fuel comprising a previously sealed liquefied fuel reservoir, a mechanism adapted to be moved in association with initial igniting operation for unsealing said liquefied fuel reservoir, a vaporized gas reservoir, a gas-jetting nozzle communicating with said vaporized gas reservoir, and an ignition member located adjacent said nozzle, wherein said mechanism adapted to be moved in association with initial igniting operation for unsealing said liquefied fuel reservoir establishes a communication between said liquefied fuel reservoir and the vaporized gas reservoir and interrupts this communication by its automatically restoring operation.

CHEMICAL

3,592,580

STABILIZING THE COLOR OF WOOD

Gilbert F. Hoffmann, Mukwonago, Wis., assignor to O'Neill Duro Company, Milwaukee, Wis.

No Drawing. Filed Oct. 6, 1967, Ser. No. 673,274

Int. Cl. B27k 5/02

U.S. Cl. 8-6.5

11 Claims

A low concentrate aqueous solution of an oxidizing agent selected from the group comprising potassium permanganate, the water soluble chromates and dichromates and chromic acid is applied in a quantity small enough so that drying takes place rapidly. Ammonium dichromate gives preferred results. Concentration of oxidizing agent is such that available oxygen lies in the range from about 0.025% to about 0.30% of the total aqueous solution and varies with wood species in accordance with darkness of natural color.

3,592,581

DYEING OF HUMAN HAIR WITH INSOLUBLE PHTHALOCYANINE DYESTUFFS IN A CATIONIC DISPERSION

Albert Shansky, Norwalk, Conn., and Alan Gary Schuster, Amityville, N.Y., assignors to Del Laboratories, Inc., Farmingdale, N.Y.

No Drawing. Filed Aug. 8, 1968, Ser. No. 751,075

Int. Cl. A61k 7/12

U.S. Cl. 8-10.1

3 Claims

A system for semi-permanently dyeing human hair by plating out a water insoluble phthalocyanine dyestuff onto a cationic layer ensheathing hair strands and acting as a dye coupler for the dyestuff. The cationic layer is applied to the hair strands from an aqueous medium in which the cationic material and water insoluble phthalocyanine dyestuff constitute a single composite mixture with the cationic compound as an ingredient in intimate contact with the dyestuff and acting as a dispersant so as to obtain uniform distribution of the dyestuff in the aqueous medium and leveling of the dyestuff as a water-fast dye on the hair substrate.

3,592,582

PROCESS FOR PRODUCTION OF CELLULOSIC MATERIALS WITH INCREASED OXIDIZING CAPACITY

Russell M. H. Kullman, Metairie, and Robert M. Reinhardt and John G. Frick, Jr., New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed July 10, 1968, Ser. No. 743,611

Int. Cl. D06m 13/08, 13/34, 13/12

U.S. Cl. 8-115.6

18 Claims

A process for producing cellulosic materials with oxidizing capacity. Cellulosic material to which a carbamate-formaldehyde adduct has been applied, is treated with hypobromite solution. After treatment with hypobromite solution the textile retains positive bromine and has high oxidizing capacity.

3,592,583

DYEING OR PRINTING CELLULOSIC FIBERS AND SYNTHETIC HYDROPHOBIC ORGANIC SUBSTANCES WITH PHENOXYBENZANTHRONE DYES

Paul Buecheler, Reinach, Basel-Land, and Fred Mueller, Munchenstein, Basel-Land, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed July 17, 1969, Ser. No. 842,680

Claims priority, application Switzerland, Aug. 29, 1968, 12,970/68; Nov 12, 1968, 16,828/68

Int. Cl. C09b 3/08

U.S. Cl. 8-39

6 Claims

A process for dyeing or printing textiles of hydrophobic organic substances wherein dyestuffs of the phenoxybenzanthrone series are used.

3,592,584

DYEING CONTINUOUS FILAMENT NYLON WITH 1:1 PREMETALLIZED DYES AND MIXTURES THEREOF WITH DYE ASSISTANTS

William J. Link and Hermann W. Pohland, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Jan. 23, 1968, Ser. No. 699,773

Int. Cl. D06p 1/10

U.S. Cl. 8-26

13 Claims

Improved process for level, lightfast dyeing of polyamide fibers and textile articles comprised thereof by contacting same with an aqueous dye bath containing specific 1:1 premetallized dyes (I, II and III), dyeing assistant and, preferably, metal complexing agent.

3,592,585

METHOD AND APPARATUS FOR TREATING SHEET-LIKE MATERIAL AND THE LIKE

Robert R. Candor, Miami Township, Ohio (5940 Munger Road, Dayton, Ohio 45459), and James T. Candor, Washington Township, Ohio (5440 Cynthia Lane, Dayton, Ohio 45429)

Continuation-in-part of application Ser. No. 690,636, Dec. 14, 1967, which is a continuation-in-part of application Ser. No. 635,848, May 3, 1967. This application Oct. 22, 1969, Ser. No. 868,396

Int. Cl. F26b 13/02; B05b 3/02; B05c 8/04

U.S. Cl. 8-151

14 Claims



Supporting means receiving sheet-like material and conveying the same in substantially flat form and movable nozzle means having an end means provided with opening means and engaging against the material for a predetermined substantially straight line length of travel therewith, the nozzle means comprising a flexible sheet means at least partially surrounding the opening means and defining the end means thereof and providing a fluid flow between the opening means of the nozzle means and the section of material aligned between that opening means and the supporting means to treat that section of material with

fluid. Means are provided for causing the end means to be disposed in substantially sealed relation with the section of material engaged thereby by creating a pressure differential across the sheet means to cause one side thereof to press against the material on the supporting means.

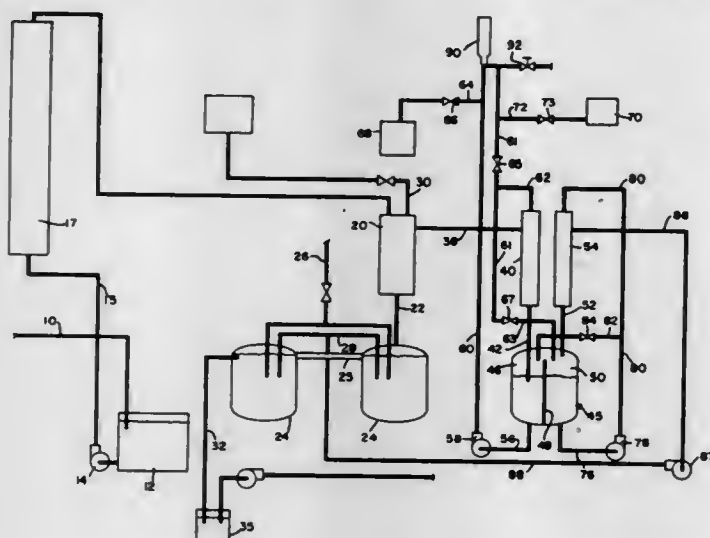
3,592,586

METHOD FOR TREATING CYANIDE WASTES
Lewis F. Scott, Indianapolis, Ind., assignor of fractional part interest to Franke Plating Works, Inc., Fort Wayne, Ind.

Filed Feb. 17, 1969, Ser. No. 799,609
Int. Cl. C01c 3/10; B01j 1/00

U.S. Cl. 23—79

4 Claims



A method and apparatus for converting cyanide wastes into sodium cyanide in which said wastes are heated and pumped into a first tank containing an acid solution to produce hydrogen cyanide. The hydrogen cyanide is then passed through a first tower of sodium hydroxide and a second tank containing a first solution of sodium hydroxide and sodium cyanide. The materials in said second tank are recycled therethrough and through said first tower to produce the sodium cyanide reaction product which is then withdrawn from said second tank. During said recirculation, vaporized hydrogen cyanide is withdrawn from said second tank and passed and recycled through a second tower of sodium hydroxide and a third tank to produce a second solution of sodium hydroxide and sodium cyanide which is pumped into said second tank at the start of the next conversion cycle to form said first solution therein.

3,592,587

METHOD OF PROCESSING ACID WASTES FROM THE PROCESS OF CHLOROMETHYLATING COPOLYMERS OF STYRENE AND COMPOUNDS OF THE VINYLAROMATIC SERIES

Arkady Borisovich Pashkov, Khoroshevskoe shosse 74, korpus 3, kv. 56, Moscow, U.S.S.R.; Nikolai Mikhailovich Vdovin, Ulitsa Ordzhonikidze 5, kv. 5; and Olga Nikolaevna Voronkova, Ulitsa Dzerzhinskogo 2b, kv. 37, both of Kemerovo, U.S.S.R.; Roza Romanovna Dranovskaya, Stantsia Tarasovka, Vozalny Tupik 46, Moscow, U.S.S.R.; Anatoly Mikhailovich Egorov, Vesennaya ulitsa 19, kv. 104, Kemerovo, U.S.S.R.; Afanasy Filippovich Kljushnev, Dnepropetrovskoi oblasti, ulitsa Kapitanov 4, kv. 66, Dneprodzerzhinsk, U.S.S.R.; Petr Ivanovich Shatrin, Ulitsa Vesennaya 13, kv. 74; Mikhail Yankelovich Zeligman, Sovetsky prospekt 87, kv. 26; and Vyacheslav Patrushev, Ulitsa Vesennaya 19, kv. 5, all of Kemerovo, U.S.S.R.; and Yakov Vulfovich Epshtein, Ulitsa Pervomaiskaya 85, kv. 10, Moscow, U.S.S.R.

No Drawing. Filed July 31, 1968, Ser. No. 748,905
Int. Cl. C01g 9/04; C07c 43/30

U.S. Cl. 23—97

3 Claims

A method for processing acid wastes, which consist of monochlorodimethyl ether, hydrochloric acid and salts

thereof and which appear as a result of the process of chloromethylating copolymers of styrene and vinylaromatic compounds with monochlorodimethyl ether in the presence of a Friedel-Crafts catalyst, wherein said wastes are treated with an excess of methanol. Next the treated wastes are rectified first at a temperature of 41–44° C. to recover methylal and then at a temperature of 60–70° C. to recover methanol. The still bottoms remaining after rectification may be heated to carbonize organic impurities contained therein, after which the precipitated carbonized impurities are removed, and the remaining still bottoms are evaporated to recover the Friedel-Crafts catalyst.

3,592,588

CRYSTALLINE FORM V AMMONIUM POLYPHOSPHATE AND PROCESS FOR PRODUCING SAME

David R. Dyroff, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed May 28, 1968, Ser. No. 732,506

Int. Cl. C01b 25/28

U.S. Cl. 23—106

4 Claims

A new crystalline form of ammonium polyphosphate and processes for producing same are disclosed. The new ammonium polyphosphate is a useful ingredient in metal polishes.

3,592,589

METHOD OF REMOVING ALUMINUM FROM BARIUM SULFIDE SOLUTIONS

Vernon R. Horn, Coffeyville, Kans., assignor to The Sherwin-Williams Company, Cleveland, Ohio

Filed Mar. 18, 1969, Ser. No. 808,141

Int. Cl. C01f 11/08, 11/10

U.S. Cl. 23—134

5 Claims

Aluminum oxide impurities are removed from aqueous barium sulfide solution by contacting the solution with anhydrous magnesia-containing solid particles. The aluminum oxide impurity is reduced below 0.02 gram/liter by this treatment. The preferred magnesium oxide material is calcined magnesite in a particle size smaller than 200 mesh. The magnesium oxide and aluminum oxide solids are separated from the purified solution by filtering or centrifuging the mixture.

3,592,590

FLUOSILICIC ACID PURIFICATION

Warren A. Knarr, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed June 18, 1969, Ser. No. 834,559

Int. Cl. C01b 7/22, 11/24, 33/10

U.S. Cl. 23—153

3 Claims

Fluosilicic acid containing impurities such as phosphorus pentoxide is purified by admixing it with sulfuric acid, heating the mixture to evolve hydrogen fluoride and silicon tetrafluoride vapors, sweeping the vapor space above the heated mixture with a superheated condensable gas such as steam, and absorbing the SiF₄ and HF vapors in water.

3,592,591

PRODUCTION OF NITRIC ACID

David R. Morrow, Irwin, Pa., assignor to Carrier Corporation, Syracuse, N.Y.

Original application Oct. 22, 1965, Ser. No. 500,912, now Patent No. 3,441,380. Divided and this application Oct. 29, 1968, Ser. No. 771,537

Int. Cl. C01b 21/40

U.S. Cl. 23—162

2 Claims

A nitric acid producing plant employing a refrigeration unit which utilizes energy given off by the chemical reactions productive of nitric acid to cool the substances produced by the chemical reactions and to reduce the

temperature of the plant absorption tower to increase reaction efficiency and decrease reaction time to increase plant efficiency.

3,592,592

PROCESS FOR PREPARATION OF SO₂
Max Schmidt, Würzburg, Germany, assignor to Research Corporation, New York, N.Y.

Filed May 17, 1968, Ser. No. 730,174

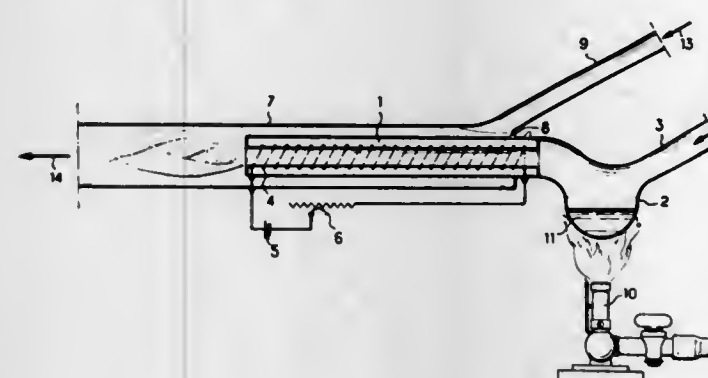
Claims priority, application France, May 19, 1967,

107,110

Int. Cl. C01b 17/68

U.S. Cl. 23—174

1 Claim



A process for preparing SO₂ is disclosed, wherein sulphur is burned in the presence of an oxygen containing gas and the resultant SO₂ is stabilized to prevent decomposition into SO₂. The stabilization may be by means of a suitable stabilizing compound, such as Lewis base, or may be by way of thermal quenching.

3,592,593

PURIFICATION OF THIONYL CHLORIDE

Benno Böhm, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 6, 1967, Ser. No. 688,358
Claims priority, application Germany, Dec. 10, 1966, F 50,902

Int. Cl. C01b 17/45

U.S. Cl. 23—203

6 Claims

Pure thionyl chloride can be obtained from a crude product containing besides sulfur dioxide and chlorine mainly sulfur chlorides contaminates by evaporating the thionyl chloride at a temperature below the boiling point of sulfur monochloride (disulfur dichloride) and contacting the gaseous thionyl chloride with sulfur containing an effective amount of iron or iron-compounds to convert any sulfur dichloride contaminating the gaseous thionyl chloride to liquid sulfur monochloride.

3,592,594

PROCESS FOR THE MANUFACTURE OF PHOSPHORUS PENTAFLUORIDE

Robert A. Wiesboeck, Atlanta, Ga., assignor to United States Steel Corporation, Pittsburgh, Pa.

No Drawing. Filed Jan. 5, 1968, Ser. No. 695,857

Int. Cl. C01b 25/10

U.S. Cl. 23—205

6 Claims

Phosphoryl fluoride is reacted with sulfur trioxide to form a phosphoryl fluoride-sulfur trioxide adduct and the adduct can be solvolyzed by hydrogen fluoride to form phosphorus pentafluoride and sulfuric acid. The phosphoryl fluoride-sulfur trioxide adduct is a new compound in the form of a colorless liquid having a lower vapor pressure than its individual components by a factor of about 10.

3,592,595

STABILIZATION AND CARBONIZATION OF ACRYLIC FIBROUS MATERIAL

Klaus H. Gump, Gillette, and Dagobert E. Stuetz, Westfield, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Nov. 21, 1968, Ser. No. 777,901

Int. Cl. C01b 31/07

U.S. Cl. 23—209.1

22 Claims

An improved process is provided for the stabilization of an acrylic fibrous material consisting primarily of recurring acrylonitrile units. The fibrous material is subjected to a stabilization treatment in which the starting material is heated while immersed in a solution of a Lewis acid capable of promoting the cyclization of pendant nitrile groups, e.g. a solution of stannic chloride. The exotherm normally exhibited by the precursor upon exposure to heat may be substantially reduced or totally eliminated in an efficient manner by such treatment which is believed to result in a product of improved chemical structure. The resulting product may be directly carbonized or carbonized and graphitized in an inert atmosphere or alternatively next subjected to relatively mild pre-oxidation conditions prior to treatment in an inert atmosphere. The carbonized or carbonized and graphitized fibrous materials exhibit improved physical properties.

3,592,596

METHOD AND APPARATUS FOR THE PRODUCTION OF CARBON BLACK

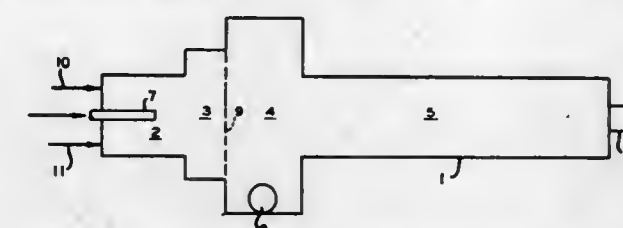
Eulas W. Henderson, Borger, Tex., assignor to Phillips Petroleum Company

Filed May 23, 1968, Ser. No. 731,524

Int. Cl. C09c 1/50

U.S. Cl. 23—209.4

7 Claims



Process and apparatus for the production of carbon black wherein a mixture of hydrocarbon feed and hot combustion gases is expanded in at least one intermediate section of the reactor, the expanded mixture passed into a combustion zone having a diameter greater than the diameter of said intermediate section and contacted therein with additional hot combustion gases, and the resulting mixture passed into a reaction zone wherein the hydrocarbon feed is pyrolytically decomposed into carbon black.

3,592,597

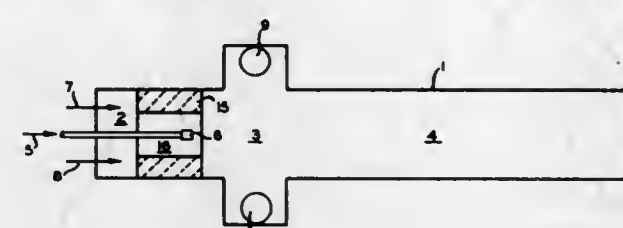
CARBON BLACK PROCESS AND REACTOR
Joseph C. Krejci, Phillips, Tex., assignor to Phillips Petroleum Company

Filed May 23, 1968, Ser. No. 731,523

Int. Cl. C09c 1/50

U.S. Cl. 23—209.4

10 Claims



Process and apparatus for the production of carbon black wherein an oxygen-containing gas, with or without fuel, is introduced into an axial zone of a reactor and passed through a diametrically restricted section of said

zone wherein it is commingled with a hydrocarbon feed, the mixture passed into a combustion zone and contacted therein with hot combustion gases, and the resulting mass passed into a reaction zone wherein the hydrocarbon feed is pyrolytically decomposed into carbon black.

3,592,598 QUALITY CONTROL IN CARBON BLACK PRODUCTION

Sheldon A. Cunningham and Glenn J. Forseth, Phillips, Tex., assignors to Phillips Petroleum Company
Filed Aug. 23, 1968, Ser. No. 754,819
Int. Cl. C09c 1/50

U.S. Cl. 23—209.4 8 Claims
A process for controlling the quality of a carbon black which involves determining the pH of the condensate condensed from the off-gases from the reactor, and adjusting the ratio of air to oil charged to the reactor to produce a constant quality carbon black.

3,592,599 QUALITY CONTROL CARBON BLACK PRODUCTION

Gerhard A. Gohlke and John A. Drummond, Borger, Tex., assignors to Phillips Petroleum Company
Filed Aug. 26, 1968, Ser. No. 755,115
Int. Cl. C09c 1/50

U.S. Cl. 23—209.4 2 Claims
A method for controlling the quality of carbon black produced from the pyrolytic decomposition of a hydrocarbon feed which comprises adjusting the hydrocarbon feed rate to the reactor in response to variations in the water content of the reactant streams, particularly the oxygen-containing gas, fed to the reactor.

3,592,600 RECOVERING BROMINE AND IODINE FROM REACTION PRODUCTS OF OXYDEHYDROGENATIONS

Rolf Platz, Mannheim, and Karl Gerhard Baur, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
Filed Sept. 6, 1968, Ser. No. 757,938
Claims priority, application Germany, Sept. 7, 1967, P 16 43 659.2
Int. Cl. C01c 1/16

U.S. Cl. 23—216 6 Claims
The recovery of bromine and/or iodine from the reaction products of oxydehydrogenations of hydrocarbons in which bromine and/or iodine serves as a catalyst, wherein the reaction product leaving the reactor is treated with an aqueous ammonia solution to which has been added an amount of hydrazine sufficient for the reduction of the elementary constituents. The aqueous phase is separated and the byproducts containing bromine and/or iodine separated in the working up of the organic phase are burnt with oxygen-containing gases and the gas from the combustion is scrubbed with an ammonia solution containing hydrazine.

3,592,601
SEPARATION OF BROMINE FROM GASEOUS MIXTURES CONTAINING OXIDES OF NITROGEN
Leopold Golser, Ludwigshafen, Hans-Martin Weltz, Frankenthal, and Walter Appelt, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Oct. 22, 1968, Ser. No. 769,745
Claims priority, application Germany, Oct. 24, 1967, P 16 67 396.4
Int. Cl. C01b 7/10

U.S. Cl. 23—216 1 Claim
For the separation of bromine from gaseous mixtures which, in addition to bromine, contain oxides of nitrogen

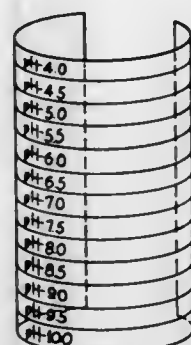
with less than pentavalent nitrogen and with or without nitrosyl bromide, at least as much oxygen is added as is necessary for converting the nitrogen of the oxides or nitrosyl bromide into the pentavalent state. These mixtures are then treated with water or dilute aqueous nitric acid.

3,592,602 HIGH TURN-DOWN RATIO DESIGN FOR SULFUR PLANTS

John W. Palm, Tulsa, Okla., assignor to Pan American Petroleum Corporation, Tulsa, Okla.
Filed Feb. 10, 1969, Ser. No. 797,789
Int. Cl. C01b 17/04

U.S. Cl. 23—225 3 Claims
To avoid abnormally low temperatures and flow rates in a sulfur plant where high turn-down ratios are encountered in the recovery of free sulfur from hydrogen sulfide-containing gases, the acid gas stream is burned in a separate firing tunnel with enough air to convert one-third of the hydrogen sulfide into sulfur dioxide. To supplement the heat requirements and necessary gas volumes, a hydrocarbon fuel in amounts up to about 20 percent of the design acid gas feed rate is burned in a second firing tunnel. The products of combustion from these separate burning steps are combined and discharged into a boiler where a portion of the sulfur produced in the overall process is removed after which the resulting sulfur denuded stream is processed in conventional fashion.

3,592,603
BROAD SPECTRUM pH INDICATOR AND METHOD
George S. Miller and Robert A. Benson, Indianapolis, Ind., assignors to A. R. Stryker, Lawrenceburg, Ind.
Filed May 1, 1968, Ser. No. 725,860
Int. Cl. C09k 3/30; G01n 31/22, 31/10
U.S. Cl. 23—230 4 Claims



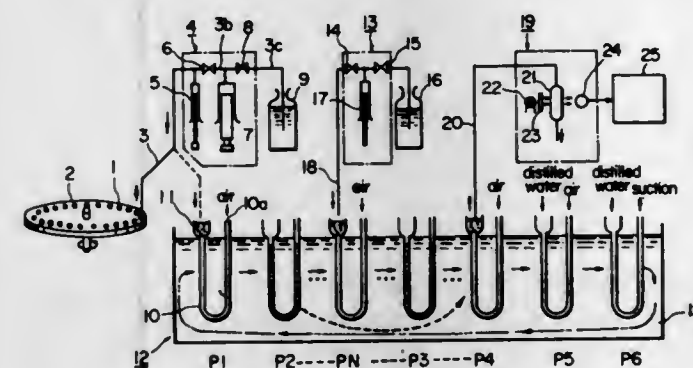
A broad spectrum pH indicator consisting essentially of the combination of methyl red, bromthymol blue, phenolphthalein, and a-naphtholphthalein. The indicator provides thirteen color changes in a range of pH 4-10 and is useful in a novel method of determining pH as a quality control check.

3,592,604
2-(p-DIMETHYLAMINO STYRYL) - 1-METHYLQUINOLINIUM CHLORIDE AS AN ANALYZER FOR IODINE
William N. Cottrell, Jr., Indianapolis, Ind., assignor to Bio-Dynamics, Inc., Indianapolis, Ind.
Filed Jan. 23, 1969, Ser. No. 793,334
Int. Cl. G01n 33/16, 21/06

U.S. Cl. 23—230 5 Claims
2-(p-dimethylamino styryl)-1-methylquinolinium chloride which is produced by the reaction of quinaldine, methylene chloride and p-dimethylamino benzaldehyde in the

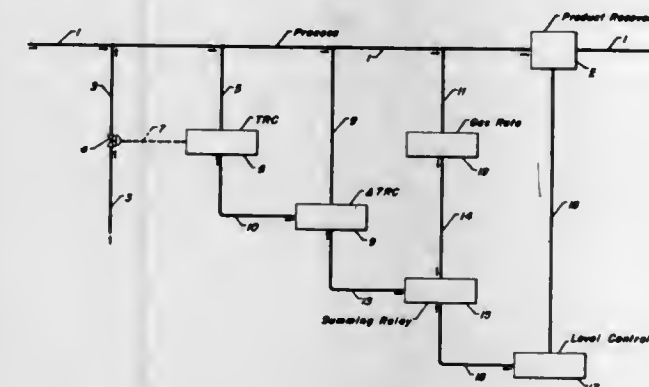
presence of ethyl alcohol and sulfuric acid. This compound is used as an indicator for inorganic and organic bound iodine in body fluids.

3,592,605
AUTOMATIC ANALYZING DEVICE
Masayoshi Noma, Tadao Yamamoto, and Hiroshi Takekawa, Tokyo, Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan
Filed Dec. 22, 1969, Ser. No. 887,220
Claims priority, application Japan, Dec. 21, 1968, 43/93,500; Apr. 25, 1969, 44/31,683
Int. Cl. G01n 1/00, 1/14
U.S. Cl. 23—259 11 Claims



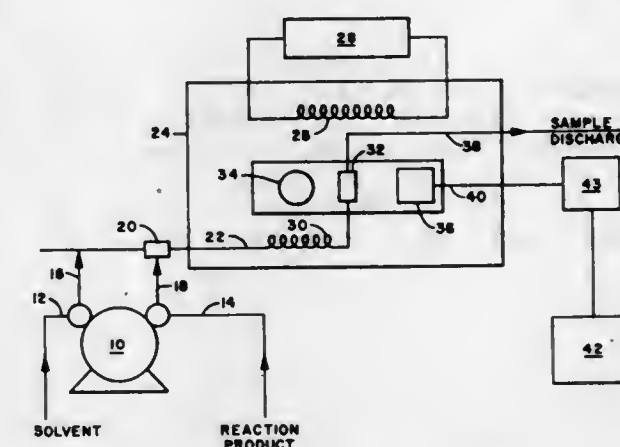
A device for automatic chemical analysis, comprises a sample turret holding a plurality of samples in containers disposed along the periphery thereof. A reaction tank means suspends a plurality of U-shaped reaction tubes movable through the constant-temperature liquid in a thermostatic vessel, and a sample transferring means is provided for transferring each sample from the containers of the sample turret to a selected reaction tube in the reaction tank means, a measuring means is provided for measuring selected properties of the sample by sucking the sample from the U-shaped reaction tube after keeping it in the thermostatic vessel for a certain period.

3,592,606
CONTROL SYSTEM
David M. Boyd, Clarendon Hills, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Sept. 11, 1968, Ser. No. 759,104
Int. Cl. B01j 9/04; C10g 13/00, 37/02
U.S. Cl. 23—253 3 Claims



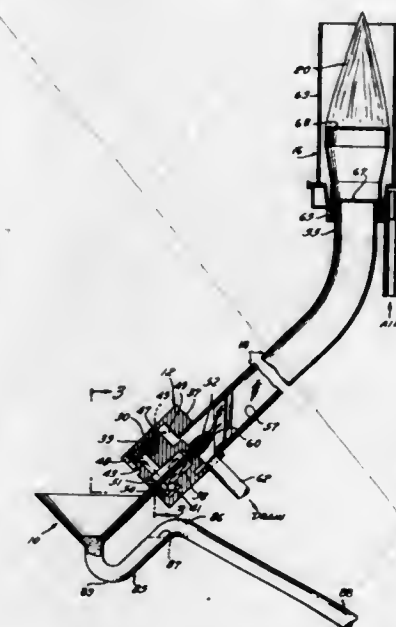
Control system for a hydrocracking reaction zone operating by temperature control on the feed inlet, reset by temperature differential across the catalyst beds. The desired temperature differential is determined by a combination fractionator-level control signal and gas make flow control signal.

3,592,607
APPARATUS FOR CONTINUOUSLY MONITORING THE PROCESS OF CERTAIN REACTIONS
Ronald G. Bruce, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.
Division of application Ser. No. 684,578, Sept. 25, 1967, now Patent No. 3,478,111, which is a continuation of application Ser. No. 531,084, Mar. 2, 1966, which in turn is a continuation-in-part of application Ser. No. 180,682, Mar. 19, 1962. This application Feb. 18, 1969, Ser. No. 800,176
Int. Cl. G01n 21/28
U.S. Cl. 23—253 2 Claims



Apparatus for determining the progress of a reaction between reactants which produce a product whose miscibility in a solvent is related to the extent of reaction. As the reaction proceeds, part of the reaction product is continually mixed with a solvent and flowed through a translucent cell mounted between a light source and a photoelectric cell. The temperature of the sample in the cell is either maintained constant during the reaction or is maintained at the changing miscibility temperature during the reaction by signals from the photoelectric cell transmitted to a temperature controller, and is particularly adapted to the oxylation of aliphatic alcohols, alkylphenols, and fatty acids.

3,592,608
ANALYTICAL INSTRUMENT
John U. White, Contentment Island Road, Darien, Conn. 06820
Filed Oct. 9, 1968, Ser. No. 775,985
Int. Cl. G01j 3/48; G01n 21/58, 31/12
U.S. Cl. 23—253 19 Claims



An analytical instrument including a flame source and a detection system for the qualitative and quantitative

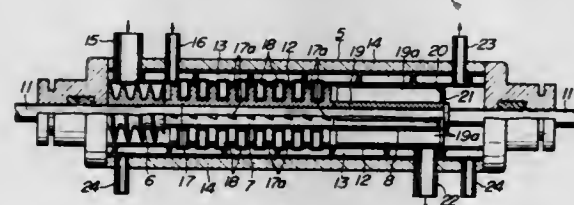
emission or absorption analysis of a sample. The sample is atomized and mixed with an appropriate fuel gas, and the mixture is led through an angularly disposed burner barrel to a grid for holding the flame. Compressed air is supplied to the atomizer, and a portion of the air is directed to a venturi nozzle which is connected to a supply of the fuel gas. The air is effective to draw the fuel gas through the venturi and into the atomizer at a substantially constant rate irrespective of pressure fluctuations in a gas supply. The instrument additionally includes a screen and baffle construction within the angularly extending barrel which is effective to direct large droplets of sample material away from the barrel inlets.

3,592,609

APPARATUS FOR CONTINUOUSLY PRODUCING CHROMIC ANHYDRIDE

Kelzo Honbo, Hokkaido, Japan, assignor to Nippon Denko Co., Ltd., Tokyo, Japan
Filed Feb. 12, 1969, Ser. No. 798,695
Claims priority, application Japan, Feb. 17, 1968, 43/9,721

Int. Cl. B01j 1/00; C01g 37/02; B01d 1/24
U.S. Cl. 23—260 3 Claims



Apparatus adapted for use in producing chromic anhydride which comprises a stationary cylindrical casing of the externally heated type provided with a jacket in which a high-speed rotary conveyor for forcibly moving an alkali metal dichromate forwardly, a high-speed rotary kneader for mixing and kneading said alkali metal dichromate and sulfuric acid to cause them to react with each other and produce a reaction product while moving them forwardly, and a high-speed rotary centrifugal continuous evaporator adapted to form a thin film of said reaction product on cylindrical inner walls to forcibly effect deaeration of the same, are arranged in the indicated order in end to end relation. In the reactor described above, a stationary cylindrical casing section housing said high speed rotary centrifugal continuous evaporator therein may be formed integrally as a unit with a conveying and reaction stationary cylindrical casing section housing said high speed rotary conveyor and said high speed rotary kneader in alignment with the latter section or the said two stationary cylindrical sections may be formed as independent units.

3,592,610

CHEMICAL RECOVERY FURNACE WITH AIR CASCADE EVAPORATOR SYSTEM

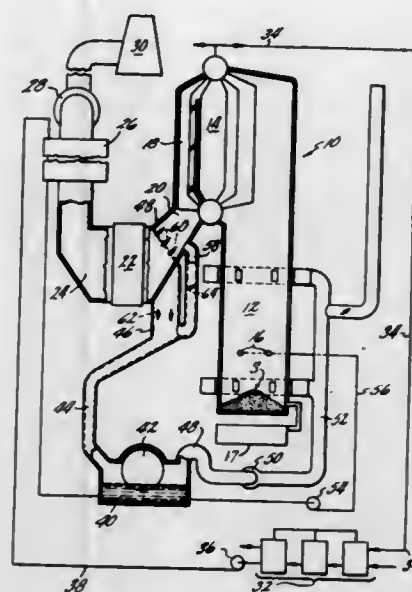
Jay H. Freiday, West Hartford, and George J. Prohazka, Simsbury, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Continuation of application Ser. No. 693,891, Dec. 27, 1967. This application Dec. 17, 1969, Ser. No. 882,762
Int. Cl. B01j 1/00; F28d 19/04

U.S. Cl. 23—262 6 Claims

In a chemical recovery furnace system including a rotary regenerative air heater and an air cascade evaporator, the incoming combustion air supply therefor having been heated in the air heater by the recovery furnace exhaust gases, the placing of the FD (forced draft) fan between the cascade evaporator and the recovery furnace for the purpose of reducing the air-to-gas leakage across

the moving seals of the air heater. Also, there is provided a bypass means between the exhaust outlet from the furnace and the inlet side of the air cascade evaporator to, under certain conditions, selectively form a closed



recirculating heat transfer loop so that a portion of the exhaust gases may be recirculated through the air cascade evaporator and back into the furnace to cool the hot molten furnace smelt in order to reduce the possibility of a smelt-water reaction explosion.

ERRATUM

For Class 23—273 see:
Patent No. 3,592,937

3,592,611

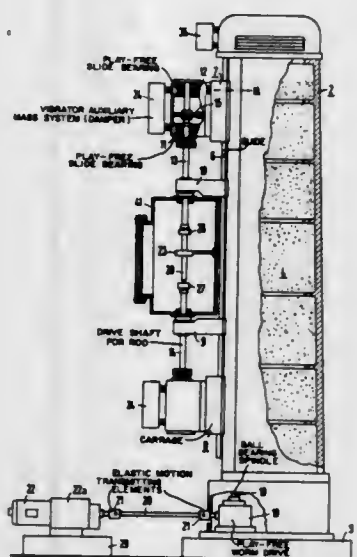
FLOATING-ZONE MELTING APPARATUS

Georg Eder, Ebermannstadt-Furth, Reimer Emeis, Ebermannstadt, and Wolfgang Keller, Pretzfeld, Germany, assignors to Siemens Schuckertwerke Aktiengesellschaft, Berlin and Erlangen, Germany

Original application Oct. 22, 1965, Ser. No. 501,690.
Divided and this application Oct. 25, 1968, Ser. No. 797,296

Claims priority, application Germany, May 7, 1965, S 96,982
Int. Cl. B01j 17/10

U.S. Cl. 23—273 8 Claims



Apparatus for refining a rod according to the floating-zone melting technique includes rotary shaft means adapted to carry and rotate a rod during subjection thereof to the floating-zone melting technique, play-free worm-drive means operatively connected to the rotary shaft

means for rotating the latter, carriage means carrying the rotary shaft means, ball-bearing guide means guiding the carriage means for movement, and rotary ball-bearing spindle means operatively connected to the carriage means for displacing the latter, so that the rod is maintained free of mechanical vibrations during treatment of the rod according to the floating-zone melting technique.

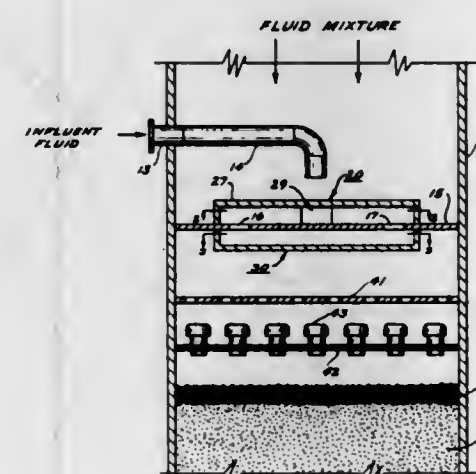
3,592,612

TWO-STAGE APPARATUS FOR MIXING FLUIDS IN CONCURRENT DOWNFLOW RELATIONSHIP

John H. Ballard, 10340 Bogardus Ave., Whittier, Calif. 90603, and Roland F. Deering, 1100 Circle Drive, La Habra, Calif. 90601

Filed Nov. 2, 1966, Ser. No. 591,615
Int. Cl. B01f 3/04, 5/06

U.S. Cl. 23—288 11 Claims



A two-stage fluid mixing device comprising a horizontal tray adapted for installation in a downflow contacting vessel and having a first stage mixing box mounted on its upper surface, a second stage mixing box attached to its under surface and at least two spaced apertures in the tray communicating the mixing boxes. Fluids flowing downwardly within the contacting vessel pass serially through the first stage mixing box, through the apertures in the tray, and then through the second stage mixing box. The contacting vessel includes a horizontal perforate tray extending across the cross-section of the vessel and located immediately below and proximate the mixing device. A horizontal bubble cap tray containing a plurality of downcomers is placed in spaced relationship below the perforated tray and above the solids bed. Each of the downcomers is surmounted by a bubble cap. A plurality of particulate solids bed is positioned in spaced relationship with the mixing device above each of the beds. In one embodiment an intermediate fluid inlet pipe is positioned above the tray and mixing device for introducing fluid into the vessel. In another preferred embodiment an intermediate fluid inlet pipe is located in the annular area between the first stage mixing box and the shell of the vessel. The fluid inlet pipe does not rise substantially above the top of the first mixing box.

3,592,613

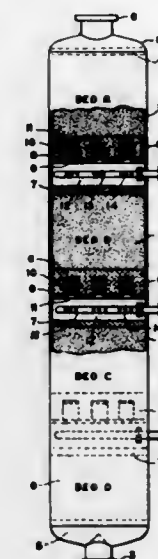
APPARATUS FOR FLUID DISTRIBUTION IN A FLUID-SOLIDS CONTACTING CHAMBER

David M. Boyd, Clarendon Hills, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Dec. 30, 1968, Ser. No. 787,843
Int. Cl. B01j 9/04, 9/02

U.S. Cl. 23—288 7 Claims

A fluid distributing means for use in fluid-solids contact chambers containing a plurality of fixed beds of

particulated contact solids. The means comprises a plurality of fluid downcomers which encompass openings in an impermeate deck plate and rise a finite distance above the plate. The downcomers are perforated to provide greater open area for fluid flow with respect to increasing distance from the face of the plate. A preferred embodiment is a deck containing downcomer means comprising



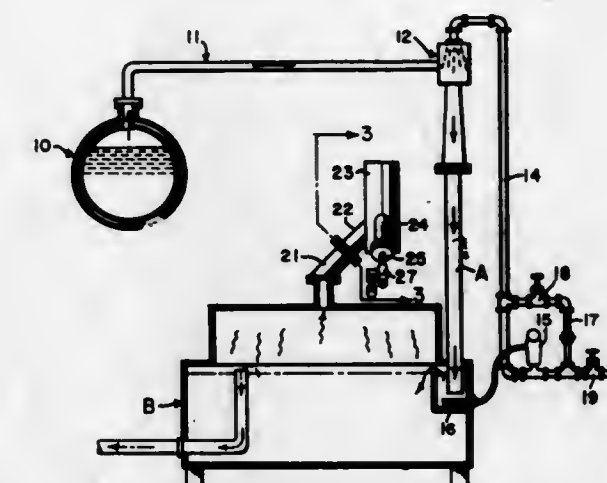
screen means having screen openings of increasing dimension with respect to increasing distance from the deck plate. A further preferred embodiment is a deck containing downcomer means comprising tubular screen means formed by the helical winding of a continuous rod member around a plurality of spaced longitudinal bar members to produce a continuous helical slot opening of continuously increasing slot width.

3,592,614

AFTERBURNER FOR COOKING DEVICE

Carl Oscar Schmidt, Cincinnati, Ohio, assignor to The Cincinnati Butchers Supply Company, Cincinnati, Ohio
Filed Apr. 21, 1969, Ser. No. 818,000
Int. Cl. F23j 5/06; F23g 7/06

U.S. Cl. 23—290.5 10 Claims



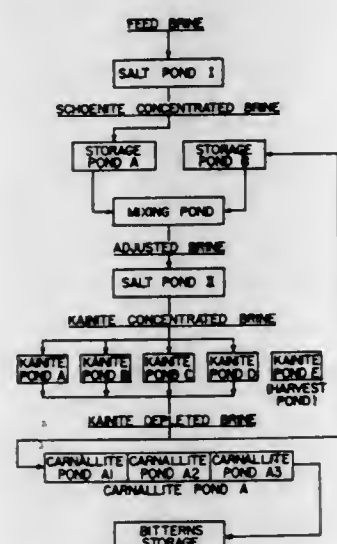
The non-condensable gases from a cooking device are incinerated by the intensely hot high velocity flame of an afterburner which is self contained and may be associated with any exhaust pipe in which non-condensable gases are present. The flame of the device is produced in an area in which water from the incinerated gases cannot extinguish the flame.

3,592,615

METHOD FOR PRODUCING POTASSIUM SALTS BY SOLAR EVAPORATION OF NATURAL BRINES
Ulrich E. G. Neitzel, Ogden, Utah, assignor to Great Salt Lake Minerals & Chemical Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 735,840, June 10, 1968. This application Aug. 28, 1968, Ser. No. 756,071

Int. Cl. B01d 9/00; C13k 1/10
U.S. Cl. 23—297



At the close of an evaporation season, the brines of a solar pond system that include salt ponds, kainite ponds, and carnallite ponds are manipulated to take advantage of the winter weather. The kainite crystal crops are enhanced in grade due to the influence of winter precipitation. Additional potassium-containing and sulfate-containing solids are recovered from the brines under the influence of winter temperatures. Brines produced during the non-evaporation season are stored for use during the next evaporation season, thereby increasing the annual productivity of the solar pond system.

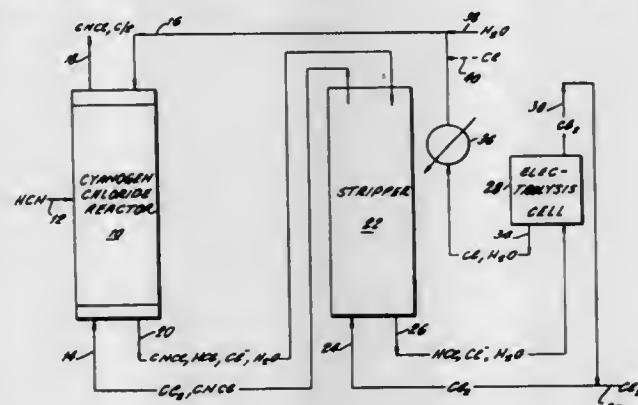
3,592,616

PROCESS FOR THE CONTINUOUS PRODUCTION OF CYANOGEN CHLORIDE

William S. Durrell and Robert J. Eckert, Jr., Mobile, Ala., assignors to Geigy Chemical Corporation, Ardsley, N.Y.

Filed May 15, 1968, Ser. No. 729,239

Int. Cl. C01c 3/00; C01b 7/08, 7/02
U.S. Cl. 23—359



Cyanogen chloride is prepared in improved yield by a continuous process involving the electrolysis and recycle of hydrochloric acid formed as a by-product during the production of cyanogen chloride by reaction of hydrogen cyanide and chlorine gas. The recycle of chlorine formed in such electrolysis, as well as the hydrochloric acid-containing aqueous effluent therefrom, decreases the quantity of chlorine feed gas required for cyanogen chloride formation, manifestly improving the economics of such synthesis.

PRODUCING SMOKELESS-BRIQUETTES FROM BITUMINOUS COAL, SUB-BITUMINOUS COAL, OR LIGNITE

Sadrettin Alpan, Posta Caddesi 106/3, Cakaya, Ankara, Turkey, and Karl Alfred Jappelt, Hotel Berlin, Hisar Caddesi 7, Ulus, Ankara, Turkey

Filed May 12, 1969, Ser. No. 823,657

Claims priority, application Turkey, May 11, 1968, 25,740/5,929, Patent 14,873

Int. Cl. C101 5/00

U.S. Cl. 44—10H
A process for producing smokeless-briquettes from bituminous or sub-bituminous coal or lignite by hot-briquetting, comprising speedily drying the coal or lignite, preheating it to 340–420° C. without pressure, and finally heating it under pressure until the tar vapours have completely escaped.

5 Claims

3,592,618

ABRASIVE ARTICLE HAVING A METAL FILLER AND AN ACTIVE FILLER

Gardner E. Alden, Fayville, Mass., assignor to Avco Corporation, Cincinnati, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 523,523, Jan. 28, 1966. This application Mar. 10, 1969, Ser. No. 805,799

Int. Cl. C08g 51/12; B24d 3/02

U.S. Cl. 51—298

The invention covers an abrasive article which is constructed with two or more filled constituents that co-react to form a grinding aid. Generally, the fillers comprise a metal and a metal salt which upon the application of heat react to improve the grinding efficiency when compared with abrasive articles containing either of the two constituents that make up the novel filler combination. One of the preferred filler constituents is a reinforcing substance; the other is an active grinding aid.

7 Claims

3,592,619

HIGH-SILICA GLASS FOAM METHOD

Thomas H. Elmer and Henry D. Middaugh, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.

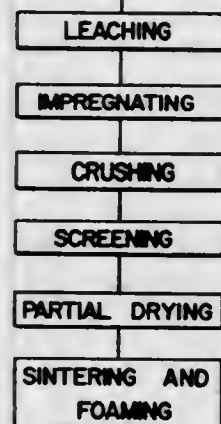
Filed Apr. 14, 1969, Ser. No. 815,897

Int. Cl. C03b 19/08, 33/00

U.S. Cl. 65—22

9 Claims

BOROSILICATE GLASS



HIGH-SILICA GLASS FOAM

A method of making a high-silica glass foam by forming a body of borosilicate glass containing not more than about 70% by weight of silica, the glass being capable of separating into a silica-rich phase and a silica-poor phase, treating the glass with a mineral acid to remove the silica-poor phase and leave a high silica body having a porous structure, impregnating the porous body with a boric oxide solution, crushing and screening the porous body, drying the particulated material to remove excess

water, and sintering and foaming the particulated material to form a fused, a low expansion, high silicaglass foam.

3,592,620

METHOD OF HEAT SEALING THE OUTER LAYERS OF A GLASS LAMINATE

Anthony R. Carlisi, Elmira, Joseph J. Domicone, Horseheads, and Leon P. Pelletier, Schenectady, N.Y., assignors to Corning Glass Works, Corning, N.Y.

No Drawing. Filed Aug. 21, 1968, Ser. No. 754,479

Int. Cl. C03b 23/20

U.S. Cl. 65—30

4 Claims

This invention relates to a method, and the product resulting therefrom, for closing the gap at the edge of a laminated structure, by flame heating the gap and introducing into the flame at least one compound thermally decomposable to at least one glass network forming oxide selected from the group consisting of SiO₂ and B₂O₃, so as to in combination lower the surface tension of the adhered glass layer and deposit a layer of glass having properties similar to that of the adhered layer; thereby sealing the edge gap and completely enveloping the core portion of the laminate.

3,592,621

VACUUM TAKE-OUT ASSEMBLY FOR GLASS MAKING APPARATUS

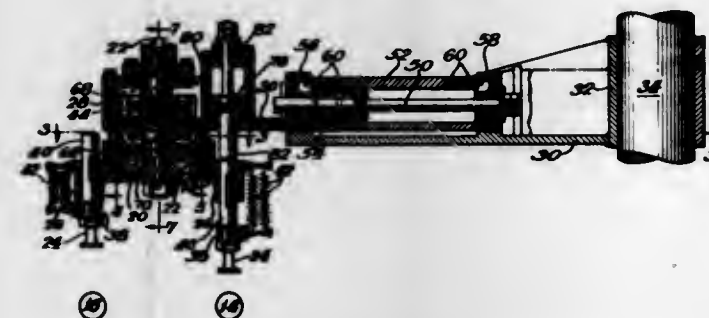
Kenneth R. Hileman, Anderson, Ind., assignor to Lynch Corporation, Anderson, Ind.

Filed Sept. 20, 1968, Ser. No. 761,108

Int. Cl. C03b 9/04

U.S. Cl. 65—260

6 Claims



A take-out assembly for glassware forming machines having an oscillatable cross arm, each end of the cross arm carrying an engaging and supporting means for a molded article and operable to remove the molded article from a mold of a mold carrier member, oscillate 180°, and deposit the article on a take-away conveyor. By providing an engaging and supporting means for each end of the cross arm, in one take-out cycle one end of the arm is operable to remove a molded article from a mold while at the same time the other end is operable to deposit a molded article on the take-away conveyor. Fluid pressure operated means in the form of a cylinder, piston therein, and a rack and pinion connection with a shaft for the cross arm, oscillates the cross arm with a shorter stroke and accordingly less momentum and inertia than the usual type of reciprocating take-out arrangement. Means is provided at the take-out station for lowering the molded article engaging and supporting member relative to the cross arm and into engagement with the molded article, and then lifting the article out of the mold. The article engaging and supporting members are of the vacuum type, automatic vacuum valves being provided to communicate a source of vacuum with the engaging and supporting means when engaged with the molded article and while lifting it and transferring it to the take-away conveyor whereupon the vacuum is released from the engaging and supporting means to permit the article to be deposited on the take-away conveyor.

3,592,622

OXY-FUEL ACCELERATED GLASS MELTING FURNACE AND METHOD OF OPERATION

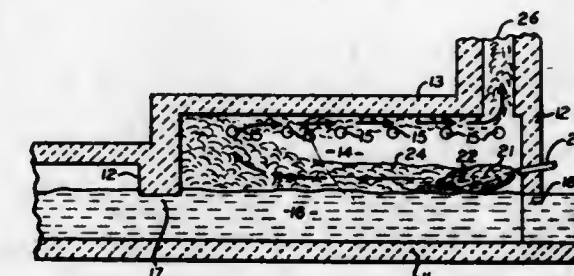
Thomas L. Shepherd, Essex Fells, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y.

Filed June 5, 1968, Ser. No. 734,611

Int. Cl. C03b 5/04

U.S. Cl. 65—135

17 Claims



This specification discloses a method and apparatus for raising the temperature of the glass in a glass-fining furnace without producing a corresponding increase in the temperature of the crown of the furnace. The improved result is obtained by using auxiliary heat from an oxy-fuel burner flame projected into the furnace as a non-luminous flame, having low radiation. The flame is projected in the direction of the greater length of the furnace and from a level above the glass and downward at an angle which permits the combustion of the burner flame to be substantially complete before the products of combustion of the flame jet brushes the top surface of the molten glass. Heat is transferred from the products of combustion to the glass mainly by convection.

3,592,623

GLASS MELTING FURNACE AND METHOD OF OPERATING IT

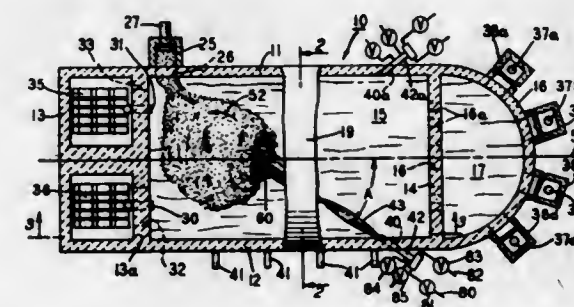
Thomas L. Shepherd, Essex Fells, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y.

Continuation-in-part of application Ser. No. 734,611, June 15, 1968. This application Apr. 4, 1969, Ser. No. 813,505

Int. Cl. C03b 5/04

U.S. Cl. 65—135

26 Claims



This invention relates to a method and apparatus for increasing the melting rate in a glass tank utilizing oxy-fuel combustion techniques. More particularly, an oxy-fuel flame is directed toward the feed end of a glass tank so as to control the location and melting of the raw glass batch materials that are added to the melting zone.

3,592,624

SCOOP OPERATING MECHANISM FOR A MOLTEN GLASS DELIVERY SYSTEM

Francis A. Dahms, Tariffville, Conn., assignor to Emhart Corporation, Bloomfield, Conn.

Filed Sept. 20, 1968, Ser. No. 761,258

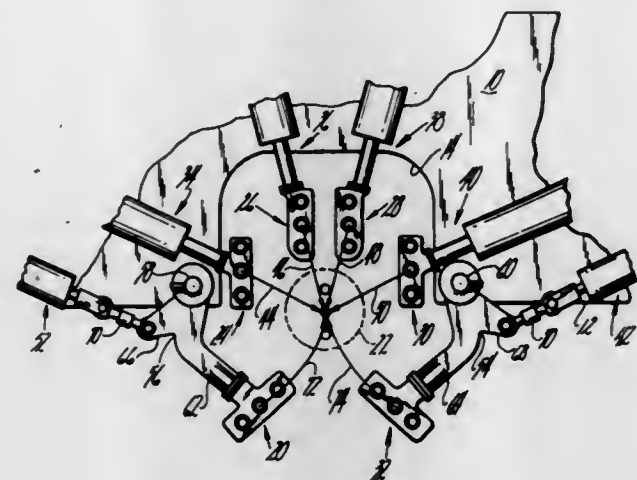
Int. Cl. C03b 7/00

U.S. Cl. 65—304

4 Claims

A plurality of scoop operating fluid motors are mounted in a semi-circular pattern atop a triple gob glassware forming machine for successively moving a plu-

rality of scoops from and to active positions beneath a triple gob feeder bowl. The machine is a six section Hartford I. S. machine, and has triple gob scoops associated with each section. Four of the six scoops are connected directly to the reciprocating parts of four of the fluid



motors, and the two end scoops are connected to one arm of a horizontally pivotable bellcrank mounted to the machine frame, the bellcrank having a second arm which is driven by one of the two endmost fluid motors through a short intermediate link, to move its associated scoop arcuately in a horizontal plane.

ERRATUM

For Class 65—334 see:
Patent No. 3,592,938

3,592,625 FERTILIZER

Willi Burkhardt, Chur/Gross, and Kurt Hungerbühler, Rieden, near Nussbaumen, Switzerland, assignors to Inventa A.G. für Forschung und Patentverwertung Zürich

No Drawing. Continuation-in-part of application Ser. No. 476,691, Aug. 2, 1965. This application Apr. 13, 1970, Ser. No. 28,042

Int. Cl. C05c 9/00

U.S. Cl. 71—28 8 Claims
(2-chloroethyl)-trimethylammonium chloride or (2-bromoethyl)-trimethylammonium bromide is added to a urea melt containing 10–20% water. The mixture is homogenized, then prilled. An ammoniacal urea melt may be employed. The ammoniacal urea melt has a pH of 8–11.

3,592,626 METHOD OF DESICCATING FOLIAGE OF A CROP

Basil Jason Heywood, Hornchurch, and William George Leeds, London, England, assignors to May & Baker Limited, Dagenham, Essex, England

No Drawing. Continuation-in-part of application Ser. No. 751,374, Aug. 9, 1968, which is a continuation-in-part of application Ser. No. 546,606, May 2, 1966, which in turn is a continuation-in-part of applications Ser. No. 309,398, Sept. 17, 1963, and Ser. No. 389,482, Aug. 14, 1964. This application Apr. 22, 1970, Ser. No. 30,997

Int. Cl. A01n 9/00; C11c 3/00

U.S. Cl. 71—70 1 Claim
3,5-dibromo- and 3,5-diiodo-4-n-octanoyloxybenzonitriles are disclosed as herbicides. They are particularly useful for treatment of broad-leaved weeds in graminaceous crops, and for desiccating the foliage of potato,

cotton, hop and leguminous seed crops. Enhanced activity compared with the parent hydroxybenzonitriles is described.

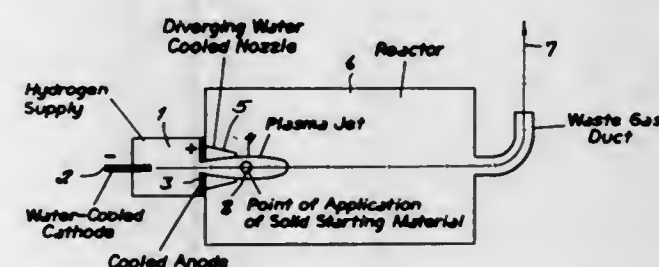
3,592,627 PRODUCTION OF PARTICULATE, NON-PYROPHORIC METALS

Ernst Neuenchwander, Basel, Switzerland, assignor to Hermann C. Starck Berlin, Berlin, Germany

Original application June 7, 1966, Ser. No. 555,859, now Patent No. 3,475,158, dated Oct. 28, 1969. Divided and this application Mar. 20, 1969, Ser. No. 832,518

Int. Cl. C22b 9/14; C22d 5/00; B22f 9/00

U.S. Cl. 75—5BB 1 Claim



Rhenium powder having an average particle size from 0.005 to 0.03 micron, an oxygen content not exceeding 3 mg. per square meter of surface, and is non-pyrophoric is disclosed.

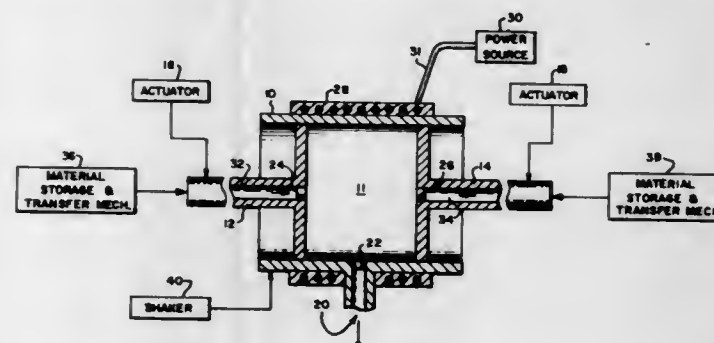
3,592,628 METHOD OF MAKING FOAMED MATERIALS IN ZERO GRAVITY

Hans F. Wuenschel, Huntsville, Ala., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Oct. 22, 1968, Ser. No. 769,665

Int. Cl. C21c 7/00; C22c 1/08

U.S. Cl. 75—20F 3 Claims



A method of making homogeneous foamed materials by mixing two or more materials having different physical properties in a zero-gravity environment. The materials are stored as liquids, gases and solids, the solid materials being in particles like powders and fibers. When making a homogeneous solid structure from two or more solid materials the solid materials are heated to change the state of one or more of the materials to a liquid for mixing. A foamed material can be made by decomposition of one material in a liquid or by injection of an inert gas into a liquid. Inert gas can also be injected into a homogeneous mixture of a liquid and solid particles. The mixture is then agitated so as to form a homogeneous mixture of solids in liquids or gases in liquids. Due to the absence of gravity forces, i.e., dead weight, it is possible to uniformly disperse solid particles or a gas within a liquid and there is no tendency to separate out since settling of the heavier materials is eliminated. Since there is no tendency to separate the mixture can be cooled at length to form a desired homogeneous material.

3,592,629 METHOD FOR REFINING MOLTEN METAL

Ryo Ando and Tutomu Fukushima, Yokohama-shi, Eichi Hiraguchi, Hiroshima-ken, and Kokichi Hagiwara, Yokohama-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

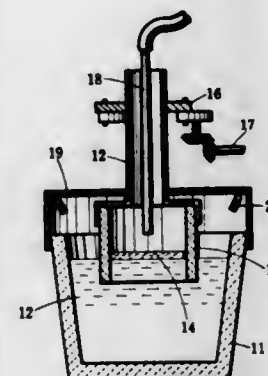
Filed July 25, 1967, Ser. No. 655,921

Claims priority, application Japan, July 28, 1966, 41/49,179

Int. Cl. C21c 5/28; 7/02

U.S. Cl. 75—58

7 Claims



A method for refining a molten metal such as molten pig iron. The molten metal which contains impurities is poured into a vessel such as a suitable ladle. A purifying agent which reacts with the molten metal to eliminate at least part of the impurities thereof is added to the molten metal. Then the molten metal to which the purifying agent has been added is stirred only in the region of the surface of the molten metal. The adding of the purifying agent to the molten metal and the stirring thereof takes place after the molten metal has been poured into the vessel during a period of time when parts of the body of molten metal within the vessel are still in motion. In the case of pig iron this period of time has a duration of at least one hour.

3,592,630 REMOVAL OF OFF-GASES FROM OXYGEN STEEL CONVERTERS

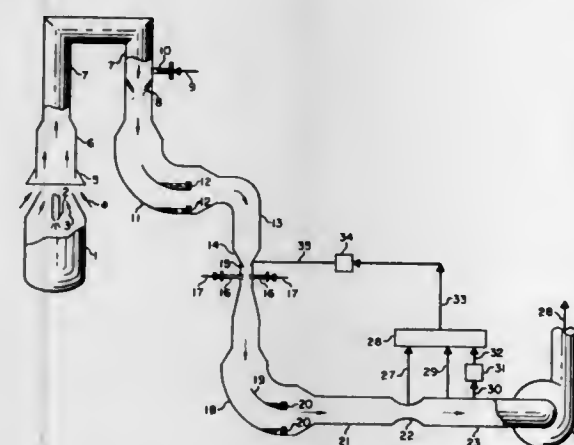
Howard P. Willett, Darien, Conn., assignor to Chemical Construction Corporation, New York, N.Y.

Filed May 3, 1968, Ser. No. 726,332

Int. Cl. C21c 5/38

U.S. Cl. 75—60

12 Claims



Off-gas is removed from an oxygen steel converter through an air-ventilated hood. Oxygen in the inducted air reacts within the hood with carbon monoxide in the off-gas, and the resulting hot gas mixture is quenched, usually by direct contact with water. The flow rate of the dry gas component of the resulting cold gas mixture is measured and the mixture flow rate is regulated, to provide essentially constant dry gas flow rate during all intervals between and during the blow period and the magnitude of the flow rate is controlled at a level which provides an excess of air at the onset interval and

termination interval of the blow period, and a deficiency of air at the peak of the blow period. The gas mixture removed from the hood at the onset and termination intervals of the blow period contains an excess of free oxygen, while the gas mixture removed at the peak of the blow period contains an excess of carbon monoxide. Between the periods of excess free oxygen content and excess carbon monoxide content, an inert gas mixture principally containing nitrogen and carbon dioxide is removed from the hood. The interval of inert gas mixture flow effectively separates the gas mixture containing free oxygen from the gas mixture containing carbon monoxide, and permits the removal of off-gas from the air-ventilated hood using a deficiency of inducted air below the stoichiometric requirement for the total carbon monoxide combustion at the peak of the blow period, while preventing the formation of an explosive gas mixture in the gas stream removed from the hood throughout the blow period. An important feature of this invention is the complete separation and lack of dependency of the steel making function on the gas collecting and cleaning function.

3,592,631 METHOD FOR TREATING ZINC BLAST FURNACE GASES

Claude Cattelain, Douai, France, assignor to Metallurgical Processes Limited, Nassau, Bahamas, and Imperial Smelting Corporation (N.S.C.) Limited, London, England, doing business as Metallurgical Development Company

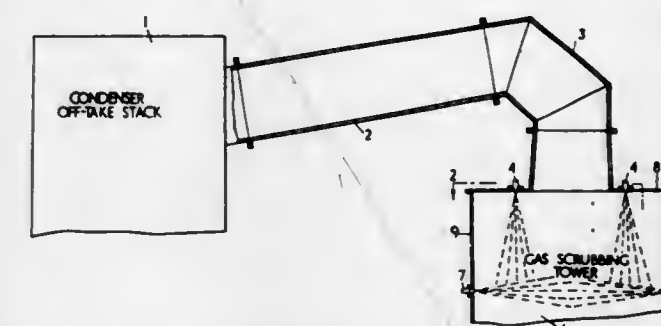
Filed Apr. 11, 1968, Ser. No. 720,535

Claims priority, application Great Britain, Apr. 25, 1967, 19,004/67

Int. Cl. C22b 19/08

U.S. Cl. 75—88

2 Claims



A dry crossover duct without irrigation means for conveying zinc blast furnace exit gases, connects a condenser with a scrubbing tower, the duct being sloped upwardly towards the scrubbing tower to return liquid metal to the condenser. The scrubbing tower includes sprays for cooling and saturating the gases in space within the scrubbing tower in order to avoid accretion at the end of the duct or tower.

ERRATUM

For Class 75—108 see:
Patent No. 3,592,939

3,592,632 HIGH TEMPERATURE NICKEL-CHROMIUM-IRON ALLOYS PARTICULARLY SUITABLE FOR STEAM POWER APPLICATIONS

Robert C. Gibson, Ringwood, N.J., and Glenn W. Tuffnell, Warwick, N.Y., assignors to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed July 14, 1966, Ser. No. 565,083

Int. Cl. C22c 37/10, 39/02

U.S. Cl. 75—124

11 Claims

A nickel-iron-chromium alloy containing molybdenum and/or tungsten and beneficially aluminum, titanium and

carbon, the constituents being so correlated as to provide highly useful properties which enable the alloy to be used for such applications as superheater tubes.

3,592,633

HIGH STRENGTH LOW ALLOY STEEL POSSESSING SUFFICIENT WELDABILITY CONTAINING SMALL AMOUNTS OF Nb, Ti, AND B

Tatsumi Osuka, Junichi Tanaka, Michio Hayashida, and Yoshiaki Ono, Kawasaki-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha
No Drawing. Filed Jan. 22, 1969, Ser. No. 802,715
Claims priority, application Japan, Jan. 22, 1968, 43/3,389

Int. Cl. C22c 37/10, 39/02

U.S. Cl. 75—124

4 Claims

High-strength low-alloy steel keeping yield strength of more than 70 kg./mm.² in a further coordinated relationship with specific small amounts of alloying ingredients, particularly Nb+Ti+B, and possessing good toughness and sufficient weldability through an ordinary quench-temper heat-treatment.

3,592,634

HIGH-STRENGTH CORROSION-RESISTANT STAINLESS STEEL

Elbert E. Denhard, Jr., Towson, Md., D Cameron Perry, Middletown, Ohio, and Robert R. Gangh, Lutherville, Md., assignors to Armco Steel Corporation, Middletown, Ohio
No Drawing. Filed Apr. 30, 1968, Ser. No. 725,516

Int. Cl. C22c 39/20

U.S. Cl. 75—128A

17 Claims

Chromium-nickel-manganese steel characterized by good welding properties, which steel in the as-welded condition enjoys a combination of strength, ductility and impact resistance, along with good resistance to intergranular corrosion and good resistance to general corrosive attack. The steel contains about 20% to 25% chromium, about 6% to 17% nickel, about 3.5% to 7% manganese, about .15% to .50% nitrogen, with carbon not exceeding about .08, and with at least one of the three ingredients molybdenum, columbium and vanadium. For a best combination of properties at least two of the three ingredients are employed.

3,592,635

HIGH-TEMPERATURE CORROSION-RESISTANT STEEL

Kunio Kusaka, Yokohama, Takasi Igari, Kawasaki, and Kunio Sueyoshi and Hiroshi Fujishiro, Hatano, Japan; said Sueyoshi and Fujishiro assignors to Nittan Valve Company, Ltd., Tokyo, Japan, and said Kusaka and Igari assignors to Tokushu Seiko Company, Ltd., Kawasaki, Japan
No Drawing. Filed Mar. 4, 1969, Ser. No. 804,271
Claims priority, application Japan, Sept. 11, 1968, 43/64,919

Int. Cl. C22c 39/20

U.S. Cl. 75—128N

7 Claims

This patent relates to corrosion-resistant austenitic steels possessing improved mechanical and chemical resistance properties at high temperatures. The invention is more specially though not exclusively directed to such steels having improved corrosion-resistant characteristics in the presence of vanadium pentoxide and which will consequently be highly suitable for use in the construction of certain part of internal combustion engines, including especially the valves thereof, which are liable to be exposed to the combustion products of low grade residual fuels oils for the operation of present-day marine engines.

This invention disclosed that the above mentioned desirable results are obtained in certain chromium-containing austenitic steels by using composition that exhibit

the following features: (1) The use of a carbon content within a restricted range of about 0.30 to 0.70%, (2) the use of silicon contents of 1.10 to 2.5%, (3) manganese of 5.0 to 12.0%, (4) nickel of 2.0 to 7.0%, (5) chromium of 18.0 to 25.0%, (6) nitrogen of 0.20 to 0.60%, (7) arsenic of 0.02 to 0.40%, (8) the use of boron in amounts up to 0.1%, (9) the use of sulfur in substantial amounts up to 0.1% all by weight, the balance being substantially iron with incidental impurities.

3,592,636

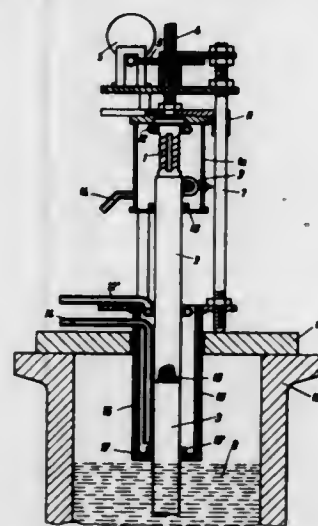
MANUFACTURE OF ALLOYS

Reimar Pohlman, Aachen, Klaus Groove, Neuss, and Walter Fichtl, Buttgen-Vorst, Germany, assignors to Groove & Welter, Neuss, Germany
Filed Oct. 28, 1968, Ser. No. 771,028
Claims priority, application Germany, Oct. 31, 1967, G 51,503

Int. Cl. C22c 1/00

U.S. Cl. 75—135

9 Claims



This invention relates to the introduction of a controlled quantity of a high melting component into a melt of a low melting base metal. This is effected by feeding a rod of the high melting component into the above melt, while the said rod is subjected to a sonic vibration, and at the same time, that portion of the rod protruding above the level of the melt is cooled.

This melt ensures that the manufacture of alloys is effected with great accuracy, simplicity and economy.

3,592,637

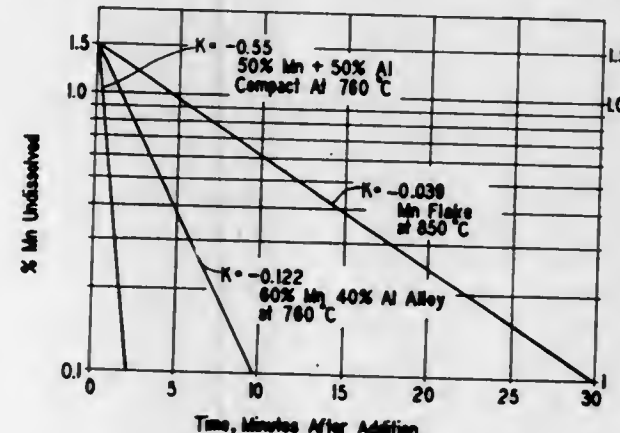
METHOD FOR ADDING METAL TO MOLTEN METAL BATHS

Charles M. Brown, Lewiston, Nicholas J. Pappas, Snyder, and Harry J. Brown, Lewiston, N.Y., assignors to Union Carbide Corporation
Filed Feb. 26, 1968, Ser. No. 708,267

Int. Cl. C22c 1/02

U.S. Cl. 75—138

11 Claims



A method of addition of a metal to a molten metal bath by mixing the aluminum to be dissolved in finely

divided form with a solution promoting aluminum, also in finely divided form, and adding the mixture to molten metal.

3,592,638

ALLOY

William R. Freeman, Jr., Easton, Conn., assignor to Avco Corporation, Stratford, Conn.
No Drawing. Filed Aug. 22, 1969, Ser. No. 852,499

Int. Cl. C22c 19/00

U.S. Cl. 75—171

11 Claims

A cobalt-base metal alloy with superior high temperature properties.

3,592,639

TANTALUM-TUNGSTEN ALLOY

Mortimer Schussler, Joppa, and Victor T. Bates, Millersville, Md., assignors to Fansteel Inc.

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,721

Int. Cl. C22c 27/00

U.S. Cl. 75—174

5 Claims

A novel alloy is disclosed consisting essentially of from 1.5 to 3.5 weight percent of tungsten, the balance of the alloy being essentially tantalum. Optionally, the alloy contains from 0.05 to 0.5 weight percent of columbium. These alloys have improved strength when compared with pure tantalum, yet they are cold workable in conventional equipment for cold-working tantalum, unlike the known tantalum-tungsten alloys having higher concentrations of tungsten. Also, the alloys disclosed herein show improved corrosion resistance over pure tantalum and the known tantalum-tungsten alloys having a higher tungsten concentration.

3,592,640

PROCESS FOR PREPARING A PLANOGRAPHIC PRINTING MASTER

Jozef Leonard Van Engeland, Saint Katelijnewaver, Noel Jozef De Volder, Edegem, and Jozef Frans Willems, Wilrijk, Belgium, assignors to Gevaert-Agfa N.V.
No Drawing. Filed Mar. 6, 1968, Ser. No. 710,730
Claims priority, application Great Britain, Mar. 6, 1967, 10,477/67

Int. Cl. G03f 7/02; G03g 13/00

U.S. Cl. 96—1

7 Claims

A planographic printing plate obtaining by xerographic exposure and development is hydrophilized with an aqueous solution containing the partial ester of a phosphorus oxy acid with a polyhydroxy lower aliphatic compound or a polyhydroxy cyclohexane.

3,592,641

PROCESS FOR REDUCTION OF AFLATOXIN CONTENT OF OILSEED MEALS BY OZONIZATION

Eric T. Rayner, New Orleans, La., Channasamudram T. Dwarakanath, Mysore, India, and Godfrey E. Mann, New Orleans, and Frank G. Dollear, Pearl River, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Jan. 30, 1969, Ser. No. 795,331

Int. Cl. A23k 1/00

U.S. Cl. 99—2

3 Claims

This invention relates to a process for lowering the aflatoxin level in peanut and cottonseed meals contaminated with aflatoxin. Contaminated cottonseed and peanut meals hydrated to a level of 22% and 30% respectively were contacted with ozone gas in a covered vessel at atmospheric pressure and heated to temperatures about from 75° C. to 100° C. for periods of about from 60 to 120 minutes to achieve substantial lowering of the aflatoxin content.

3,592,642

DUPLICATING METHOD WHEREIN A PAPER SHEET HEATED TO THE MELTING POINT OF A TONER IMAGE SIMULTANEOUSLY CAUSES THE TRANSFER OF THE TONER FROM THE PHOTOCONDUCTOR AND FUSING OF THE TONER IMAGE ON THE PAPER SHEET

Norbert H. Kaupp, Newark, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed Nov. 21, 1966, Ser. No. 595,752

Int. Cl. G03g 13/14

U.S. Cl. 96—1.4

2 Claims

This invention deals with the simultaneous transfer and fusing of a toner image from a photoconductive layer to an ordinary paper sheet which is heated to the fusion temperature of the toner but below the charring temperature of the paper and brought into contact with the photoconductive layer and removed to transfer the toner image.

3,592,643

PHOTOCONDUCTIVE CADMIUM SULFIDE COMPOSITION AND PROCESS OF PREPARING

John J. Bartfal, Schenectady, N.Y., assignor to General Electric Company

No Drawing. Filed Aug. 15, 1968, Ser. No. 752,751

Int. Cl. G03g 5/00

U.S. Cl. 96—1.5

12 Claims

A photoconductive polymer composition and process of preparing is described in which the composition is comprised of a substantially non-photoconductive polymer having dispersed therein photoconductive precipitated cadmium sulfide particles no greater than about 1/2 micron, the surfaces of said cadmium sulfide particles being pre-coated with a dispersing agent.

3,592,644

THERMORECORDING AND REPRODUCTION OF GRAPHIC INFORMATION

Marcel Nicolas Vrancken, Hove, and Daniel Alois Claeys and Eric Maria Brinckman, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed Oct. 24, 1967, Ser. No. 677,751

Claims priority, application Great Britain, Oct. 24, 1966, 47,628/66

Int. Cl. G03c 5/04

U.S. Cl. 96—27

22 Claims

A recording layer of finely divided thermoplastic particles is imagewise heated to water-impermeability and a meltable material like a wax which melts below the temperature of water-impermeability of the thermoplastic particles and is either carried in the thermoplastic particle layer or in a layer under it is heated to melting and diffuses through the unheated areas of the thermoplastic particle layer to a receiving support.

3,592,645

COLOR PRINTS OF IMPROVED BRIGHTNESS

Walter J. Weyerts and Gladys L. MacIntyre, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 30, 1967, Ser. No. 664,257

Int. Cl. G03c 5/54, 1/60

U.S. Cl. 96—29D

16 Claims

Color prints having increased brightness and with whiter print borders are produced by the inclusion of an optical brightening agent in the image receiving element of a dye developer diffusion transfer system. The brightener is placed intermediate a support layer and a dye-mordant layer in the image reception element.

3,592,646 DIAZO COMPOUNDS AND PHOTOGRAPHIC ELEMENTS

Colin Holstead, Abbotts Langley, England, and Wojciech Maria Prezdziecki, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Mar. 20, 1968, Ser. No. 714,415
Claims priority, application Great Britain, Mar. 31, 1967, 14,953/67

Int. Cl. G03f 7/08; G03c 1/54

U.S. Cl. 96—33 19 Claims
A light-sensitive 1,2-diazo ketone trihalomethane compound is employed in photographic elements with or without gelatin or an alkali-insoluble polymer wherein both positive or negative images are obtained with utility in photomechanical reproductions and photoresist applications.

3,592,647 PROCESS FOR IMPROVING PLANOGRAPHIC OFFSET PRINTING PLATES

Ralph Kingsley Blake, Westfield, N.J., and Michael P. Dunkle, Towanda, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed June 7, 1967, Ser. No. 644,092

Int. Cl. G03f 7/02

U.S. Cl. 96—33 8 Claims
A process of image reproduction which comprises: (a) image-wise exposing a silver halide emulsion on a support; (b) forming a metallic silver surface image in the unexposed areas by silver transfer development; (c) treating the surface of the element with a solution of an adjuvant which renders the unexposed areas more oleophobic than the exposed areas; and (d) using the element to print by lithography.

3,592,648 DYE TRANSFER PROCESS FOR FORMING MOTION PICTURE SOUND TRACK

Juergen H. H. Keller and Robert H. Sprague, Chelmsford, Mass., assignors to Itel Corporation, Lexington, Mass.

No Drawing. Filed Apr. 4, 1969, Ser. No. 813,759

Int. Cl. G03c 5/14

U.S. Cl. 96—39 3 Claims
A light-absorptive image is placed on a record surface, such as a sound track on film, by forming a hardened gelatin or similar absorptive image, imbibing a dye into the image, transferring the dye to the record surface and fixing or mordanting the dye therein. The dye, normally highly unstable, is unexpectedly light stable in its mordanted form, and absorbs radiation in the range from about 650 to 1000 nm. Suitable dyes are certain cyanine dyes.

3,592,649 COLOR PHOTOGRAPHIC PROCESS FOR PRODUCING VISUALLY TRANSPARENT BUT PHOTOGRAPHICALLY OPAQUE PHOTOMASKS

Harry N. Parsonage and Melvyn I. Kruger, Dayton, Ohio, assignors to The Mead Corporation, Dayton, Ohio

No Drawing. Filed Apr. 21, 1967, Ser. No. 632,568

Int. Cl. G03c 5/00, 7/00

U.S. Cl. 96—36 22 Claims
Photomasks and a process for producing the same which comprises prehardening a high resolution photographic plate containing a latent photographic image in a prehardening bath, developing the plate in a developer containing a magenta and a yellow dye coupler and appropriate developing agents and then bleaching and stabilizing the resultant plate. A photomask is obtained containing a dye image in place of the normal opaque background. It is useful in photomechanical reproduction, particularly with positive photoresists in the production of semiconductive devices, and especially where multiple registering and printing operations are required.

3,592,650 LIGHT AND HEAT SENSITIVE SYSTEM COMPRISING A LEUCO BASE OF A DIALKYLAMINO POLYARYLMETHANE DYE QUATERNIZED TO THE MAXIMUM EXTENT

Roy C. De Selms, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 1, 1969, Ser. No. 846,964

Int. Cl. G01n 21/34; G03c 5/24

U.S. Cl. 96—48 22 Claims
The leuco base of a polyarylmethane dye, such as crystal violet or malachite green, which has been quaternized to the maximum extent with an alkyl iodide, such as methyl iodide, is a radiation-sensitive material which is useful in the preparation of images by thermographic and photothermographic processes. Images in a variety of colors can be prepared from elements containing this material by imagewise exposure to heat or by imagewise exposure to ultraviolet radiation or halogen vapor, preceded or followed by uniform exposure to heat.

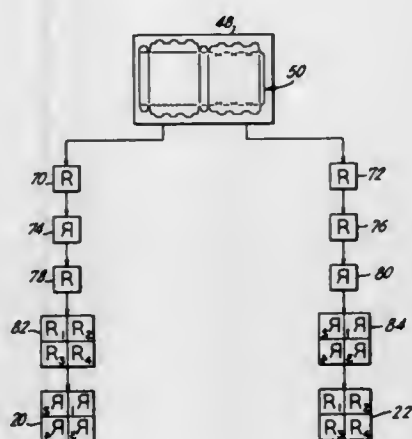
3,592,651 METHOD FOR MAKING DIES

Carl John Klemm, Appleton, Wis., and Richard August Tietz, Streamwood, Ill., assignors to American Can Company, New York, N.Y.

Filed Nov. 12, 1968, Ser. No. 774,716

Int. Cl. G03c 5/00

U.S. Cl. 96—36 3 Claims



A die for cutting paperboard material or the like comprises a pair of die plates having coating cutting elements which partially overlap in the plane of the material to be cut. In making the die plates, two separate images representing the male and female cutting elements are separately stepped and repeated onto two separate sheets of film to provide multiple, like images thereon. One of the separate images is stepped and repeated through the base of the raw film on which the multiple, like images are imposed whereby each step and repeat operation onto the two separate sheets of film are effected in the same sequential order leading toward production of a pair of matched, coating die plates.

3,592,652 PHOTOGRAPHIC SILVER HALIDE DEVELOPER COMPOSITIONS AND NOVEL DEVELOPING AGENTS

Charleton C. Bard, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 639,274, May 18, 1967. This application Feb. 20, 1969, Ser. No. 801,138

Int. Cl. G03c 5/30, 7/00

U.S. Cl. 96—55 13 Claims
Monocyclic and bicyclic phenols containing at least one sulfonamido group, especially an aromatic sulfonamido group, and a nitrogen containing radical (which may be a

sulfonamido group), are described. They are photographic silver halide developing agents for black-and-white development, but are especially useful as competing or balancing developing agents in photographic color developers to control amount of dye produced by the color developer, especially those containing the color-former or coupler.

3,592,653 SILVER HALIDE EMULSIONS CONTAINING PYRROLE CYANINE DYES

Arthur Fumia, Jr., Hilton, and Donald W. Heseltine, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 5, 1967, Ser. No. 673,001

Int. Cl. G03c 1/10, 1/36

U.S. Cl. 96—101 29 Claims
Novel cyanine dyes which feature a pyrrole nucleus linked, by the 2-carbon atom thereof, to the methane chain of the dye, are useful sensitizers in photographic silver halide emulsions.

3,592,654 SUPER-SENSITIZED PHOTOGRAPHIC SILVER HALIDE EMULSIONS

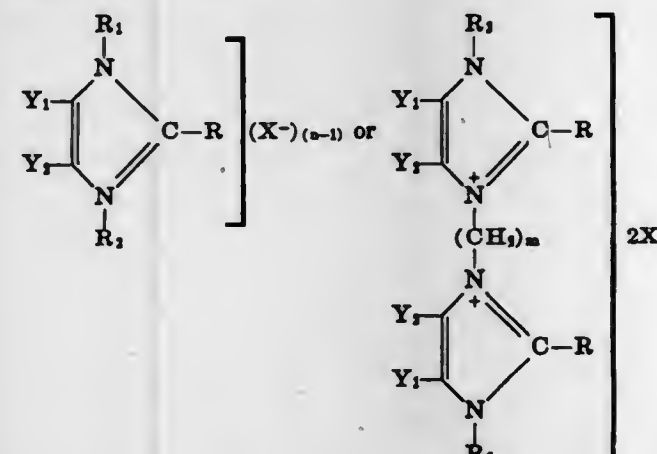
Yoshiyuki Nakazawa, Masao Sawahara, and Masanao Hinata, Minami-Ashigara Machi, Ashigara-Kamigun, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Aug. 16, 1967, Ser. No. 660,907

Claims priority, application Japan, Aug. 17, 1966, 41/54,086

Int. Cl. G03c 1/28

U.S. Cl. 96—126 12 Claims
Sensitivity is increased markedly without accompanying increased fog formation by super-sensitizing a photographic silver halide emulsion containing a sensitizing cyanine dye with a quaternary salt of imidazole shown by the general formula:



wherein R is H, an alkyl group, or a hydroxyalkyl group, each of R₁ and R₂ is an alkyl, aralkyl, hydroxyalkyl, acetoxyalkyl, aryl, or alkenyl group, X is an anion, each of Y₁ and Y₂ is H, an alkyl group or a halogen atom.

3,592,655 PHOTOGRAPHIC EMULSIONS AND ELEMENTS COMPRISING A POLYMER OF A DISULFONATE COMPOUND

Thomas K. Dykstra, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 28, 1968, Ser. No. 716,995

Int. Cl. G03c 1/04

U.S. Cl. 96—114 17 Claims
Novel polymerizable disulfonalkyl esters of dicarboxylic acids and polymers thereof and their use in photographic compositions are disclosed.

3,592,656 PHOTOGRAPHIC SILVER HALIDE MATERIALS SUPERSENSITIZED WITH A COMBINATION OF A TRIAZOLE AND A CYANINE DYE

Dugald A. Brooks, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Sept. 3, 1968, Ser. No. 757,147

Int. Cl. G03c 1/28

U.S. Cl. 96—126 6 Claims
Photographic silver halide emulsions are supersensitized with the combination of a photographic spectral sensitizing methine dye and a heterocyclic compound selected from a pyrazole, a 5-pyrazolone, a 3-pyrazolone, a 3,5-pyrazolidinedione, a triazole, a tetrazole, a xanthine, an imidazole, an imidazolidine and an imidazolium salt.

3,592,657 OPTICALLY SENSITIZED SILVER HALIDE LIGHT-SENSITIVE MATERIAL

Helmut Kampfer, Cologne-Stammheim, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 9, 1968, Ser. No. 696,510

Claims priority, application Germany, Jan. 17, 1967, A 54,635

Int. Cl. G03c 1/08

U.S. Cl. 96—142 5 Claims
The present invention relates to light-sensitive photographic layers, especially silver halide emulsion layers, spectrally sensitized with pentamethine cyanine sensitizing dyes in which the methine chain contains a squaric acid ring.

ERRATUM

For Class 99—2 see:
Patent No. 3,592,641

3,592,658 PROCESS FOR PREPARING STERILIZED COMMUNUTED BEEF PRODUCTS

Gary W. Shults, Milford, Mass., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Aug. 1, 1968, Ser. No. 749,297

Int. Cl. A23b 1/00; B65b 55/02

U.S. Cl. 99—157 5 Claims
A cooked, comminuted beef pattie sterilized by ionizing radiation containing as additives corn starch, caseinate and salt.

3,592,659 METHOD OF AGGLOMERATING FROZEN PARTICLES

John W. Clancy, Shrub Oak, and Reuben H. Waitman, Pearl River, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed Mar. 19, 1969, Ser. No. 808,667

Int. Cl. A23f 1/08

U.S. Cl. 99—71 5 Claims
A method of agglomerating surface-meltable particles has been discovered. The method is particularly useful as a means of processing fines created when extracts are frozen and ground either for packaging in the frozen state or preparatory to freeze drying. The surface-meltable particles are allowed to fall freely past a compressed air nozzle which is used to direct a turbulent, expanding stream of warm air at the particles. The hot air causes a surface thawing and the particles stick to each other in the form of tacky agglomerates. The air stream is also used to blow

the particles into a cold atmosphere within which they instantly resolidify, thus binding together the agglomerates.

3,592,660

METHOD AND COMPOSITION FOR CONDITIONING BREAD DOUGH

Gerald D. Neu, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 719,253, Apr. 5, 1968. This application May 6, 1970, Ser. No. 35,229

Int. Cl. A21d 2/14, 2/16

U.S. Cl. 99—91

9 Claims

A hydrate of a calcium salt of at least one C_{14} - C_{20} fatty acid, a monoglyceride and water is incorporated in bread dough for its dough conditioning effect. An amount providing calcium salt between 0.1 and 10 ounces per 100 pounds of flour is effective, but best results are secured with between 0.5 and 8 ounces per 100 pounds of flour. The hydrate can be added either to the sponge or the dough in a sponge-dough process. In a continuous process the hydrate can be added to the brew.

3,592,661

MARGARINE OILS CONTAINING INTERMEDIATE MELTING RANDOMLY ESTERIFIED TRIGLYCERIDES OF HIGH C_{12} CONTENT

Paul Selden, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Sept. 16, 1968, Ser. No. 760,061

Int. Cl. A23d 3/00

U.S. Cl. 99—122

4 Claims

Margarine oils comprising a soft oil component and an intermediate melting, randomly esterified, triglyceride component of high C_{12} content and low C_{16-18} content exhibit improved solids content properties as shown by a bent and rapidly sloping SCI curve.

3,592,662

PROCESS FOR TREATING A COMMINUTED PEANUT SLURRY

Chester M. Gooding, Westfield, N.J., assignor to CPC International Inc.

No Drawing. Filed Dec. 1, 1967, Ser. No. 687,155

Int. Cl. A231 1/36

U.S. Cl. 99—126

19 Claims

This process removes an alkaline malodorous distillate from a comminuted peanut slurry by passing the slurry in a thin film over a heated surface, under vacuum, while continuously agitating the film of slurry, to expose fresh portions of the slurry, and to improve heat exchange.

Peanut butter treated by the process, or prepared from a comminuted peanut slurry treated by the process, is characterized by an exceptionally fine flavor, excellent shelf life, and an absence of any unpleasant odor.

3,592,663

FLUFFY FROSTING COMPOSITIONS

Gordon F. Brunner and Benjamin Lawrence, Springfield Township, Hamilton County, Norman B. Howard, Hamilton, and Paul Selden, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Mar. 11, 1968, Ser. No. 711,862

Int. Cl. A23g 3/00

U.S. Cl. 99—139

13 Claims

Fluffy frosting compositions (in the form of a dry mix or finished product) based on certain fatty acid esters of polyglycerol where a specified minimum amount of the fatty acid contains at least 22 carbon atoms.

ERRATUM

For Class 99—148 see:
Patent No. 3,592,940

3,592,664

PROCESS FOR TREATING FRUIT SECTIONS

Murray Verlin, 1312 Collins Ave., Lakeland, Fla. 33803

No Drawing. Filed Feb. 28, 1968, Ser. No. 708,796

Int. Cl. A23b 7/00

U.S. Cl. 99—154

4 Claims

"Natural tasting" fruit sections are obtained by immersing in a sweetening solution within a container, sealing under steam to effect a certain range of vacuum, and heating to effect a low pressure under very controlled conditions of time and temperature.

3,592,665

VALENCIA ORANGE TREATMENT AND STORAGE SYSTEM

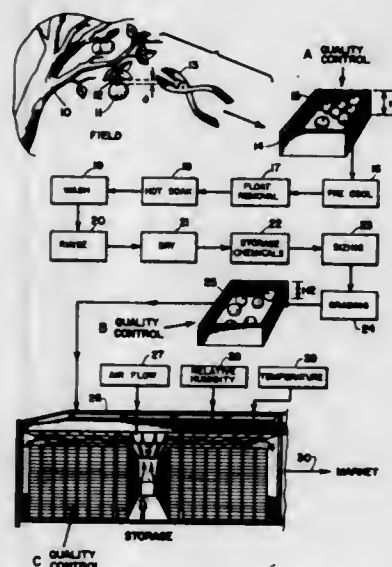
John R. MacRill, Ontario, Calif., and Malcolm H. Ellis, Yuma, Ariz., assignors to DVR Corporation

Filed Feb. 4, 1969, Ser. No. 796,408

Int. Cl. A23b 7/00, 7/16

U.S. Cl. 99—154

3 Claims



A process for treating Valencia oranges and storing the same in a manner such that high quality oranges may be shipped to a market place even during off season periods is described. The treatment process starts in the field and includes a series of steps of clipping the oranges, floating the oranges, soaking, washing, rinsing, drying, and chemically spraying the oranges preparatory to being stored. The storing process and facility therefor constitute placing of the oranges in an enclosure for a period of from one to eight months while maintaining within close tolerances a proper air circulation, relative humidity, and air temperature.

3,592,666

PROCESS FOR AVOIDING SPLITTING OF VEGETABLES DURING FREEZING

Paul Wayne Butler, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 10, 1969, Ser. No. 798,114

Int. Cl. A23b 1/06, 7/100

U.S. Cl. 99—193

3 Claims

In a process for freezing vegetables which are susceptible to surface splitting or cracking and/or whitening when frozen or while being frozen by a process which employs a liquid polyfluorinated halohydrocarbon having a normal boiling point of about -5° to -50° C. (23° to -58° F.)

and a liquid density sufficient to float said vegetables, the improvement which comprises heating the vegetable throughout its mass to a temperature of 80° - 100° C. (176° - 212° F.) immediately prior to freezing.

3,592,667

CEREAL SLURRY DRYING

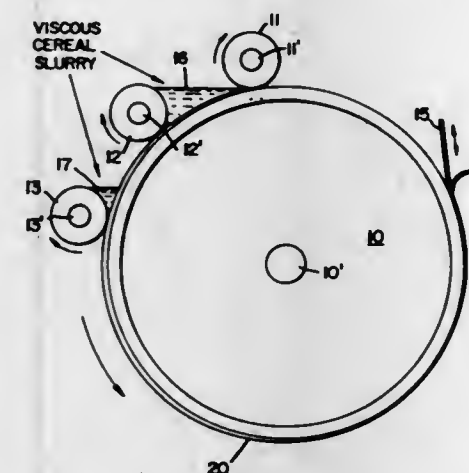
Vincent J. Kelly and William G. Fry, Fremont, Mich., assignors to Gerber Products Company, Fremont, Mich.

Filed June 3, 1968, Ser. No. 733,842

Int. Cl. A23b 7/02, 9/00

U.S. Cl. 99—199

3 Claims



A process for preparing a continuous, uniform dried cereal sheet from a viscous cereal slurry by utilizing a series of rotatably-driven applicator rolls to distribute a corresponding number of incremental layers of slurry into intimate contact with the surface of a rotatably-driven drum drier at spaced-apart locations along a quadrant of the drier. The rolls are arranged along an upper quadrant of the drier surface so that at least one trough is provided for retention of slurry in contact with the drier surface and an applicator roll.

3,592,668

PRESSURE INDUCED HEAT TRANSFER COOKING APPARATUS

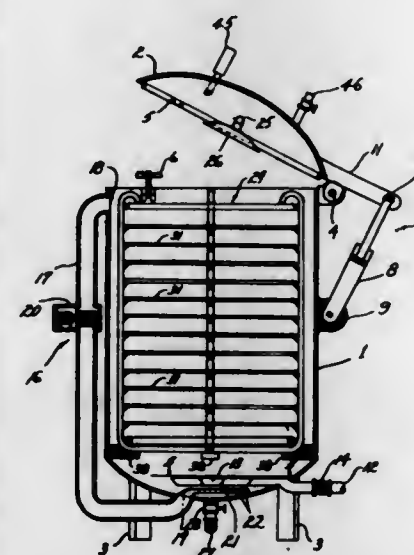
Paul M. Denk, University City, Mo., assignor to Food Masters, Inc., University City, Mo.

Filed Mar. 11, 1968, Ser. No. 712,211

Int. Cl. A47j 36/00

U.S. Cl. 99—234

10 Claims



In an apparatus for cooking foods, particularly meats, poultry, and fish, a pressure vessel is provided with attachments allowing for the selective conveyance of the elements of heat, pressure, and a coolant into the vessel,

with a conduit also providing for the timely discharge of any of the foregoing. The apparatus incorporates means for inducing a circulation of the heat energy enclosed therein so that uniformity of temperature is maintained. Hydraulic or pneumatic lift means is provided for elevating or sealing the closure upon the vessel, and a removable retainer is supported within the interior of the apparatus to accommodate and support a quantity of food during the cooking process.

The process for cooking foods essentially comprises subjecting the enclosed foods to a quantity of thermal energy, introducing gaseous pressure to induce transfer of the heat into the interior of the foods thereby accelerating the cooking operation, while simultaneously circulating the heat energy, cooling the cooked foods and discharging the heat and pressure.

3,592,669

WATER REPELLENT COMPOSITION FOR COATED OPTICAL GLASS SURFACES

Hayward R. Baker, Silver Spring, Md., and Robert N. Bolster, Fairfax County, Va., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Apr. 23, 1968, Ser. No. 723,616

Int. Cl. C09k 3/18

U.S. Cl. 106—2

3 Claims

Compositions which are mixtures of a hydrocarbon wax in equal to minor proportion by weight with mixed isomers of long chain alkylamine salts of long chain alkyl or alkenylsuccinic acid long chain alkylmonoamides. The compositions are water repellent and may be used to provide a transparent water repellent film on optical glass surfaces which are coated with an antireflection coating such as magnesium fluoride.

3,592,670

GYPSUM SLURRY SET ACCELERATION METHOD

Donald A. Kossuth, Buffalo, and Daniel A. Winkowski and John W. Klems, Tonawanda, N.Y., assignors to National Gypsum Company, Buffalo, N.Y.

No Drawing. Filed Feb. 3, 1969, Ser. No. 796,210

Int. Cl. C04b 11/14, 11/16

U.S. Cl. 106—110

8 Claims

A method of accelerating the setting time of a calcined gypsum slurry during the manufacture of a gypsum product such as wallboard or the like comprising the use of an aqueous suspension of freshly hydrated, fine, calcium sulfate dihydrate crystals and a saturated calcium sulfate dihydrate solution, said saturated calcium sulfate dihydrate solution comprising a major percentage by volume of the total water content of the calcined gypsum slurry from which the said gypsum product is made.

3,592,671

STABILIZATION OF CELLULOSE ESTER DOPES

Carl J. Malm and Walker F. Hunter, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation of application Ser. No. 725,958, May 1, 1968, which is a continuation of

application Ser. No. 639,257, May 18, 1967, which

in turn is a continuation-in-part of application Ser.

No. 407,914, Oct. 30, 1964. This application Dec.

22, 1969, Ser. No. 882,786

Int. Cl. C08b 21/04, 21/06

U.S. Cl. 106—176

10 Claims

The use of a small amount of 1,2-propylene oxide in cellulose ester dopes has been found to result in the stabilization of such dopes to a significant degree against the formation of amber or brownish-red insoluble globules in the dope.

3,592,672

DRY STABILIZED, REWETTABLE SEMIPERMEABLE CELLULOSE ESTER AND ETHER MEMBRANES AND THEIR PREPARATION
Martin E. Rowley, Hilton, and Walter D. Slowig, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 726,550, May 3, 1968. This application Dec. 22, 1969, Ser. No. 887,313

Int. Cl. B29d 27/04; C08b 27/42; C08h 17/34

U.S. Cl. 106—189 27 Claims
Membranes specially adapted to preferentially permit the passage of relatively pure water through them, while resisting the passage of dissolved salts must conventionally be kept water-wet in order to retain this ability to exclude salts. Dry, rewettable, stabilized membranes in which this desirable property is preserved, can be made by treating the wet membrane first with a water-miscible solvent, then with a non-polar organic solvent and finally drying the membrane. The presence of a water-soluble polyol in the dry membrane results in still better properties.

3,592,673

PROCESS FOR MAKING CERAMIC COLORING MATERIALS

Erich Ruf, Essen, Germany, assignor to Th. Goldschmidt A.G., Essen, Germany

No Drawing. Filed Jan. 16, 1968, Ser. No. 698,161
Int. Cl. C08h 17/04; C09c 1/00

U.S. Cl. 106—288B 5 Claims
This invention relates to a process for preparing tin-containing ceramic coloring material, which process comprises calcining, at a temperature of about 800 to 1400° C., a mixture of stannous oxide and a tungsten-containing or molybdenum-containing compound.

3,592,674

METHOD OF PREPARING A CALCIUM CARBONATE-MAGNESIUM HYDROXIDE PIGMENT AND THE PIGMENT PRODUCED

John Maskal and Ivan M. Thompson, Ludington, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Nov. 4, 1968, Ser. No. 773,340
Int. Cl. C09c 1/02

U.S. Cl. 106—306 5 Claims
This specification discloses a method of preparing a pigment for use, for example, on paper surfaces comprising: calcining a dolomitic limestone to the oxides of magnesium and calcium, slaking at least the calcium oxide component in water to the corresponding hydroxide, carbonating only the calcium portion thereof to the carbonate, slaking any remaining magnesium oxide in water to the corresponding hydroxide, dewatering the resulting slurry, and if desired, washing and homogenizing the calcium carbonate and magnesium hydroxide mixture, to produce a micron sized pigment product useful in a number of applications.

3,592,675

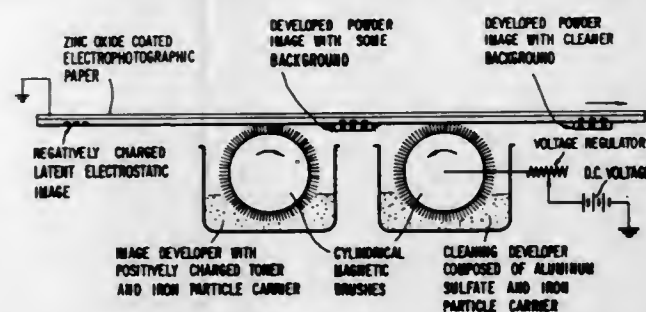
METHOD FOR DEVELOPING LATENT ELECTROSTATIC IMAGES

Tung-Nan Cheng, Bloomfield, N.J., assignor to Azoplate Corporation, Murray Hill, N.J.

Filed Oct. 9, 1967, Ser. No. 673,600
Int. Cl. G03g 13/08

U.S. Cl. 117—17.5 11 Claims
This invention relates to a method for developing an electrostatic latent image on an image support which comprises contacting the image with a fusible resin powder to develop the image areas and then contacting the image and support with a mixture of effective amounts of finely

divided iron carrier particles and a powder which removes undesired fusible resin particles from the non-image areas



of the support, thereby producing a developed image with clean non-image areas.

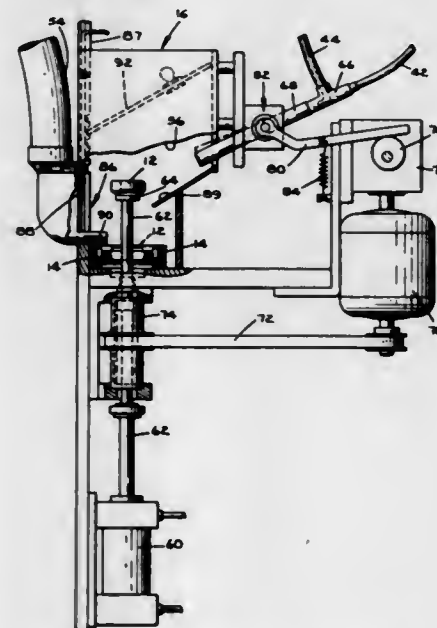
3,592,676

METHOD AND APPARATUS FOR COATING TOROIDAL-SHAPED ARTICLES

Charles A. From, Jr., Elmhurst, Charles Grenko, Berwyn, and Robert A. Peceny, Westmont, Ill., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Jan. 7, 1969, Ser. No. 789,544
Int. Cl. B44d 1/094

U.S. Cl. 117—18 7 Claims



As a heated cylindrically-shaped article is rotated continuously about its cylindrical axis, a gaseous suspension of solid particulate material is sprayed at first surface portions and circular intermediate surface portions of the article in an oscillatory path lying generally in a plane containing the axis of rotation of the article, so as to deposit a uniform coating on the first surface portions on the order of double the thickness of the coating being deposited on the intermediate surface portions. The article then is inverted and the spraying step is repeated on second surface portions of the article and the intermediate surface portions. A material scavenging system is provided downstream of the article to help preclude non-uniform deposition of the material on the article.

3,592,677

PRESSURE SENSITIVE RECORDING MATERIALS

Masayoshi Tsuboi, Yoshiaki Suzuki, and Fumiko Kato, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Feb. 7, 1968, Ser. No. 703,522
Claims priority, application Japan, Feb. 7, 1967, 42/7,829; Feb. 13, 1967, 42/9,156, 42/9,157; Feb. 17, 1967, 42/10,229

Int. Cl. B41m 5/22

U.S. Cl. 117—36.2 15 Claims
A pressure sensitive recording system comprising two supported layers, one of which layers contains an organo-

3,592,681

METAL SURFACE TREATING PROCESS BY USE OF LANTHANUM COMPOUNDS

Henri Hatwell and Willy Robert De Sutter, Brussels, Belgium, assignors to Cabot Corporation

No Drawing. Filed May 15, 1968, Ser. No. 729,400
Int. Cl. C23c 3/04, 9/00

U.S. Cl. 117—50 13 Claims
Method for improving the oxidation resistance of iron, nickel and cobalt base alloys containing chromium by contacting an alloy of this type with a heat decomposable lanthanum compound at elevated temperature.

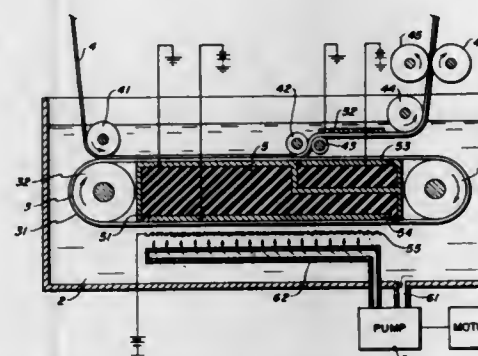
3,592,678

LIQUID DONOR DEVELOPMENT WITH ELECTROPHORETIC CLEANING

Satoru Honjo, Yasuo Tamai, and Masamichi Sato, Asaka-shi, Saitama, Japan, assignors to Xerox Corporation, Rochester, N.Y.

Filed Mar. 14, 1969, Ser. No. 807,235
Int. Cl. G03g 13/10, 15/10

U.S. Cl. 117—37 10 Claims



An electrostatic imaging member bearing an electrostatic latent image on a recording surface is brought into contact with a toner layer on the surface of a donor member in a liquid developer bath, separated slightly from the donor member and thereafter subjected to an electric field which causes toner particles in the background areas of the recording surface as well as toner particles suspended in the space between the recording surface and the donor member to electrophoretically migrate to the donor member. The developed image on the recording surface passes through the zone subjected to the electric field to further clean the recording surface. Subsequently a uniform layer of toner is electrophoretically deposited on the donor.

3,592,679

SURFACE TREATMENT OF POLYMERIC MATERIALS

Paul R. Tully, Lowell, William J. Fletcher, Saugus, and Hector Cochrane, Groveland, Mass., assignors to Cabot Corporation, Boston, Mass.

Filed May 29, 1969, Ser. No. 828,972
Int. Cl. B44d 5/02, 5/03

U.S. Cl. 117—38 15 Claims
Said polymeric materials are rendered water-repellent by applying to the surface thereof certain colloidal metal or metalloid oxides.

3,592,680

METAL PLATING OF POLYOLEFINS

Raymond P. Bayer, Pierz, Minn., assignor to Borg-Warner Corporation, Chicago, Ill.

No Drawing. Filed Aug. 29, 1968, Ser. No. 756,306
Int. Cl. B44d 1/092; C23c 3/02

U.S. Cl. 117—47A 10 Claims
A method of electrolessly plating a polyolefin substrate with copper, nickel or cobalt prior to application of an electrolytically deposited metal. A surface treatment step, which includes the application of an organophosphorus compound, is effective in promoting the adhesion between electroless metal layer and the polyolefinic substrate.

3,592,684

NYLON AND POLYESTER FIBERS HAVING IMPROVED SOIL RESISTANCE

Andrew I. Smith, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 568,724, July 29, 1966. This application Dec. 26, 1968, Ser. No. 787,269

Int. Cl. D06m 11/04

U.S. Cl. 117—102L 6 Claims
Polyamide and polyester fibers are rendered highly resistant to soiling by applying to the fibers during the manufacture thereof a finish comprised of a water soluble

lubricating agent and a zirconium compound, and subsequently scouring the fibers to remove substantially all of the lubricating agent while a major portion of the zirconium compound remains adhered to the fiber.

3,592,685

PROCESS FOR PRODUCING SYNTHETIC CHAMOIS LEATHER-LIKE MATERIAL HAVING IMPROVED WATER ABSORBENCY AND ABRASION RESISTANCE

Hans Boe, Augsburg, Germany, assignor to Carl Freudenberg, Weinheim, Germany
No Drawing. Continuation-in-part of applications Ser. No. 513,524, Dec. 13, 1965, and Ser. No. 800,043, Feb. 13, 1969. This application Aug. 26, 1969, Ser. No. 853,198
Claims priority, application Germany, Dec. 31, 1964, F 44,849

Int. Cl. C08c 17/16; C08j 1/44; D06n 3/00, 5/00
U.S. Cl. 117—140 6 Claims
Improved synthetic chamois-like material by providing a water absorbent non-woven textile fleece, impregnating the fleece at least once with a liquid form binder material, at least partially drying the impregnated fleece whereby causing deposition of the impregnated binder material as lamella predominantly at the crossing points of fibers within the textile fleece, applying to both major surfaces of the bonded fleece a liquid form coagulatable rubber latex material under such conditions that the latex remains on the surface or substantially only at the surface of the bonded fleece, and causing the rubber content of the coagulatable latex to coagulate by heating the coated fleece to about 40 to 80° C. The coagulated latex forms a discontinuous particulate coating on the surface of the fleece which significantly reduces pilling.

3,592,686

PROCESS FOR MAKING DURABLE PRESS AND SOIL RELEASE TEXTILE AND RESULTANT ARTICLE

Richard P. Barber and Glen R. Moses, Mooresville, and Daniel L. Waugh, Troutmans, N.C., assignors to Burlington Industries, Inc., Greensboro, N.C.
No Drawing. Filed June 10, 1968, Ser. No. 735,529

Int. Cl. D06m 15/16 9 Claims
U.S. Cl. 117—161
Process for improving the soil release properties of a textile by treating the same with a mixture of a fluoro-acrylic polymer and a water-insoluble acrylic hydrophilic polymer.

3,592,687

PRODUCTION OF MAGNETIC RECORDING MEDIA

Georg Schnell, Job-Werner Hartmann, Heinz Stritzinger, and Werner Senkpiel, Ludwigshafen, Hans Joerg Hartmann, Wachenheim, Erich Albert Sobotta, Ludwigshafen, Karl Uhl, Frankenthal, and Gerhard Werst, Neustadt, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
Filed Jan. 6, 1969, Ser. No. 789,240
Claims priority, application Germany, Jan. 5, 1968, P 12 99 721.6-53

Int. Cl. H01f 10/02 6 Claims
U.S. Cl. 117—237
A method of producing magnetic recording media by applying to a base a coating of a dispersion of a magnetic pigment, pretreated with wax or wax-like substances, in a special curable copolymer of alkenyl benzene hydrocarbons, (meth)acrylic esters, etherified N-methylamides of (meth)acrylic acid and an additional comonomer, drying and curing the applied coating; and the magnetic recording material thus obtained.

3,592,688

DEXTROSE CRYSTALLIZATION PROCESS

George Rhoades Dean, Edwardsville, and Ronald Emmett Pyle, Granite City, Ill., assignors to Milles Laboratories, Inc.
No Drawing. Filed Sept. 10, 1969, Ser. No. 856,806

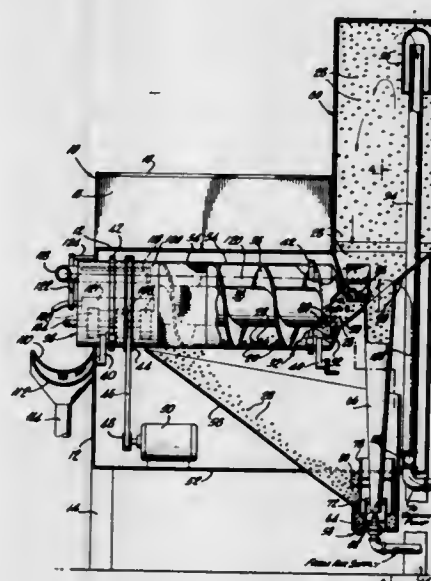
Int. Cl. C13k 1/10 11 Claims
U.S. Cl. 127—60
Relatively large crystals of dextrose hydrate can be consistently produced by a process which comprises contacting a supersaturated solution of dextrose with dextrose hydrate seed crystals at a temperature below about 90° F., maintaining the temperature of the dextrose solution in contact with the seed crystals below about 90° F. during dextrose crystallization to form a masseccuite and recovering crystals of dextrose hydrate from such masseccuite.

3,592,689

METHOD AND APPARATUS FOR CLEANING DUST FROM THE EXTERIOR OF CAPSULES

Frank Chaplinski, Somerset, N.J., assignor to The Nestle-Lemur Company
Filed Jan. 28, 1970, Ser. No. 6,618

Int. Cl. B08b 7/00 11 Claims
U.S. Cl. 134—1



A method and apparatus for cleaning dust away from the exterior of capsules. The capsules which are to be cleaned are intermingled with electrostatically charged pellets which attract the dust away from the capsules onto the pellets. The capsules and pellets are fed together to a given location where the pellets with the dust thereon are separated from the capsules so that the latter can be collected in cleaned condition. The pellets with the dust thereon are then blown up into a supply tower from which the dust is eliminated by a vacuum so that in this way the pellets are cleaned. As the pellets fall down through the tower they become again electrostatically charged, and upon reaching the bottom of the tower, the pellets meet with the dust-covered capsules to again be fed with the latter so that in this way the pellets are continuously recycled.

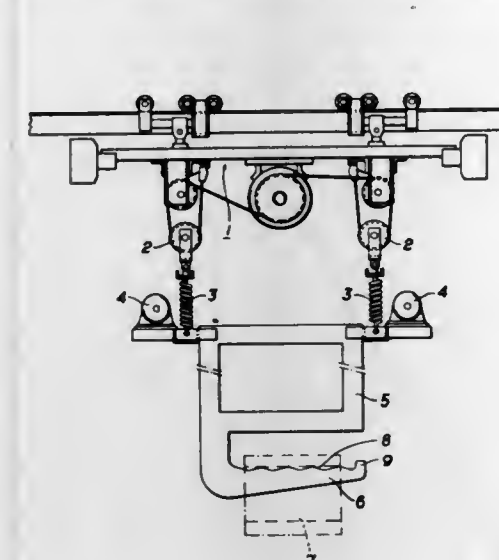
3,592,690

METHOD FOR PICKLING COILS

Rudolf Schoffmann, Linz, Austria, assignor to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria
Filed Dec. 30, 1968, Ser. No. 787,852
Claims priority, application Austria, Jan. 11, 1968, A 279/68

Int. Cl. B08b 3/00, 7/00 2 Claims
U.S. Cl. 134—1
A method for pickling coils of metal strip or wire wherein the coils are centrally supported, to submerge into

the pickle, and vibration is employed to periodically separate the coil windings so as to enable access of the pickle throughout the windings. The invention teaches to use a vibration frequency which is outside the spectrum



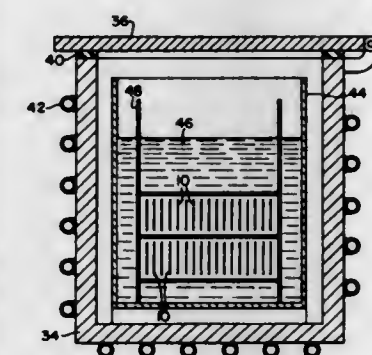
of natural frequencies of the coil windings, and a matched vibration amplitude of such extent that the acceleration of fall of the stock to be pickled is exceeded whereby the stock is momentarily taken off its support.

3,592,691

PHOTORESIST REMOVAL METHOD

Manfred K. Stelter, Greensburg, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed July 11, 1968, Ser. No. 744,053

Int. Cl. B08b 3/10 2 Claims
U.S. Cl. 134—42



The method of removing a photoresist layer after photo processing from a semiconductor substrate including the steps of immersing a substrate containing residuals of photoresist masks into a photoresist solvent and heating the solvent to a temperature ranging from about 150° to 250° C. while subjecting the solvent to a pressure of about 300 p.s.i.g. for a time period of from about one-quarter up to three hours.

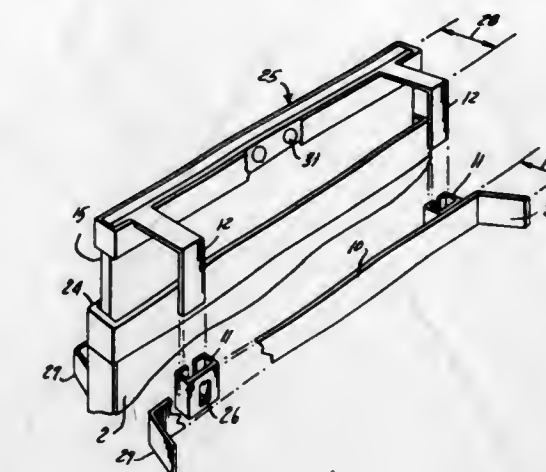
3,592,692

APPARATUS FOR BATTERY CELL CONNECTIONS

Elihu C. Jerabek, Delmar, N.Y., assignor to the United States of America as represented by the Secretary of the Navy
Filed Feb. 19, 1970, Ser. No. 12,653

Int. Cl. H01m 5/00, 27/00 4 Claims
U.S. Cl. 136—86
A method and apparatus are disclosed for making inter-cell connections in a metal-air battery wherein the metal electrode is removed and another inserted. The connection utilizes integral or added parts of the anode and cathode in a low impedance sliding contact. This contact is of low

mass, impossible to misconnect, protected from corrosion, does not impede access of air to the air electrode and re-



quires no other wiring to connect the individual cells of the battery in series.

3,592,693

CONSUMABLE METAL ANODE WITH DRY ELECTROLYTIC ENCLOSED IN ENVELOPE

Martin G. Rosansky, Forest Hills, N.Y., assignor to Leesona Corporation, Warwick, R.I.
Filed Feb. 2, 1968, Ser. No. 702,658

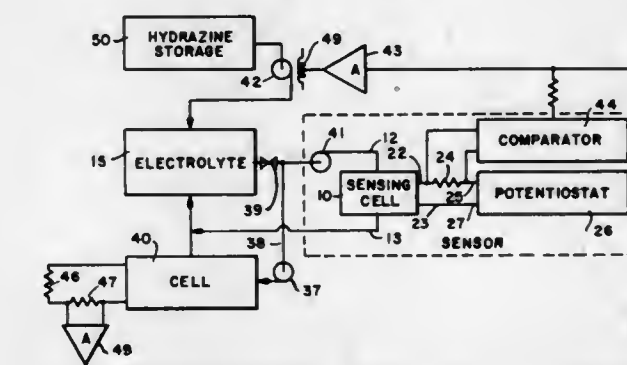
Int. Cl. H01m 1/02, 29/04 8 Claims
U.S. Cl. 136—86
A consumable metal electrode for an electro-chemical cell containing an alkaline metal hydroxide electrolyte in dry form is described. Accordingly, a cell employing the electrode can be activated by the addition of water to the cell forming a conductive aqueous electrolyte solution.

3,592,694

HYDRAZINE FUEL CELL CONTROL SYSTEM

Herman B. Urbach, Robert E. Smith, and Robert J. Bowen, Annapolis, and David E. Icenhower, Hillcrest Heights, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Sept. 16, 1968, Ser. No. 760,049

Int. Cl. H01m 27/00, 27/02 2 Claims
U.S. Cl. 136—86



Apparatus for controlling hydrazine concentration in fuel cells. A hydrazine sensor comprises an elongated porous anode, guarded from the cathode by a porous separator to prevent cathode gas from contacting the anode. The current output of the sensor is fed into a comparator then into a hydrazine-feeding system which delivers fuel to the fuel cell.

3,592,695
METAL-AIR CELL INCLUDING A COMPOSITE LAMINAR GAS DIFFUSION CATHODE
 Paul J. Moran, Ballston Lake, N.Y., assignor to General Electric Company
 Filed Nov. 1, 1968, Ser. No. 772,585
 Int. Cl. H01m 27/00

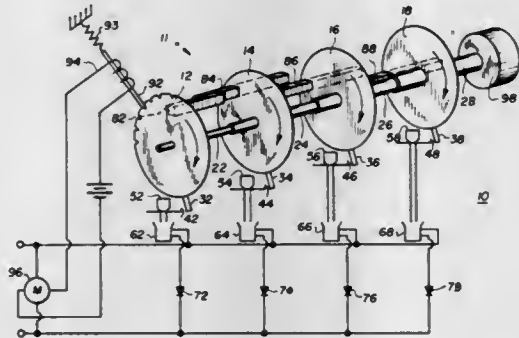
U.S. Cl. 136—86 **2 Claims**
 A composite gas diffusion electrode has an electrically conductive porous substrate, non-noble metal catalytic material impregnated into the substrate, at least one chemically inert porous separator positioned adjacent one surface of the catalytically impregnated substrate, and a porous, electrically conductive sheet positioned adjacent the opposite surface of the separator and in electrical contact with the substrate, the porous sheet having a lower oxygen overvoltage than the substrate. During the charging of a cell employing the above electrode, the porous sheet provides isolation of oxygen gassing at the porous sheet while the porous separator provides physical spacing of the oxygen gassing at the porous sheet from the catalytically impregnated substrate.

3,592,696
DIRECT HYDROCARBON FUEL CELL CONTAINING ELECTROLYTE COMPRISING A HALOGENATED ACID AND A LEWIS ACID
 Nigel L. Palmer, Port Washington, N.Y., assignor to Leesona Corporation, Warwick, R.I.
 No Drawing. Filed Jan. 7, 1969, Ser. No. 789,612
 Int. Cl. H01m 11/00, 27/00

U.S. Cl. 136—86 **10 Claims**
 A fuel cell system is described employing a super acid electrolyte. The fuel electrochemically oxidized at the fuel electrode is a carbonaceous material, preferably being a C₁-C₁₆ alkane. The preferred super acid electrolyte is antimony pentafluoride-fluorosulfonic acid. This fuel cell system provides a rapid and efficient electrochemical conversion of alkanes and the like to their oxidation products.

3,592,697
RESERVE BATTERY SYSTEM
 Leon Braun, Linden, N.J., assignor to Molecular Energy Corporation
 Filed Feb. 28, 1969, Ser. No. 803,180
 Int. Cl. H01m 7/00

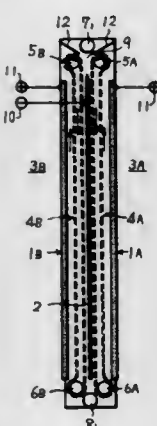
U.S. Cl. 136—162 **10 Claims**



There is provided a novel system of producing electrical energy at high power levels for long time periods. The novel system possesses an indefinite shelf life and may be activated within time periods of the order of seconds. The system comprises a voltage sensing control device, set to activate an electrolyte discharging means which causes electrolyte to flow into an inert battery system activating the same and providing the desired reserve electrical energy. Further means are provided for utilizing the power available in a cell after it has ostensibly fallen below, a predetermined useful level.

3,592,698
METAL FUEL BATTERY WITH FUEL SUSPENDED IN ELECTROLYTE
 Hideo Baba, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
 Filed Nov. 18, 1968, Ser. No. 776,548
 Claims priority, application Japan, Nov. 20, 1967, 42/74,625
 Int. Cl. H01m 29/04

U.S. Cl. 136—86 **11 Claims**



A metal fuel battery consisting of a liquid-containing chamber, at least one wall of which is a gas diffusion positive electrode including a metal oxidation catalyst therein, a negative electrode positioned in the chamber and spaced from the positive electrode, a liquid electrolyte having a finely divided metal fuel powder suspended therein and means for circulating the electrolyte through the chamber.

ERRATUM

For Class 136—86 see:
 Patent No. 3,592,941

3,592,699
PROCESS AND COMPOSITION FOR COATING METALS
 Lester Steinbrecher, Southampton, and Wilbur S. Hall, Germantown Pike, Pa., assignors to Amchem Products, Inc., Ambler, Pa.
 No Drawing. Continuation-in-part of application Ser. No. 554,336, June 1, 1966. This application Jan. 16, 1969, Ser. No. 791,762
 Int. Cl. C23f 7/26; B44d 1/36

U.S. Cl. 148—6.2 **34 Claims**
 Method and composition for applying a coating to a metallic surface wherein the surface is immersed in an acidic aqueous coating composition comprising particles of resin dispersed in the composition, fluoride ion and an oxidizing agent (H₂O₂ or dichromate) and wherein the weight of coating formed on the surface can be controlled by the time the surface is immersed in the composition.

3,592,700
POLYMER COATING OF METALS
 Madeline S. Toy, Fountain Valley, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.
 No Drawing. Filed Aug. 5, 1968, Ser. No. 750,026
 Int. Cl. B44d 1/092; C23f 7/00

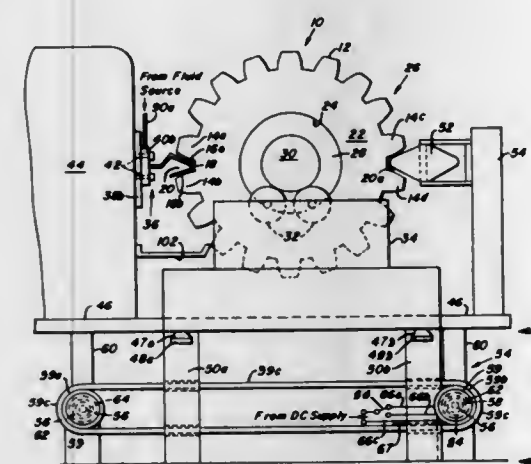
U.S. Cl. 148—6.3 **14 Claims**
 Polymer coated metals and process therefor. The metal surface is first treated with hydrogen fluoride to form an integral, adherent surface coating of metal fluoride. The metal fluoride surface coating is then exposed to a film forming monomer, e.g., tetrafluoroethylene, to cause in situ polymerization thereon and produce a uniform, continuous, adherent polymer coating. Such tetrafluoroethylene polymer coated metal surfaces provide excellent corrosion resistance useful for protective coatings, particularly on metal structural components.

3,592,701
PROCESS FOR PHOSPHATING GALVANIZED METAL ARTICLES
 Howard G. Pekar, Cleveland, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
 No Drawing. Continuation-in-part of abandoned application Ser. No. 323,134, Nov. 12, 1963. This application Nov. 30, 1967, Ser. No. 686,851
 Int. Cl. C23f 7/12

U.S. Cl. 148—6.15 **9 Claims**
 Phosphating solutions with a total acidity of about 5–850 points and consisting essentially of water, calcium ion (preferably about 0.01–8.0%), phosphate ion (preferably about 0.25–20.0%), and nickel ion (preferably about 0.005–2%) are useful for treating galvanized metal articles. These solutions may also contain about 0.01–26% of nitrate ion, about 0.001–0.1% of nitrite ion and about 0.1–1.0% of ammonium ion. They are applied by contacting the metal surface with the solution at a temperature of at least about 100° F.

3,592,702
METHOD OF CASE-HARDENING AN ARCuate MEMBER
 Edward H. Dehn, Oil City, Pa., assignor to United States Steel Corporation
 Original application June 26, 1968, Ser. No. 740,131. Divided and this application May 15, 1970, Ser. No. 37,616
 Int. Cl. C21d 9/32

U.S. Cl. 148—144 **3 Claims**



An improved method of surface hardening an arcuate member, such as a large pitch gear, having a first tooth and a second tooth, each tooth having opposed flanks and a root section which define a valley.

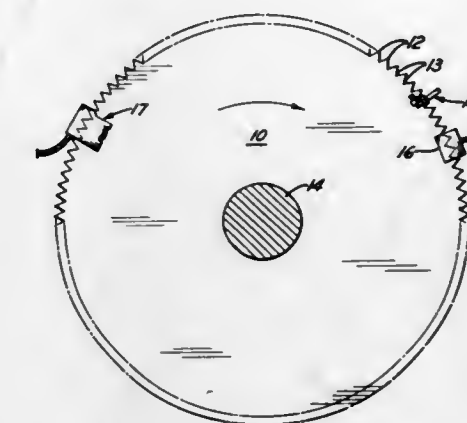
The method of surface hardening includes the steps of:

- (1) supporting the arcuate member;
- (2) preheating a moving area on the flanks and root section;
- (3) heating the moving heated area above the hardening temperature of the arcuate member without burning or melting the arcuate member; and
- (4) quenching the moving heated area to case-harden such moving heated area.

3,592,703
METHOD FOR TREATING CIRCULAR SAW BLADES AND PRODUCT PRODUCED THEREBY
 Edward H. Dehn, Oil City, and Fernand J. Dewez, Jr., Monroeville Borough, Pa., assignors to United States Steel Corporation
 Filed Mar. 7, 1968, Ser. No. 711,261
 Int. Cl. C21d 9/24

U.S. Cl. 148—147 **9 Claims**
 A method and apparatus for hardening the teeth and tooth roots of a saw blade used for cutting hot steel

shapes. Blade rotates, while its teeth and roots are heated to the austenitizing temperature and quenched by a stationary induction heating unit and a stationary quench-



ing device. Shield applied to blade to prevent reheating and softening of portion first heated as it re-enters heating unit. The hardening treatment forestalls failure through fatigue-cracking at the roots.

3,592,704
ELECTROLUMINESCENT DEVICE
 Ralph A. Logan, Morristown, Harry G. White, Bernardsville, and William Wiegmann, Middlesex, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
 Filed June 28, 1968, Ser. No. 740,903
 Int. Cl. H01l 7/38

U.S. Cl. 148—171 **6 Claims**
 Electroluminescent p-n diodes which contain sulphur to produce an excess donor concentration of 5×10^{16} to 2×10^{17} cm.⁻³ exhibit efficiencies of at least an order of magnitude greater than for other n-type dopants. When the diodes are produced in an ammonia atmosphere, efficiency is increased still further.

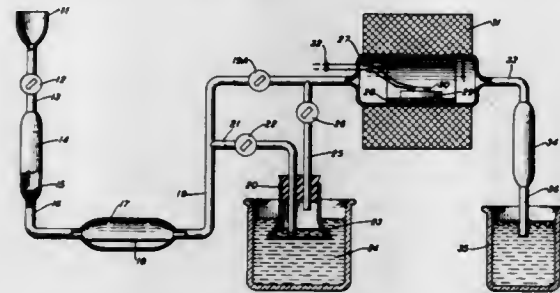
3,592,705
METHOD OF MAKING SEMICONDUCTOR DEVICE
 Tsuneo Kawashima, Tokyo, and Kenji Ohmori, Atsugi-shi, Japan, assignors to Sony Corporation, Tokyo, Japan
 Original application June 26, 1967, Ser. No. 648,694. Divided and this application May 2, 1969, Ser. No. 843,252
 Int. Cl. H01l 7/34

U.S. Cl. 148—187 **6 Claims**
 This invention relates generally to semiconductor devices, and more particularly to a diffusion-type transistor and a method of making the same. Instead of using a photosensitive material to coat the semiconductor substrate the mark is formed of an etchant-proof material, such as wax. The N⁺ and P⁺ impurities are also simultaneously diffused.

3,592,706
SELECTIVE ETCHING TECHNIQUE FOR SEMICONDUCTORS
 Richard S. Wagner, Bernardsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
 Filed Mar. 20, 1968, Ser. No. 714,526
 Int. Cl. H01l 7/50, 7/00

U.S. Cl. 156—17 **6 Claims**
 Preferential etching of crystalline materials is effected by providing a liquid-alloy solution comprising the material to be etched and one or more other components at

a point intermediate a vapor and the solid material to be etched. In the operation of the process, the vapor which is capable of reacting chemically with the material to be etched selectively removes that material from the liquid-

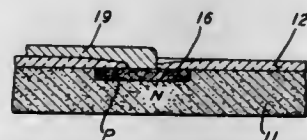


alloy solution, so resulting in undersaturation of the solution with respect to the material to be etched and continuous dissolution of that material at the solid-liquid interface.

3,592,707 PRECISION MASKING USING SILICON NITRIDE AND SILICON OXIDE

Ralph J. Jaccodine, Allentown, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 17, 1968, Ser. No. 737,533

Int. Cl. C23c 11/06; H011 7/44
U.S. Cl. 156—17 1 Claim

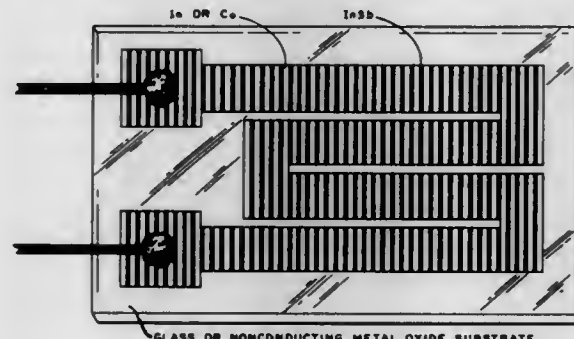


A silicon oxide mask defines the diffusion of a conductivity type zone in a semiconductor body. The surface of the diffused zone then is covered by a layer of silicon nitride which is selectively etched using phosphoric acid. This etchant removes the peripheral portions leaving a central portion of silicon nitride. The semiconductor body then is treated to replace the removed silicon nitride with silicon oxide after which the remaining central portion of silicon nitride is removed, leaving a window to the semiconductor body surface which is registered with respect to the diffused zone and of fine dimensions determined by the etching process.

3,592,708 METHOD OF MAKING RASTER PATTERN MAGNETORESISTORS

David A. Collins, Ontario, and Harry H. Wieder, Riverside, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed July 26, 1968, Ser. No. 748,069

Int. Cl. C23f 17/00; H011 7/50
U.S. Cl. 156—17 4 Claims



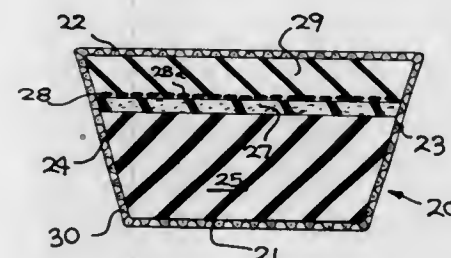
A technique for creating a raster pattern magnetoresistor device from an electron beam-recrystallized InSb film by employing a photolithographic process to etch

out of the InSb film a suitable pattern on which micron-size indium or copper stripes are later etched out of a superposed metallic film applied on the InSb by vacuum deposition. The raster pattern magnetoresistor device is a resistor, whose initial resistance in zero magnetic field is between 10 and 1000 ohms, and whose resistance increases with an applied magnetic field, reaching a value greater than a factor of 10 of the initial resistance in a magnetic field of 10K oe.

3,592,709 DRIVE BELT CONSTRUCTION

Alfred Marzocchi and Albert J. Garbin, Cumberland, R.I., assignors to Owens-Corning Fiberglas Corporation
Original application June 27, 1967, Ser. No. 649,164, now Patent No. 3,469,512, dated Sept. 30, 1969. Divided and this application Feb. 24, 1969, Ser. No. 839,098

Int. Cl. B29h 7/22
U.S. Cl. 156—142 4 Claims



A power belt manufacturing method comprising the steps of winding a first rubber layer about a collapsible mandrel, a second stiffer layer about the first layer, winding a length of glass fibers in gathered-together array spirally about the second layer, the array being of flat to oval cross-sectional configuration, repeated winds of the cord being adjacent, winding another layer of stock about the assembly, followed by a cutting of the assembly, a collapsing of the mandrel, a removal of the elements and a vulcanization of the elements to form the power belt.

3,592,710 METHOD OF PRODUCING PRESSURE SENSITIVE ADHESIVES

William J. Yurgen and John M. Questel, Cuyahoga Falls, Ohio, assignors to Morgan Adhesive Company, Stow, County of Summit, Ohio

Continuation-in-part of application Ser. No. 574,721, Aug. 24, 1966. This application Sept. 18, 1969, Ser. No. 864,936

Int. Cl. B32b 31/00
U.S. Cl. 156—153 16 Claims

This method to make an adhesive comprises blending and grinding a mixture of styrene-butadiene copolymers with a solid tackifying material, feeding the pulverized mixture to an extrusion means, and processing and extruding the mixture to form a film of pressure sensitive adhesive as a viscoelastic fluid under controlled temperature conditions above the melting point of the copolymers.

3,592,711 HIGH VOLTAGE FLEXIBLE WINDING INSULATION TAPE

Gerard de Senarclens, Hans Mosimann, and Ernst Diehl, Breitenbach, and Walter Lutz, Laufen, Switzerland, assignors to Schweizerische Isola-Werke

Continuation-in-part of application Ser. No. 351,411, Mar. 12, 1964. This application Sept. 19, 1968, Ser. No. 760,902

Claims priority, application Switzerland, Mar. 14, 1963, 3,216/63
Int. Cl. B32b 19/00

U.S. Cl. 156—250 8 Claims
Flexible winding tapes suitable for insulating machinery rated in excess of 6 kilovolts comprise epoxy resin im-

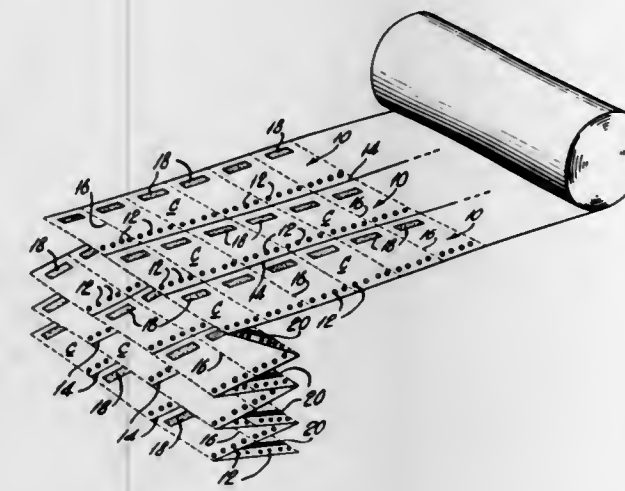
pregnated mica material on a porous carrier. The epoxy resin contains from 0.2 to 1.4% volatiles and is partially cured to impart to the final tape an adhesive temperature lower than 80° C. and/or a flow test value between 5 and 20%. The dielectric loss factor $\tan \delta$ for the insulating tape is essentially constant with increases in voltage to 20 kilovolts and is not more than 10% at 100° C.

3,592,712 METHOD OF PREPARING AND APPLYING TO PRINTED MATERIAL SEPARABLE ADVERTISING SHEETS WITH SAMPLES

Craig P. Greason, Berry Hill Road, Syosset, N.Y. 11791

Filed May 10, 1968, Ser. No. 728,138

Int. Cl. B32b 31/18
U.S. Cl. 156—252 8 Claims



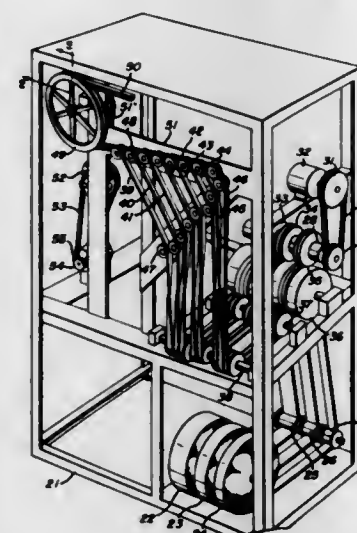
The method of preparing strips of separable advertising cards having samples of products, such as encapsulated fragrances or fabric swatches, and separating the individual cards, applying adhesive and feeding the same at high speed on to a publication being printed on a high-speed press.

3,592,713 V-BELTING AND METHOD OF MANUFACTURE

Lucian J. Beindorf, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio

Filed Dec. 26, 1967, Ser. No. 693,377

Int. Cl. B32b 31/18; B29h 3/06
U.S. Cl. 156—259 4 Claims



V-belt of the non-endless type and method of manufacture in which the belting is formed by continuously assembling strips of rubber-impregnated fabric of different widths and compacting into a finished product.

3,592,714 LAMINAR STRUCTURES OF POLYIMIDES AND METHOD OF MANUFACTURE

Morton Katz, Williamsville, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 26, 1968, Ser. No. 787,249

Int. Cl. B32b 27/08, 27/34; H01b 3/30
U.S. Cl. 156—329 2 Claims

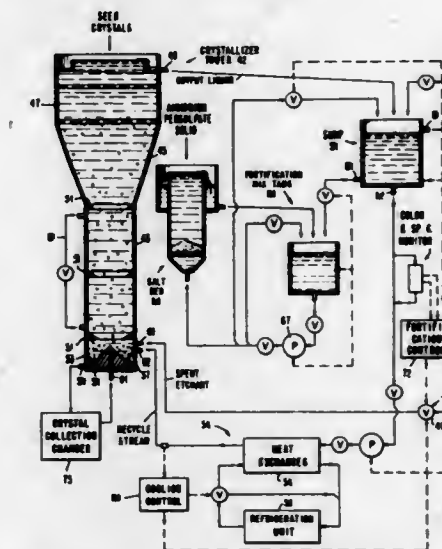
A laminar article is provided of a layer of a polyimide and a layer of a fluorinated polymer, which structure is suitable in the form of narrow tapes for electrical insulation uses.

3,592,715 STEADY STATE ETCHING SYSTEM

Robert T. Lindstrom, Orlando, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Original application Dec. 27, 1966, Ser. No. 604,940, now Patent No. 3,505,135, dated Apr. 7, 1970. Divided and this application Oct. 8, 1969, Ser. No. 870,899

Int. Cl. C23f 1/02
U.S. Cl. 156—345 5 Claims



A steady state system for the etching of printed circuit boards is provided. A metal is removed from an etchant at the rate in which it is dissolved into the etchant and etching reagent consumed during the etching process is replaced at an equivalent rate. Also provided is an improved crystallization tower which is used to continuously remove the dissolved metal. The tower is provided with a series of adjustable baffles to vary the inner diameter of the tower to control crystal size throughout the column. Additionally, there is included a crystal ejection chamber from which precipitated crystals are ejected by a centrifugal force.

3,592,716 ARTIFICIAL FLOWER OF FUZZY BALL SHAPED CONSTRUCTION

Roger A. Harris, Milwaukee, Wis., assignor to Wisconsin Cooperative Wool Growers Association, Milwaukee, Wis.

Filed Apr. 28, 1969, Ser. No. 819,792

Int. Cl. A41g 1/00
U.S. Cl. 161—30 6 Claims



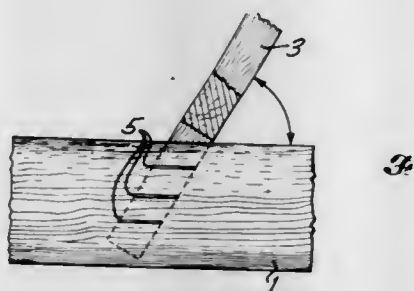
The disclosure is of an ornamental flower constructed of several pre-cut fabric mats bonded to a foam plastic

cylindrical core to form a uniformly round, fuzzy flower. A wire stem extends through the core and hooks back into the core at the top for attachment.

ERRATUM

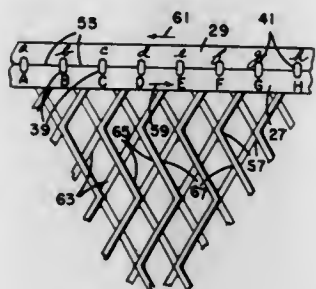
For Class 161—44 see:
Patent No. 3,592,942

3,592,717
GLUED JOINT WITH INTEGRAL ADHESIVE KEY
Wayne C. Gaughran, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed July 20, 1967, Ser. No. 654,756
Int. Cl. C09j 5/02; E04b 1/00; F16b 17/00
U.S. Cl. 161—56 9 Claims



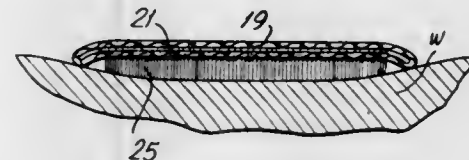
A structural wood joint of increased strength and a method of making the same wherein the grain directions of the wood mating members of the joint are at an angle to each other. The joint comprises wood mating members joined together with an adhesive, at least one of the mating members having an integral adhesive "key" formed by cutting at least one slot of a predetermined size and shape within the adhesive area of the surface of the mating member whose grain direction is at an angle other than zero to the load resultant imposed on the joint, the slot being filled with adhesive.

3,592,718
DIFFERENTIALLY BONDED NET-LIKE STRUCTURES
Theodore H. Fairbanks, Liverpool, Pa., assignor to FMC Corporation, Philadelphia, Pa.
Original application July 27, 1967, Ser. No. 656,501.
Divided and this application Sept. 24, 1969, Ser. No. 860,666
Int. Cl. B32b 5/12
U.S. Cl. 161—58 7 Claims



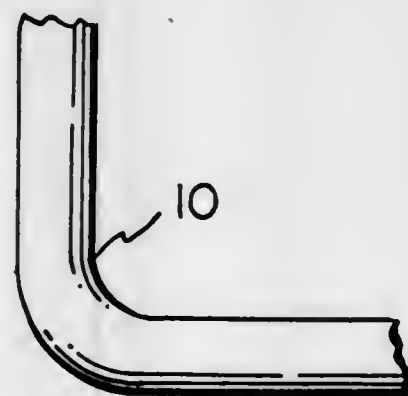
An extruded net-like structure having intersecting mesh strands in which at least some of its individual mesh strands are bonded to certain of the intersecting strands at their points of crossing to form integral, unitary strand junctions and are unconnected to other of such intersecting strands at their points of crossing.

3,592,719
GARMENT STRAP MATERIAL
Claude V. Offray, Jr., 21 Portland Road, Summit, N.J. 07901
Filed Oct. 25, 1968, Ser. No. 770,649
Int. Cl. A41f 15/00
U.S. Cl. 161—64 1 Claim



An improved garment strap material and method of making the same, the strap comprising a double thickness of material. A web of material of essentially twice the width of strap desired is formed or folded along two fold lines to dispose the marginal edges of the web in adjacent or abutting relation on one surface of the strap material. The edges are thereafter covered by flocking bonded to the surface, the adhesive, in addition to its flock supporting function, laminating the double layers of material.

3,592,720
WELT CORD
Gurdon B. Wattles and Herbert S. Snelderman, New Haven, Conn., assignors to American Manufacturing Company, Inc., Brooklyn, N.Y.
Filed Aug. 11, 1967, Ser. No. 659,969
Int. Cl. B32b 3/04, 3/26; B29d 27/00
U.S. Cl. 161—101 12 Claims

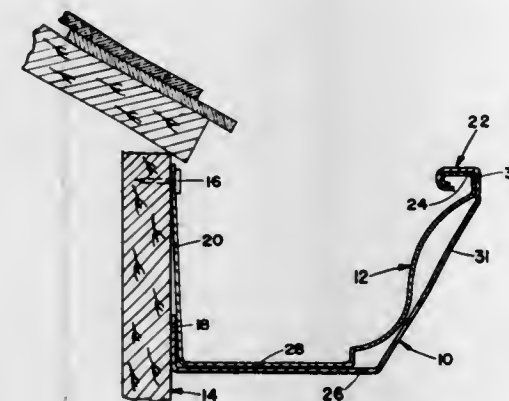


A welt cord core is described, formed of a foamed synthetic thermoplastic resin. The core material has a very high percent of voids (70% to 80%) and very small average pore size (8 mils to 25 mils), and provides a soft and resilient welt cord that suffers only slight deformation on cornering. Specific resins disclosed are EEA, EVA, and polyethylene.

3,592,721
SNAP-ON DECORATIVE GUTTER COVER
Milton Formanek, 3350 83rd St., Downers Grove, Ill. 60515, and Raymond A. Kolar, 238 Woodstock, Clarendon Hills, Ill. 60514
Filed Feb. 19, 1969, Ser. No. 800,537
Int. Cl. B32b 1/00, 3/00, 3/04
U.S. Cl. 161—125 4 Claims

A decorative gutter cover comprises a trough-like molding strip which is adapted to be attached to and to fit over the outer surface of a gutter, which may be already in place on a building. The strip includes at its rear end an upstanding flange which is adapted to be inserted

between the lower end of the gutter and the building, and at its upper forward end a horizontal flange which can



be bent over the upper distal end of the gutter to hold the strip in place on the gutter.

3,592,722
SLIDABLE ADHESIVE LAMINATE
Burton D. Morgan, Hudson, Ohio, assignor to Morgan Adhesives Company, Stow, Ohio
Original application Aug. 16, 1967, Ser. No. 661,047.
Divided and this application June 4, 1970, Ser. No. 43,481
Int. Cl. B32b 3/00, 7/14
U.S. Cl. 161—148 4 Claims



A slidable adhesive laminate composed of several distinct layers including a pressure sensitive adhesive layer, a layer of vinyl film or the like, a layer of release material covering the exposed surface of the adhesive layer, and a backing sheet for the layer of release material. There are two different release layers which consists of a first continuous layer covering the adhesive layer and a second discontinuous layer between the first layer and the backing sheet, removal of the backing sheets from the laminate causing removal of the second release material layer and the portion of the first release material layer not covered by the second discontinuous layer, the remaining portions of the first release material layer remaining in contact and projecting from the surface of the adhesive layer to hold the adhesive layer away from the receptive surface and permit sliding of the laminate along the surface until sufficient pressure is applied to the laminate.

3,592,723
BONDED POLYETHYLENE GLYCOL TEREPHTHALATE ESTER FIBERS
Frank Lamb, Chadderton, Oldham, and John Michael Heaps, Gatley, England, assignors to Geigy Chemical Corporation, Greenburgh, N.Y.
No Drawing. Filed Feb. 2, 1966, Ser. No. 524,475
Int. Cl. D04h 1/04; C09j 5/00
U.S. Cl. 161—150 11 Claims

Polyester fibers bonded with a cyclic acetal by a process comprising contacting the outer surface of a mass of fibers with said cyclic acetal and heating the fiber mass at a temperature of from 100° to 250° C. Such bonded polyester fibers are useful in packaging and insulating.

3,592,724
CEMENTITIOUS LAMINATE OF SULFONATED POLYMERS
Frank King, Jr., Wilhelm E. Waller, and Fred M. Giachino, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Apr. 21, 1969, Ser. No. 818,093
Int. Cl. B12l 27/30, 27/32
U.S. Cl. 161—160 12 Claims

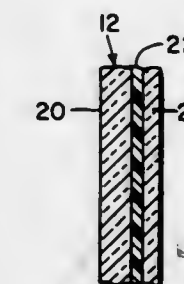
Laminates of surface sulfonated resinous films and inorganic cementitious materials have good water vapor barrier characteristics and good bond strength. They are useful in the construction industry for making walls, floors, ceilings and plasterboards, having improved water vapor impermeability.

3,592,725
COMPOSITE SHEET OF A THERMOPLASTIC SYNTHETIC RESIN FILM WITH SOLID PARTICLES PARTIALLY EMBEDDED IN THE SURFACE OF THE FILM
Saburo Yoshimura, Hisaaki Yokoi, Koichiro Sato, and Motoo Yamane, Tokyo, Japan, assignors to The Kokusaku Pulp Industry Co., Ltd., Tokyo, Japan
Filed Dec. 23, 1966, Ser. No. 604,446
Claims priority, application Japan, Dec. 29, 1965, 41/81,317
Int. Cl. B32b 19/02
U.S. Cl. 161—162 4 Claims



The surface of a synthetic resin film is made suitable for writing or printing by providing a visibly continuous layer of finely divided particles of clay, talc or cellulosic pulp on the film, the particles being partially embedded in the resin film.

3,592,726
COMPOSITE VEHICLE CLOSURE COMPRISING AN INNER SHEET OF CHEMICALLY STRENGTHENED GLASS
John R. Blizard, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Continuation-in-part of application Ser. No. 451,484, Apr. 28, 1965. This application Nov. 24, 1969, Ser. No. 879,317
Int. Cl. B32b 7/06, 17/10
U.S. Cl. 161—164 3 Claims



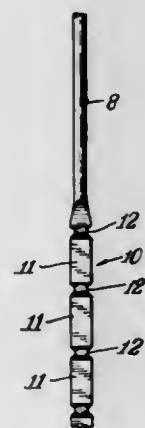
This invention relates to a multi-layer glass article suitable for use as a vehicle closure such as, for example, an automobile windshield. More specifically, this invention relates to vehicle closures comprising an inner sheet of chemically strengthened glass bonded by a transparent plastic interlayer to an outer sheet of glass which, if

strengthened at all, is strengthened to a lesser degree than the inner sheet. The inner sheet has a greater resistance to fracture by a blunt object than the outer, a greater ability to flex than the outer, and will dice into very small particles when fractured if heavily impacted.

3,592,727

WIRE REINFORCED PLASTIC COMPOSITIONS
Earl D. Weaver and Walter J. Manson, Niles, Mich., assignors to National-Standard Company, Niles, Mich.
Filed May 15, 1968, Ser. No. 729,160
Int. Cl. E04c 5/00
U.S. Cl. 161-168

8 Claims



The invention relates to reinforced plastic compositions having embedded therein lengths of discrete wires, said wires characterized by having successive portions thereof of rectangular cross-sectional configuration joined by portions of substantially round configuration in cross-section.

3,592,728

INSULATED ELECTRICAL CONDUCTOR
Gordon J. Muise, Westboro, Mass., assignor to United States Steel Corporation
No Drawing. Filed Feb. 20, 1969, Ser. No. 801,188
Int. Cl. H01b 7/28

U.S. Cl. 161-175

2 Claims

The insulated conductor of the invention comprises an electrically conductive metal core having a polyolefin insulating cover thereon and an elastomer sheath over the insulating cover. The elastomer sheath is bonded to the polyolefin cover by a suitable thermally applied adhesive composition. The method of the invention comprises the steps of providing an electrically conductive metal core, covering the core with a polyolefin insulating layer, heating the insulating layer to a temperature of 400 to 500° F., then applying a suitable adhesive composition to the insulating layer while it is in the temperature range of 400 to 500° F., then applying a second application of the adhesive composition to the polyolefin-adhesive covered conductor, and then applying an elastomer sheath to the polyolefin-adhesive covered conductor after the second application of adhesive composition has been applied thereto.

3,592,729

ANTI-BLOCKING COATED WRAPPER
Vernon d'Eyncourt Strickland, Toronto, and William Gemmell Reid, Willowdale, Ontario, Canada, assignors to E. S. & A. Robinson (Canada) Limited, Toronto, Ontario, Canada
Filed Mar. 11, 1968, Ser. No. 712,127
Claims priority, application Canada, Jan. 3, 1968, 9,021
Int. Cl. B44d 1/14; B32b 23/04
U.S. Cl. 161-220

16 Claims

An anti-blocking, wax coated, heat-sealable wrapper which is particularly suitable for use in long term storage

of cheese. The wrapper has a conventional foil or thermoplastic substrate upon which a moisture proof layer of wax is applied. A priming agent, such as talc is applied

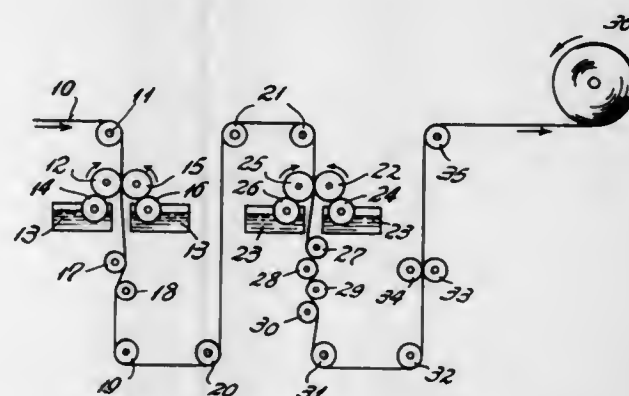


to the wax layer and a thin water emulsion coating of polyvinylidene chloride is super-imposed on the primed wax layer.

3,592,730

PLANOGRAPHIC PLATE-MAKING PROCESS AND SHEETS
Douglas A. Newman, Glen Cove, N.Y., assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y.
Filed Jan. 21, 1969, Ser. No. 792,425
Int. Cl. D21f 11/00
U.S. Cl. 162-137

7 Claims



Process for making planographic printing paper in a continuous operation on a paper-making machine. A paper web is formed from an aqueous slurry and dried to the point that it contains from about 5% to about 30% moisture and is self-supporting. A coating of insolubilizing sizing composition, comprising a hydrophilic film-forming binder material such as polyvinyl alcohol is applied to both sides of the web, the sized web is heated sufficiently to dry the sizing composition to the point that it is non-tacky, but without substantial insolubilization of the size, and then a coating of self-insolubilizing planographic composition, comprising 1 part by weight of a hydrophilic film-forming binder material, such as polyvinyl alcohol an insolubilizing agent such as glyoxal, and from 4 to 8 parts by weight of a filler, such as clay, silica, or a mixture of both, is applied to at least one side of the web. Finally the coatings are insolubilized together and the web is calendered, all on the paper-making machine.

3,592,731

PHOTOGRAPHIC PAPER COMPRISING A CATIONIC AMINO ALDEHYDE RESIN AND A CATIONIC POLYAMIDE-EPICHLOROHYDRIN RESIN AND AN ANIONIC POLYACRYLAMIDE DRY STRENGTH RESIN AND METHOD FOR ITS MANUFACTURE
William H. Griggs, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Oct. 24, 1968, Ser. No. 770,427
Int. Cl. D21h 3/48; G03c 1/86
U.S. Cl. 162-164

18 Claims

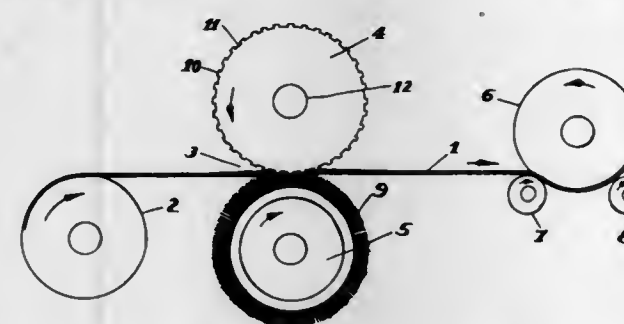
A photographic paper base comprising a cationic thermosetting amino-aldehyde wet-strength resin, a cationic thermosetting polyamide - epichlorohydrin wet - strength

resin, and an anionic polyacrylamide dry-strength resin. This combination of three different resins gives adequate strength properties while providing an aldehyde concentration which is great enough to provide the desired hardening of photographic emulsion applied to the paper base yet not so great as to adversely affect its sensitometric properties.

3,592,732

METHOD OF IMPROVING TISSUE PAPER SOFTNESS
Edwin R. Wand, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed June 27, 1969, Ser. No. 837,256
Int. Cl. D21f 11/00
U.S. Cl. 162-197

9 Claims



Improved softness, surface smoothness and limpness in tissue paper is attained with a minimum of tissue paper sheet strength loss. The traveling tissue paper, that is creped wadding, is subjected to a nip between a brush roll and a patterned backing roll at controlled relative speeds of the sheet, patterned backing roll and brush. The sheet speed is less than the peripheral speed of the brush roll but greater than that of the backing roll so that the sheet is worked by the brush and patterned backing roll as it slips relative to the patterned backing roll.

3,592,733

PROCESS FOR PRODUCING 5-GUANYLIC ACID NUCLEOTIDES
Shigeo Abe, Tokyo, and Akira Furuya and Ryo Okachi, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
No Drawing. Filed Mar. 15, 1968, Ser. No. 713,308
Claims priority, application Japan, Mar. 18, 1967, 42/16,626
Int. Cl. C12d 13/06

U.S. Cl. 195-28

12 Claims

A process for producing 5'-guanylic acid nucleotides such as 5'-guanosine-mono-, di- and triphosphoric acid from 5'-xanthylic acid by fermentation which comprises culturing mutant strains of microorganisms having suitable properties under aerobic conditions in an aqueous nutrient medium containing 5'-xanthylic acid. Surface active agents may be added to the medium. The products are useful, for example, as flavoring agents.

3,592,734

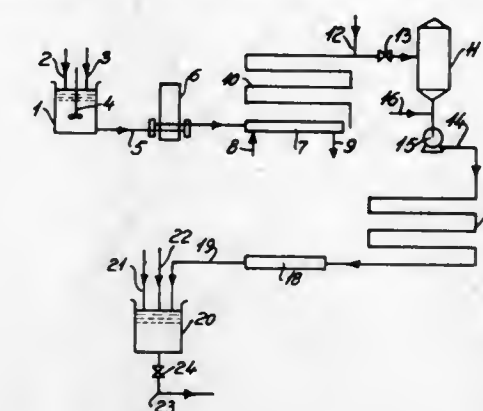
PROCESS FOR CONVERTING STARCH AND OTHER POLYSACCHARIDES INTO DEXTROSE AND MALTOSE CONTAINING PRODUCTS
Karl K. K. Kroyer, Vestre Kongevej 80, Aarhus Viby, Denmark
Continuation of application Ser. No. 577,302, Sept. 6, 1966. This application July 28, 1969, Ser. No. 849,243
Claims priority, application Denmark, Sept. 9, 1965, 4,627
Int. Cl. C12b 1/00

U.S. Cl. 195-31

10 Claims

An improved process for converting starch and starch-containing material into dextrose and maltose containing products having a high DE value is disclosed. The process comprises the steps of subjecting starch milk to acid hydrolysis under superatmospheric pressure and at a

temperature above 100° C. to obtain a product having a DE value below 10. The product is then neutralized and



cooled after which it is subjected to enzymatic liquefaction and finally to enzymatic saccharification.

3,592,735

5-(HYDROXYANILINO)-1,2,3,4-THIATRIAZOLES AND METHOD OF MAKING SAME
Robert John Theriault, Kenosha, Wis., and Thomas Howard Longfield, Atlanta, Ga., assignors to Abbott Laboratories, North Chicago, Ill.
No Drawing. Continuation-in-part of abandoned application Ser. No. 636,676, May 8, 1967. This application Apr. 2, 1968, Ser. No. 718,247
Int. Cl. C12d 13/00

U.S. Cl. 195-51

7 Claims

5-(hydroxyanilino)-1,2,3,4-thiatrazoles and a method of preparing them by microbial transformation of 5-anilino-1,2,3,4-thiatrazole. These compounds are particularly useful for counteracting hypertension in warm-blooded animals.

3,592,736

PURIFICATION AND SEPARATION OF NEUTRAL PROTEASE FROM PIGMENT AND ALKALINE PROTEASE
Leonard Keay, Florissant, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Aug. 14, 1968, Ser. No. 752,460
Int. Cl. C07g 7/02

U.S. Cl. 195-63

21 Claims

Water-clear enzyme solution, e.g., beer filtrate from *B. subtilis* microorganism production of enzymes or redissolved enzyme mixture, containing both neutral and alkaline protease, as well as undesirable impurities and pigments, can be treated to separate neutral protease from alkaline protease adsorption of neutral protease on hydroxylapatite and subsequent isolation thereof by elution therefrom. Impurities are also removed by the adsorption-elution process. Degree of purity of final neutral protease depends upon degree of purity of starting material.

3,592,737

PURIFICATION AND FRACTIONATION OF PROTEASE AND AMYLASE ACTIVITIES IN ENZYME MIXTURE
Leonard Keay, Florissant, and Richard G. Anderson, Ferguson, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Aug. 14, 1968, Ser. No. 752,459
Int. Cl. C07g 7/02

U.S. Cl. 195-66R

23 Claims

Addition of soluble calcium salt, such as calcium acetate, at moderately high levels, e.g., about 1-2% weight/volume, to an enzyme solution, e.g., a clarified fermentation beer, or aqueous solution of redissolved solids precipitated from such beer, containing protease or amylase together with proteinaceous impurities, precipitates proteinaceous impurities directly without removing enzymes

from solution. Addition of solvent prior to, concurrently with, or after calcium salt precipitation, precipitates amylase from solution. Addition of further solvent precipitates protease from solution. Allows convenient removal of proteinaceous impurities, isolation of amylase in an amylase-rich fraction with or without the calcium salt precipitated impurities, as desired, and isolation of protease and, thus permits both purification and fractionation of the enzymatic activity in a convenient manner.

3,592,738 PURIFICATION AND RECOVERY OF NEUTRAL AND ALKALINE PROTEASE USING CATIONIC SULFONATED PHENOL-FORMALDEHYDE RESIN

Leonard Keay, Florissant, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Aug. 14, 1968, Ser. No. 752,462
Int. Cl. C07g 7/02

U.S. Cl. 195—66R 13 Claims
Aqueous solution of protease, e.g., a clarified beer from *B. subtilis* microorganism production of enzymes or redissolved enzyme mixture, is treated with sulfonated phenol-formaldehyde cationic exchange resin to eliminate undesirable colored materials and any amylase present. Protease is adsorbed; amylase and most pigmented impurities are not. Neutral protease can be recovered or alkaline protease can be recovered; both can be recovered together or with fractionation when both are present. Use of neutral pH solutions for elution eliminates pigment elution problems, and use of low ionic strength solutions in preparation of resin and for adsorption allows recovery of maximum range of proteases. Fractionation is effected by use of moderate ionic strength solution for elution of neutral protease and higher ionic strength solution for alkaline protease. Where fractionation is not required, elution may be with high ionic strength solution.

3,592,739 PURIFICATION OF LACTASE

Moshe Sternberg, South Bend, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Dec. 19, 1968, Ser. No. 785,361
Int. Cl. C07g 7/02

U.S. Cl. 195—66 10 Claims
Lactase can be isolated and separated from impurities by mixing a lactase-containing solution with a heteropoly acid to form a precipitate with the lactase. The resulting precipitate is then separated from the remaining solution. Useful heteropoly acids are phosphotungstic acid, arsenotungstic acid, silicotungstic acid, borotungstic acid, phosphomolybdic acid, arsenomolybdic acid, silicomolybdic acid, boromolybdic acid, phosphovanadic acid, arsenovanadic acid, silicovanadic acid, borovanadic acid and mixtures and combinations thereof.

3,592,740 PRODUCTION OF CELL CULTURE CONCENTRATES

Verle Wayne Christensen, Madison, Wis., assignor to Niles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Mar. 28, 1968, Ser. No. 717,010
Int. Cl. C12b 1/00

U.S. Cl. 195—96 8 Claims
Novel cell culture concentrates having improved activity can be prepared by a process of inoculating a liquid buffered milk-containing culture medium with an appropriate lactic acid-producing bacterial culture, incubating said inoculated medium to grow bacterial culture cells therein until a desired pH level is attained, adding alkaline material to raise the medium pH to a desired level, cooling the medium and separating the bacterial culture cells from the liquid portion of the culture medium to form a cell culture concentrate.

3,592,741 METHOD FOR ANALYSIS OF UREA

Leonard A. Hughes, 1526 Mountain Blvd., Oakland, Calif. 94611

No Drawing. Continuation-in-part of application Ser. No. 523,023, Jan. 26, 1966. This application June 5, 1968, Ser. No. 734,530
The portion of the term of the patent subsequent to Nov. 5, 1985, has been disclaimed
Int. Cl. G01n 31/14

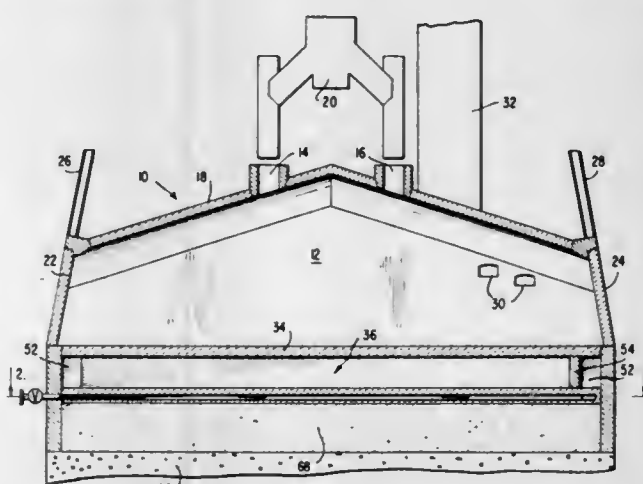
U.S. Cl. 195—103.5 3 Claims
A method for determining urea comprising the incubation of the sample containing urea in a buffered solution containing urease and nitroprusside, followed by the addition of a source of phenate ion and a source of hypochlorite ion in an alkaline medium to produce a color reaction.

3,592,742 FOUNDATION COOLING SYSTEM FOR SOLE FLUE COKING OVENS

Buster R. Thompson, 846 Bluff Drive, Knoxville, Tenn. 37919, and Leslie A. Miller, Nashville, Tenn.

Continuation-in-part of application Ser. No. 660,322, Aug. 14, 1967. This application Feb. 6, 1970, Ser. No. 9,333

U.S. Cl. 202—102 15 Claims
Int. Cl. C10b 5/06



A cooling system for the support structure of a coking oven having a plurality of heating flues extending beneath the floor to supply heat to the coking chamber. A plurality of air ducts, or tunnels extend beneath the sole flues in the oven support structure and one into the oven stack to draw cooling air through the support structure beneath the sole flues and discharge it directly into the waste gas in the stack to reduce the temperature of the support structure.

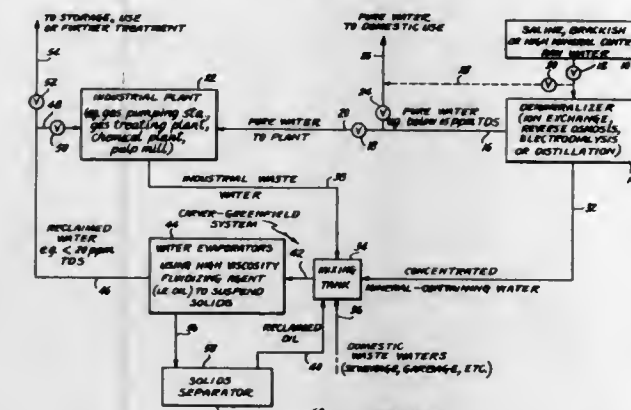
3,592,743 MULTIPLE RE-USE OF WATER

Walter H. Chapman and John F. Eichmann, Jr., El Paso, Tex., assignors to El Paso Southern Company, El Paso, Tex.

Filed Mar. 26, 1968, Ser. No. 716,222
Int. Cl. B01d 1/00; C02b 1/06

U.S. Cl. 203—10 8 Claims
This invention relates to the treatment of saline, brackish or other high mineral content water to provide effluent waters for domestic and industrial usage and to the treatment of the domestic and industrial waste water for multiple reuse so as to solve both water supply and waste water pollution problems. The invention combines a demineralization system with a system utilizing a relatively non-volatile fluidizing liquid and capable of operating on waste waters of relatively high solids content, the latter system receiving high mineral content effluent from the demineralizer as well as waste waters from the industrial and/or domestic sources. Potable water and low mineral content waters for industrial use are produced and substantially

all water is reused excepting that lost by evaporation to the atmosphere or by use in irrigation. The system is particularly well adapted for small communities having an



adjacent industrial plant. The water supply and waste disposal problems for both town and plant are solved simultaneously.

3,592,744 METHOD OF PREVENTING RACK PLATING IN CONTINUOUS PLATING CYCLE FOR NON-CONDUCTIVE ARTICLES

John J. Grunwald, New Haven, Eugene D. D'Ottavio, Thomaston, and Frank L. Durso, Cheshire, Conn., assignors to MacDermid Incorporated, Waterbury, Conn.

No Drawing. Filed Dec. 2, 1968, Ser. No. 780,567
Int. Cl. C23b 5/60; B44d 1/092; B23b 27/00

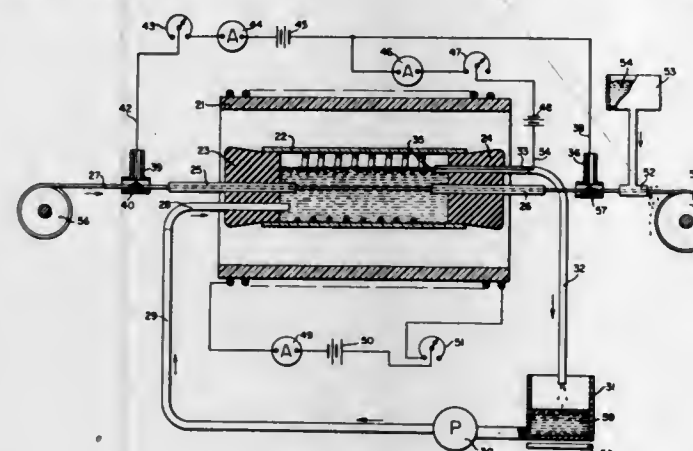
U.S. Cl. 204—20 5 Claims
A method is disclosed for treating plastic sheathed metal jigs or racks conventionally used in supporting and transporting nonconductive articles through chemical and electroplating solutions in the course of a continuous plating cycle for metallizing the articles, whereby to prevent or reduce deposit of metal on the racks themselves. To this end, the racks are treated to cause adsorption of hexavalent chromium ions at the surface of their plastic sheathed portions.

3,592,745 PROCESS FOR MANUFACTURING A MAGNETIC MEMORY

Wilbur G. Hespeneide, Westlake Village, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Division of application Ser. No. 630,995, Apr. 14, 1967, which is a continuation of application Ser. No. 826,088, May 15, 1969. Said application Ser. No. 630,995, being a division of application Ser. No. 763,241, Sept. 25, 1958, now Patent No. 3,545,745. This application Apr. 17, 1969, Ser. No. 816,917

U.S. Cl. 204—28 17 Claims
Int. Cl. C23b 5/32, 5/58, 5/68



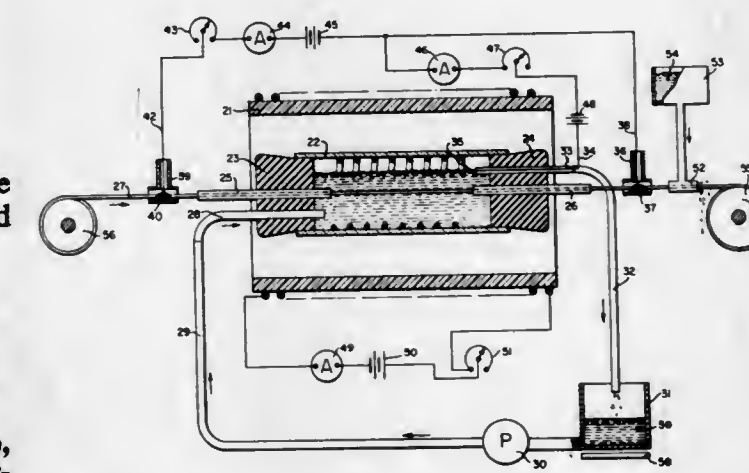
To form a magnetic memory matrix, a wire matrix is formed of intersecting insulated and uninsulated conductors and then ferromagnetic material is coated upon the uninsulated conductors.

3,592,746 ELECTROPLATING METHOD OF FABRICATING PLATED WIRE MEMORY UNITS

Wilbur G. Hespeneide, Webster, N.Y., assignor to Burroughs Corporation, Detroit, Mich.

Continuation of application Ser. No. 630,995, Apr. 14, 1967, which is a division of application Ser. No. 763,241, Sept. 25, 1958. This application May 15, 1969, Ser. No. 826,088

U.S. Cl. 204—28 8 Claims
Int. Cl. C23b 5/58, 5/32, 5/68



A ferromagnetic material is electroplated onto a continuous solid conductor in the presence of a magnetizing field of controllable direction so that the electrodeposit has a preferred axis of magnetization in a controlled direction, for example in a helical direction. The magnetizing field is the resultant of two additive magnetizing fields acting together, one of which is circumferential and the other axial when a helical preferred axis is desired.

ERRATUM

For Class 204—49 sec:
Patent No. 3,592,943

3,592,747 METHOD OF FORMING A DECORATIVE AND PROTECTIVE COATING ON A SURFACE

Charles C. Cohn, Atlantic City, N.J., assignor to Samuel L. Cohn & Charles C. Cohn, copartners trading and doing business as Colonial Alloys Company, Philadelphia, Pa.

No Drawing. Filed Aug. 17, 1966, Ser. No. 572,916
Int. Cl. C23f 17/00; B23b 15/04; C23c 1/08

U.S. Cl. 204—38R 12 Claims
Process of forming on a surface a decorative coating resistant to corrosion and abrasion which comprises forming a loosely adherent porous film of particles on the surface, applying a silicate solution to the film coated surface, drying the silicate-film coating and heating the dried silicate-film coating to insolubilize the silicate.

3,592,748 PREPARATION OF QUINONES

Pius A. Wehrli, North Caldwell, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 841,130, July 11, 1969. This application Apr. 13, 1970, Ser. No. 28,093

U.S. Cl. 204—78 16 Claims
Int. Cl. C07b 3/00; C07c 49/64

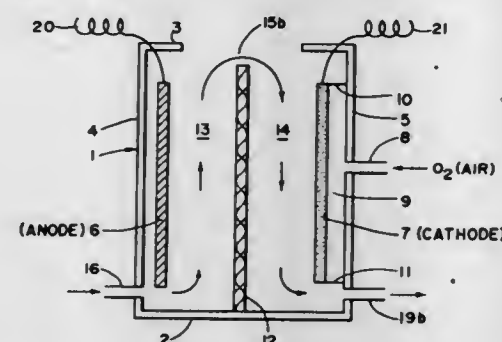
Preparation of quinones and naphthoquinones from phenols or naphthols by subjecting an aqueous solution containing the phenol or the naphthol and a hydroxylamine disulfonate to electrolysis.

3,592,749

ELECTROLYTIC PROCESS OF PRODUCING AN ALKALINE PEROXIDE

Donald H. Grangaard, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Original application Jan. 30, 1967, Ser. No. 612,469, now Patent No. 3,506,560, dated Apr. 14, 1970. Divided and this application Jan. 5, 1970, Ser. No. 588
Int. Cl. B01k 3/00; C01b 15/00
U.S. Cl. 204—84

3 Claims



An electrolytic cell for the production of alkaline peroxides. The alkalinity of the peroxide is controlled at a low value commensurate with the alkalinity of the electrolyte fed to the cell by providing cell electrolyte flow paths in which the electrolyte first passes through the cell anode compartment and then the cathode compartment where the peroxide is generated.

3,592,750

ELECTRODES FOR USE IN AQUEOUS ALKALI METAL CHLORIDE ELECTROLYTES

Denis Lee, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Oct. 21, 1968, Ser. No. 769,377
Claims priority, application Great Britain, Nov. 10, 1967, 51,218/67
Int. Cl. B01k 3/06; C01b 11/26; C23b 5/24
U.S. Cl. 204—95

11 Claims

The invention relates to a platinum metal coated titanium electrode for use in electrolysis of brine. By electroplating the platinum group metal from an electrolyte containing certain organic addition agents the resulting plated electrode is "activated."

3,592,751

PENICILLIN SULFOXIDE CONVERSION PROCESS

Robert A. Archer and Douglas O. Spry, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Continuation-in-part of application Ser. No. 806,311, Mar. 11, 1969. This application Apr. 14, 1969, Ser. No. 816,114

Int. Cl. B01j 1/10

U.S. Cl. 204—158

5 Claims

Converting 2-(C₂ to C₄-alkanoyloxy)methyl penicillin sulfoxides to a mixture of 1-S:2-S, 1-S:2-R, 1-R:2-S and 1-R:2-R isomers by exposing such penicillin sulfoxides to ultraviolet light in the presence of acetone, the products from which treatment are useful for the production of 3-alkanoyloxymethylcephalosporin antibiotically active compounds, e.g., cephalothin, a commercial antibiotic.

3,592,752

SYSTEM FOR TREATING WELL FLUIDS CONTAINING CRUDE OIL ADMIXED WITH LARGE VOLUMES OF WATER

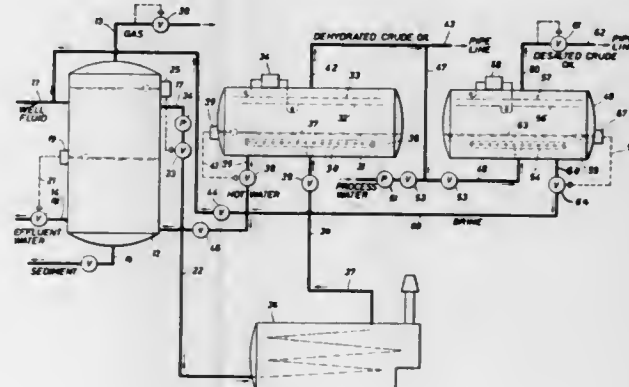
Reinhold T. Pfeiffer, Houston, Tex., assignor to Petrolite Corporation, St. Louis, Mo.
Filed Apr. 28, 1969, Ser. No. 819,910
Int. Cl. B03c 5/00, 5/02

U.S. Cl. 204—188

6 Claims

A system including process and apparatus for treating a well fluid (i.e., a mixture of highly viscous crude oil with large volumes of water and some solids) produced

by conducting thermal recovery operations in subterranean reservoirs. The well fluid is separated in a gravity separation zone into an oil-free aqueous phase and a wet crude oil phase. The wet crude oil, after being heated, is subjected to an electric field which produces a dehydrated crude oil phase and a heated aqueous phase. The heated aqueous phase is intermixed with well fluid in the gravity separation zone. The aqueous phase is removed from the gravity separation zone to maintain therein a substantially constant ratio of water to crude oil. If desired, the dehydrated crude oil phase, after being mixed with fresh water, can be subjected to an electric field for producing a desalted crude oil phase and an aqueous phase (brine) carrying extracted salts and solids. This aqueous phase (brine) may be returned to the gravity separation zone for disposal.



The present system is especially suited for treating a well fluid which is a mixture of crude oil and water in volume ratios greater than 1 to 2, and especially wherein the volume ratio is about 1 to 10.

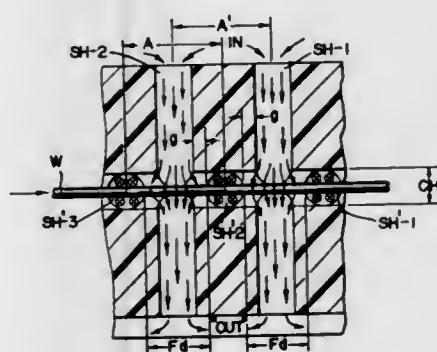
3,592,753

MAGNETIC PLATING CELL

Peter P. Semienko, Roslindale, and Emil Toledo, Brighton, Mass., assignors to Honeywell Inc., Minneapolis, Minn.
Filed May 10, 1967, Ser. No. 637,482
Int. Cl. C23b 5/58; B01k 3/00

U.S. Cl. 204—206

11 Claims



A perforated sleeve structure adapted to uniformly distribute the flow of magnetic plating electrolyte past a wire substrate according to a prescribed uniform, substantially-transverse agitation mode along the plating length of the continuously-moving wire so that a thin magnetic film may be plated thereon under high current density/high agitation conditions; this being especially adapted for plating Permalloy memory films having prescribed, carefully controlled, magnetic properties including "near-zero" magnetostriction.

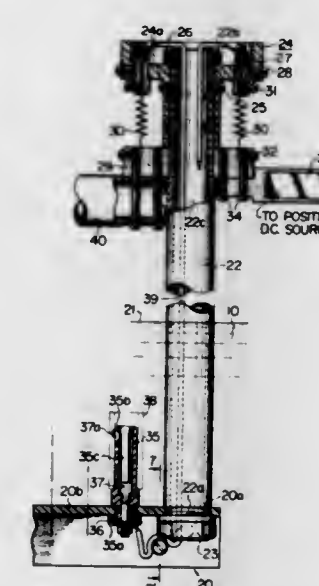
3,592,754

APPARATUS FOR THE ANODIC OXIDATION OF A PLURALITY OF ALUMINUM WORKPIECES

Kosaku Aihara, 36 Kizukioh-machi, Kawasaki-shi, Kanagawa-ken, Japan
Filed Oct. 28, 1968, Ser. No. 770,959
Int. Cl. C23b 5/70; B01k 3/00

U.S. Cl. 204—297

6 Claims



This invention relates to a process for the mass-productive formation of hard oxide coating on a number of aluminum stocks through anodic oxidation technique, wherein said stocks immersed in an electrolytic acid bath and connected electrically in parallel to the anodic side of an electrolytic current source. The process is characterized by that said stocks are connected to the anode through the intermediary of respective resistors. The resistance values of these resistors are preferably so selected that a voltage drop, in the order of say amounting to 1-2 volts will take place in the anodic current path.

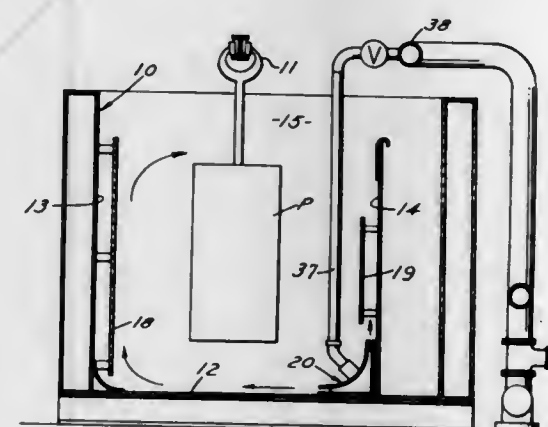
3,592,755

ELECTROPAINTING APPARATUS

Lyman L. Thornton, Waterford, Mich., assignor to Mahon Technology Group, Inc., Sterling Heights, Mich.
Filed Sept. 24, 1968, Ser. No. 761,930
Int. Cl. B01k 3/00, 5/00

U.S. Cl. 204—299

15 Claims



An electropainting apparatus comprising a longitudinally extending tank having a side and bottom and an overflow area. Deflector assemblies are provided at longitudinally spaced points at the areas of juncture of the side and bottom walls and liquid is introduced into the assemblies and directed by the assemblies transversely of the tank to cause a transverse circulation.

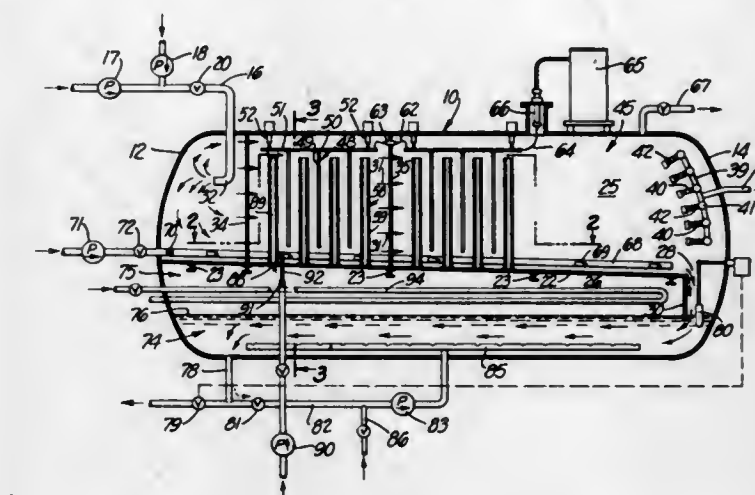
3,592,756

EMULSION TREATER

Howell R. Jarvis, Houston, Tex., assignor to Petrolite Corporation, St. Louis, Mo.
Filed Mar. 15, 1968, Ser. No. 713,424
Int. Cl. C10g 33/02

U.S. Cl. 204—302

20 Claims



Emulsion is treated and partially separated during longitudinal flow above a baffle in a long horizontal container, with additional separation occurring during return flow beneath the baffle. The emulsion may be electrically treated while flowing above the baffle, as by flow between depending and upstanding elongated electrode members. Provision is made for treating any sludge that forms. The emulsion treater is particularly applicable to treatment of crude oils and the desalting thereof.

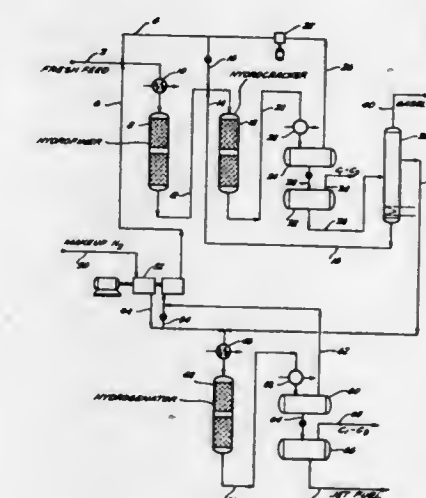
3,592,757

COMBINATION HYDROCRACKING-HYDROGENATION PROCESS

William J. Baral, Long Beach, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
Filed Mar. 17, 1969, Ser. No. 807,682
Int. Cl. C10g 37/06

U.S. Cl. 208—58

7 Claims



An advantageous hydrogen supply system is disclosed for the hydrogenation of certain undesirably aromatic product fractions derived from hydrocracking systems, whereby essentially the same equipment and power required to supply makeup hydrogen to the hydrocracking system is used to circulate hydrogen once-through the post-hydrogenation system, thereby eliminating the need for separate makeup and recycle gas compressors for the latter. Due to the relatively high chemical hydrogen consumption in the hydrocracking system, and the relatively low feed rate and mild conditions in the hydrogenation

a reinforcing ply comprising a thin porous sheet composed at least in part of potentially adhesive fabric is subjected to pressure under conditions potentiating the adhesive of the reinforcing ply to effect a bond between the fabric and the surface of the filtering ply in contact therewith without substantially decreasing the porosity of the filtering ply. The resulting filter sheet or element can be fitted with end caps for supporting the filter sheet in a housing for the filtration of fluid.

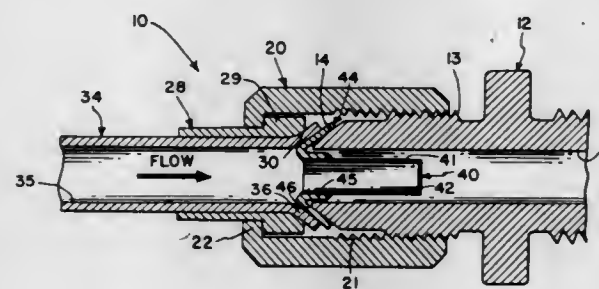
3,592,768

FLARED TUBE STRAINER

Otis J. Parker, Chesapeake, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Nov. 23, 1966, Ser. No. 596,733
Int. Cl. B01d 35/02

U.S. Cl. 210—445

1 Claim



A strainer for a flared tube fitting. The strainer has a filtering portion which fits within the tube. A fitting is secured to the filtering portion and is flared to match the tube flaring. The flared portion of the fitting is clamped between the tube and a connector positioning and fixing the strainer in the tube.

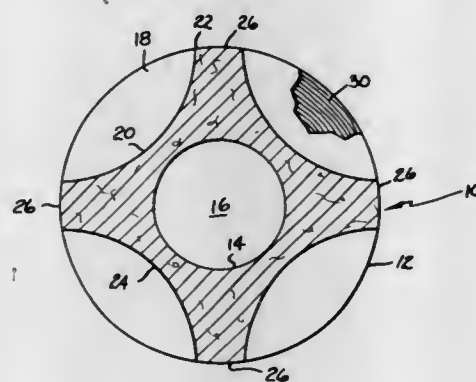
3,592,769

GROOVED REPLACEABLE FILTER TUBE

Milton Richard Decker, Manhattan Beach, Calif., assignor to Johns-Manville Corporation, New York, N.Y.
Continuation of application Ser. No. 695,019, Jan. 2, 1968. This application Feb. 16, 1970, Ser. No. 10,099
Int. Cl. B01d 29/32

U.S. Cl. 210—491

17 Claims



A glass fiber filter tube having a plurality of grooves of nonuniform radial depth extending from one cylindrical surface toward but not through the other cylindrical surface of the tube is disclosed herein. The bottom walls of the groove may be straight or arcuate and their ends may be arranged in longitudinally extending rows separated by imperforate portions of one tube wall surface, and each row contains a plurality of such grooves separated by lands. The filter is a replaceable unit useful for removing solids and immiscible liquids from a fluid stream.

3,592,770
PROCESS FOR RECOVERING COMPOSITIONS
CONTAINING CALCIUM SUGAR PHOSPHATES AND INORGANIC PHOSPHATE

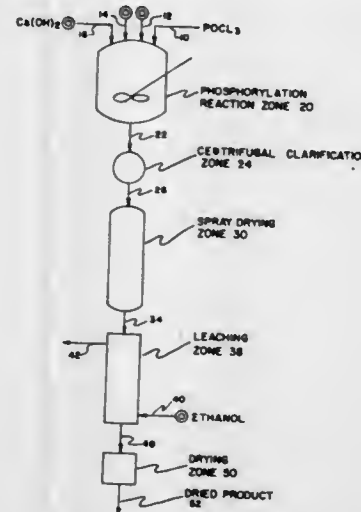
John Lambiris, New York, N.Y., assignor to The Colonial Sugar Refining Limited, Sydney, New South Wales, Australia

Filed June 8, 1967, Ser. No. 644,663

Int. Cl. B01j 9/02; C05f 5/00; F26b 3/06

U.S. Cl. 252—1

6 Claims



A process for recovering compositions of matter containing calcium sucrose phosphates and inorganic phosphate which comprises phosphorylating sucrose in the presence of lime to obtain a reaction effluent containing calcium sucrose phosphate, inorganic phosphates, calcium chloride, and sucrose, spray drying the reaction effluent to obtaining a porous, finely divided, free-flowing material contain about 10% moisture, and leaching the spray-dried product with 80% ethanol to obtain a product having a chloride content less than about 0.5% and a ratio of organic phosphorus to inorganic phosphorus of about 2:1.

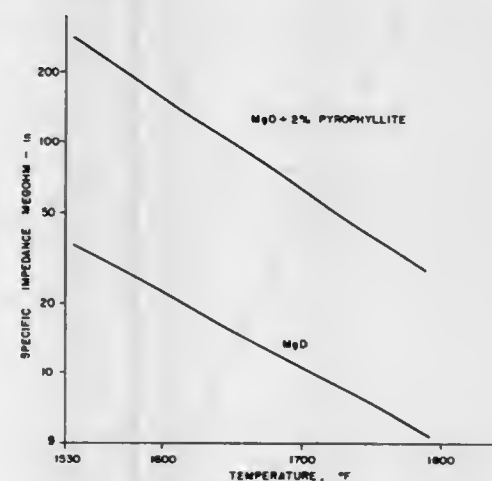
3,592,771

TUBULAR HEATING ELEMENTS AND MAGNESIA INSULATION THEREFOR AND METHOD OF PRODUCTION

Willem Vedder, Latham, N.Y., and John Schultz, Jr., Louisville, Ky., assignors to General Electric Company
Original application Feb. 1, 1968, Ser. No. 702,474, now Patent No. 3,477,058, dated Nov. 4, 1969. Divided and this application Feb. 24, 1969, Ser. No. 829,818
Int. Cl. H01b 3/02, 3/10

U.S. Cl. 252—63.2

7 Claims



Compacted, granular, fused magnesia used as thermally-conducting electrical insulating in tubular, electrical resistance elements is substantially improved both in compaction density and electrical resistivity through the addition of 0.1 to 5.0 percent of any of a variety of substances of layer-structure crystal form such as pyrophyllites.

3,592,772

FUNCTIONAL FLUIDS CONTAINING AMMONIA FOR PREVENTING CAVITATION DAMAGE

Douglas Godfrey, San Rafael, Robert L. Peeler, Albany, and Neal W. Furby, Berkeley, Calif., assignors to Chevron Research Company, San Francisco, Calif.
No Drawing. Filed Feb. 28, 1968, Ser. No. 708,755
Int. Cl. C09k 3/00

U.S. Cl. 252—78

10 Claims

Functional fluid containing a minor amount of ammonia as a cavitation-erosion inhibiting additive.

3,592,773

SOLVENT MIXTURE WITH NITRIC ACID AND HYDROFLUORIC ACID FOR WET CHEMICAL ETCHING OF SILICON

Alfred Müller, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Mar. 25, 1968, Ser. No. 715,805
Claims priority, application Germany, Mar. 23, 1967, S 108,980

Int. Cl. H01l 7/50; C09k 3/00

U.S. Cl. 252—79.3

9 Claims



Described is a solvent mixture of nitric acid and hydrofluoric acid for wet chemical etching of silicon objects. The solvent mixture is characterized by the incorporation of at least one addition to the mixture. This addition reacts with nitrous acid and with nitrogen oxides present through the chemical equilibrium of nitrous acid with nitrogen oxide. The additions are primary or secondary aliphatic or aromatic amines, simple and N-substituted acid amides, hydrazine and hydroxylamine, their derivatives and salts and S—N compounds which contain =NH or —NH₂ groups. Illustrative additions are carbamide, cyclohexylamine, gelatine and hydrazine.

3,592,774

NOVEL RINSING AGENTS

Theodor Altenschöpper, Düsseldorf-Wersten, Germany, assignor to Henkel & Cie., G.m.b.H., Düsseldorf-Holthausen, Germany
No Drawing. Filed May 3, 1968, Ser. No. 726,551
Int. Cl. C11d

U.S. Cl. 252—89

10 Claims

A process for mechanical dishwashing in which the clear rinsing cycle employs a water-soluble starch degradation product and/or sugar to obtain spot-free dishes and novel rinsing solutions.

3,592,775

COMPOSITIONS CONTAINING PHENOLIC OXIMES AND CERTAIN α-HYDROXY ALIPHATIC OXIMES

Ronald R. Swanson, New Hope, Minn., assignor to General Mills, Inc.
No Drawing. Continuation-in-part of abandoned application Ser. No. 498,121, Oct. 19, 1965. This application Mar. 1, 1968, Ser. No. 709,800
Int. Cl. C07c 131/00

U.S. Cl. 252—182

9 Claims

Saturated aliphatic, ethylenically unsaturated aliphatic and saturated or ethylenically unsaturated aliphatic ether substituted 2-hydroxy benzophenoximes containing a total of from 3–25 carbon atoms in the aliphatic groups. Compositions comprised of such benzophenoximes and certain α-hydroxy aliphatic oximes. Compounds and compositions are useful for the extraction of metal values.

3,592,776

PRODUCTION OF HYDROGEN PEROXIDE

John Vincent Fletcher, Knutsford, and Dennis Martin, Cheadle Hulme, England, assignors to Burmah Oil Trading Limited, London, England
Filed Apr. 7, 1969, Ser. No. 813,907
Claims priority, application Great Britain, Apr. 5, 1968, 16,578/68

Int. Cl. C01b 15/02

U.S. Cl. 252—186

9 Claims

Hydrogen peroxide dissolved, e.g., in a secondary alcohol such as isopropanol is transferred from that solvent to another solvent by precipitating the hydrogen peroxide from its solution with urea, and mixing the resulting urea/hydrogen peroxide adduct with an extracting solvent constituted by a lower alkyl ketone, a lower alkyl ester or a lower alkyl ortho-phosphate, which mixing leads to dissolution of the hydrogen peroxide in the extracting solvent with simultaneous precipitation of the urea; the process is especially applicable to the case where the hydrogen peroxide has been produced from isopropanol—which leads to the production of a solution of the former in the latter—and it thus becomes possible to use the hydrogen peroxide thus obtained in a chemical reaction in which the presence of isopropanol as solvent is undesirable, e.g., in the production of a peroxy compound such as a per-carboxylic acid.

3,592,777

FLUORESCENCE EXHIBITING POLYMER BLENDS

John W. Bayer, Toledo, Ohio, assignor to Owens-Illinois, Inc.
No Drawing. Division of applications Ser. No. 791,523, Jan. 15, 1969, now Patent No. 3,506,613, and Ser. No. 472,058, July 14, 1965. This application Mar. 13, 1969, Ser. No. 807,078

Int. Cl. C09k 1/02

U.S. Cl. 252—301.2R

10 Claims

There is disclosed the preparation of novel polymer blends that exhibit fluorescence when subjected to selected activation energy. The preparation comprises reacting an aliphatic or aromatic substituted aliphatic diketone and an aliphatic diamine such that there results a linear, non-cross-conjugated polymer exhibiting fluorescence under appropriate energy excitation, said polymer having no chromophore groups in its structure which will internally absorb the fluorescence emission of the polymer, and then blending said prepared polymer with another polymer in an amount sufficient to impart fluorescence to the resulting blend.

ERRATA

For Classes 252—188, 252—316 see:
Patent Nos. 3,592,944 and 3,592,945

3,592,778

HYDROCARBON CONVERSION CATALYST

Kenneth D. Vesely, Arlington Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Continuation-in-part of application Ser. No. 622,403, Mar. 13, 1967. This application Apr. 24, 1969, Ser. No. 819,095

The portion of the term of the patent subsequent to July 22, 1986, has been disclaimed

Int. Cl. B01j 11/36, 11/40

U.S. Cl. 252—451

6 Claims

A catalytic composite comprising a faujasite dispersed in an amorphous silica matrix. The catalyst is manufactured by adding the faujasite together with the mother liquor from which it was precipitated to a silica sol and then effecting gelation.

3,592,779
ACID SLUDGE AS BINDER FOR THE PRODUCTION OF SHAPED CARBONACEOUS ARTICLES AND ACTIVATION THEREOF
 Oliver A. Kikka, Willoughby, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio
 No Drawing. Filed Nov. 6, 1968, Ser. No. 773,966
 Int. Cl. C01b 31/08

U.S. Cl. 252—421 **4 Claims**
 Acid sludge formed by the reaction of a mineral acid with a relatively high molecular weight hydrocarbon is used to bind various particulate carbon materials into shaped articles which may be activated. The carbon materials useful in this invention are materials such as coke, coal, wood charcoal or any form of carbon produced by charring or destructive distillation of wood, peat, lignite, nut shells, corn cobs, bones, vegetable matter generally, natural and synthetic organic polymers, or other carbonaceous matter, including liquid and liquefiable petroleum fractions. The carbon content of materials used for admixing with the acid sludge ranges from about 10 percent for bone charcoal to 98 percent or higher for some wood chars. The approximate bulk density of useful carbon materials ranges from 0.08 to 2.50.

3,592,780
PRETREATMENT OF PLATINUM REFORMING CATALYST
 Jay A. Rashkin, Piscataway, N.J., assignor to Cities Service Oil Company, Tulsa, Okla.
 No Drawing. Filed Dec. 29, 1969, Ser. No. 888,950
 Int. Cl. B01j 11/74

U.S. Cl. 252—439 **6 Claims**
 Fresh platinum reforming catalyst is pretreated by initially contacting the catalyst with hydrogen and reforming naphtha containing at least about 200 parts per million sulfur at a temperature between about 700 and about 750° F., a pressure between about 200 and about 600 p.s.i.g. and a space velocity between about 1 and about 3 w./w./hr. The temperature is then raised to between about 800 and about 850° F. over a period between about 2 and about 7 hours after which the flow naphtha is discontinued and the catalyst is contacted with inert gas (preferably nitrogen) at a temperature between about 800 and about 850° F., and a pressure between about 25 and about 150 p.s.i.g. for a time between about 8 and about 24 hours. The catalyst is then again contacted with sulfur-containing reforming naphtha under the same pressure and space velocity conditions as before and the temperature is gradually raised to the range of between about 890 and about 940° F. over a period of between 2 and about 7 hours, at the end of which time the catalyst is again subjected to contact with inert gas for an additional period of between about 8 and about 24 hours. Following the final inert gas soak, the catalyst is ready for use in reforming naphtha of low sulfur content in a conventional manner.

3,592,781
CONDUCTIVE GLAZE COMPOSITION AND METHOD FOR PREPARATION
 Gerald P. Wirtz, Urbana, Ill., and Robert M. King, Lewiston, N.Y., assignors to Air Reduction Company, Incorporated, New York, N.Y.
 No Drawing. Filed Feb. 18, 1969, Ser. No. 800,276
 Int. Cl. H01b 1/02; B44b 1/02

U.S. Cl. 252—514 **7 Claims**
 An electroconductive glaze composition comprising a homogeneous mixture of approximately 85 to 95% by weight particulate metals, dispersed in an at least partially devitrified glass matrix, said metals preferably comprising approximately 5 to 20% by weight cadmium, and balance silver.

3,592,782
LATENT FOAMING COMPOSITION AND METHOD FOR THE PREPARATION THEREOF
 Christian A. Weber, Sanford, and Donald H. Clarke, Essexville, Mich., assignors to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed Nov. 29, 1968, Ser. No. 780,213
 Int. Cl. C08f 27/12, 45/30, 47/10

U.S. Cl. 260—2.5 **10 Claims**
 Expandable microspheres incorporated in latent foaming polyhalostyrene compositions provides a fine-celled foam product.

3,592,783
POROUS POLY(ARYLENE SULFIDE) COMPOSITIONS AND METHOD FOR PRODUCING SAME
 James T. Edmonds, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company
 No Drawing. Filed Apr. 9, 1969, Ser. No. 814,826
 Int. Cl. C08g 51/04, 53/08

U.S. Cl. 260—2.5 **6 Claims**
 Porous compositions of a poly(arylene sulfide) polymer and a particulate heat resistant material which are suitable for forming into bearings or other articles of manufacture are prepared by (a) forming a slurry of a poly(arylene sulfide) polymer having a particle size of 1 to 3500 microns with a particulate heat resistant compound such as asbestos having a particle size of 1 to 3500 microns in a volatilizable liquid, (b) compressing the resulting slurry so as to form an integral molded composition having from 0.1 to 70 weight percent residual volatilizable liquid therein, (c) heating the resulting composition at a first temperature in the range of 0° C. to 230° C. so as to substantially volatilize the residual liquid therein, (d) thereafter additionally heating the resulting composition at a second temperature in the range of 250 to 500° C., and (e) thereafter recovering the resulting porous, filled poly(arylene sulfide) composition as a product of the process.

3,592,784
CROSS-LINKABLE POLYMER COMPOSITIONS
 Karl Brack, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.
 No Drawing. Filed Aug. 3, 1967, Ser. No. 658,060
 Int. Cl. C08f 47/10; C08g 53/10

U.S. Cl. 260—2.5 **2 Claims**
 A cross-linkable polymer composition is obtained by admixing an unsaturated polymer, a polyfunctional hydrazide halide of a specified formula, and material that provides upon contact with water at least one alkaline reactant that reacts with the hydrazide halide to form the corresponding polyfunctional nitrileimine which in turn cross-links the unsaturated polymer.

3,592,785
METHOD OF MAKING POLYETHYLENE FOAM
 William A. Patterson, Spartanburg, S.C., Stanley Norman Weissman, Cedar Grove, N.J., and Henry G. Schirmer, Spartanburg, S.C., assignors to W. R. Grace & Co., Duncan, S.C.
 No Drawing. Continuation of application Ser. No. 307,340, Sept. 9, 1963, now Patent No. 3,432,447.
 This application Dec. 5, 1968, Ser. No. 781,599
 Int. Cl. C08f 3/04, 29/04, 47/10

U.S. Cl. 260—2.5R **5 Claims**
 A process for preparing polyethylene foam consisting essentially of forming a mixture of solid polyethylene and normally solid, heat decomposable organic foaming agent having a decomposition temperature at least about 10° C. above the melting point of the polyethylene material; subjecting said admixture to high energy ionizing radiation to produce a percent gel of about 30 to about 80; heating the irradiated body in stages, first at a temperature slightly below the decomposition point of the

foaming agent and immediately thereafter rapidly heating to a temperature well above the decomposition point to form an expanded body and cooling the heated body to a temperature below the freezing point of the polyethylene.

3,592,786
COMPOSITION FOR MAKING SOIL RELEASING, DURABLE PRESS FABRICS
 Ronald Swidler, Pasadena, Calif., Ray S. Smith, Greensboro, N.C., and Harry A. Miller, Altavista, Va., assignors to Burlington Industries, Inc., Greensboro, N.C.
 No Drawing. Application Nov. 15, 1967, Ser. No. 683,139, now Patent No. 3,521,993, dated July 28, 1970, which is a continuation-in-part of application Ser. No. 645,599, June 13, 1967. Divided and this application May 26, 1970, Ser. No. 40,717
 Int. Cl. C08f 45/36; D06c 29/00

U.S. Cl. 260—21 **4 Claims**
 A composition for treatment of textiles to impart durable press and soil release properties. The composition comprises an aryl stearic acid, an aminoplast pre-condensate or other durable press reactant and a synthetic polymer which absorbs at least about five times its weight of water under alkaline conditions. Preferably the materials are dispersed in aqueous medium.

3,592,787
URETHANE ELASTOMERS
 Janis Robins, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 No Drawing. Continuation-in-part of applications Ser. No. 41,153, July 6, 1960, Ser. No. 199,644, June 4, 1962, and Ser. No. 537,015, Mar. 24, 1966. This application Mar. 28, 1969, Ser. No. 811,593
 Int. Cl. C08g 22/40

U.S. Cl. 260—18 **2 Claims**
 A process is provided for making a cross-linked polyurethane rubber by forming a liquid reaction mixture of a liquid polymeric polyol reactant having dissolved therein a catalytic amount of a mercuric salt of a carboxylic acid containing from 2 to 18 carbon atoms e.g. mercuric octoate, naphenate, stearate or oleate, and an organic polyisocyanate reactant, at least one of these reactants includes a polyfunctional component for cross-linking having more than two functional groups selected from the group consisting of —NCO and —OH radicals. The reactants mentioned above have an approximately stoichiometric equivalence of —NCO and —OH radicals. The mixture is reacted until substantially all the reactive —NCO and —OH groups have interreacted with one another. This interreaction converts the mixture to a solid non-cellular cross-linked polyurethane rubber substantially free of further reactive groups.

This invention is also directed to a composition capable of reaction with a polyisocyanate to effect a rapid cure of the same. This composition comprises a liquid organic polyol having a minor amount of said mercuric salt dissolved therein.

3,592,788
EMULSIONS AND THEIR USE IN SOIL TREATMENT
 Fritz S. Rostler, Berkeley, Calif., assignor to Phillips Petroleum Company, Bartlesville, Okla.
 No Drawing. Filed Dec. 14, 1967, Ser. No. 691,116
 Int. Cl. C08f 45/52, 45/44

U.S. Cl. 260—28.5 **4 Claims**
 An emulsion concentrate (1) containing a thermoplastic elastomer of the styrene-butadiene block copolymer type which is soluble in trichlorethylene to give a viscosity of about 800 to 1,000 centipoises at room temperature at a polymer concentration of 15% by weight, and

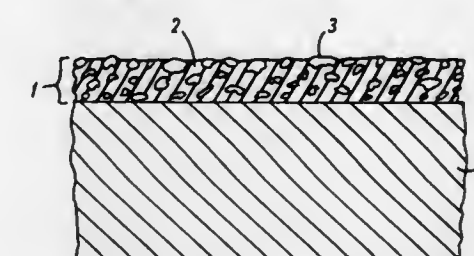
having a modulus at 300% of 200 p.s.i. or higher, a coumarone-indene resin, a polar solvent which is an unsaturated resinous oil that is nonvolatile under atmospheric conditions, a chlorinated hydrocarbon solvent which is volatile under atmospheric conditions, a non-polar solvent of the aromatic hydrocarbon type which is volatile under atmospheric conditions, a cationic emulsifier and water. An emulsion concentrate (2) containing from about 40 to 60 parts of an asphalt of about 10 to 30 penetration grade; a non-polar solvent of the aromatic hydrocarbon type which is volatile under atmospheric conditions; a chlorinated hydrocarbon solvent which is volatile under atmospheric conditions, a cationic surfactant, and water. Method of treating soils with an aqueous emulsion containing a mixture of concentrates (1) and (2) or consecutively with an emulsion containing concentrate (1) and also with an emulsion containing concentrate (2) or vice versa.

3,592,789
PROCESS FOR PREPARING POLYMER SOLUTION FROM AROMATIC ANHYDRIDES AND ISOCYANATES
 Benjamin A. Bolton, Chesterton, Ind., assignor to Standard Oil Company, Chicago, Ill.
 No Drawing. Filed Feb. 7, 1968, Ser. No. 703,557
 Int. Cl. C08g 51/44, 51/48

U.S. Cl. 260—30.8 **3 Claims**
 This invention relates to the production of insulating and protective coatings for electric wire and other surfaces. More particularly it relates to the preparation of coating solutions wherein aromatic anhydrides and polyisocyanate are dissolved in a polar solvent boiling above 300° F. at a temperature of about 150° to 300° F. The coating solution is then cooled to room temperature and the resulting solution is applied to metal surfaces and baked to adherent, tough films useful as electrical and missile coatings.

3,592,790
COATING COMPOSITION AND METHOD OF COATING ARTICLES THEREWITH
 Lloyd T. Flanner, Florham Park, and Paul D. Dernier, Stirling, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
 Filed June 27, 1968, Ser. No. 740,764
 Int. Cl. C08f 37/18; C08g 51/24

U.S. Cl. 260—33.6 **17 Claims**



Disclosed are aerosol spray compositions suitable for home application of non-stick coatings to food processing utensils, comprising finely divided granular polytetrafluoroethylene, methylphenyl silicon resin binder, and a solvent-propellant carrier mix, and a method of coating food processing utensils with these compositions, which method comprises the steps of first spray coating the utensils with these compositions, and then baking the spray coat to form a hard abrasion resistant non-stick surface.

3,592,791

COLORATION PROCESS

Peter William Barker, Albert Charles Cooper, and Francis Irving, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Nov. 13, 1967, Ser. No. 682,502
Claims priority, application Great Britain, Nov. 23, 1966, 52,466/66

Int. Cl. C08g 51/14

U.S. Cl. 260—37

4 Claims

Mass-coloration of polyamides with copper phthalocyanines containing from 1 to 4 carboxylic acid or carboxylic acid amide groups.

3,592,792

AGRICULTURAL PLASTIC FILM

Gordon C. Newland, Roger M. Schulken, Jr., and Raymond C. Harris, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed July 24, 1968, Ser. No. 747,076
Int. Cl. A01g 7/00; C08f 45/66

U.S. Cl. 260—41

9 Claims

Poly- α -olefin films for use as agricultural ground cover can be made heat absorbent to assist in plant development while preventing weed growth, and thereafter heat reflective to give increased crop production, and thereafter friable, by the incorporating into the film composition certain fugitive heat absorptive colorants, light reflective opaquing pigments, and pro-oxidants.

3,592,793

SCORCH RETARDANT

Edwin J. Latos, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed July 10, 1969, Ser. No. 840,821
Int. Cl. C08c 11/12, 11/46; C08d 11/04

U.S. Cl. 260—41.5

10 Claims

Retarding scorch in a curable rubber composition containing a phenylenediamine antiozonant by incorporating calcium silicate therein.

3,592,794

STABILIZED CONJUGATED DIENE POLYMERS AND COPOLYMERS

William O. Drake and Clive D. Moon, Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Filed Oct. 24, 1968, Ser. No. 770,419
Int. Cl. C08d 7/10; C08g 5/54

U.S. Cl. 260—45.9

9 Claims

Conjugated diene polymers are stabilized to minimize melt flow decrease at elevated temperatures by admixing the polymer of the conjugated diene with 0.1 to 10 parts by weight per 100 parts of polymer of an alkali metal nitrite either alone or together with 0.1 to 5 parts by weight per 100 parts of polymer of an alkali metal bisulfite.

3,592,795

ROOM TEMPERATURE VULCANIZABLE SILICONE RUBBER COMPOSITIONS

Bruce A. Ashby, Schenectady, N.Y., assignor to General Electric Company
No Drawing. Continuation-in-part of abandoned application Ser. No. 482,943, Aug. 26, 1965. This application Apr. 10, 1969, Ser. No. 815,206
The portion of the term of the patent subsequent to Oct. 29, 1985, has been disclaimed
Int. Cl. C08g 47/10

U.S. Cl. 260—46.5

16 Claims

Compositions vulcanizable at room temperature comprising an organic polymer such as a polyether or polyester having terminal organosilyl radicals with aminoxy radicals attached to silicon. These curable compositions can be employed as sealants and caulking compounds.

3,592,796

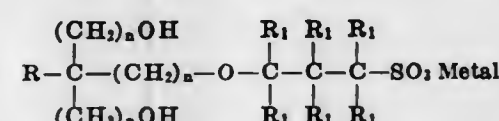
LINEAR POLYESTER POLYMERS CONTAINING ALKALI METAL SALTS OF SULFONATED ALIPHATIC COMPOUNDS

Louis E. Trapasso, Westfield, and Robert W. Stackman, Morris Township, Morris County, N.J., assignors to Celanese Corporation of America, New York, N.Y.
No Drawing. Continuation of application Ser. No. 502,520, Oct. 22, 1965. This application Mar. 10, 1969, Ser. No. 809,468
Int. Cl. C08g 39/04, 53/14

U.S. Cl. 260—75

4 Claims

A mixture of a linear terephthalate polyester polymer and minor amounts of a metallized compound having the formula:



wherein

- (a) R represents a member selected from the group consisting of hydrogen and an alkyl radical containing from 1 to 6 carbon atoms,
(b) R_1 , individually, represents a member selected from the group consisting of hydrogen and an alkyl radical containing from 1 to 6 carbon atoms, and
(c) each n represents an integer from 0 to 3.

3,592,797

CLEAR, VIRTUALLY COLORLESS POLYETHYLENE TEREPHTHALATE

William M. Dunbar, Village of Cottage Grove, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
No Drawing. Continuation-in-part of abandoned application Ser. No. 755,819, Aug. 28, 1968. This application June 9, 1969, Ser. No. 831,749
Int. Cl. C08g 17/04, 17/003

U.S. Cl. 260—75

5 Claims

Clear and virtually colorless resin such as is obtained by polymerizing dimethyl terephthalate or terephthalic acid and ethylene glycol with catalytic amounts of zinc acetate and trimethylolpropane. Biaxially oriented film of the polymer is likewise clear and virtually colorless and especially useful as a photographic film base.

3,592,798

PREPARATION OF POLYTHIOETHER ADDITION PRODUCTS

Alexis A. Oswald, Mountainside, N.J., assignor to Esso Research and Engineering Company
Filed Apr. 11, 1966, Ser. No. 541,696
Int. Cl. C08g 23/00

U.S. Cl. 260—79

12 Claims

Novel terminal difunctional polythioether polyadducts useful as mastic compositions are prepared by reacting dithiols with acetylenes under free radical conditions. Dependent on the thiol/acetylene ratio, the novel polymers contain thiol and/or vinyl sulfide end groups.

3,592,799

METHOD FOR THE MANUFACTURE OF SYNTHETIC ELASTOMERS AND PRODUCTS OBTAINED BY SUCH METHOD

Georges Rouzler, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements, Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France
Filed Apr. 28, 1966, Ser. No. 546,022
Claims priority, application France, Apr. 29, 1965, 15,253

Int. Cl. C08f 15/04; C08d 1/20, 1/36

U.S. Cl. 260—83.7

14 Claims

A process for the preparation of polymers having a polymodal molecular weight distribution wherein a con-

jugated diene monomer compound is polymerized by means of an organic lithium polymerization catalyst and when a fraction of the monomer has polymerized then adding to the reaction medium an organic halide.

3,592,800

POLYMERIZATION OF VINYL CHLORIDE IN AQUEOUS SUSPENSION IN THE PRESENCE OF LOW VISCOSITY POLYVINYL ALCOHOL AND A PROTECTIVE COLLOID

Werner Oschmann, 148 Mundenheimer Strasse, 6700 Ludwigshafen, Germany; Richard Greger, 63 Kirchwaldstrasse, 6800 Mannheim, Germany; and Alfred Hauss, 7 Kranichstrasse, and Gernot Winter, 2 Gneisenaustrasse, both of 6700 Ludwigshafen, Germany
No Drawing. Filed Nov. 26, 1968, Ser. No. 779,217
Claims priority, application Germany, Nov. 29, 1967, P 17 20 328.0

Int. Cl. C08f 1/11, 3/30, 15/28

U.S. Cl. 260—85.5

5 Claims

Process for polymerizing vinyl chloride in aqueous suspension in the presence of conventional high molecular weight protective colloids and a low molecular weight polyvinyl alcohol which improves the absorption of plasticizer without affecting the high electrical resistance.

3,592,801

FREE-FLOWING FUSED BEADS OF THERMOPLASTIC POLYMERS

Jerry D. Ilavsky and Richard W. Ford, Sarnia, Ontario, Canada, assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Dec. 12, 1968, Ser. No. 783,412
Int. Cl. C08f 15/04; C08d 3/04, 5/02

U.S. Cl. 260—88.2

14 Claims

Free-flowing fused beads of normally solid, thermoplastic organic polymers such as polyethylene are prepared by (1) suspending a fine powder of the thermoplastic polymer in an aqueous medium containing a small amount of a non-reactive, insoluble suspending agent such as zinc oxide, (2) heating the resulting suspension to a temperature at or above the melting point of the polymer while subjecting the suspension to agitation and (3) cooling the suspension under continued agitation.

3,592,802

POLYMERIZATION OF TETRAFLUOROETHYLENE

Lacey E. Scoggins and John E. Mahan, Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Filed Nov. 25, 1968, Ser. No. 778,794
Int. Cl. C08f 3/24

U.S. Cl. 260—92.1

10 Claims

Tetrafluoroethylene is polymerized in the presence of at least one di(saturated hydrocarbyl) peroxydicarbonate wherein the saturated hydrocarbyl radicals have from 1 to 4 carbon atoms.

3,592,803

MALONAMIDES AS ANTIPLASTICIZERS FOR POLYVINYL CHLORIDES

Clarence R. Bresson, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed Apr. 9, 1969, Ser. No. 814,800
Int. Cl. C08f 29/18

U.S. Cl. 260—92.8

7 Claims

2-aminomalonamides having a hydrocarbyl substituent on each of the three nitrogen atoms, for example, as in $\text{N,N}'$ -dicyclohexyl-2-(cyclohexylamino)malonamide, are used as processing aids and antiplasticizers for polymers of the poly(vinyl chloride) type.

3,592,804

N-(SUBSTITUTED- α -PENICILLOYL)-DIAMINO CARBOXYLIC ACIDS

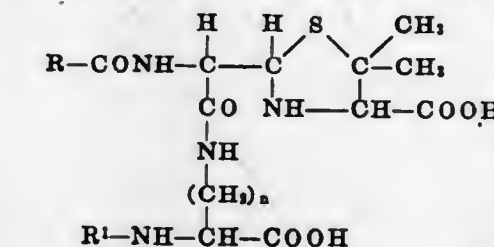
Peter Quitt, Basel, and Karl Vogler, Riehen, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed Nov. 19, 1968, Ser. No. 777,178
Claims priority, application Switzerland, Jan. 4, 1968, 88/68

Int. Cl. A61k 27/00; C07c 103/52; C07d 91/18

U.S. Cl. 260—112.5

10 Claims

Penicilloic acid derivatives of the formula



wherein n is an integer from 2 to 4 and R in preferred embodiments is benzyl, phenoxyethyl or allylthiomethyl and R^1 is hydrogen or lower acyl and methods for their preparation are disclosed. These penicilloic acid derivatives are useful for inhibiting allergic reactions which occur on administration of penicillins.

3,592,805

COMPLEX OF ORGANIC AMINE WITH A COMPLETELY HALOGENATED ACETONE AND METHOD OF PREPARATION

Karoly Szabo, Pleasantville, N.Y., and Ashley H. Freiberg, Santa Clara, Calif., assignors to Stauffer Chemical Company, New York, N.Y.

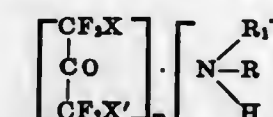
No Drawing. Continuation of application Ser. No. 308,632, Sept. 13, 1963, which is a continuation-in-part of application Ser. No. 221,456, Sept. 5, 1962. This application Feb. 17, 1969, Ser. No. 802,740

Int. Cl. A01n 9/16, 9/20, 9/22

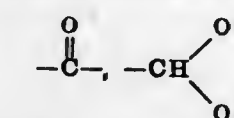
U.S. Cl. 260—140

2 Claims

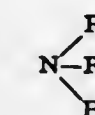
A chemical complex of the following formula:



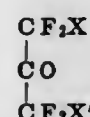
wherein R_1 and R_2 are hydrogen; an alkyl radical of from 1 to 18 carbon atoms; an alkyl radical of from 1 to 18 carbon atoms; an alkynyl radical of from 1 to 9 carbon atoms; a non-aromatic carbocyclic radical of from 5 to 6 carbon atoms; an alkyl radical wherein the alkyl portion is lower alkyl and the aryl portion is a phenyl or naphthyl radical; phenyl radical; naphthyl radical; an amino radical; cyano or a heterocyclic radical; and when taken together R_1 and R_2 may form a heterocyclic ring system; it being provided that the aforesaid radicals may have attached thereto the functional moiety: halogen, $-\text{CN}$, $-\text{SCN}$, $-\text{COOR}$, $-\text{SO}_2\text{NR}_2$, $-\text{SOR}$, $-\text{SO}_2\text{R}$, $-\text{CONR}_2$, $-\text{CONHR}$, $-\text{OH}$, $-\text{SH}$, $-\text{NR}_2$, $-\text{NHR}$, $-\text{NH}_2$, $-\text{OR}$, $-\text{SR}$, $-\text{OC(O)R}$, $-\text{CHO}$,



$-\text{NO}_2$ and $-\text{N}=\text{N}$, wherein R can be an organic radical of the type above defined for R_1 and R_2 ; X and X' are fluorine or chlorine, and n and m are integers of from 1 to 3 with the proviso that n and m are identical when equal to unity; and a method for preparing said chemical complex by reacting 1 to 2 moles of an organic amine of the formula



wherein R_1 and R_2 have the values as above designated, with 1 to 2 moles of a fully halogenated acetone of the formula



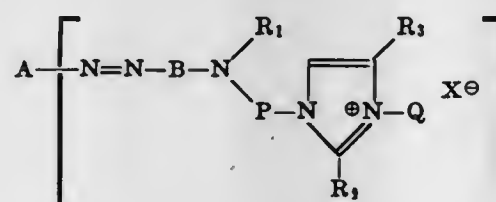
wherein X and X' have the values as above designated, and isolating the so-formed chemical complex and the use of said chemical complexes as fungicides.

3,592,806

BASIC AZO DYESTUFFS CONTAINING A QUATER-NIZED N-ALKYL-N - β -(IMIDAZOLYL) LOWER ALKYLARYLAMINE GROUP

Masso Iizuka, Kyokujir Arakawa, and Yoshiaki Yamamoto, Tokyo, Japan, assignors to Hodogaya Kagaku Kabushiki Kaisha, Tokyo, Japan
No Drawing. Filed Dec. 12, 1967, Ser. No. 689,780
Claims priority, application Japan, Dec. 19, 1966, 41/82,738

Int. Cl. C09b 29/36, 62/82; D06p 1/02
U.S. Cl. 260—157 14 Claims
A basic dyestuff of the formula:



wherein:

A is a residue selected from the group consisting of substituted and unsubstituted benzenes, diphenyls, diphenylmethanes, azobenzenes, thiazoles, benzothiazoles, thiadiazoles, triazoles, and derivatives thereof, wherein the substituents are non-water-solubilizing substituents selected from the group consisting of chlorine, bromine, nitrile, nitro, acetyl, trifluoromethyl, lower alkylsulfonyl, sulphonamide, mono- and di-lower alkylsulphonamide, lower alkoxy carbonyl, acetyl amino, phenyl amino, phenyl, lower alkyl and lower alkoxy;

B is a radical selected from the group consisting of substituted and unsubstituted phenylene and naphthylene radicals bonded to the azo and the amino groups in the 1- and 4-positions, wherein the substituents are non-water-solubilizing substituents selected from the group consisting of chlorine, methyl, methoxy and acetyl amino;

R_1 is a member selected from the group consisting of lower alkyl having from 1 to 4 carbon atoms, β -cyanoethyl, β -hydroxyethyl and benzyl;

R_2 and R_3 each is a member selected from the group consisting of hydrogen, methyl, ethyl and phenyl;

P is an alkylene radical having from 2 to 3 carbon atoms;

Q is a member selected from the group consisting of lower alkyl, benzyl and carbamoyl ethyl;

X is an anion; and

n is 1 or 2.

The dyestuffs of the present invention are useful as dyes for a wide variety of materials, including tanned cellulosic fibers, silk, leather, cellulose acetate, paper, and synthetic fibers, especially polymeric and copolymeric acrylonitrile. The dyestuff of the present invention is particularly suitable for dyeing polyacrylonitrile fibers with excellent light, wet, and heat-fastness properties.

WATER-INSOLUBLE (N - CYANOLOWERALKYL-N-ACYLOXYLOWERALKYLAMINO) - PHENYLAZO-BENZENE DYESTUFFS

Hanswilli von Brachel, Offenbach (Main), Dieter Cornelius, Seehelm, and Otto Gräwinger, Frankfurt am Main, Fechenheim, Germany, assignors to Cassella Farbwerke Mainkur Aktiengesellschaft, Frankfurt am Main, Fechenheim, Germany
No Drawing. Filed Dec. 14, 1965, Ser. No. 513,828
Claims priority, application Germany, Dec. 24, 1964, C 34,750

Int. Cl. C07c 107/00; C09b 29/08; D06p 1/06
U.S. Cl. 260—207.1 3 Claims
This invention relates to water-insoluble monoazo dyestuffs having a diazo coupled N-cyano-lower-alkyl, N-acyloxy-lower-alkyl aniline structure, which dyestuffs dye or print natural and synthetic fibers with good fastness properties.

3,592,808

METHOD OF PRODUCING D-XYLO-HEXOFURAN-URONO-6,3-LACTONE-5-ULOSE PROTECTED IN 1,2-POSITION

Olof Theander, Sandgrund, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,436
Claims priority, application Sweden, Dec. 22, 1967, 17,657/67

Int. Cl. C07c 47/18 4 Claims
An improved method of preparing 1,2-O-isopropylidene-D-xylo-hexafuranurono-6,3-lactone-uloose from either 1,2-O-isopropylidene- α -D-glucofuranose or 1,2:5,6-bis-O-isopropylidene- α -D-glucofuranose by oxidizing with oxygen or an oxygen containing gas in the presence of a platinum catalyst at a pH below 6.

3,592,809

PROCESS FOR THE PRODUCTION OF LACTAMS

Otto Immel and Hermann Schnell, Krefeld-Uerdingen, and Hans-Helmut Schwarz, Krefeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Apr. 16, 1968, Ser. No. 721,580
Claims priority, application Germany, Apr. 25, 1967, F 52,235

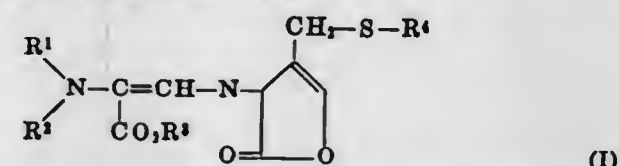
Int. Cl. C07d 41/06 8 Claims
The invention relates to a process for the production of lactams by catalytical rearrangement of ketoximes in the gaseous phase, using as a catalyst system a mixture of boron trioxide or boric acid, highly dispersed carbon, and one or more additional inorganic supporting material, said highly dispersed carbon having a particle size of less than 0.1 mm. in diameter.

3,592,810

PROCESS FOR THE PREPARATION OF CEPHALOSPORIN C INTERMEDIATES

Joseph E. Dolfini, North Brunswick, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed June 16, 1967, Ser. No. 646,484
Int. Cl. C07d 99/24

U.S. Cl. 260—240 5 Claims
This invention relates to the chemical synthesis of cephalosporin C lactone by a process that utilizes a novel intermediate having the Formula I



wherein R^1 and R^2 together form a divalent acyl group derived from dicarboxylic acid; R^3 is alkyl, aryl, aralkyl; and R^4 is acyl, alkyl, or aralkyl; and the process of preparation thereof.

3,592,811

2-HEXAFLUOROISOPROPYLIDENE-1,3-THIAZETIDINES AND THE PREPARATION THEREOF

Maynard S. Raasch, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Aug. 9, 1967, Ser. No. 659,346
Int. Cl. C07d 85/04

U.S. Cl. 260—240 10 Claims
Fluorinated thiazetidines having selected substituents are produced by the reaction of bis(trifluoromethyl)thio ketene with a carbodiimide or an azine at moderate temperatures. These products are surface treating agents for making textiles water repellent.

3,592,812

7 - (1 - AMINOCYCLOALKYLCARBOXAMIDO) CEPHALOSPORANIC ACIDS AND RELATED COMPOUNDS

Harvey E. Alburn, West Chester, and William Dvovich, Chester, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed Dec. 6, 1968, Ser. No. 782,005
Int. Cl. C07d 99/24

U.S. Cl. 260—243 5 Claims
Novel 7 - (1-aminocycloalkylcarboxamido)cephalosporanic acids, including aliphatic and aryl-cycloalkyl ring substituted cephalosporanic acids are prepared. The compounds have useful antibiotic activity.

3,592,813

3-PHENYL-9H-PYRIDAZINO[3,4-b]INDOLES

Kenneth G. Holden, Haddonfield, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.
No Drawing. Original application Apr. 18, 1967, Ser. No. 631,619, now Patent No. 3,519,592. Divided and this application Apr. 21, 1970, Ser. No. 30,579
Int. Cl. C07d 51/04

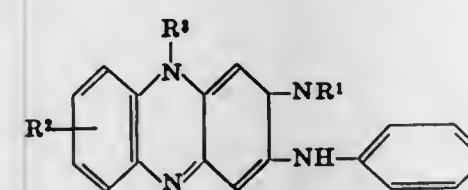
U.S. Cl. 260—250 3 Claims
3-phenacylidene-2-oxoindoline-7-carboxylic acids and esters, prepared by converting 2,3-dioxoindoline-7-carboxylic acids to 3-hydroxy-3-phenacyl-2-oxo compounds and subsequent dehydration. The 3-phenacylidene compounds are reduced to the 3-phenacyl compounds and then ring-closed with hydrazine to give 3-phenylpyridazinoindoles. 2-oxoindoline-7-carboxylic acids are prepared by stepwise reduction of the 2-3-dioxo compounds. Certain of the compounds have antiinflammatory activity.

3,592,814

PHENAZINE DERIVATIVES

Vincent C. Barry, Joan Byrne, James G. Belton, and Michael L. Conalty, Dublin, Ireland, assignors to May & Baker Limited, Essex, England
No Drawing. Filed Sept. 12, 1968, Ser. No. 759,509
Claims priority, application Great Britain, Oct. 26, 1967, 48,797/67

Int. Cl. C07d 51/80 7 Claims
U.S. Cl. 260—267
Phenazine derivatives of the formula:



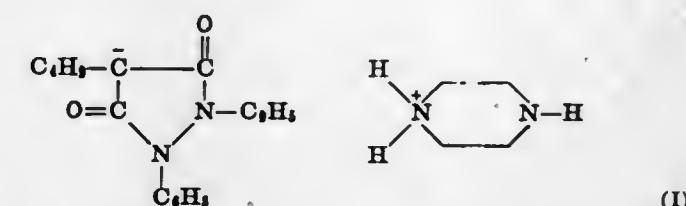
wherein (a) R^1 represents isopropyl or phenyl, R^2 represents methoxy on position 8 of the phenazine nucleus, and R^3 represents phenyl, or (b) R^1 represents isopropyl or cyclohexyl, R^2 represents chlorine on position 8 of the phenazine nucleus, and R^3 represents phenyl, or (c) R^1 represents phenyl, R^2 represents methoxy on position 7 of the phenazine nucleus, and R^3 represents phenyl or p-chlorophenyl, are active against tuberculosis and leprosy.

3,592,815

PROCESS FOR PREPARING A PIPERAZINE SALT OF DIPHENYL-1,2-BUTYL-4-DIOXO 3,5-PYRAZOLIDINE

Jean Marie Charles De Muylder, 49 Avenue Reine Astrid, Crainhem, Belgium
Filed July 7, 1967, Ser. No. 651,869
Claims priority, application Belgium, May 9, 1967, 43,432

Int. Cl. C07d 51/64 4 Claims
U.S. Cl. 260—268
A piperazine salt of diphenyl-1,2-butyl-4-dioxo 3,5-pyrazolidine of the formula



is produced by dissolving in a solvent such as acetone or methanol, piperazine and the pyrazolidine with the piperazine in stoichiometric excess, at about 30° C. The obtained solution is poured into a solvent such as hexane or ethyl ether to precipitate the salt.

3,592,816

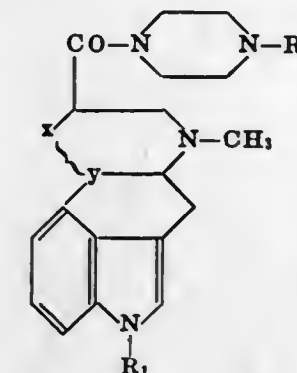
N-SUBSTITUTED PIPERAZIDES OF LYSERGIC ACID

Franz Troxler and Albert Hofmann, Böttingen, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

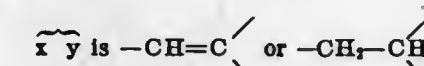
No Drawing. Continuation-in-part of application Ser. No. 614,054, Feb. 6, 1967. This application Nov. 1, 1967, Ser. No. 679,646

Claims priority, application Switzerland, Feb. 8, 1966, 1,756/66; Dec. 9, 1966, 17,530/66; July 19, 1967, 10,250/67

Int. Cl. C07d 51/70 14 Claims
U.S. Cl. 260—268
The present invention relates to compounds of general Formula I,



in which R_1 is hydrogen or methyl, and R_2 is aralkyl of 7 to 9 carbon atoms, aryl or aryl substituted by one or more of the following radicals: methyl, alkoxy of 1 to 4 carbon atoms, chlorine or bromine, and



and their acid addition salts. The compounds in which R_1 is hydrogen and



have antidepressive properties. The remaining compounds have sedative properties. The preparation of the compounds is also described.

3,592,817
PREPARATION OF PERCHLOROPYRIDINE AND PERCHLOROCYANOPYRIDINE COMPOUNDS BY VAPOR PHASE CHLORINATION OF ALIPHATIC NITRILES

Howard Johnston, Michael J. Marinak, and Sven H. Ruetman, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed May 17, 1968, Ser. No. 729,924
 Int. Cl. C07d 31/26

U.S. Cl. 260—290 9 Claims
 A novel process is disclosed whereby highly chlorinated pyridines and cyanopyridines can be prepared by the vapor phase chlorination of lower aliphatic nitriles containing from 3 to about 10 carbon atoms. For example, pentachloropyridine can be produced in excellent yields by the chlorination of valeronitrile, while isomeric tetrachlorocyanopyridines can be prepared by the chlorination of such compounds as adiponitrile or a 1,4-dicyanobutene. The process is one whereby mixed vapors of the aliphatic nitrile and chlorine are reacted together in the presence of a diluent gas at temperatures of from at least 450° to 750° C.

3,592,818
PROCESS FOR THE PRODUCTION OF ALPHA-PICOLINE AND BETA-PICOLINE IN VAPOR PHASE WITH CATALYSTS BASED ON SILICA MAGNESIA

Jean Herzenberg, Milan, Giorgio Boccato, Venice, and Marcello Pieroni, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
 No Drawing. Filed June 28, 1967, Ser. No. 649,447
 Claims priority, application Italy, July 1, 1966, 15,162/66
 Int. Cl. C07d 31/08

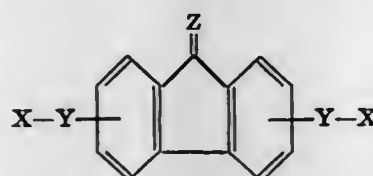
U.S. Cl. 260—290 6 Claims
 A process is provided for the preparation of mixtures of alpha-picoline and gamma-picoline comprising the reaction of ammonia and acetaldehyde or paraldehyde in the vapor phase at a temperature of from 200° C. to 650° C. in the presence of

- a catalyst comprised of a mixture of silica and magnesia; and
- a cadmium fluoride co-catalyst the amount of the magnesia of said catalyst being from 10% to 60% by weight.

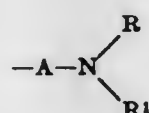
3,592,819
BIS-BASIC ETHERS AND THIOETHERS OF FLUORENONE, FLUORENOL AND FLUORENE

Robert W. Fleming, Cincinnati, Ohio, David L. Wenstrup, Covington, Ky., and Edwin R. Andrews, Cincinnati, Ohio, assignors to Richardson Merrell Inc., New York, N.Y.
 No Drawing. Filed Dec. 30, 1968, Ser. No. 788,038
 Int. Cl. C07d 29/36

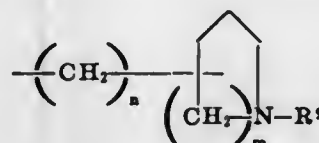
U.S. Cl. 260—294.7C 27 Claims
 Novel bis-basic ethers and thioethers of fluorenone, fluorenone and fluorene selected from a base of the formula



wherein: Z is oxygen, H₂ or H.OH; each Y is oxygen or sulfur; and each X is



wherein A is alkylene of 2 to about 8 carbon atoms and separates the amino nitrogen thereof and Y by an alkylene chain of at least 2 carbon atoms, each R and R¹ is hydrogen, (lower)alkyl, cycloalkyl of 3 to 6 ring carbon atoms, alkenyl of 3 to 6 carbon atoms having the vinyl unsaturation in other than the 1-position of the alkenyl group, or each set of R and R¹ taken together with the nitrogen to which they are attached is pyrrolidino, piperidino, N-(lower)alkylpiperazino, or morpholino; or each X is (B) the group



wherein n is an integer of 0 to 2, m is 1 or 2 and R² is hydrogen, (lower)alkyl, or alkenyl of 3 to 6 carbon atoms having the vinyl unsaturation in other than the 1-position of the alkenyl group; or a pharmaceutically acceptable acid addition salt of said base.

These compounds can be used as pharmaceuticals for preventing or inhibiting a viral infection.

3,592,820
SUBSTITUTED CATECHOL SALTS OF BENZOTRIAZOLES OR PHENYLHYDRAZINES

Keith Coupland, Hornsea, and John Pennington, Willerby, England, assignors to BP Chemicals (U.K.) Limited, formerly known as Distillers Chemicals and Plastics Limited, London, England
 No Drawing. Filed Dec. 18, 1967, Ser. No. 691,125
 Claims priority, application Great Britain, Dec. 24, 1966, 57,868/66
 Int. Cl. C07c 109/04; C07d 55/04

U.S. Cl. 260—308B 10 Claims
 The invention is novel compound which may be produced by reaction of a substituted catechol with either phenylhydrazine or a substituted phenylhydrazine or with benzotriazole or a substituted benzotriazole. The reaction may be carried out in an inert solvent, such as a hydrocarbon. The compounds are useful as antioxidants in lubricant compositions.

3,592,821
2-(2'-HYDROXY-3',5'-DICHLOROPHENYL)-5-CHLORO- OR 5-METHYLBENZIMIDAZOLES

Max Schellenbaum, Muttentz, and Max Duennenberger, Frenkendorf, Switzerland, assignors to CIBA Limited, Basel, Switzerland
 No Drawing. Filed May 21, 1968, Ser. No. 730,944
 Int. Cl. C07d 49/38

U.S. Cl. 260—309.2 3 Claims
 2 - (2' - hydroxy - 3',5' - dichloro - phenyl) - 5 - chloro - or methylbenzimidazoles useful for combating harmful microorganisms.

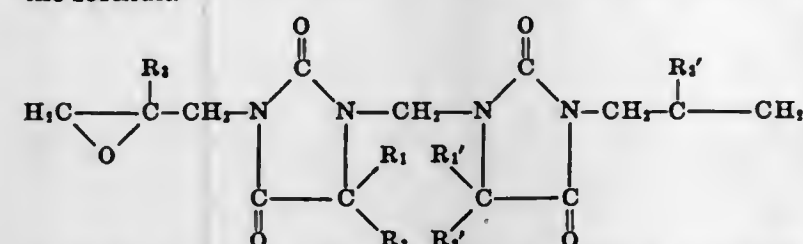
3,592,822
ADDUCTS OF HEXAHALO ACETONES AND HETEROCYCLIC NITROGEN COMPOUNDS

Everett E. Gilbert, Morristown, and Edmund J. Rumanowski, Dover, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
 No Drawing. Filed Jan. 2, 1969, Ser. No. 789,065
 Int. Cl. C07d 49/36, 49/38, 55/04

U.S. Cl. 260—308 6 Claims
 Adducts of fluoroperhaloacetones with imidazole, benzimidazole and benzotriazole useful as anticonvulsants, herbicides and antifertility agents against house flies.

3,592,823
N,N'-DIGLYCIDYL COMPOUNDS
 Daniel Porret, Binningen, Switzerland, assignor to Ciba Limited, Basel, Switzerland
 No Drawing. Continuation-in-part of abandoned application Ser. No. 691,217, Dec. 18, 1967. This application July 18, 1969, Ser. No. 843,215
 Claims priority, application Switzerland, Dec. 27, 1967, 18,617/66
 Int. Cl. C07d 49/32

U.S. Cl. 260—309.5 2 Claims
 Monomeric, crystalline N,N'-diglycidyl compounds of the formula



in which R₁, R₁', R₂ and R₂' each represents a hydrogen atom or a methyl or ethyl group and R₃ and R₃' each represents a hydrogen atom or a methyl group.

3,592,824
3-SUBSTITUTED AMINO-1,2,3,4-TETRAHYDRO-CARBAZOLES

Robert Norman Schut, Edwardsburg, Mich., assignor to Miles Laboratories, Inc., Elkhart, Ind.
 No Drawing. Continuation-in-part of application Ser. No. 670,409, Sept. 25, 1967, which is a continuation-in-part of application Ser. No. 623,244, Mar. 15, 1967, which in turn is a continuation-in-part of application Ser. No. 537,293, Mar. 25, 1966. This application Mar. 12, 1970, Ser. No. 19,084
 Int. Cl. C07d 27/68

U.S. Cl. 260—315 2 Claims
 A series of 3-substituted amino-1,2,3,4-tetrahydrocarbazoles in which at least one of the substituents is an alkynyl radical, which may also be substituted in the 6- or 9-positions, useful as analgetic agents.

3,592,825
p-DIOXENE SYNTHESIS

Thomas C. Snapp and Alden E. Blood, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Dec. 26, 1968, Ser. No. 787,205
 Int. Cl. C07d 15/12

U.S. Cl. 260—340.6 14 Claims
 2,3-dihydro-p-dioxin (p-dioxene) is prepared by a process which comprises contacting a mixture of hydrogen, water and diethylene glycol in the vapor phase at elevated temperature over a catalyst comprising copper, silver, nickel, chromium, palladium, platinum or mixtures thereof impregnated on a silica gel support containing at least 99 weight percent silicon dioxide and having a surface area in excess of 500 square meters/gram. p-Dioxene is a valuable intermediate in the preparation of polymers useful, for example, as viscosity improvers for motor oils, and in oxonation and epoxidation reactions to yield cyclic aldehydes and alcohols which are useful, for example, as plasticizers, surface active agents and adhesives.

3,592,826
IMIDAZOLE CATALYSTS FOR DIKETENE REACTIONS

Erich Marcus, Charleston, and John Kai-Fai Chan, South Charleston, W. Va., assignors to Union Carbide Corporation
 No Drawing. Filed May 22, 1967, Ser. No. 640,363
 Int. Cl. C07d 7/16

U.S. Cl. 260—343.5 13 Claims
 Imidazole catalyzed reactions for the production of dehydroacetic acid, 2,4,6-heptanetrione and 2,6-dimethyl-4-pyranone from diketene are disclosed.

The examples illustrate the use of 1-methylimidazole; 1-ethylimidazole; 1-isopropylimidazole; 1-octylimidazole; 1,2-dimethylimidazole; 1,2-diethyl-4-methylimidazole to catalyze the reactions.

3,592,827
PURIFICATION OF PYROMELLITIC DIANHYDRIDE

Richard I. Bergman, Princeton, N.J., assignor to Princeton Chemical Research, Inc., Princeton, N.J.
 No Drawing. Original application June 30, 1965, Ser. No. 468,618. Divided and this application Oct. 28, 1968, Ser. No. 771,367
 Int. Cl. C07c 63/32

U.S. Cl. 260—346.3 5 Claims
 Recrystallization from or scrubbing with 1,4-dioxane in order to purify and decolorize, particularly improve the melt color, pyromellitic dianhydride.

3,592,828
17α-(1',3'-ALKADIYNYL)-17β-HYDROXY (17β-ALKOXY)-STEROIDS

Colin Michael Burgess, Peter Feather, and Vladimir Petrow, London, England, assignors to The British Drug Houses Limited
 No Drawing. Filed Feb. 27, 1968, Ser. No. 708,526
 Claims priority, application Great Britain, Mar. 16, 1967, 12,301/67
 Int. Cl. C07c 169/20

U.S. Cl. 260—397.5 12 Claims
 17α - (1',3' - alkadiynyl) - 3β,17β-dihydroxy-4-androstenes and 17α-(1',3'-alkadiynyl)-3β,17β-dihydroxy-4-oestrenes together with 3β-esters and 17β-alkylethers thereof are provided. These compounds are useful in the treatment of conditions and defects of the reproductive systems and for the limitation or enhancement of fertility.

3,592,829
PROCESS FOR THE PREPARATION OF A NEW LYSOLECITHIN MIXTURE

Hans Betzing, Heldestock, Germany, assignor to A. Nattermann & Cie G.m.b.H., Braunsfeld, Germany
 No Drawing. Filed Apr. 7, 1969, Ser. No. 814,190
 Claims priority, application Austria, Apr. 17, 1968, A 3,762/68
 Int. Cl. A23j 7/00; C07f 9/02

U.S. Cl. 260—403 9 Claims
 Lysolecithins are obtained by a mild alcoholysis in which the percentage of the unsaturated fatty acids corresponds at least to the starting material.

3,592,830
ALKYLENEDIAMINE DERIVATIVES CONTAINING CARBOHYDRATES

Nasser, Israilly, 8 Browne St., Brookline, Mass. 02146
 No Drawing. Continuation-in-part of application Ser. No. 697,299, Jan. 13, 1968. This application May 22, 1970, Ser. No. 39,908
 Int. Cl. C07f 15/02; C07c 101/02

U.S. Cl. 260—439 10 Claims
 This invention relates to chelating agents that are the reaction products of an alkylenediamine such as ethylenediamine or propylenediamine and an aldo or keto carbohydrate. To form the chelating agent of the invention, the diamine is first reacted with hydrogen cyanide and subsequently either hydrolyzed or substituted with side chains and then hydrolyzed. The compounds of the invention form stable chelates with metal ions including iron over a wide range of pH.

3,592,831 NITRATOMETHYL-SILICON COMPOUNDS

Sandor Barcza, West Orange, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,800
Int. Cl. C07f 7/10

U.S. Cl. 260—448.2N 13 Claims
The compounds are silanes and disiloxanes having at least one nitratomethyl group, e.g., hexakis-nitratomethyl disiloxane. The compounds are useful pharmaceutically, and as explosives and are prepared by reacting an appropriate halomethyl-substituted silane or disiloxane with metallic nitrate, e.g., silver nitrate.

3,592,832 PREPARATION OF AMORPHOUS GUANIDINE SILICATE POWDERS

Paul Clifford Yates, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed June 4, 1969, Ser. No. 830,543
Int. Cl. C07f 7/02; 7/04

U.S. Cl. 260—448.2N 6 Claims
A process has been developed for preparing dry powders of amorphous guanidine silicate wherein an aqueous solution of water soluble amorphous guanidine silicate having a guanidine to SiO₂ mole ratio of from 0.67:1 to 1.2:1 is mixed with from 1 to 10 volumes of ethanol or isopropanol per volume of solution to precipitate amorphous guanidine silicate, which is then removed and dried. These dry powders of amorphous guanidine silicate find utility as binders for MgO in high temperature ramming mixtures to repair eroded and torn areas in steel blast furnaces.

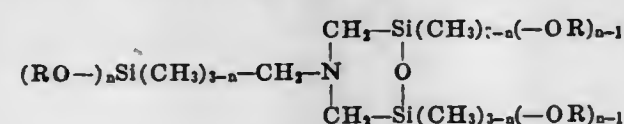
3,592,833 TRIS-(ORGANOSILYLMETHYL)-AMINES AND PRODUCTION THEREOF

Armand de Montigny, Leverkusen, Dietrich Goltz, Cologne-Stammheim, and Walter Simmler, Odenthal-Schlinghofen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed May 23, 1968, Ser. No. 731,647
Claims priority, application Germany, June 3, 1967, F 52,594

Int. Cl. C07f 7/02, 7/18
U.S. Cl. 260—448.8R 10 Claims
Novel tris-(organosilyl-methyl)-amines of the general formula



in which R is an alkyl radical having 1 to 4 carbon atoms and *n* is 1, 2 or 3 and condensation products derived therefrom and corresponding to the general formula



are useful intermediates, surfactants and primers. They are produced by introducing anhydrous ammonia into a solution of a bromomethyl-alkoxysilane of the general formula

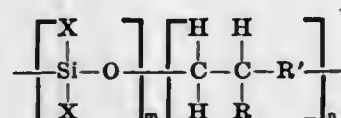


under atmospheric pressure, the solvent being a polar aprotic compound the dielectric constant of which is greater than 25 at 20° C., preferably acetonitrile, effecting reaction between the ammonia and the silane at a temperature between -30° C. and the boiling point of the reaction mixture, and separating the trisamine from ammonium bromide and the solvent. Optionally, these tris-amines are hydrolyzed with water to give the above condensation products.

3,592,834 ORGANO-SILICA POLYMERS

Stanley J. Buckman, Rudolf F. Land, and Michael L. Mishler, Memphis, Tenn., assignors to Buckman Laboratories, Inc., Memphis, Tenn.
No Drawing. Filed Jan. 27, 1969, Ser. No. 794,349
Int. Cl. C07f 7/02, 7/04

U.S. Cl. 260—448.8A 15 Claims
Organo-silica polymers having the formula:



wherein *m* and *n* are integers independently representing the number of units; R represents —H, —CN, —CONH₂, —CONH₂⁺, —COOH, —COO[−], —COOM, COOR⁺; R' represents —NH—, —NH₂⁺, —NR⁺—, —NR⁺H⁺—, —NR⁺₂⁺—, —CH₂—CHR—; and whenever R' contains nitrogen, R' represents an alkyl or aryl radical; M represents an alkali metal; X represents an —OH, —O[−], —OM; are suitable as sequestering, dispersing, and flocculating agents.

3,592,835 METHOD OF PREPARING THIONCARBAMATE ESTERS

Robert Andrew Bauman, 10 Landing Lane, New Brunswick, N.J. 07850
No Drawing. Continuation-in-part of abandoned application Ser. No. 502,637, Oct. 11, 1965. This application Nov. 29, 1968, Ser. No. 780,242
Int. Cl. C07c 155/08

U.S. Cl. 260—455 6 Claims
A process for the preparation of thioncarbamate esters which comprises reacting an alkyl or aryl isothiocyanate and a mono- or di-functional alcohol in a reaction medium selected from the group consisting of dialkyl sulfoxide and dialkyl formamide.

3,592,836 ARYLOXYCARBONYL FLUORIDES AND AMINO ACIDS AND THEIR PRODUCTION

Ivar Ugi, Leverkusen, Erich Klauke, Odenthal, Eugen Schnabel, Wuppertal-Elberfeld, and Peter Hoffmann, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Dec. 21, 1967, Ser. No. 692,272
Claims priority, application Germany, Dec. 23, 1966, F 51,062; Aug. 26, 1967, F 53,338, F 53,339
Int. Cl. C07c 69/00

U.S. Cl. 260—463 3 Claims
Aryloxy carbonyl fluorides such as furfuryloxy carbonyl-, p-methoxybenzyloxy carbonyl- and trimethoxybenzyloxy carbonyl-fluorides are provided which are useful as intermediates for amino acid derivatives and are obtained from carbonyl-fluoride chloride by reaction with the appropriate alcohol. The amino acid derivatives of such carbonyl-fluorides are built up through acylation of amino acids therewith. These amino acid derivatives are useful as intermediates for the synthesis of polypeptides. The reaction of carbonylchloride-fluoride is advantageously carried out at temperatures of 0 to -70° C. in an inert solvent and in the presence of an acid-binding agent. The amino acid derivatives are formed at temperatures between +20 and -20° C. also in the presence of an acid-binding agent. Imino acids can be used in place of amino acids. The amino- or imino-acid derivatives or esters are advantageously prepared at constant, controlled pH values, preferably by the use of automatic pH control equipment.

3,592,837 BIS-(PHENOXYPHENYL) CARBONATES

Walter Traber, Riehen, and Anton G. Weiss, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Filed July 26, 1968, Ser. No. 747,792
Claims priority, application Switzerland, Aug. 1, 1967, 10,854/67

Int. Cl. C07c 69/00; C11d 3/48; A61l 13/00
U.S. Cl. 260—463 6 Claims
Bis-(phenoxyphenyl) carbonates which are unsubstituted or substituted in one or several of their benzene rings by halogen, lower alkyl or trifluoromethyl are disclosed as antibacterial agents.

3,592,838 7 - OXY - 3,4,4a,9,10,10a - HEXAHYDRO-Δ²(1H), α-PHENANTHRENEACETIC ACIDS AND ESTERS THEREOF

Philip E. Shaw, Winter Haven, Fla., and Sol J. Daum, Albany, and Robert L. Clarke, Bethlehem, N.Y., assignors to Sterling Drug Inc., New York, N.Y.
No Drawing. Filed Oct. 11, 1966, Ser. No. 585,762
Int. Cl. C07c 65/14

U.S. Cl. 260—468.5 3 Claims
Alkyl polyhydro-2-phenanthrylideneacetates are prepared by interacting the corresponding 2-oxopolyhydro-phenanthrenes with a tri-lower-alkyl α-phosphono-lower-alkanoate. Said alkyl polyhydro-2-phenanthrylideneacetates are hydrolyzed to the free acid, and then reesterified via the acid chloride with a tertiary-amino-lower-alkanol to give basic esters having cardiotonic activity.

3,592,839 ALIPHATIC KETO-CARBOXYLIC ACIDS

Ronald L. Broadhead, Addison, Ill., and Yedavalli Shamsunder Rao, Dundas, Ontario, Canada, assignors to The Richardson Company, Melrose Park, Ill.
No Drawing. Filed Dec. 1, 1967, Ser. No. 687,108
Int. Cl. C07c 61/22, 101/44, 149/40

U.S. Cl. 260—470 7 Claims
Aliphatic poly(keto-carboxylic) acid compositions characterized by polyphenyl moieties and useful as curing agents for resins, as plasticizers, and as reactants for polyesters. These compositions are illustrated by 4,4'-oxybis-(3-benzoylpropenoic acid).

3,592,840 PRODUCTION OF VINYL ACETATE

Peter John Durston, Thames Ditton, England, assignor to BP Chemicals (U.K.) Limited, formerly known as Distillers Chemicals and Plastics Limited, London, England
No Drawing. Filed May 17, 1967, Ser. No. 639,067
Claims priority, application Great Britain, June 7, 1966, 25,318/66
Int. Cl. C07c 67/04

U.S. Cl. 260—497A 4 Claims
A process for the production of vinyl acetates by the vapour phase catalytic reaction of ethylene, oxygen and acetic acid employing a platinum group metal catalyst supported on titania or mixtures of titania and an alkali metal silicate.

3,592,841 KETO-CARBOXYLIC ACIDS

Ronald L. Broadhead, Addison, Ill., and Yedavalli Shamsunder Rao, Dundas, Ontario, Canada, assignors to The Richardson Company, Melrose Park, Ill.
No Drawing. Filed Dec. 1, 1967, Ser. No. 687,139
Int. Cl. C07c 101/48, 65/14, 149/90

U.S. Cl. 260—515M 14 Claims
Aromatic poly(keto-carboxylic) acid compositions characterized by polyphenyl moieties and useful as cross-

linking agents for polyesters, as plasticizers, and as reactants in the preparation of polymeric compositions. These compositions are illustrated by 4,4'-oxybis(2-benzoyl benzoic acid).

3,592,842 DICHLORO TRIFLUOROMETHYL BENZOIC ACIDS AND THEIR PREPARATION

William J. Houlihan, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 729,944, May 17, 1968. This application Apr. 14, 1969, Ser. No. 816,084
Int. Cl. C07c 63/12

U.S. Cl. 260—515 6 Claims
Dichloro trifluoromethyl benzoic acids are prepared by reacting a dichloro trifluorotoluene with an alkyl lithium compound and treating the resulting compounds with carbon dioxide. The resulting benzoic acids are useful as CNS depressants and agrochemical agents.

3,592,843 PURIFICATION OF L-DOPA

Arnold Brossi, Verona, John Edward Heveran, Fairfield, Edward Arthur MacMullan, Edison, and Bernard Zigmund Senkowski, Bloomfield, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed Jan. 31, 1969, Ser. No. 795,728
Int. Cl. C07c 101/72

U.S. Cl. 260—519 20 Claims
The present invention relates to a process for the optical and chemical purification of L-Dopa by dissolving the impurities in a solvent mixture containing either methanol or ethanol and water and by crystallization, in the presence of ascorbic acid.

3,592,844 RESOLUTION OF RACEMIC AMIDE OF PHENYLALANINE

Donald F. Reinhold, North Plainfield, Walter A. Gaines, Rahway, and Meyer Slettinger, North Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Original application Aug. 11, 1964, Ser. No. 388,952, now Patent No. 3,480,670, dated Nov. 25, 1969. Divided and this application Feb. 6, 1969, Ser. No. 822,339
Int. Cl. C07c 101/72

U.S. Cl. 260—519 4 Claims
A process is described for the preparation of L-α-methyl - β - (3,4 - disubstituted-phenyl)alanines which comprises resolution of the intermediate corresponding amide and hydrolysis of the L-amide to the amino acid.

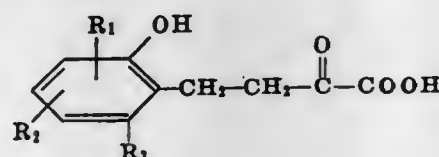
3,592,845 SEPARATION OF 2,3-DIHYDROXY-p-TOLUIC ACID FROM p-TOLUIC ACID

Peter Hosler, Wallingford, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
No Drawing. Filed Aug. 30, 1967, Ser. No. 664,259
Int. Cl. C07c 65/04

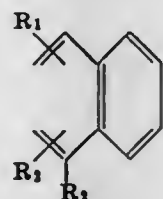
U.S. Cl. 260—521 3 Claims
A mixture of 2,3-dihydroxy-p-toluic acid and p-toluic acid can be separated by solvent extraction based on the finding that when these two acids, in their free acid form, are first extracted from an aqueous mixture of the same by a water-immiscible lower alkyl ester of a monocarboxylic acid, such as amyl acetate, and the resulting extract is then treated with an aqueous alkali solution to form a solvent phase and an aqueous phase, the 2,3-dihydroxy-p-toluic acid has a much higher affinity for the water phase than does the p-toluic acid. The dihydroxy acid may thus be selectively concentrated in the aqueous phase by repeated solvent-alkali treatments, while the p-toluic acid is recovered from the solvent phase.

3,592,846
HYDROXY-PHENYL- α -KETOBUTYRIC ACIDS
 Richard L. Raymond, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa.
 No Drawing. Filed Nov. 28, 1967, Ser. No. 686,329
 Int. Cl. C07c 65/02; A01n 9/24

U.S. Cl. 260—521 8 Claims
 Hydroxyphenylketobutyric acids having the structural formula:



wherein R_1 and R_2 are hydrogen or lower alkyl groups having from one to three carbon atoms; R_3 is hydrogen, and wherein R_1 and R_2 may be the same or different, are prepared by subjecting naphthalene or alkyl-substituted naphthalenes having the structural formula:



wherein R_1 , R_2 , and R_3 are as defined above, to the oxidizing activity of the microorganisms *Nocardia coeliaca*, ATCC No. 21,146, *Nocardia nov. sp.*, ATCC No. 21,145, or *Streptomyces* species, ATCC No. 21,147. These compounds are useful as plant growth regulators.

3,592,847
PROCESS FOR THE PURIFICATION OF TEREPHTHALIC ACID

Robert M. Gallivan, Jr., Buffalo, John H. Bonfield, East Aurora, and Richard C. De Long, Snyder, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed May 2, 1968, Ser. No. 726,206
 Int. Cl. C07c 51/42

U.S. Cl. 260—525 11 Claims
 Purification of crude terephthalic acid contaminated with 4-carboxybenzaldehyde, p-toluic acid and other impurities by recrystallizing said crude terephthalic acid from a mixed solvent comprising an anhydride of a lower alkanic acid and more than two molar proportions of a lower alkanic acid per molar proportion of crude terephthalic acid. The purified terephthalic acid is suitable for use directly as a monomer for the preparation of high molecular weight polyesters.

3,592,848
METHOD OF PURIFYING TEREPHTHALIC ACID
 George Stewart, Tonawanda, and Leon O. Winstrom, East Aurora, N.Y., and Irwin Frankel, Basking Ridge, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 407,518, Oct. 29, 1964. This application May 3, 1968, Ser. No. 726,597

U.S. Cl. 260—525 10 Claims
 Terephthalic acid which has been obtained by the liquid phase oxidation of p-bis(lower alkyl) benzenes especially xylene, is purified by heating with at least one aliphatic ketone containing from 3 to 8 carbon atoms in the liquid phase at superatmospheric pressure and at a temperature above the normal boiling point of the mixture whereby a solution of terephthalic acid in the liquid ketone is produced and cooling the solution thus produced to effect crystallization of purified terephthalic acid crystals.

3,592,849
DECOMPOSITION OF ANHYDRIDES TO ISOMERIC ACIDS

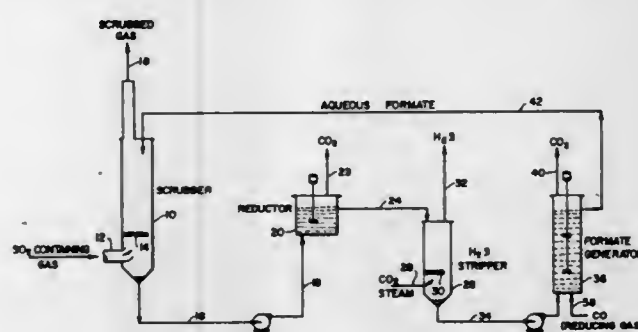
Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
 No Drawing. Filed Jan. 21, 1969, Ser. No. 792,772
 Int. Cl. C07c 51/00, 53/22

U.S. Cl. 260—540 8 Claims
 A process for the preparation of acids from their anhydrides with isomerization of the acid by contacting the anhydride with a catalyst comprising a complex of a Group VIII noble metal and a biphilic ligand at a temperature between 150° C. and 250° C. and at a pressure sufficient to maintain liquid phase reaction conditions. The product acids are useful as intermediates for a variety of products including detergents.

3,592,850
REGENERATION OF FORMATE FROM THIOSULFATE

Nestor J. Mazzocco and Everett Gorin, Pittsburgh, and Paul M. Yavorsky, Monongahela, Pa., assignors to Consolidation Coal Company, Pittsburgh, Pa.
 Continuation-in-part of application Ser. No. 879,225, Nov. 24, 1969. This application June 17, 1970, Ser. No. 47,040

U.S. Cl. 260—542 5 Claims
 Int. Cl. C07c 53/06



Alkali metal formate is made from alkali metal thiosulfate by the following three steps:

- (1) Reduction:
 $4\text{MCOOH} + \text{M}_2\text{S}_2\text{O}_3 + \text{H}_2\text{O} = 4\text{MHCO}_3 + 2\text{MSH}$
- (2) Stripping:
 $\text{MHCO}_3 + \text{MSH} = \text{M}_2\text{CO}_3 + \text{H}_2\text{S}$
 $\text{CO}_2 + \text{H}_2\text{O} + \text{MSH} = \text{MHCO}_3 + \text{H}_2\text{S}$
- (3) Formate synthesis:
 $\text{M}_2\text{CO}_3 + 2\text{CO} + \text{H}_2\text{O} = 2\text{MCOOH} + \text{CO}_2$
 $\text{M}_2\text{CO}_3 + \text{CO} + \text{H}_2 = 2\text{MCOOH}$

where M is either sodium or potassium. The foregoing process is useful in connection with the absorption of sulfur dioxide from flue gas by alkali metal formate at temperatures above 140° F. to form the corresponding thiosulfate.

3,592,851
2'-AMINO-2-BENZOYL-BENZENESULFONANILIDES

John B. Wright, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
 No Drawing. Original application May 16, 1968, Ser. No. 638,768, now Patent No. 3,464,996, dated Sept. 2, 1969. Divided and this application May 16, 1969, Ser. No. 825,415

U.S. Cl. 260—556 3 Claims
 Int. Cl. C07c 143/78

6H-dibenzo[c,g][1,2,5]thiadiazocine - 5,5 - dioxides and a method of preparation which involves the con-

densation of a 2-benzoylbenzenesulfonyl halide with an o-phenylene diamine to produce a 2'-amino-2-benzoylbenzenesulfonanilide and the subsequent cyclodehydration of said condensation product is disclosed.

3,592,852
SUBSTITUTED BENZYLIDENEAMINO GUANIDINE

William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,270
 Int. Cl. C07c 133/10

U.S. Cl. 260—564 2 Claims
 1 - (2,6 - dimethylbenzylideneamino)-3-hydroxyguanidine hydrochloride; this compound is useful as a hypotensive.

3,592,853
PROCESS FOR MANUFACTURE OF AMINES
 George Barsky, New York, N.Y., assignor to Wilson Pharmaceutical & Chemical Corporation
 No Drawing. Continuation-in-part of abandoned application Ser. No. 426,672, Jan. 19, 1965. This application Apr. 29, 1968, Ser. No. 725,215

U.S. Cl. 260—583R 9 Claims
 The process of this invention deals with the manufacture of aliphatic amino compounds formed by the splitting of mono-unsaturated long chain acids, etc., with hydrazoic acid. When an aliphatic monocarboxylic acid, such as oleic acid, is reacted with hydrazoic acid in the presence of a strong mineral acid at a temperature up to 45° C., the carboxyl group is converted to an amine group and a second molecule of hydrazoic acid reacts with the double bond to split the aliphatic group into fragments, one product of which may be, if the starting material were oleic acid, an octyl diamine.

3,592,854
HYDROLYSIS OF AMIDES TO AMINES
 Ralph H. Potts, La Grange, and Joseph S. Stalloraktis, Chicago, Ill., assignors to Armour Industrial Chemical Company, Chicago, Ill.

No Drawing. Filed July 19, 1968, Ser. No. 745,993
 Int. Cl. C07c 85/00

U.S. Cl. 260—583 11 Claims
 A process for the hydrolysis of amides to amines using large amounts of a lower aliphatic primary alcohol as a mutual solvent to hold both the caustic and the amide in water solution, so as to obtain a homogeneous system.

Heretofore amides have been hydrolyzed to amines with aqueous caustic. Such processes are economically unattractive as they are slow and require long reaction times. U.S. 2,587,043 shows that the reaction can be speeded up using an organic cosolvent and increasing the reaction temperatures. That reaction still generally requires several hours to reach completion and the hydrolyzing medium must be replaced. Further, the crude product obtained is generally dark in color and must be purified by distillation. U.S. 2,281,879 shows a method of preparing an organic nitrogen base by reacting an inorganic salt of the base with an alkali-forming metal hydroxide in an anhydrous water-soluble alcohol and removing the insoluble alkali metal salt thus formed. Although this patent alleges that various amines may be prepared thereby, no specific examples of such preparation are given. Further, the product is an alkali metal salt, and additional purification would be necessary to derive the amine. Also, the process is time consuming, and the medium must be kept substantially anhydrous.

3,592,855
DI-OCTAHYDRO-8 β -(t-BUTOXY OR BENZYLOXY)-8 $\alpha\beta$ -LOWER ALKYL-2(3H)-PHENANTHRONES
 Marinus Los, Trenton, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Original application June 4, 1964, Ser. No. 372,690, now Patent No. 3,446,849, dated May 27, 1969. Divided and this application Jan. 6, 1969, Ser. No. 789,415

U.S. Cl. 260—586H 3 Claims
 This disclosure describes compounds of the class of di-2,3,4,4a,5,6,7,8a-decahydro-8 $\alpha\beta$ -lower alkyl - 8 β -(t-butoxy or benzyloxy)-2-oxo-1 - substituted - phenanthrenes useful as intermediates in the synthesis of biologically active steroid moieties.

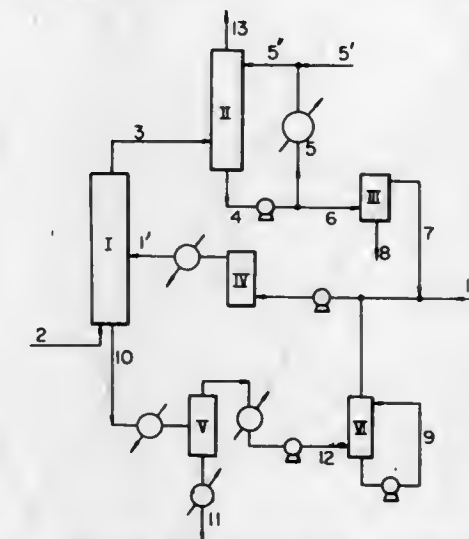
3,592,856
CONDENSATION REACTIONS WITH BORIC ACID
 Robert D. Offenbauer, Pennington, N.J., and Stephen F. Nelsen, Madison, Wis., assignors to Mobil Oil Corporation

No Drawing. Filed Dec. 14, 1966, Ser. No. 601,549
 Int. Cl. C07c 45/00

U.S. Cl. 260—590 12 Claims
 A process for the condensation of aldehydes and ketones in the presence of boric acid for producing unsaturated aldehydes and ketones.

3,592,857
PROCESS FOR PRODUCING ETHYLBENZENE HYDROPEROXIDE
 Yoshiyuki Shinohara, Ohtake-shi, Japan, assignor to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan
 Filed Mar. 4, 1968, Ser. No. 710,140
 Claims priority, application Japan, Mar. 8, 1967, 42/14,145

U.S. Cl. 260—610B 5 Claims
 Int. Cl. C07c 73/06



An improved process for producing ethylbenzene hydroperoxide by the liquid phase oxidation of ethylbenzene, which process includes the oxidation reaction step carried out in the reaction zone made of titanium, the alkali treatment step of discharged gas from said reaction zone in vapor phase, said gas being taken out under non-condensing condition from said zone and recovering step of ethylbenzene hydroperoxide.

3,592,858
COLOR STABILIZATION OF HYDROQUINONE ETHERS

Marshall R. Brimer, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

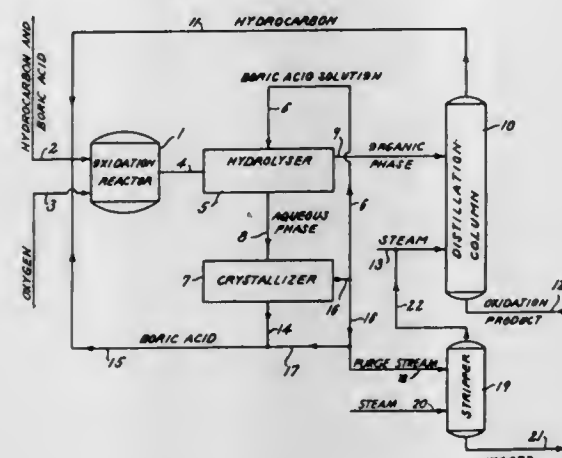
No Drawing. Filed Feb. 28, 1969, Ser. No. 803,464
 Int. Cl. C07c 41/12

U.S. Cl. 260—611.5 6 Claims
 An alkyl or a hydroxyalkyl ether of hydroquinone containing a discoloration-inhibiting amount of a cyclic phosphite.

3,592,859
RECOVERY OF RESIDUAL PRODUCT IN HYDRO-CARBON OXIDATION PROCESS
 Richard L. Marcell, Bergenfield, N.J., and James Leacock, New York, N.Y., assignors to Halcon International, Inc.

Filed Jan. 17, 1967, Ser. No. 609,881
 Int. Cl. C07c 31/02, 35/02, 35/08
 U.S. Cl. 260—631

6 Claims



In the oxidation of hydrocarbons, e.g., cyclohexane, in the presence of boron compounds, e.g., metaboric acid, the reaction product contains borate esters of the alcohol corresponding to the aforesaid hydrocarbon. The ester is hydrolyzed to form an aqueous phase containing boric acid and an organic phase. While a portion of the aqueous phase is dehydrated and the recovered boron compound recycled to the oxidation, a portion must be purged in order to prevent impurity accumulation which interferes with the oxidation. This purge stream, however, also contains valuable oxidation products which are lost if the purge stream is discarded. The invention is concerned with an economically feasible method of recovering these oxidation products. The purge stream is stripped to separate the effluent oxidation products and water. The effluent is added to the stream distillation column used to separate the unreacted hydrocarbons from the oxidation products in the organic phase.

3,592,860
OCTANITROTERPHENYL
 Joseph C. Dacons, Washington, D.C., assignor to the United States of America as represented by the Secretary of the Navy.
 No Drawing. Filed Nov. 22, 1967, Ser. No. 685,736
 Int. Cl. C07c 79/10

U.S. Cl. 260—645
 A new explosive compound of 2,2'',4,4'',6,6'',8-octanitro-m-terphenyl and methods for preparing it.

3,592,861
PROCESS FOR THE PREPARATION OF NITROBENZAL FLUORIDES
 Erich Klauke, Odenthal-Hahnenberg, and Engelbert Kuhle, Bergisch Gladbach, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
 No Drawing. Filed June 3, 1969, Ser. No. 830,134
 Claims priority, application Germany, June 10, 1968, P 17 68 635.0
 Int. Cl. C07c 79/12

U.S. Cl. 260—646
 Reacting nitrobenzal chlorides, i.e. 2-(optionally chloro)-3 or 4-nitro-benzal chlorides or 1-dichloromethyl-2-(optionally chloro)-3 or 4-nitro-benzenes with anhydrous hydrogen fluoride at a temperature of about 0–150°

C. and a pressure of about 1–26 atmospheres absolute, optionally in the presence of an inert organic liquid solvent, to form in high yield and purity the corresponding nitrobenzal fluorides, i.e. 2-(optionally chloro)-3 or 4-nitro-benzal fluorides or 1-difluoromethyl-2-(optionally chloro)-3 or 4-nitro-benzenes, some of which are known, and which are intermediates for the production of the corresponding N-(difluoromethyl-phenyl)-N',N'-dimethyl ureas which possess pesticidal, especially herbicidal, properties.

3,592,862
SELECTIVE HYDROGENATION OF DIENES
 Darryl R. Fahey, Bartlesville, Okla., assignor to Phillips Petroleum Company
 No Drawing. Filed Apr. 13, 1970, Ser. No. 28,072
 Int. Cl. C07c 5/14, 5/16

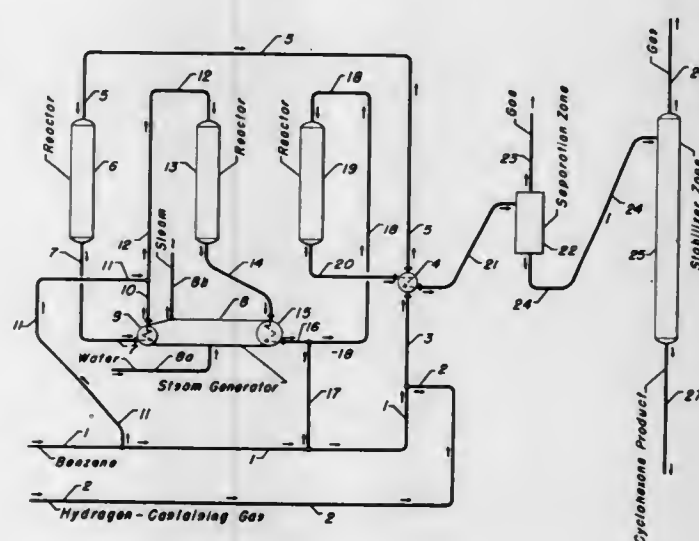
U.S. Cl. 260—666
 The hydrogenation of cyclic and acyclic dienes to monoenes is improved by promoting trihydrocarbylphosphine modified carbonyl cobalt catalysts with alcohols, ethers, and amides.

3,592,863
PROCESS FOR THE PREPARATION OF 2,3-DIMETHYL-2,3-BIS-(4-NITRO PHENYL)-BUTANE
 Alfons Klein, Duesseldorf, and Karlfried Wedemeyer, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
 No Drawing. Filed June 6, 1969, Ser. No. 831,220
 Claims priority, application Germany, June 26, 1968, P 17 68 748.8
 Int. Cl. C07c 79/10

U.S. Cl. 260—645
 2,3-dimethyl-2,3-bis-(4-nitro phenyl)-butane is obtained by heating 4-nitrocumene in a polar organic solvent (e.g. dimethylsulfoxide) in the presence of a basic compound (e.g. sodiumhydroxide) and of an alcohol which is resistant to oxidation (e.g. tert. butanol).

3,592,864
HYDROGENATION OF BENZENE TO CYCLOHEXANE
 Stephen A. Gwartowski, Mount Prospect, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 Filed June 27, 1969, Ser. No. 837,187
 Int. Cl. C07c 5/10

U.S. Cl. 260—667
 12 Claims



Process for hydrogenating benzene to form cyclohexane utilizing once-through hydrogen-containing gas wherein the exothermic heat of reaction is utilized as the sole source of heat input to steam generation means and

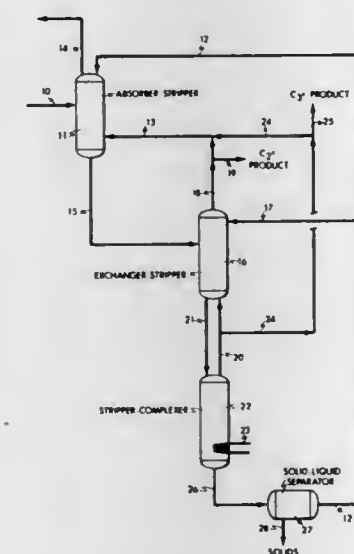
wherein the processing system is enhanced by the elimination of recycle gas compressors, treaters, coolers and heaters.

3,592,865
SEPARATION AND RECOVERY OF COMPLEXIBLE LIGANDS BY LIQUID EXCHANGE

Robert B. Long, Atlantic Highlands, John P. Longwell, Westfield, and Fred A. Caruso, Elizabeth, N.J., and Richard J. DeFeo, Baton Rouge, La., assignors to Esso Research and Engineering Company

Filed Sept. 3, 1968, Ser. No. 756,925
 Int. Cl. C07c 7/00, 11/00; B01j 11/22
 U.S. Cl. 260—677A

39 Claims

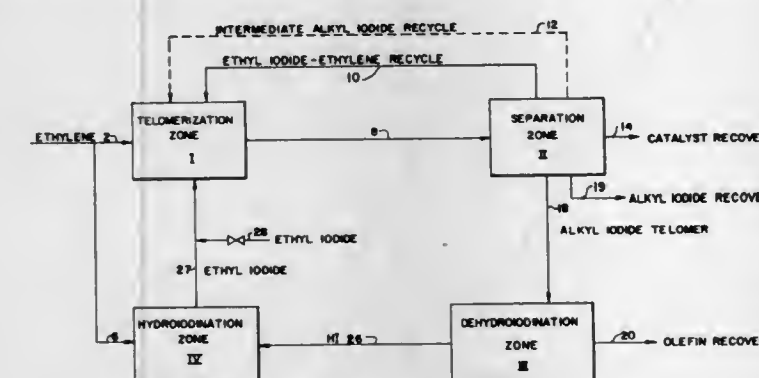


Complexible ligands contained in a feed stream are complexed with a liquid sorbent solution of cuprous aluminum halide. The complexed complexible ligands are then separated by a liquid exchange operation generally requiring $n-1$ ligand exchange operations for n complexed complexible ligands to be separated. The separation in each ligand exchange operation is effected by contacting the several complexed complexible ligands with a stripping ligand which forms a more stable complex with the sorbent than the complexible ligand or ligands to be separated and recovered, and exchanging the stripping ligand for the complexible ligand or ligands in the sorbent complex.

3,592,866
ALPHA-OLEFIN PRODUCTION
 Eugene F. Magoon, Walnut Creek, and Lynn H. Slaugh, Lafayette, Calif., assignors to Shell Oil Company, New York, N.Y.

Filed June 11, 1969, Ser. No. 832,218
 Int. Cl. C07c 9/00, 11/02
 U.S. Cl. 260—677H

6 Claims



Ethylene is converted to linear alpha-olefins by (1) telomerizing ethylene and ethyl iodide to linear primary alkyl

iodides (2) separating and dehydroiodinating the alkyl iodides to produce linear alpha-olefins and hydrogen iodide and (3) hydroiodinating ethylene with the hydrogen iodide to produce ethyl iodide for recycle to provide the ethyl iodide for telomerization with ethylene.

3,592,867
ETHYLENE-PRODUCING PROCESS
 Ernest L. Pollitzer, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 8, 1969, Ser. No. 856,161
 Int. Cl. C07c 3/00, 11/24
 U.S. Cl. 260—683

9 Claims

Propane is subjected to dehydrogenation in contact with a non-acidic, Group VIII noble metal catalyst to produce propylene. The propylene is subjected to hydrocracking, in contact with a Group VIII metal component hydrocracking catalyst to produce ethylene. The process produces ethylene in essentially 100.0% molal yields, based upon propane feed.

3,592,868
OLEFIN ISOMERIZATION
 Louis F. Heckelsberg, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Nov. 3, 1969, Ser. No. 873,504
 Int. Cl. C07c 5/22

U.S. Cl. 260—683.2
 Olefins are isomerized by shifting the double bond by contact with a catalyst comprising ruthenium oxide.

3,592,869
OLEFIN OLIGOMERIZATION
 Lawrence G. Cannell, Berkeley, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Oct. 3, 1968, Ser. No. 764,910
 Int. Cl. C07c 3/10

U.S. Cl. 260—683.15D
 Olefins are oligomerized with a heterogeneous catalyst composition produced by (1) contacting a nickel compound and an alkyl aluminum compound in the presence of an olefinic compound and (2) subsequently contacting the resulting nickel-containing solution with an inorganic refractory oxide support.

3,592,870
NICKEL COMPLEX OLEFIN DIMERIZATION
 Howard E. Dunn, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed May 5, 1969, Ser. No. 821,956
 Int. Cl. C07c 3/10

U.S. Cl. 260—683.15
 An olefin is dimerized by contact with a catalyst formed from an organoaluminum compound and one of the following nickel complexes:

- A bis(β -mercaptoethylamine)nickel (II) complex;
- An α -diketobis(β -mercaptoethylamine)nickel (II) complex;
- A S,S-disubstituted bis(β -mercaptoethylamine)nickel (II) complex; or
- A S,S-disubstituted- α -diketone bis(β -mercaptoethylamine)nickel (II) complex.

3,592,871

PROCESS FOR SEPARATING AN ALKYLATE-CONTAINING HYDROCARBON MIXTURE UTILIZING A STRIPPING AND PARTIAL CONDENSATION SYSTEM

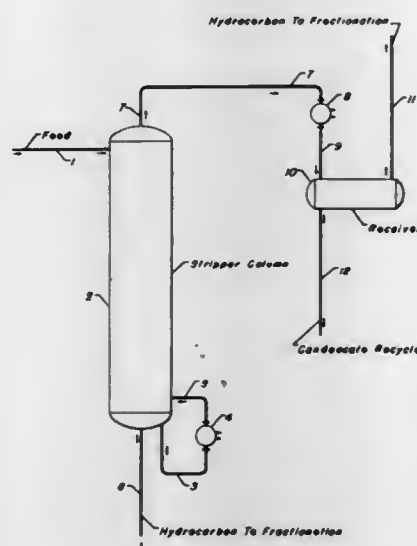
Edwin K. Jones, Kenilworth, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Mar. 12, 1969, Ser. No. 806,395

Int. Cl. C07c 3/54

U.S. Cl. 260—683.43

4 Claims



A process is provided for separating a hydrocarbon feed mixture comprising C₃ hydrocarbons, C₄ hydrocarbons and alkylate utilizing a stripping and partial condensation system.

3,592,872

PROCESS FOR THE REGENERATION OF A USED SULFURIC ACID ALKYLATION CATALYST

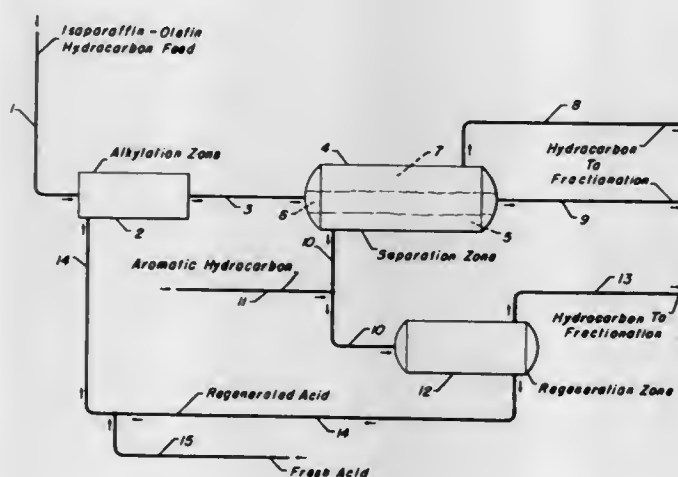
Edwin K. Jones, Kenilworth, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Mar. 3, 1969, Ser. No. 803,540

Int. Cl. C07c 3/54

U.S. Cl. 208—683.62

7 Claims



A sulfuric acid alkylation catalyst is regenerated by a continuous in-situ process utilizing steps including separation and the subsequent selective reaction of an aromatic compound with the olefinic hydrocarbon portion of a sulfuric acid-olefinic hydrocarbon mixture at temperatures below about 72° F.

POLYOXYMETHYLENES CONTAINING LACTAM-LACTONE INTERPOLYMERS

Shinichi Ishida, Tokyo, Kunio Sato, Kawasaki-shi, Hiroshi Komoto, Iruma-gun, Saitama-ken, Hiromichi Fukuda, Tokyo, and Masaki Ishigami, Iruma-gun, Saitama-ken, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed May 24, 1968, Ser. No. 731,729

Claims priority, application Japan, May 24, 1967, 42/33,492

Int. Cl. C08g 41/04

U.S. Cl. 260—857

4 Claims

A thermally stabilized polyacetal composition characterized in that said composition containing a polyamide ester obtained by copolymerizing at least one lactam with at least one lactone, said lactam and lactone having 4 or more membered rings, in the presence of alkali metals, alkali metal derivatives, metallic magnesium or derivatives thereof, as a catalyst.

3,592,874

UNSATURATED POLYESTERS CONTAINING CHEMICALLY INCORPORATED COBALT

Johannes Reese and Hermann Hotze, Wiesbaden-Blebrich, Germany, assignors to Chemische Werke Aktiengesellschaft, Wiesbaden-Blebrich, Germany

No Drawing. Filed Aug. 30, 1968, Ser. No. 756,406

Claims priority, application Germany, Sept. 6, 1967, P 16 69 859.2

Int. Cl. C08f 21/00, 21/02

U.S. Cl. 260—870

6 Claims

A process for the manufacture of a hardenable polyester composition by (A) transesterifying high molecular weight polyesters of isophthalic or terephthalic acid or of both acids with a polyhydric alcohol in the presence of a cobalt salt and chemically building in the cobalt into the polyester, (B) further esterifying the product of (A) with units of an unsaturated polycarboxylic acid or a mixture thereof with an alcohol and (C) admixing the product of (B) with an unsaturated copolymerizable monomer to yield a composition hardenable by a peroxide catalyst without the further addition of an accelerator.

3,592,875

MOULDING COMPOSITIONS CONTAINING THERMOPLASTIC POLYESTERS

Ludwig Brinkmann and Walter Herwig, Frankfurt am Main, and Klaus-Dieter Asmus, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Mar. 3, 1969, Ser. No. 804,022

Claims priority, application Germany, Mar. 23, 1968, P 17 70 043.5

Int. Cl. C08g 17/06, 39/10

U.S. Cl. 260—873

10 Claims

Polyesters of aromatic dicarboxylic acids, saturated aliphatic or cycloaliphatic diols and alcohols containing more than two hydroxymethyl groups bound to a cyclohexane ring or tetrahydropyran ring. The said polyesters are used for making injection moulded articles that are free from flash formation.

3,592,876

THERMOPLASTIC POLYESTER MOULDING COMPOSITIONS

Ludwig Brinkmann and Walter Herwig, Frankfurt am Main, and Klaus-Dieter Asmus, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Mar. 3, 1969, Ser. No. 803,991

Claims priority, application Germany, Mar. 23, 1968, P 17 69 035.6

Int. Cl. C08g 17/06

U.S. Cl. 260—873

9 Claims

Method for making shaped articles by injection moulding polyester compositions comprising aromatic dicarboxylic acids, saturated aliphatic or cycloaliphatic diols and alcohols having more than two primary hydroxyl groups. The shaped articles do not show flash formation.

3,592,877

VINYL RESINS PLASTICIZED WITH SOLID LINEAR POLYMERS OF LACTONES

Dennis H. Mullins, St. Albans, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 639,054, May 17, 1967, Ser. No. 319,677, Oct. 29, 1963, and Ser. No. 168,233, Jan. 23, 1962. Said application Ser. No. 639,054 being a continuation of application Ser. No. 319,677, which is a continuation-in-part of application Ser. No. 168,233. This application Apr. 1, 1969, Ser. No. 812,353

Int. Cl. C08f 29/22, 37/18, 45/36

U.S. Cl. 260—874

35 Claims

A vinyl resin plasticized with a plasticizing amount of relatively high molecular weight, solid, linear polymers of lactones.

3,592,878

COMPOSITIONS COMPRISING A HIGH CIS GRAFT COPOLYMER AND A HIGH TRANS GRAFT COPOLYMER

Zygmunt Kromolicki, Bramhall, England, assignor to Sterling Moulding Materials Limited, London, England

No Drawing. Filed June 23, 1967, Ser. No. 648,212

Claims priority, application Great Britain, June 24, 1966, 28,552/66

Int. Cl. C08f 41/12

U.S. Cl. 260—876

7 Claims

Homogeneous mixtures of a high cis polybutadiene graft polymer with a vinyl aromatic compound, a polymer or copolymer of a vinyl aromatic compound, and a high trans diene hydrocarbon graft polymer with a vinyl aromatic compound are provided, which provide an unexpected combination of high impact strength, high tensile strength and high softening point together with good surface gloss of mouldings; the vinyl aromatic compound is preferably styrene or mixtures with α -methyl styrene.

3,592,879

ANTISTATIC THERMOPLASTIC MOULDING COMPOSITIONS

Karl-Heinz Ott, Leverkusen, Harry Röhr, Cologne, Hans Weitzel, Leverkusen, and Karl Dinges, Odenthal, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 2, 1968, Ser. No. 718,255

Claims priority, application Germany, June 22, 1967, F 52,753

Int. Cl. C08f 19/08, 41/04

U.S. Cl. 260—876

6 Claims

Elastic thermoplastic moulding compositions of copolymer mixtures of an elastic copolymer or graft polymer of

butadiene and a thermoplastic copolymer based on styrene and acrylonitrile, which has excellent electrostatic properties and which contains as an antistatic agent a mixture of (a) a dialkanolalkylamine and (b) an alkyl or aryl alkyl sulfonate.

3,592,880

PROCESS FOR PREPARING POLYOLEFINS

Bernd Diedrich and Karl Diether Kreil, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Dec. 27, 1967, Ser. No. 693,721

Claims priority, application Germany, Jan. 28, 1967, F 51,374

Int. Cl. C08f 15/00

U.S. Cl. 260—878

7 Claims

Polyethylene or copolymers of ethylene and higher α -olefins having a high stress cracking resistance, are prepared by a process which comprises two reaction steps of a suspension or gaseous phase polymerization, in which a mixed catalyst of a trivalent chlorine-containing titanium compound and an aluminium trialkyl or a reaction product of aluminium trialkyls or alkylhydrides with diolefins is used, the hydrogen content of the gas zone being low in one step and high in the other step.

3,592,881

CROSSLINKED, HEAT-SHRINKABLE POLY-ETHYLENE FILM COMPOSITION

George Joseph Ostapchenko, Williamsville, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 16, 1969, Ser. No. 833,767

Int. Cl. C08f 29/12

U.S. Cl. 260—897

4 Claims

A heat-shrinkable, heat-sealable film prepared by crosslinking an oriented film of a blend of low-density and high-density polyethylenes containing a minor amount of an ethylene, propylene, non-conjugated diene terpolymer. The crosslinking is accomplished with sulfur monochloride.

ERRATA

For Classes 260—47, 260—272, 260—453, 260—479, 260—613, 260—624, 260—857, 264—49, 264—108 see: Patent Nos. 3,592,946 thru 3,592,954

3,592,882

CONTINUOUS CASTING METHOD FOR MAKING PEARLIZED RESIN MATERIALS

Yoshio Morita, Tokyo, Japan, assignor to Nihon Koken Kogyo Company, Ltd., Tokyo, Japan

Filed Aug. 13, 1968, Ser. N. 752,315

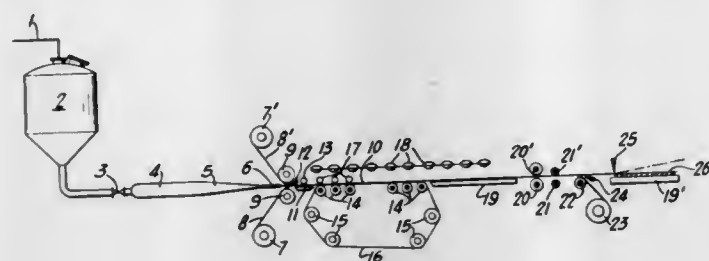
Int. Cl. B29f 3/12; B29d 19/00

U.S. Cl. 264—1

5 Claims

A continuous method for casting a liquid plastic mixture of a light-transmitting resin and pearl essence is provided. The plastic mixture is passed through an extruder containing a plurality of thin plates in a prearranged spaced relationship for orienting the pearl essence within the resin. The extrudate is covered on each side by plastic films to insulate it from the open air, and is passed continuously past a heat source to solidify the resin and fix the orientation of the pearl essence. A novel apparatus is

provided for carrying out the process. The pearled resin materials made according to the invention are useful for



buttons, interior architectural materials, and ornamental goods.

3,592,883

MARKING CARBONIZED PENCIL LEADS USING SULFONATED LIGNIN OR AN AQUEOUS SODIUM SALT OF LIGNIN AS A BINDER

Takamasa Kawakubo, Koza County, Kanagawa Prefecture, Japan, assignor to Mitsu-bishi Pencil Company Limited, Tokyo, Japan

No Drawing. Filed Feb. 12, 1969, Ser. No. 798,763
Claims priority, application Japan, Mar. 21, 1968, 43/17,978; June 11, 1968, 43/39,626

Int. Cl. C09d 13/00

U.S. Cl. 264—29

5 Claims

Pencil lead is made by mixing 40 to 50 parts of sulfonated lignin or an aqueous sodium salt lignin solution with 30 to 40 parts graphite and 5 to 10 parts of carbon black, kneading the mixture and heating to reduce the moisture content to below 20%. After extruding the mixture into the form of pencil lead and drying the formed articles they are heated to about 500° C. at a very slow rate of 5–10° C. per hour. Once 500° C. has been reached the articles are further heated to above 1000° C. at a faster rate of 30–50° C. per hour in a gaseous phase atmosphere that is inert to the articles, such as nitrogen. The very slow heating rate up to 500° C. is essential to good strength of the carbonized pencil lead. Supplementary binders and plasticizers such as polyvinyl alcohol, tragacanth gum, sodium alginate and carboxymethyl-cellulose can be added to prevent premature thermal decomposition of the lignin.

3,592,884

COMPOSITE PROPELLER SHAFT CONSTRUCTION AND METHOD OF MAKING

Charles W. Williams, Essexville, Mich., assignor to General Motors Corporation

Filed June 7, 1967, Ser. No. 644,184

Int. Cl. B29d 15/00

U.S. Cl. 264—45

2 Claims



A vehicle propeller shaft includes a pair of spaced end members having inner ends with characterized surfaces. A light but stiff cylindrical arbor, such as of polyurethane foam, connects the end members and a tube formed of hardened thermosetting resin reinforced with fiber glass

filaments is formed on the arbor and interlockingly engages the characterized surfaces of the end members. A method of forming such a shaft includes steps of forming a polyurethane foam arbor between the end members and forming the resin bonded fiberglass tube in place on the arbor and end members.

3,592,885

CORRUGATED PARISON REAL LINE

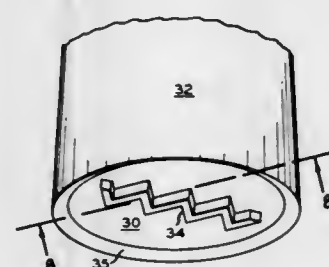
Robert R. Goins and Dixie E. Gilbert, Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Dec. 13, 1968, Ser. No. 783,605

Int. Cl. B29c 17/07

U.S. Cl. 264—98

6 Claims



The bottom of an open end parison is sealed along a corrugated line.

3,592,886

DIRECTIONAL COOLING IN BLOW MOLDING

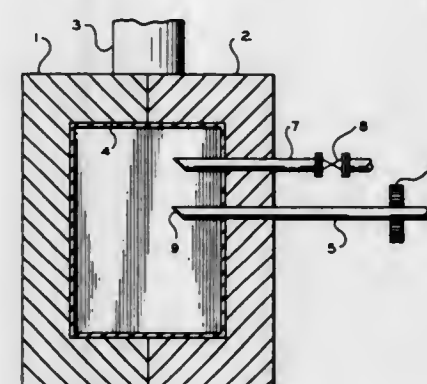
John E. Havely, Winfield, Kans., assignor to Phillips Petroleum Company

Original application July 5, 1966, Ser. No. 562,849, now Patent No. 3,488,801, dated Jan. 13, 1970. Divided and this application May 29, 1969, Ser. No. 829,054

Int. Cl. B29c 17/07

U.S. Cl. 264—98

10 Claims



In a blow molding process wherein a parison is punctured to admit fluid, cooling fluid is directed to certain points in the parison so as to achieve selective cooling.

3,592,887

METHOD OF INJECTION MOLDING OF PLASTIC COATING ON HOLLOW METAL BODY

George N. Edwards, Newark, Ohio, assignor to Roper Corporation, Kankakee, Ill.

Filed Feb. 19, 1969, Ser. No. 800,534

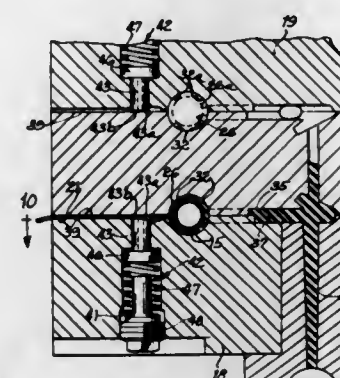
Int. Cl. B29f 1/06, 1/10

U.S. Cl. 264—161

4 Claims

A method for coating a hollow body with plastic material by injection molding to prevent collapse of the hollow body in the molding operation. The pressure in

the die cavity is relieved by the automatic opening of a valve disposed in the die plate to vent the die cavity to the atmosphere when pressure in the die cavity exceeds a



predetermined value. Nibs are provided in the die cavity to support the body and prevent permanent deformation of the body in the molding cycle.

3,592,888

RADIOIMMUNOASSAY OF ANGIOTENSIN AND RENIN ACTIVITY

Robert L. Wolf, New York, N.Y., assignor to Mount Sinai Hospital Research Foundation, Inc., New York, N.Y.

Filed Jan. 19, 1968, Ser. No. 699,098

Int. Cl. A61k 27/04

U.S. Cl. 424—1

10 Claims

A process for assaying the quantity of angiotensin and renin employing radioimmunoassay techniques, comprising the steps of combining solutions of (1) antibody to angiotensin coupled to poly-L-lysine, (2) angiotensin labeled with radioactivity, and (3) varying known amounts of unlabeled angiotensin, to produce mixtures having a pH of about 7.0 to 9.5, which upon incubation form angiotensin-antibody complexes. The mixtures of angiotensin-antibody complexes (antibody-bound angiotensin) and free angiotensin are applied either to paper strips, coated charcoal, ion exchange resins or resin sponges, and subjected to radioimmunoassay techniques to separate the antibody-bound angiotensin complexes from the free angiotensin. Some of the free and antibody-bound angiotensin is radioactive; the ratio of radioactivity of the antibody-bound angiotensin complex to free angiotensin is plotted as a function of the known concentrations of angiotensin in each mixture to prepare a standard concentration graph. The process is repeated employing unknown amounts of unlabeled angiotensin, which may be derived from the action of renin on renin substrate, and the concentration of angiotensin is read from the graph.

3,592,889

PROCESS FOR THE PRODUCTION OF AN INTRAMUSCULARLY INJECTABLE IRON PREPARATION FOR ANIMALS

Sven Lindvall and Gustav Högberg, Sodertalje, Sweden, assignors to Aktiebolaget Astra, Sodertalje, Sweden

Filed Dec. 15, 1967, Ser. No. 691,073

Claims priority, application Sweden, Dec. 15, 1966, 17,238/66

Int. Cl. A61k 27/00

U.S. Cl. 424—147

6 Claims

A method for combating anemia in piglets is disclosed, characterized by the administration of an iron injection solution containing an iron complex. In the preparation of the injection solution a precipitated complex is first formed by reaction between a soluble ferric salt and lactic acid in the presence of a water-soluble carbohydrate as a dispersion stabilizer. The precipitated iron complex is dispersed in the presence of citric acid and a hexitol such as sorbitol to form an injection solution in which the complex has a molecular weight in excess of 40,000.

3,592,890

METHOD OF COMBATING ATROPHIC RHINITIS

Marian Janiak, Basel, Switzerland, assignor to Ciba Limited, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 550,640, May 17, 1966. This application Jan. 13, 1970, Ser. No. 2,654

Claims priority, application Switzerland, June 4, 1965, 7,878/65

Int. Cl. A61k 27/00

U.S. Cl. 424—229 8 Claims
A prophylactic veterinary method of combating atrophic rhinitis which comprises parenterally or enteral administering to an animal e.g. during the second week of life, an effective amount of 5-(para-aminobenzenesulfonamido)-1-phenyl-3-methyl-pyrazole, said compound being in the form of a salt.

3,592,891

METHOD OF TREATING LESIONS OF THE ORAL ORIFICE

Sam J. Dawson and James Moody Brock, Montgomery, Ala., assignors to A.Q.S., Inc., Montgomery, Ala.

No Drawing. Filed Feb. 25, 1969, Ser. No. 802,205

Int. Cl. A61r 27/00

U.S. Cl. 424—259 4 Claims
A method of treating lesions of the oral orifice which comprises contacting said lesions with a composition which includes quinine bisulfate.

3,592,892

ANTIFUNGAL AND ANTIBACTERIAL NITROALKYL-N-PHENYLCARBAMATES

Heinz Gunter Nosler, Monheim, Rhineland, and Richard Wessendorf, Hilden, Rhineland, Germany, assignors to Henkel & Cie, GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed July 25, 1968, Ser. No. 747,477

Claims priority, application Germany, Dec. 4, 1967, H 64,654

Int. Cl. A01n 9/20

U.S. Cl. 424—300 18 Claims
Novel antimicrobial compositions having fast kill times comprised of nitroalkyl-N-phenylcarbamates and dimethyl sulfoxide and ethanol or propanol.

3,592,893

NITRO ALCOHOLS IN SYNERGISTIC ANTIMICROBIC COMPOSITIONS

Heinz Gunter Nosler, Monheim, Rhineland, Richard Wessendorf, Hilden, Rhineland, and Horst Bellinger, Dusseldorf, Germany, assignors to Henkel & Cie, GmbH, Dusseldorf, Germany

No Drawing. Filed Mar. 1, 1968, Ser. No. 709,834

Claims priority, application Germany, Apr. 26, 1967, H 62,546

Int. Cl. A01n 9/20, 9/24

U.S. Cl. 424—329 7 Claims
Synergistic antimicrobial compositions comprised of an aliphatic alcohol having 2 to 5 carbon atoms in a straight chain and having at least one nitro group and 1 to 4 hydroxy groups and a compound selected from the group consisting of a phenolic antimicrobial compound and a cationic quaternary ammonium compound having at least one hydrophobic chain of 8 to 18 carbon atoms.

3,592,894

TREATMENT OF INTESTINAL HELMINTHIASIS WITH TETRACHLOROFULVENES

Alvin Wagner and James W. Kessel, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,175

Int. Cl. A61k 27/00

U.S. Cl. 424—352 2 Claims
Domestic animals afflicted with intestinal helminthiasis are treated with 1,2,3,4-tetrachlorofulvenes substituted

with an aryl radical at the 6 position. The active agent can be administered in pill or capsule form or as a drench but is preferably incorporated in the feed and/or water supplied to the animal.

3,592,895

PYRIMIDINE DERIVATIVES AS ANTI-INFLAMMATORY, ANALGESIC AND ANTIPYRETIC AGENTS

Walter Hepworth and Thomas Walton Thompson, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Original application May 16, 1967, Ser. No. 638,726, now Patent No. 3,502,673, dated Mar. 24, 1970. Divided and this application Oct. 24, 1969, Ser. No. 871,335

Claims priority, application Great Britain, June 17, 1966, 27,083/66

Int. Cl. A61k 27/00

U.S. Cl. 424—251

3 Claims

The disclosure relates to phenyl (and benzyl)-pyrimidyl-alkanoic acids and related compounds which possess anti-inflammatory, analgesic and antipyretic activity, processes for making said acids and compounds, pharmaceutical compositions containing at least one of said acids and compounds, and the method of using said acids and compounds in a host needing said activity. Representative of the compounds disclosed are methyl 2-p-chlorophenyl - 6 - methoxypyrimid - 4 - ylacate, diethyl 2 - (2 - p - chlorophenyl - 6 - methoxypyrimid - 4 - yl)-malonate, 2-p-chlorophenyl - 6 - methoxy - 4 - methylpyrimid - 5 - ylacetic acid, and methyl α -(2-p-chlorophenyl-6-methoxypyrimid-4-yl)propionate.

3,592,896

SULFOXIDE CONTAINING PESTICIDES

Paul C. Aichenegg, Prairie Village, Kans., and Carl D. Emerson, Kansas City, Mo., assignors to Chemagro Corporation, New York, N.Y.

No Drawing. Filed Jan. 27, 1964, Ser. No. 340,504

Int. Cl. A01n 9/00, 9/12

U.S. Cl. 424—337

6 Claims

This invention relates to a method for killing nematodes and fungi with sulfoxide compounds.

3,592,897

INSECT CHEMOSTERILANT COMPOSITIONS AND METHODS—THIOLCARBAMATES

Philip C. Hamm, Glendale, Mo., assignor to Monsanto Company, St. Louis, Mo.

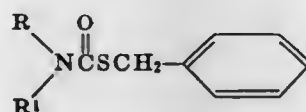
No Drawing. Filed Oct. 23, 1967, Ser. No. 677,077

Int. Cl. A01n 9/12, 9/20

U.S. Cl. 424—300

4 Claims

Compounds of the following formula are insect chemosterilants:



wherein R is selected from the group consisting of alkyl, alkenyl and alkynyl of not more than 8 carbon atoms and R¹ is selected from the group consisting of hydrogen, alkyl, alkenyl and alkynyl of not more than 8 carbon atoms.

3,592,898

NONADDICTIVE COMBINATIONS OF ANALGETICS WITH AMPHETAMINES HAVING SUBSTITUENTS ON THE PHENYL GROUP

John H. Biel, 4444 N. Murray Ave., Milwaukee, Wis. 53211

No Drawing. Filed Mar. 7, 1969, Ser. No. 805,373

Int. Cl. A61k 27/00

U.S. Cl. 424—260

12 Claims

Disclosed are combinations of an analgetic with p-chloramphetamine and other amphetamines containing at

least one substituent on the phenyl ring, and non-toxic acid addition salts thereof. When such combinations are administered, tolerance, physical dependence and addiction are not induced.

3,592,899

COMPOSITIONS CONTAINING 4-(ISOXAZOL-3 OR 5-YL)-PYRIDINIUM SALTS AND METHOD OF LOWERING BLOOD SUGAR LEVELS

Victor John Bauer, Montvale, and Sidney Robert Safir, River Edge, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 662,281, Aug. 22, 1967, which is a continuation-in-part of application Ser. No. 535,714, Mar. 21, 1966. This application Nov. 10, 1969, Ser. No. 875,528

Int. Cl. A01n 9/00, 9/22

U.S. Cl. 424—263

9 Claims

This application describes compositions containing quaternary isoxazolylpyridinium salts and quaternary isothiazolylpyridinium salts and also the method of use of the isoxazolylpyridinium salts and isothiazolylpyridinium salts. These compositions are useful in warm-blooded animals for their hypoglycemic activity.

3,592,900

METHOD FOR LOWERING ELEVATED BLOOD SUGAR LEVELS USING A DIHYDROPYRIDINE HYDROHALIDE

John B. Bickling, Lansdale, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Aug. 12, 1968, Ser. No. 751,732

Int. Cl. A61k 27/00

U.S. Cl. 424—263

6 Claims

A method for lowering elevated blood sugar levels in warm-blooded animals by the administration of a 1-(aralkyl or aralkenyl)-4-imino-1,4-dihydropyridine hydrohalide is described. The hypoglycemic agents are prepared by the reaction of an aralkyl or aralkenyl halide with 4-amino-pyridine. The aralkyl or aralkenyl halide as well as the 4-aminopyridine optionally can be substituted.

3,592,901

ANTIBACTERIAL SYNTHESIZED NITROFURYL DERIVATIVES

Erich Haack, deceased, late of Heidelberg, Germany, by Helmut Bernhard Haack, Gunhild Renate Haack, and Doris Leonie Haack, his heir and heiresses and legal representatives, Herbert Berger, Mannheim-Kaferthal, and Wolfgang Vömel, Mannheim, Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany
No Drawing. Continuation-in-part of application Ser. No. 739,600, May 10, 1968, which is a division of application Ser. No. 599,384, Dec. 6, 1966, which is a continuation-in-part of application Ser. No. 452,355, Apr. 10, 1965, which in turn is a continuation-in-part of application Ser. No. 351,841, Mar. 13, 1964. This application July 2, 1969, Ser. No. 840,599

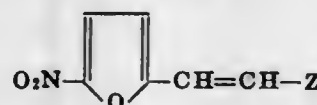
Claims priority, application Germany, Mar. 20, 1963, B 71,208

Int. Cl. A61k 27/00

U.S. Cl. 424—263

3 Claims

Antimicrobial compositions containing as active ingredient a compound of the formula:



wherein Z is a member selected from the group consisting of α and γ pyridyl and wherein Z carries at least one substituent selected from the group consisting of polar

and hydrophilic substituents of hydroxy, acetoxy, carboxy, amino, acetylmino, and the N-oxides thereof, and methods of using these compositions.

3,592,902

INJECTION

Nobuyasu Sato, Itami-shi, Toshio Nakamura and Hiroshi Takenaka, Ibaragi-shi, and Elko Watabe, Ashiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Higashi-ku, Osaka, Japan

No Drawing. Filed Apr. 9, 1968, Ser. No. 719,840

Claims priority, application Japan, Apr. 13, 1967, 42/23,837

Int. Cl. C07d 27/38

U.S. Cl. 424—266

4 Claims

A stable injection of an indolylaliphatic acid derivative such as N-(p-chlorobenzoyl)-2-methyl-5-methoxy-3-indolylacetic acid, N-cinnamoyl-2-methyl-5-methoxy-3-indolylacetic acid or N-nicotinoyl-2-methyl-5-methoxy-3-indolylacetic acid is prepared by dissolving the indolylaliphatic acid derivative in a non-aqueous organic solvent for injection and adding an aqueous organic amine solution containing 0.6 to 1 mole of said organic amine per 1 mole of the indolylaliphatic acid derivative to the resultant solution. The thus obtained injection is used as an anti-inflammatory drug.

3,592,903

INSECT CHEMOSTERILANT METHODS EMPLOYING THIADIAZOLES

Philip C. Hamm, Glendale, Mo., assignor to Monsanto Company, St. Louis, Mo.

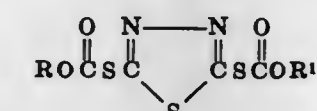
No Drawing. Filed Oct. 23, 1967, Ser. No. 677,074

Int. Cl. A01n 9/22

U.S. Cl. 424—270

2 Claims

Compounds of the following formula are insect chemosterilants:



wherein R and R¹ are alkyl of not more than 4 carbon atoms.

3,592,904

METHOD OF TREATING INFLAMMATORY DISEASES

Delme Evans, Sandhurst, England, assignor to Lilly Industries, Ltd., London, England

No Drawing. Filed July 7, 1969, Ser. No. 839,682

Claims priority, application Great Britain, July 5, 1968, 32,276/68

Int. Cl. A61k 27/00

U.S. Cl. 424—270

9 Claims

A method of treating various conditions involving inflammation and its concomitant, swelling, tenderness, decreased mobility, pain, and fever, employing a substituted 2-acvlaminothiazole as the active anti-inflammatory agent.

3,592,905

THERAPEUTIC METHODS

Tsung-Ying Shen, Westfield, Conrad P. Dorn, Jr., Plainfield, Robert L. Bugianesi, Colonia, and Leonard E. Olen, Clark, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Oct. 3, 1969, Ser. No. 872,733

Int. Cl. A61k 27/00

U.S. Cl. 424—270

2 Claims

Anti-inflammatory compositions containing a thiazolidine-4-carboxylic acid, ester or amide as an active ingredient.

3,592,906

SUBSTITUTED BENZIMIDAZOLES IN TREATING MAREK'S DISEASE

Tsung-Ying Shen, 858 Willow Grove Road, Westfield, N.J. 07096, and Theodore A. Maag, 16 Dellwood Lane, New Shrewsbury, N.J. 07724

No Drawing. Filed Mar. 24, 1969, Ser. No. 809,969

Int. Cl. A61k 27/00

17 Claims

The use of bis-benzimidazoles in reducing mortality and decreasing lesion incidence of poultry exposed to Marek's disease and to compositions comprising the bis-benzimidazoles active ingredients are provided. More specifically, the invention relates to the use of the D,L, meso, and racemic stereoisomers of lower alkyl and lower alkoxy substituted benzimidazole compounds and soluble salts thereof as treatment against Marek's disease.

3,592,907

SUBSTITUTED BENZO(b)THIOPHENE COMPOSITIONS

Arthur D. Chandler, Jr., and Herbert J. Florestano, Indianapolis, Ind., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 6, 1968, Ser. No. 710,750

Int. Cl. A61k 27/00

U.S. Cl. 424—275

9 Claims

Compositions comprising at least fifty percent of a polyethylene glycol diester carrier, such as polyethylene glycol 400 dilaurate, and an antimicrobial amount of a substituted benzo(b)thiophene compound, such as methyl 5-chloro-3-hydroxybenzo(b)thiophene-2-carboxylate, are useful for the control of fungal organisms.

3,592,908

METHODS FOR TREATING COUGH AND EXPECTORATION WITH α -PINENE OXIDE

Camillo Corvi-Mora, Milan, Italy, assignor to Camillo Corvi S.p.A., Piacenza, Italy

Filed Dec. 4, 1967, Ser. No. 687,643

Claims priority, application Netherlands, Dec. 9, 1966, 6617286

Int. Cl. A61k 27/00

U.S. Cl. 424—278

3 Claims

It was found that the mixture of oxidation products of oil of turpentine owed its analeptic activity to only two substances, being α -pinene oxide, a novel compound, and its hydrolysis product sobrerol. This made possible to formulate new analeptic compositions in exact and reproducible dosages for human and veterinary application. The new compositions having α -pinene oxide and/or sobrerol in pure form as the active principle, are free from untoward side effects known in the practice of using the mixture of oxidation products of oil of turpentine as an active principle. This invention relates to analeptic compositions which are suitable for therapeutic administration, and to their shaped dosage forms such as tablets.

3,592,909

STABLE BISMUTH TRIBROMOPHENATE OINTMENT AND PROCESS OF PREPARATION

Eason G. Pritchard, P.O. Box 2506, Knoxville, Tenn. 37902

No Drawing. Filed June 24, 1968, Ser. No. 739,137

Int. Cl. A61k 9/00, 9/06

U.S. Cl. 424—296

7 Claims

An effective ointment for the treatment of burns is bismuth tribromophenate in an oleaginous ointment base. However the composition has the disadvantage that it is

unstable and the bismuth compound does not remain in suspension. A stable suspension of bismuth tribromophenate in an oleaginous ointment base is provided herein.

3,592,910
COMPOSITIONS AND METHOD FOR CONTROLLING RELEASE OF PESTICIDES USING TERPENE POLYMERS

Arthur R. Clark and Margaret M. Clark, both of Spring Lake, N.J. 07081

No Drawing. Continuation-in-part of application Ser. No. 676,019, Oct. 18, 1967. This application Oct. 30, 1968, Ser. No. 771,975

Int. Cl. A01n 3/02, 17/00, 17/08

U.S. Cl. 424—300 10 Claims
Liquid polyterpenes having a molecular weight of from 272 to 544 are applied to growing plants, particularly nursery stock and food crops, to provide the plants with a protective coating. The polyterpene coating inhibits the transpiration of water from the plants, enhances plant growth, and extends the life of plant nutrients and pesticides applied in combination with the polyterpenes.

3,592,911
GASTROPODICIDAL 3,4-DICHLORO-AND 3,5-DICHLORO-THIOXANILONITRILES

John F. Olin, Ballwin, and Walter A. Darlington, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Oct. 23, 1968, Ser. No. 770,066

Int. Cl. A01n 9/12, 9/20, 9/30

U.S. Cl. 424—304 4 Claims
Compounds characterized by a thioxanilonitrile nucleus wherein the phenyl substituent thereof is 3,4-dichloro or 3,5-dichloro substituted, which compounds are useful as gastropodocides.

3,592,912
CONTROL OF FUNGI WITH CYANO ETHYL PHENYL CARBAMATES

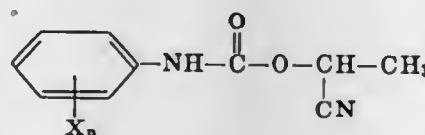
Tetsuji Ishiyama, Kamakura-shi, and Keizo Hamuro, Nishinomiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Original application Sept. 18, 1967, Ser. No. 668,651. Divided and this application Aug. 13, 1969, Ser. No. 867,982

Claims priority, application Japan, Sept. 22, 1966, 41/62,769

Int. Cl. A01n 5/00, 9/20, 9/24

U.S. Cl. 424—304 2 Claims
Fungicidal composition containing inert carrier and as an active ingredient at least one of the novel compounds represented by the formula,



wherein X is chlorine or methyl; and n is an integer of 1 to 5, are low toxic and have high preventive and exterminative effects on such fungi as *Pycularia oryzae* Cav., *Cochiloborus miyabeanus* (S. Ito et Kurib.) Drech., *Gibberella fujikuroi* (Saw.) Woll., *Helminthosporium sigmoideum* Cav., *Hormodendrum* sp., and *Alternaria kikuchiana* Tanaka. The above compounds are prepared easily and at low costs by the condensation of substituted anilines with α -cyanoethyl chlorocarbonate or of substi-

tuted N-phenylcarbonyl chlorides with α -cyanoethyl alcohol, or by the reaction of substituted phenyl isocyanates with α -cyanoethyl alcohol.

3,592,913
FUNGICIDAL METHOD AND COMPOSITIONS THEREFOR COMPRISING 2,3,4,5,6-PENTACHLOROBENZYLIDENE-ANILINE DERIVATIVES

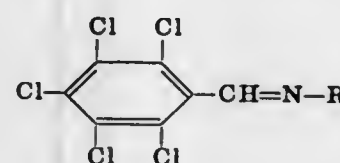
Akira Fujinami, Takarazuka-shi, Katsuji Nodera, Nishinomiya-shi, Toshiaki Ozaki and Sigeo Yamamoto, Toyonaka-shi, and Yoshihiko Nishizawa, Nara-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed May 16, 1968, Ser. No. 729,553

Claims priority, application Japan, May 31, 1967, 42/35,057; Aug. 4, 1967, 42/50,032

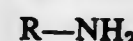
Int. Cl. A01n 9/20

U.S. Cl. 424—304 6 Claims
Novel compounds represented by the formula,



wherein R represents a cyano-substituted lower alkyl, lower alkoxy carbonyl-substituted lower alkyl or phenyl substituted by nitro group, lower alkoxy group or lower alkoxy carbonyl group.

Said compounds are produced by reacting pentachlorobenzaldehyde with an amine of the formula:



wherein R is as above, in an inert solvent. These compounds have strong fungicidal activities and are extremely low in toxicity to men and beasts as well as in phytotoxicity to crops.

3,592,914
GASTROPODICIDAL N,N'-DIARALKYL DITHIOXAMIDES

Gerhard H. Alt and Walter A. Darlington, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Oct. 23, 1968, Ser. No. 770,067

Int. Cl. A01n 9/12, 9/20

U.S. Cl. 424—320 6 Claims
Compounds characterized by a N,N'-substituted dithiooxamido nucleus, which compounds are useful as gastropodocides.

3,592,915
TREATMENT OF ANAPLASMOSIS IN ANIMALS

Paul Anthony Barrett, London, England, assignor to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 388,717, Aug. 10, 1964, now Patent No. 3,382,275, dated May 7, 1968. This application Mar. 6, 1968, Ser. No. 710,789

Claims priority, application Great Britain, Aug. 10, 1963, 31,673/63

Int. Cl. A61k 27/00

U.S. Cl. 424—323 8 Claims
A method for the treatment of anaplasmosis in cattle, comprising the intravenous or oral administration of an effective dosage of α -ethoxyethylglyoxal dithiosemicarbazone to the infected animal.

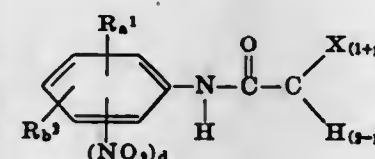
3,592,916
CERTAIN 2-HALOACETANILIDES AS GROWTH PROMOTANTS

Gino J. Marco, 610 Lilac Ave., Webster Groves, Mo. 63119, and Ernest G. Jaworski, 12 Stacy Drive, Olivette, Mo. 63132

No Drawing. Filed Sept. 7, 1967, Ser. No. 665,975

Int. Cl. A61k 27/00

U.S. Cl. 424—324 10 Claims
Animal feed composition containing at least one growth promoting compound of the formula



wherein X is halogen (Cl, Br, F and I); p is an integer from 0 to 2 inclusive; R¹ is selected from the group consisting of alkyl, alkenyl and alkoxy of not more than 4 carbon atoms; a is an integer from 0 to 5; R² is halogen, (Cl, Br, F and I); b is an integer from 0 to 3, and d is an integer from 0 to 2.

3,592,917
ANIMAL FEED COMPOSITIONS AND METHODS

Ernest G. Jaworski, Olivette, and Gino J. Marco, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 7, 1967, Ser. No. 666,000

Int. Cl. A61k 27/00

U.S. Cl. 424—324 24 Claims
2-haloacetanilides have been found to promote the growth of animals when used alone and in animal feed compositions.

3,592,918
CONTROLLING BACTERIA WITH A FATTY TETRAAMINE

Wayne W. Havers, Broadview, Ill., and Jack de la Torre, Geneva, Switzerland, assignors to Armour Industrial Chemical Company, Chicago, Ill.

No Drawing. Filed Aug. 29, 1968, Ser. No. 756,304

Int. Cl. A01n 9/20

U.S. Cl. 424—325 3 Claims
Fatty tetraamines are used alone or in admixture with other specified compounds as biocides for various purposes.

3,592,919
PHARMACEUTICAL COMPOSITIONS AND METHODS FOR CONTROLLING INFLUENZA VIRUS INFECTION UTILIZING 1-AMINOBI-CYCLO-OCT-2-ENES AND BICYCLO-OCT-2-ENE-1-METHYLAMINES

James C. Kauer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 763,930, Sept. 30, 1968, which is a division of application Ser. No. 536,996, Mar. 24, 1966, now Patent No. 3,418,369. This application May 7, 1969, Ser. No. 825,125

Int. Cl. A61l 27/00

U.S. Cl. 424—325 16 Claims
This invention relates to pharmaceutical compositions containing a compound of the class of 1-aminobicyclo-oct-2-enes and bicyclo-oct-2-ene-1-methylamines and the use of such compounds to control influenza viral infection in warm-blooded animals. Typical compounds useful in these compositions and methods are 4-methylbicyclo(2.2.2)oct-2-ene-1-amine hydrochloride and 4-methylbicyclo(2.2.2)oct-2-ene-1-methylamine hydrochloride.

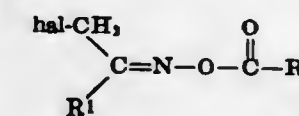
3,592,920
METHOD OF CONTROLLING BACTERIA AND FUNGI WITH CERTAIN OXIME ESTERS

Arnold D. Gutman, San Rafael, and Don R. Baker, Pinole, Calif., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed July 22, 1968, Ser. No. 746,309

Int. Cl. A01n 9/24

U.S. Cl. 424—327 13 Claims
Compounds having the formula



in which hal is chlorine, bromine or iodine, R¹ is (1) hydrogen, (2) lower alkyl, (3) aryl, (4) nuclear substituted derivatives thereof in which the substituents are halogen, nitro, lower alkoxy, lower alkyl, or cyano and (5) haloalkyl, and R² is (1) aryl, (2) nuclear substituted derivatives thereof in which the substituents are halogen, cyano, nitro, lower alkoxy, or lower alkyl, (3) styryl, (4) nuclear substituted styryl, in which the substituents are halogen, cyano, nitro, lower alkoxy or lower alkyl, (5) benzyl, (6) nuclear substituted benzyl in which said substituents are halogen, cyano, nitro, lower alkoxy or lower alkyl, (7) phenethyl, (8) nuclear substituted phenethyl in which the substituents are halogen, cyano, nitro, lower alkoxy, or lower alkyl, (9) cycloalkyl having 3 to 6 carbon atoms, and (10) furyl are used as herbicides, acaricides and for controlling fungi and bacteria.

3,592,921
TREATMENT OF INTESTINAL HELMINTHIASIS WITH CYCLOPENTENE-1,3-DIONES

Alvin Wagner and James W. Kessel, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,176

Int. Cl. A61k 27/00

U.S. Cl. 424—330 22 Claims
Domestic animals afflicted with intestinal helminthiasis are treated with cyclopentene-1,3-diones having hydrogen or halogen atoms at the 4 and 5 positions and substituted at the 2 position with benzylidene, dihalomethylene, or diaminomethylene radicals. The active agent can be administered in pill or capsule form or as a drench but is preferably incorporated in the feed and/or water supplied to the animal.

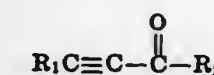
3,592,922
PROCESS OF KILLING FUNGI AND NEMATODES WITH ACETYLENIC KETONES

Delta W. Gler and Audra M. Calhoun, Laurinburg, N.C., assignors to Chemagro Corporation, New York, N.Y.

No Drawing. Original application Oct. 16, 1967, Ser. No. 675,318. Divided and this application July 16, 1968, Ser. No. 761,965

Int. Cl. A01n 9/24

U.S. Cl. 424—331 6 Claims
Compounds of the formula



where R₁ is ethyl or phenyl and R₂ is lower alkyl, phenyl, alkylphenyl, benzyl, halophenyl, alkenyl, phenylethenyl or halophenoxyethyl are useful as nematocides and fungicides. The compound 3-heptyn-5-one is particularly valuable since it is not toxic to plants.

3,592,923

PHLOROGLUCINOL ETHERS

Madeleine Vaille, born Penciolelli, Brunoy, France, assignor to Societe Anonyme dite: Orsymonde, Paris, France

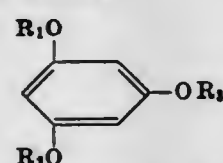
No Drawing. Filed Sept. 15, 1969, Ser. No. 858,114
Claims priority, application Great Britain, Sept. 17, 1968, 44,189/68

Int. Cl. A61k 27/00

U.S. Cl. 424—340

8 Claims

A pharmaceutical composition having antispasmodic and hypercholeretic properties, comprising an inert carrier and an effective quantity of at least one phloroglucinol ether of the general formula



in which R₁, R₂ and R₃ are the same or different and each represents a hydrogen atom or an alkyl group having up to 3 carbon atoms, with the proviso that at least one of R₁, R₂ and R₃ is an alkyl group and that, when each of R₁, R₂ and R₃ is an alkyl group, they are the same and each has 2 or 3 carbon atoms.

3,592,924

METHOD FOR COMBATING MICRO-ORGANISMS

Arleen C. Pierce, New Brunswick, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

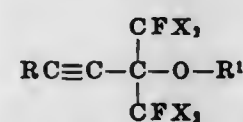
No Drawing. Filed Oct. 21, 1966, Ser. No. 588,319

Int. Cl. A01n 9/00, 9/24

U.S. Cl. 424—342

15 Claims

Compositions comprising ethynyl compounds of the formula:



wherein R is H or Cl; R¹ is H or alkyl having from 1-5 carbon atoms inclusive and X is independently selected from the group consisting of H, F and Cl, are effective in combating micro-organisms.

3,592,925

ANTIBIOTICS AH272_α AND AH272_β, AND PROCESSES FOR PRODUCING SAME

Ralph Henry Evans, Jr., River Vale, N.J., and Samuel Owen Thomas, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Apr. 21, 1969, Ser. No. 817,890

Int. Cl. A61k 21/00

U.S. Cl. 424—119

10 Claims

This disclosure describes two new antibiotics, designated AH272_α and AH272_β, produced in a microbiological fermentation under controlled conditions using a new strain of *Streptomyces platensis* and mutants thereof. The new antibiotics are active against gram-positive bacteria and thus are useful in inhibiting the growth of such bacteria wherever they may be found.

3,592,926

ANTIFUNGALS BK217_β AND BK217_γ AND PROCESS FOR PRODUCING SAME

Ping Shu, Pomona, N.Y., and Ferdinand Barbatschi, Kankakee, Ill., assignors to American Cyanamid Company, Stamford, Conn.

Filed Apr. 14, 1969, Ser. No. 815,806

Int. Cl. A61k 21/00

U.S. Cl. 424—120

8 Claims

This disclosure describes two new antifungals, designated BK217_β and BK217_γ, produced in a microbiological fermentation under controlled conditions using a new strain of *Streptovericillium cinnamomeus* and mutants thereof. The new anti-fungals are active against a va-

riety of fungi and thus are useful in inhibiting the growth of such fungi wherever they may be found.

3,592,927

PRODUCTION OF CALCIUM PANTOTHENATE COMPOSITIONS

Maximilian Koffler, Tel Aviv, and Zdzislaw B. Krawczak, Jerusalem, Israel, assignors to Koffolk Chemical Works Ltd., Jerusalem, Israel

No Drawing. Continuation of abandoned application Ser. No. 665,243, Sept. 5, 1967. This application Mar. 17, 1970, Ser. No. 20,385

Int. Cl. A61k 27/00

U.S. Cl. 424—184

2 Claims

A calcium pantothenate composition comprising a hydrophobic silicium oxide compound in an amount not exceeding 5% by weight of the calcium pantothenate.

The composition is prepared in a continuous operation in which calcium oxide is first reacted with β-alanine, the resulting calcium β-alanate is reacted without isolation with α-hydroxy-β,β-dimethyl γ-butyrolactone and a hydrophobic silicium oxide compound is then incorporated.

3,592,928

NOVEL ANTIMICROBIC COMPOSITIONS CONTAINING A NITROALKYL N-PHENYL-CARBAMATE

Richard Wessendorf, Hilden, Rhineland, Heinz Gunter Nosler, Monheim, Rhineland, and Horst Bellinger, Dusseldorf, Germany, assignors to Henkel & Cie. GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed July 25, 1968, Ser. No. 747,453
Claims priority, application Germany, July 25, 1967, H 63,380

Int. Cl. A01n 9/20

U.S. Cl. 424—204

16 Claims

Novel compositions and method for killing bacteria and fungi having as the active ingredient a nitro alkyl-N-phenyl carbamate and to novel bromo-nitroalkyl-N-phenylcarbamates.

3,592,929

SYNERGISTIC ANTIMICROBIC AGENTS OF TWO BROMONITROALKYL N-PHENYL-CARBAMATES

Heinz Gunter Nosler, Monheim, Rhineland, and Richard Wessendorf, Hilden, Rhineland, Germany, assignors to Henkel & Cie. GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed July 25, 1968, Ser. No. 747,452
Claims priority, application Germany, Nov. 7, 1967, H 64,376; Dec. 7, 1967, H 64,694

Int. Cl. A01n 9/20

U.S. Cl. 424—204

9 Claims

Synergistic antimicrobial compositions comprising as the active ingredient a mixture of 2-bromo-2-nitrobutyl-N-phenylcarbamate and 2-bromo-2-nitrobutyl-N-(3,4-dichlorophenyl)-carbamate.

3,592,930

MOISTURE-DETERIORATABLE TOPICAL MEDICAMENTS, PARTICULARLY ANTI-INFLAMMATORY STEROIDS, IN A SUBSTANTIALLY NON-AQUEOUS FATTY ALCOHOL-PROPYLENE GLYCOL VEHICLE

Martin Katz, Atherton, Calif., and Herbert M. Neiman, Philadelphia, Pa., assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed July 19, 1968, Ser. No. 745,989
Int. Cl. A61k 9/10, 17/06, 27/10

U.S. Cl. 424—243

10 Claims

A substantially non-aqueous medicant vehicle containing from 15 to 45 parts saturated fatty alcohol having from 16 to 24 carbons, from 55 to 85 parts glycol solvent, from 0 to 10 parts plasticizer, from 0 to 10 parts coupling agent, 0 to 20 parts penetrant, and if desired, other pharmaceutical adjuvants. This base is a suitable vehicle for

all types of therapeutic agents for topical application including antibiotics, steroids, antihistamines, antiseptics, anesthetics, antibacterials, fungicides, and the like. The vehicle has shown particular advantages with anti-inflammatory topical corticoids.

3,592,931

PREPARATIONS FOR COMBATING HARMFUL MICROORGANISMS

Max Duennenberger, Frenkendorf, and Max Schellenbaum, Muttentz, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed May 28, 1968, Ser. No. 732,527
Claims priority, application Switzerland, June 16, 1967, 8,580/67

Int. Cl. A01n 9/24

U.S. Cl. 424—311

6 Claims

Preparations for combating harmful microorganisms containing as active ingredient 2,4'-dihydroxy-3',5'-di-tertiary butyl-diphenylketones-(1,1') carrying a substituent in the 4-position.

3,592,932

N-2-ETHYLHEXYL-N'-ARYL UREAS AS ANTIBACTERIAL AGENTS

Dieter Duerr, Bottmingen, Hans Rudolf Hitz, Muttentz, Max Duennenberger, Frenkendorf, and Max Schellenbaum, Muttentz, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed Dec. 28, 1967, Ser. No. 694,121
Claims priority, application Sweden, Jan. 12, 1967, 417/67; Oct. 17, 1967, 14,462/67

Int. Cl. A01n 9/20

U.S. Cl. 424—322

3 Claims

The present invention provides N-2-ethylhexyl-N'-aryl-ureas which are useful as active ingredients in preparations for combating harmful bacteria.

3,592,933

TREATMENT OF INFECTIONS IN ANIMALS WITH CHLORAMPHENICOL SOLUTION

Frederick W. Kullenberg, 7620 Belmont Drive, Ralston, Nebr. 68127

Filed June 18, 1969, Ser. No. 834,276

Int. Cl. A61k 21/00

U.S. Cl. 424—324

5 Claims

In the treatment of infections in the mammalian and avian orders of animals by administration of effective dosages of chloramphenicol to said infected animals, the improvement which comprises administering said chloramphenicol as a composition wherein each cubic centimeter consists essentially of:

Chloramphenicol—About 20 to 200 mg.

Niacinamide—About 5 to 10%

Ethyl alcohol—About 1 to 10%

Propylene glycol—Balance

3,592,934

PHARMACEUTICAL COMPOSITIONS AND METHODS OF CONTROLLING INFLUENZA A VIRUS INFECTION UTILIZING SUBSTITUTED ADAMANTANES AND TRICYCLO[4.3.1.1^{3,5}] UNDECANES

William W. Prichard, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 673,938, Oct. 9, 1967, which is a division of application Ser. No. 376,259, June 18, 1964, which in turn is a continuation-in-part of application Ser. No. 297,233, July 24, 1963. This application June 20, 1969, Ser. No. 835,232

Int. Cl. A61k 27/00

U.S. Cl. 424—325

10 Claims

This invention relates to pharmaceutical compositions containing a compound of a class of adamantane and tricyclo[4.3.1.1^{3,5}]undecane compounds having an amino-

methyl or N-substituted aminomethyl group attached to a tertiary or bridgehead nuclear carbon atom as well as the pharmaceutically acceptable salts of said class of compounds and to the use of such compositions to control influenza virus infections in warm-blooded animals. Typical compounds useful as the active ingredient in these compositions are 1-(aminomethyl)adamantane, 3-(aminomethyl)tricyclo[4.3.1.1^{3,5}]undecane, α-methyl-1-adamantanemethylamine, 1-(N-methylaminomethyl)adamantane, and the hydrochloride salts of the foregoing named compounds.

3,592,935

SUBSTITUTED BENZYLIDENE HYDRAZINES AS ANTI-INFLAMMATORY AGENTS

William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Dec. 11, 1969, Ser. No. 884,312
Int. Cl. A61k 27/00

U.S. Cl. 424—326

4 Claims

This disclosure relates to dihalobenzylidene hydrazines, e.g., N-(2,6-dichlorobenzylidene)-N'-amidino hydrazine. These compounds are useful as anti-inflammatory agents.

3,592,936

METHOD OF TREATMENT USING PHARMACEUTICAL COMPOSITION CONTAINING DIMETHYL SULFOXIDE

Arnold D. Marcus, Livingston, N.J., and Robert E. Dempski, Dresher, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 508,826, Nov. 19, 1965. This application Apr. 25, 1969, Ser. No. 827,456

Int. Cl. A61j 3/04; A61k 9/06

U.S. Cl. 424—337

2 Claims

This invention relates to a method of administering liquid dimethyl sulfoxide cutaneously and topically to humans and animals in amounts effective for therapeutic action without having the dimethyl sulfoxide run off the skin and without causing significant irritation of the skin.

The method involves administering to the surface of the skin an ionically sensitive, semi-solid gel of (i) a mixture of dimethyl sulfoxide and water in the ratio from about 50%/50% to not more than 95%/5% by weight, (ii) carboxy polymethylene water soluble resin in an amount from about 0.1% to about 1.0% by weight of the gel composition, and (iii) a neutralizing agent selected from the group consisting of monoisopropanolamine, diisopropanolamine, triethanolamine and triethylamine in an amount from about 0.01% to about 0.3% by weight of the gel composition, with the lower concentrations of neutralizing agent being employed with the lower concentrations of resins; and then maintaining the semi-solid gel in contact with the skin for a period sufficient to enable the salt normally present at the surface of the skin to gradually break the semi-solid gel composition and thereby slowly release the liquid mixture of dimethyl sulfoxide and water over the surface of the skin where the semi-solid gel was applied.

3,592,937

DEVICE FOR CRUCIBLE-FREE OR FLOATING ZONE MELTING OF A CRYSTALLINE ROD

Reimer Emeis, Ebermannstadt, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Dec. 6, 1967, Ser. No. 688,605
Claims priority, application Germany, Dec. 7, 1966, S 107,302

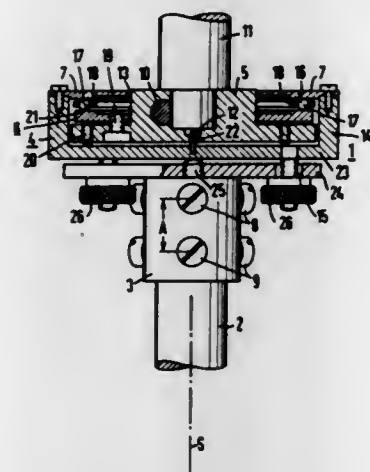
Int. Cl. B01d 9/00

U.S. Cl. 23—273

8 Claims

In device for floating zone melting a crystalline rod including a removable holder mounted on the end of a sub-

stantially vertical holder shaft for end-supporting a substantially vertical crystalline rod coaxial to the holder



shaft, the improvement therein comprising separate means for respectively preventing radial displacement of the end holder and angular deviation thereof relative to the shaft.

3,592,938

GLASS STREAM CUTTING APPARATUS

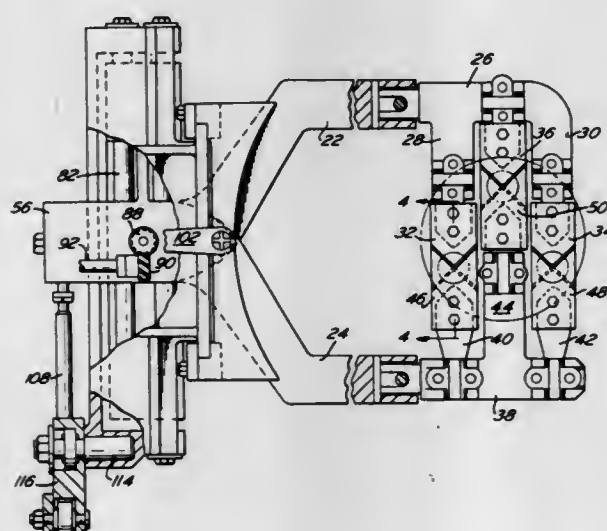
Robert S. Bracken, Vineland, and Edward F. Parkell, Millville, N.J., assignors to Maul Bros. Inc., Millville, N.J.

Filed Apr. 29, 1968, Ser. No. 724,951

Int. Cl. C03b 5/38

U.S. Cl. 65—334

5 Claims



A triple gob glass feeder and a cooperating triple gob shear mechanism are disclosed. The shear mechanism has two arms reciprocable toward and away from each other. Each arm at its free end has three blades arranged in mating pairs to cooperate with each other for cutting three streams of glass from the feeder particularly when the streams are not aligned with one another.

3,592,939

METHOD OF SEPARATING METAL VALUES

Raymond Derry, Stevenage, England, assignor to Brand-hurst Company Limited and Charter Consolidated Limited, both of London, England

No Drawing. Filed Apr. 10, 1968, Ser. No. 720,404
Claims priority, application Great Britain, Apr. 11, 1967, 16,591/67

Int. Cl. C22b 17/04, 23/04, 15/12

U.S. Cl. 75—108

8 Claims

A process for separating metal values from a mixture which includes the step of hydrogenating a mixture of the

metal hydroxides at an elevated temperature and pressure such that at least one of the hydroxides is reduced to metallic form while at least one is not reduced. The metal(s) may then be separated from the remaining hydroxide(s).

3,592,940

TRIGLYCERIDE COMPOSITION CONTAINING TITANIUM DIOXIDE

Camilo Quesada, Park Ridge, Ill., assignor to SCM Corporation, Cleveland, Ohio

No Drawing. Filed Apr. 24, 1968, Ser. No. 723,902

Int. Cl. A23i 1/27

U.S. Cl. 99—148

12 Claims

Lipoidal compositions containing (1) a lipid suitable for application to tissues of homeothermal animals, (2) at least one partial ester of a polyol, and (3) finely divided TiO_2 are described. The compositions are advantageous in that they can be used to whiten or to increase the light reflectance of products into which they are incorporated, and are further advantageous in that they form stable aqueous emulsions.

3,592,941

METHOD FOR PRODUCING ELECTRON FLOW IN CARBONATE ELECTROLYTE FUEL CELL

Eugene B. Shultz, Jr., Ballwin, Mo., and Leonard G. Marianowski, South Holland, Ill., assignors to American Gas Association, Inc., New York, N.Y.

Continuation of abandoned application Ser. No. 305,971, Sept. 3, 1963. This application Dec. 26, 1967, Ser. No. 693,306

Int. Cl. H01m 27/06

U.S. Cl. 136—86

3 Claims

A fuel cell which utilizes hydrogen as fuel to produce electrical energy having an anode only permeable by hydrogen, a cathode permeable by an oxygen containing oxidant, and an alkaline carbonate electrolyte. The internal electric circuit utilizes only the carbonate ions from the alkaline carbonate for transporting electrons, internal of the cell, from the cathode to the anode where they are released as electrical energy. The method of producing electricity using the apparatus described comprises (1) heating the fuel cell apparatus to above the melting point of the alkaline carbonate, (2) allowing hydrogen fuel to permeate the anode and react with carbonate ions in the electrolyte thereby releasing electrons as electrical energy, and (3) providing an oxygen containing oxidant at the cathode in sufficient excess to provide oxygen atoms which combine with the carbon dioxide created at the anode and thereby produce carbonate ions at the cathode. The resultant reactions provide a carbon dioxide-carbonate ion balance internal of the fuel cell.

3,592,942

COMPOSITE CERAMIC ARMOR

Eldon W. Hauck, Worcester, and Samuel H. Coes, Northboro, Mass., assignors to Norton Company, Worcester, Mass.

Filed May 2, 1968, Ser. No. 726,121

Int. Cl. B32b 17/04, 17/06

U.S. Cl. 161—44

4 Claims



Presently known composite ceramic armor panels designed for protection against small arms fire consist of

dense ceramic plates adhered to a backing. According to the present invention, the preferred backing is aluminum alloy. In order to increase the beam strength of a free edge, to minimize deflection under impact and to increase the overall effectiveness of the armor, the metal backing plate is formed near the free edge into an enclosing flange or lip which extends from the backing plate at an angle of substantially 90° , adjoining the face plate and materially stiffening and strengthening the free edge.

3,592,943

NOVEL PROCESSES AND COMPOSITIONS FOR ELECTROPLATING NICKEL

Frank Passal, Detroit, Mich., assignor to M & T Chemicals Inc., New York, N.Y.

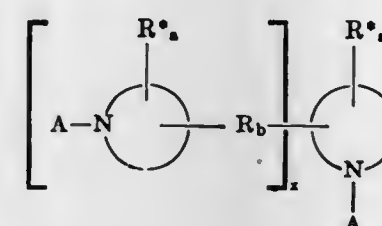
No Drawing. Filed Oct. 25, 1967, Ser. No. 677,864

Int. Cl. C23b 5/08

U.S. Cl. 204—49

16 Claims

In accordance with certain of its aspects, this invention relates to novel compositions and to an improved process for electroplating bright nickel which comprises electrodepositing nickel from an aqueous nickel-containing electroplating bath which contains (a) a first primary brightener, (b) a secondary brightener, and (c) as an additional cooperating primary brightener, a nitrogen-heterocyclic compound of the formula:



wherein each



is independently a pyridine, quinoxaline or isoquinoline nucleus; each a is an integer 0–6; each A is independently oxygen (O) or the group $-\text{OR}'\text{SO}_3\text{M}$ wherein R' is a divalent hydrocarbon group of 1–12 carbon atoms and M is hydrogen, a nitrogen atom, or a bath-compatible metal cation; R is a divalent group containing 1–12 carbon atoms; b and x are integers 0–1; A is



when $x=0$; and R^* is a substituent selected from the group consisting of alkyl, hydroxyalkyl, halogen, alkoxy, carboxyl, carbalkoxy, acetyl, sulfo, carboxamide, cyano, aralkyl, alkaryl, and aryl; all unsubstituted carbon atoms are bonded to hydrogen atoms; and, when $x=0$ and A is $-\text{OR}'\text{SO}_3\text{M}$, (d) a secondary auxiliary brightener.

3,592,944

BOROHYDRIDE-SULFITE REDUCING AGENT FOR DYEING

Dieter Rudolf Goerrig, Auf der Hardt, Germany, assignor to Ventron Corporation, Beverly, Mass.

No Drawing. Filed May 6, 1968, Ser. No. 727,007
Claims priority, application Germany, May 9, 1967, G 50,049

Int. Cl. C01b 35/00, 6/08; C09b 67/00

U.S. Cl. 252—188

3 Claims

A method for producing useful solutions for reducing dyes with the aid of borohydrides is characterized by reacting a solution of alkali metal borohydrides with solutions of sodium salts of sulfur and then reacting this with about 1 mol of CH_2O per mole of $\text{Na}_2\text{S}_2\text{O}_4$, whereupon the solution is mixed with further borohydrides.

3,592,945

SOFT-GELATINE CAPSULES WITH INCREASED HEAT RESISTANCE AND METHOD OF THEIR PRODUCTION

Christel Engelking, Pesch, near Cologne, Germany, assignor to A. Nattermann & Cie GmbH, Cologne-Braunsfeld, Germany

No Drawing. Filed Mar. 7, 1968, Ser. No. 711,228
Claims priority, application Germany, Mar. 7, 1967, N 30,128

Int. Cl. B01j 13/02; A61k 9/04; B44d 1/14

U.S. Cl. 252—316

4 Claims

Described are soft-gelatin capsules with increased thermostability. The capsules are provided with a protective coating comprising a copolymer of methacrylic acid and methylmethacrylate whose acid number is between 180 and 350 and whose molecular weight is between 110,000 and 160,000. A softener such as dibutylphthalate and castor oil may be added. Also described is a process of preparing these capsules.

3,592,946

FLEXIBLE AMINE-EPOXIDE RESIN AND THE CONTROLLED TEMPERATURE PREPARATION THEREOF

James R. Griffith, Riverdale Heights, Md., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Mar. 5, 1968, Ser. No. 710,622

Int. Cl. C03g 30/04

U.S. Cl. 260—47EP

5 Claims

An elastomeric solid amine-epoxide resin is prepared from N,N' -dimethylethylenediamine and resorcinol diglycidyl ether. Preparation of the elastomeric resin involves mixing the diamine and diglycidyl ether in proportions to provide an amine hydrogen atom for each epoxy group of the diglycidyl ether, cooling the mixture before vigorous reaction takes place to cause it to be at a temperature of about 5°C ., holding the mixture at such a temperature for about 5 hours, and subjecting the resulting partially reacted mixture to heat at room temperature to form a viscous liquid amine-epoxide resin. The viscous liquid resin is cured by heating at an elevated temperature to provide the elastomeric solid resin which is useful as an adhesive, a coating, or as a casting resin.

3,592,947

HALOGENATED VAT DYE STUFF OF THE DIPHthalOYL PHENANTHRIDONE SERIES

Charles W. C. Stein, Westfield, N.J., assignor to GAF Corporation, New York, N.Y.

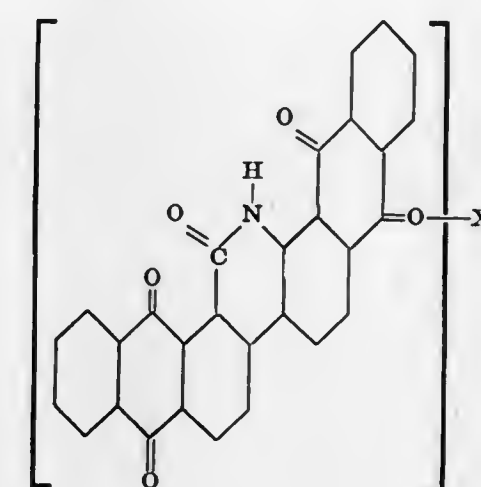
No Drawing. Filed Dec. 27, 1967, Ser. No. 693,753

Int. Cl. C07d 39/02

U.S. Cl. 260—272

4 Claims

An olive green vat dyestuff of relatively low infra-red reflectance having the formula:



wherein X is nuclearly substituted bromine or chlorine; and n has an average value of 1 to 4.

3,592,948

ADDITION REACTION INVOLVING DIPEROXY-FUMARATE TO FORM COMPOUNDS HAVING DIPEROXYSUCCINYL GROUPS

Richard Anthony Bafford, Tonawanda, Ernest Rudolf Kamens, Buffalo, and Orville Leonard Mageli, Kenmore, N.Y., assignors to Pennwalt Corporation

No Drawing. Filed Mar. 8, 1968, Ser. No. 711,502

Int. Cl. C07c 69/00

U.S. Cl. 260—453

11 Claims

A diester of diperoxyfumaric acid is reacted at its double bond with an organic compound $R-(X)_n$, where X is a monovalent atom readily abstractable by a free radical, e.g., hydrogen, chlorine or bromine; and R is inert to the peroxycarbonyl groups of the diperoxyfumarate to form an addition product including at least one diester of a substituted diperoxysuccinic acid. For example: Tetrahydrofuran and di-*t*-butyl diperoxyfumarate react at about 0° C. to form di-*t*-butyl alpha-(2-tetrahydrofuryl)diperoxysuccinate. Polyglycols and polyvinyl ethers, alcohols, halides, etc. react to give polymers having pendant pairs of peroxycarbonyl ester groups in gamma relationship to each other.

These compounds are of especial interest in the preparation of block and graft copolymers.

3,592,949

ACYLATED ANILIDE CARBAMATES

Eugene G. Teach, El Cerrito, and Julius J. Menn, Saratoga, Calif., assignors to Stauffer Chemical Company, New York, N.Y.

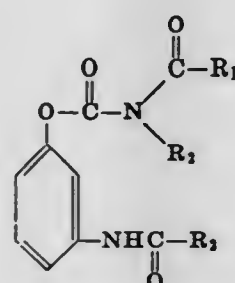
No Drawing. Filed Mar. 29, 1968, Ser. No. 717,465

Int. Cl. C07c 125/06

U.S. Cl. 260—479C

14 Claims

Compounds corresponding to the formula



in which R_1 and R_2 are independently lower alkyl, halogenated lower alkyl, lower alkenyl, cycloalkyl, phenyl, substituted phenyl in which the substituents are nitro, halogen, lower alkyl or lower alkoxy and R_3 is hydrogen, lower alkyl, cycloalkyl, halogenated lower alkyl, lower alkenyl, furyl or benzyl. The above-defined compounds are effective as herbicides, insecticides and animal parasiticides, especially as anthelmintics. Representative compounds are: 3' - (N - methyl - N - acetylcarbamoyloxy) formanilide; 3' - N - isopropyl - N - trifluoroacetylcarbamoyloxy propionanilide; 3' - N - butyl - N - trifluoroacetylcarbamoyloxy propionanilide; 3' - (N - isobutyryl - N - isopropylcarbamoyloxy) propionanilide; 3' - (N - isopropyl - N - chloroacetyl - carbamoyloxy) propionanilide.

3,592,950 ALKOXYBENZYLIDENE BISPHENOLS AND THEIR ANTIOXIDANT USE

Harold D. Orloff, Oak Park, Mich., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Filed Sept. 18, 1967, Ser. No. 668,682

Int. Cl. C07c 43/20

U.S. Cl. 260—613

4 Claims

The combustion chamber deposit formation and exhaust hydrocarbon emission of internal combustion engines is reduced by operating the engine on a fuel containing an alkoxybenzylidene bisphenol such as 4,4'-(*p*-methoxybenzylidene)bis(2,6 - di-*tert*-butylphenol). These same alkoxybenzylidene bisphenols are also antioxidants.

3,592,951

PROCESS FOR ALKYLATING A PHENOL

Edward F. Zaweski, Pleasant Ridge, Mich., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Filed Dec. 28, 1967, Ser. No. 694,107

Int. Cl. C07c 39/06

U.S. Cl. 260—624

5 Claims

The reaction of from about 1 to 2 mole equivalents of a phenol unsubstituted in at least one position ortho or para to the phenolic hydroxyl group with about 2 mole equivalents of formaldehyde and about one mole equivalent of ethylenediamine effects nuclear methylation of the phenol. For example, the reaction of 2 moles of 2,6-di-*tert*-butylphenol with 2 moles of formaldehyde and one mole of ethylenediamine forms 2,6-di-*tert*-butyl-*p*-cresol. The products are useful as antioxidants.

3,592,952

BLENDS OF AROMATIC POLYAMIDE WITH AROMATIC POLYAMIDE-ACID AND/OR POLYIMIDE

James C. Fang, Media, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 27, 1968, Ser. No. 708,534

Int. Cl. C08g 41/04

U.S. Cl. 260—857

7 Claims

Blend of a major amount of aromatic polyamide and a minor amount of an aromatic polyamide-acid and/or polyimide, useful as a coating having excellent adhesion, high impact resistance and low solvent crazing.

3,592,953

PREPARATION OF HIGH FLOW CELLULOSE DERIVATIVE REVERSE OSMOSIS MEMBRANE

William J. Ward III, Scotia, and Christopher H. Knapp, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Filed Oct. 2, 1967, Ser. No. 672,025

Int. Cl. B29d 7/20, 27/04; C08b 21/04, 29/42

U.S. Cl. 264—49

4 Claims

An improved method is described for the room temperature preparation of porous membranes of cellulosic derivation as, for example, are employed in reverse osmosis systems. The process provides for a two-step preparation conducted at room temperature and consisting of casting, desolvation of the film and immersion in a room temperature bath after which the membrane is ready for use. Gas phase desolvation with a controlled atmosphere enables (a) the room temperature preparation of such porous films even when highly volatile sol-

vents for the film material are employed and (b) heat treatment of the cast film either during or after immersion is obviated. In spite of the elimination of the heat curing step, the resultant porous membrane can be reproducibly prepared by this improved method to provide salt rejection of divalent ions (calcium and magnesium salts) of greater than about 90 percent at a water flux of at least about 0.7 gal./day-ft.²-atm.ΔP at pressures as low as 40 p.s.i. Tests have established that over a period of at least 12 months, a slight decline was observed in the salt rejection, but the water flux remained substantially undiminished.

3,592,954 EXTRUSION OF TYRE LUGS CONTAINING SHREDDED METAL WIRE

Frederick Widdowson, Grantham, England, assignor to Vacu-Lug Traction Tyres Limited, Grantham, England

Filed Aug. 28, 1967, Ser. No. 663,667

Claims priority, application Great Britain, Sept. 2, 1966, 39,394/66

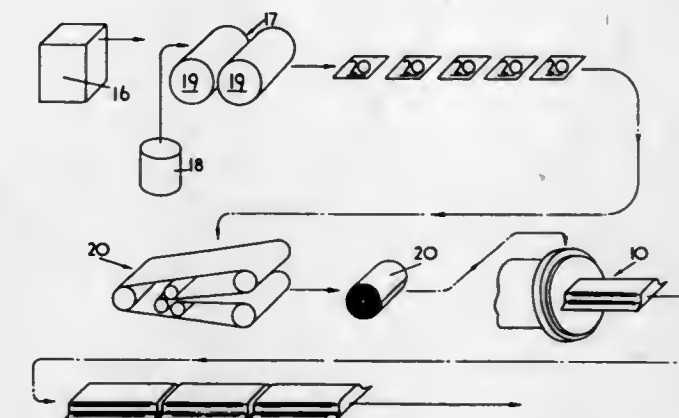
Int. Cl. B29c 17/14; B29d 3/02; B60c 9/00

U.S. Cl. 264—108

5 Claims

A method of producing tyre lug stock having between 3% and 5%, by weight, of discrete lengths of shredded

filamentary metal wire, distributed throughout the material forming the lug stock which is extruded through



a ram type extruder prior to severance into replacement tyre lugs.

ELECTRICAL

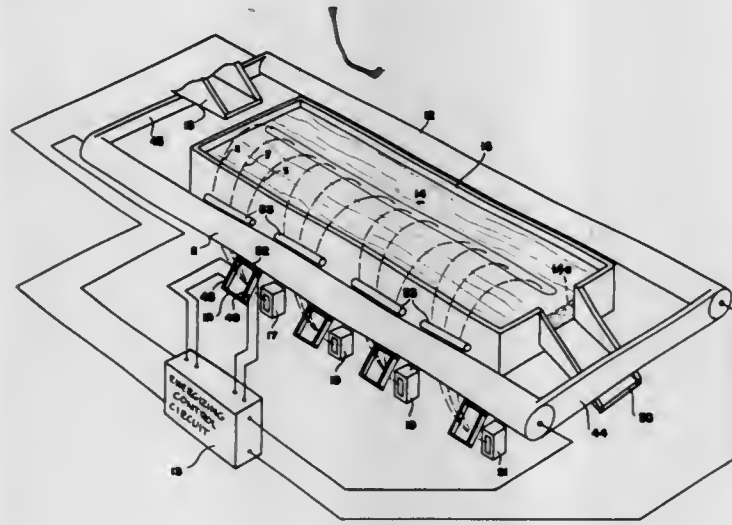
3,592,955

ELECTRON BEAM FURNACE

Charles W. Hanks, Orinda, Calif., assignor to Air Reduction Company, Incorporated, New York, N.Y.
Filed Sept. 24, 1969, Ser. No. 860,497
Int. Cl. H05b 7/00

U.S. Cl. 13-31

13 Claims



An electron beam furnace is described in which at least one electron beam is directed through a curving path to a target. The furnace employs a pair of solenoidal coils positioned to establish a substantially uniform magnetic field in the path of the electron beam, such field having generally straight lines of flux extending transversely of the electron beam path.

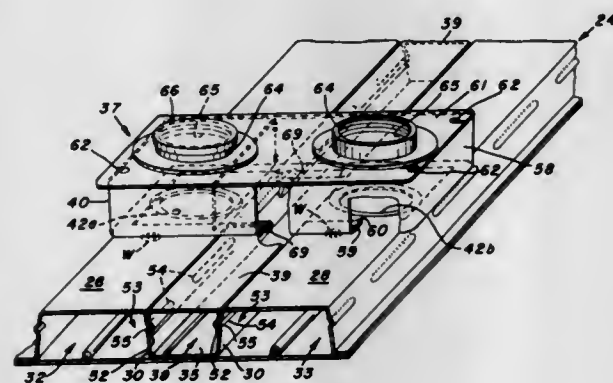
3,592,956

ELECTRICAL RACEWAY WIRING DISTRIBUTION SYSTEM

Frank W. Fork, Allison Park, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa.
Filed May 7, 1969, Ser. No. 822,390
Int. Cl. H02g 3/28; E04f 19/08

U.S. Cl. 174-49

12 Claims



An electrical wiring distribution system including a metal raceway section having at least two parallel cells and an intermediate trough. Improved capping means is provided for enclosing the intermediate trough to provide an additional unobstructed electrical passageway. The present improvement increases the wire carrying capacity of the raceway section; utilizes a region of the metal raceway section which heretofore has been unavailable; provides separate raceways for power, telephone and signal conductors; and permits access to all three separate cells at each of plural locations in metal raceway section.

590

3,592,957

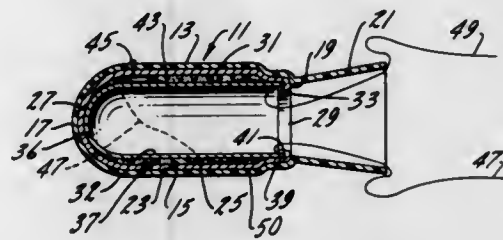
EXPLOSION CONNECTOR

David T. James, De Kalb, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill.
Division of Ser. No. 827,130, May 21, 1969, abandoned, which is a continuation of application Ser. No. 612,655, Jan. 30, 1967, now abandoned.

Filed Jan. 26, 1970, Ser. No. 5,508
Int. Cl. H02g 15/08

U.S. Cl. 174-87

1 Claim



An explosion connector for joining wires, cables, and the like, including an inner deformable shell having a bore with at least one opening into the bore to receive the wires, cables, and the like, a generally nondeformable outer shell, and an explosive located in a chamber between the shells. The outer generally nondeformable shell is folded over the inner deformable shell at the opening into the inner shell to seal the explosive-containing chamber.

3,592,958

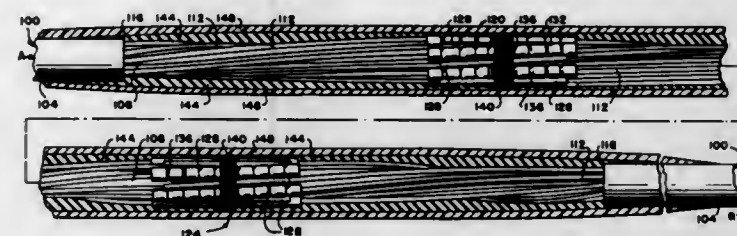
ARMORED-AND-JACKETED SUBMARINE CABLE SPLICES AND METHOD OF PREPARING SUCH SPLICES

Paul S. Munn, Boxford, Mass., assignor to Simplex Wire and Cable Company, Cambridge, Mass.
Continuation-in-part of application Ser. No. 629,155, Apr. 7, 1967, now abandoned. This application June 19, 1967, Ser. No. 647,140

Int. Cl. H02g 15/08

U.S. Cl. 174-88

29 Claims



A splicing technique for connecting armored-and-jacketed cables is described. The method is particularly useful in regard to submarine cable. Single- and double-armored cables, which may or may not be caged, are spliced in such a manner as to restore the splice to the strength of the original cable. The splice itself consists of several splice positions, and the wires and splice areas are completely embedded in a rubber-like material before the outer jacket is restored.

3,592,959

PRESTRESSED ELECTRIC INSULATOR ASSEMBLY

Richard H. Dougherty, 4504 Van Alden Ave., Tarzana, Calif.
Filed Sept. 3, 1969, Ser. No. 854,884

Int. Cl. H01b 17/12, 17/14

U.S. Cl. 174-178

15 Claims

An electric insulator assembly having a ceramic main body compressively prestressed to a high degree and preferably in excess of its design load by an imbedded tensioned, multilayer loop of high-strength filament. The adjustable prestressing means comprises wedge means extending trans-

JULY 13, 1971

ELECTRICAL

591

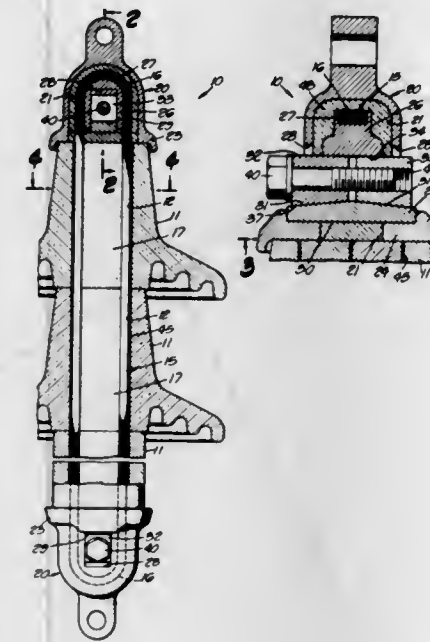
3,592,961

FINE PHASE ERROR-COMPENSATING SYSTEM AND METHOD

Alan G. Grace, San Carlos, Calif., assignor to Wistel Company, San Mateo, Calif.
Filed Dec. 18, 1969, Ser. No. 886,094
Int. Cl. H04n 9/02, 1/28

U.S. Cl. 178-5.4 CD

15 Claims



suspension insulator and asymmetrical of a cantilever-type assembly, the interior being provided with cooperating insulative filler components sealed to the loop and to the passage walls.

3,592,960

AUTOMATIC FREQUENCY CONTROL FOR AN OSCILLATOR IN A CHROMA DEMODULATION CIRCUIT

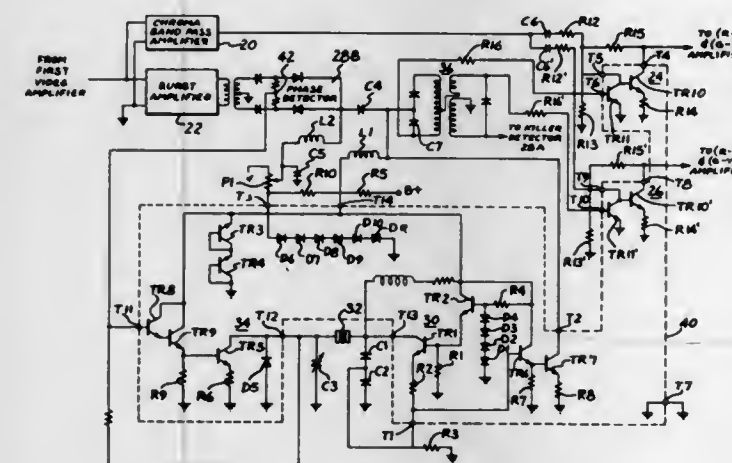
Richard W. Cushing, Forest Park; John Logeman, IV, Park Ridge, Ill., and Paul J. Whiteneir, Jr., Fort Wayne, Ind., assignors to Warwick Electronics Inc.

Filed May 27, 1968, Ser. No. 732,307

Int. Cl. H04n 9/50

U.S. Cl. 178-5.4 SD

9 Claims



In the chroma channel of a color television receiver, a demodulator circuit for the chroma subcarrier component and an oscillator circuit for producing a control signal having the frequency and phase of the chroma subcarrier component, wherein the demodulator circuit and the oscillator circuit except for the resonant circuit portion thereof have been designed to be capable of incorporation in an integrated circuit on a single wafer of semiconductor material.

3,592,962

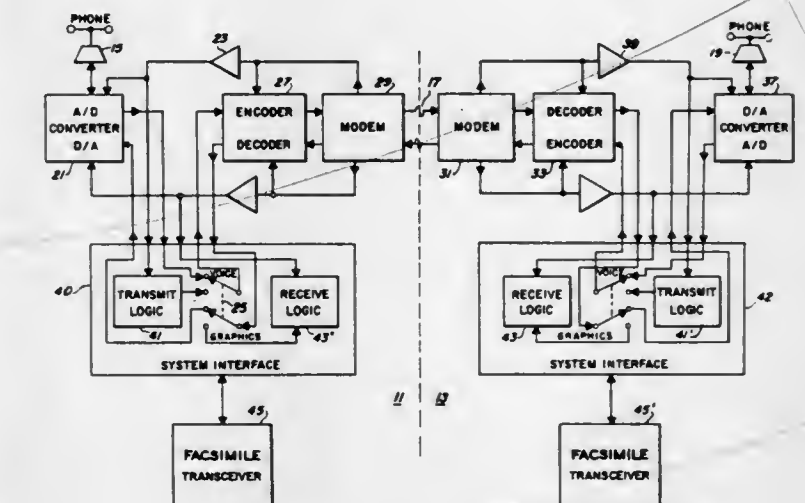
FACSIMILE COMMUNICATION CONTROL CIRCUIT

Larry R. Matthews, Victor, N.Y., and Bjorn Reiser, Billerica, Mass., assignors to Xerox Corporation, Rochester, N.Y.
Filed Mar. 9, 1967, Ser. No. 621,890

Int. Cl. H04h 7/14; H04n 1/32

U.S. Cl. 178-5.6

6 Claims



A control system for controlling the operation of a voice and graphic information transceiver communication system. Logic circuitry is selectively enabled and disabled to allow for graphic operation of a transceiver in the transmit or receive mode.

3,592,963

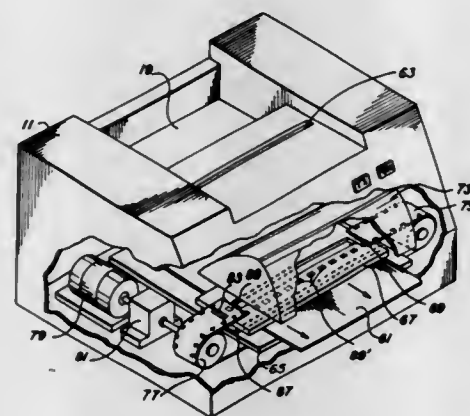
FACSIMILE TRANSMITTER

James E. Young, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed May 2, 1966, Ser. No. 546,700
Int. Cl. H04n 1/00

U.S. Cl. 178-6

12 Claims



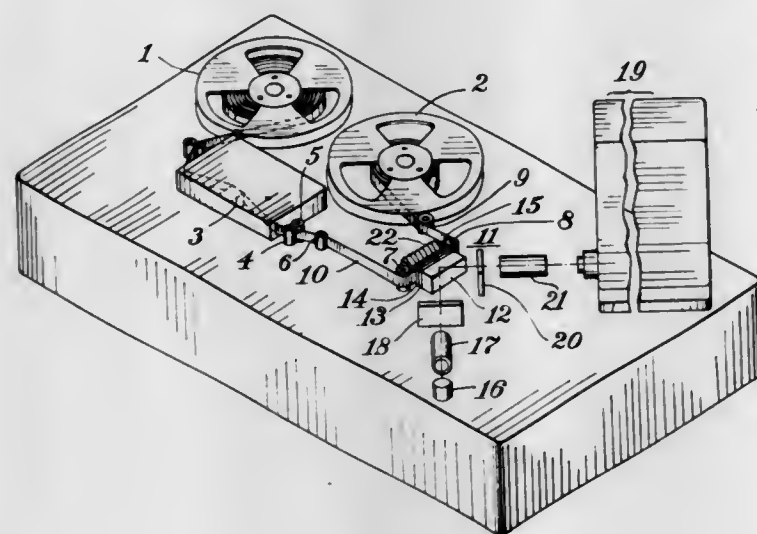
A rugged, low cost, portable facsimile transmitter for generating tone signals for transmission over telephone lines. The scanning means therein comprises an elongated fixed slit positioned transverse to the document motion direction and a multiapertured endless belt mounted for motion of the apertures lengthwise along the fixed slit. An elongated strip cell photodetector is positioned between the document and the spaced apart fixed aperture and thus light variations reflected from the document impinge upon the photodetector in accordance with the movement of the aperture belt and the information content of the document thereby scanning a beam of light from a line of the document.

3,592,964

CONVERTING IMAGES RECORDED ON A MOVING MAGNETIC MEDIUM TO STATIONARY IMAGES

Robert K. Waring, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of application Ser. No. 688,608, Dec. 6, 1967, now abandoned. This application Nov. 8, 1968, Ser. No. 777,546Int. Cl. H04n 3/10; G11b 1/10; G021 1/18
U.S. Cl. 178-6.6 A

27 Claims



Transfer of a primary magnetic image from a moving recording medium to a stationary magnetic receptor surface is accomplished by applying a magnetic field to the receptor surface when the primary image is in the desired position relative to the receptor surface. The applied magnetic field is a decaying oscillating field or a pulsed unidirectional field, applied either parallel to the easy axis of magnetization of the receptor surface. Either periodic transfer of a sequence of

images for video applications or aperiodic or single frame transfer required for microfilm readers is obtained. The applied magnetic field exceeds the coercivity of the receptor surface but not that of the moving record and is of such duration that the medium moves less than a resolution distance during transfer of the image.

3,592,965

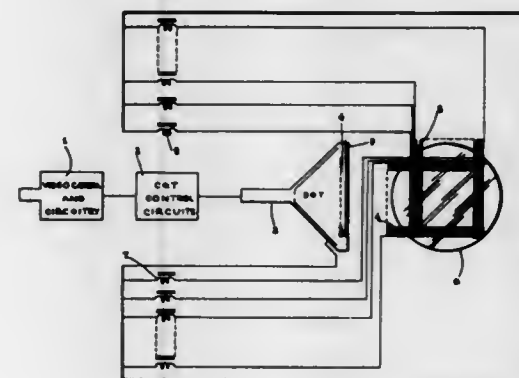
APPARATUS FOR CONVERTING CATHODE RAY PORTRAYABLE INFORMATION TO SPACIAL IMAGES

Zaid Diaz, Cafeto Street #744, Highland Park, Rio Piedras, P.R.

Filed Aug. 22, 1967, Ser. No. 662,409
Int. Cl. H04n 3/16

U.S. Cl. 178-6.8

49 Claims



This invention relates to apparatus for converting an optical image or electrical signals obtained from scanning an image, or from other information, into an electromechanical or sensory image conforming thereto. The invention, while applicable to many fields such as printing, metal forming, image reproduction in general, and others, nevertheless will be explained in connection with a preferred embodiment thereof which enables a blind person to perceive what is ahead of him by virtue of a sensory image or outline on his skin, preferably the back or other large area.

3,592,966

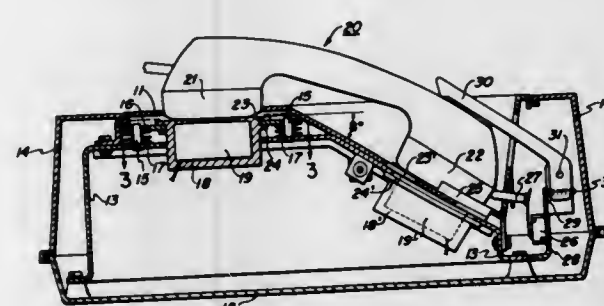
ACOUSTICAL COUPLING APPARATUS

Richard C. Hansen, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Mar. 6, 1969, Ser. No. 804,880
Int. Cl. H04m 1/00

U.S. Cl. 179-1 C

3 Claims



Apparatus for acoustically coupling facsimile signals through a telephone handset to a telephone network. A loading arm engageable with the telephone handset biases the telephone speaker into intimate relationship with a receive transducer adapted to convert acoustical signals into electrical signals. A send transducer for converting electrical signals into acoustical signals is biased into intimate relationship with the telephone microphone by means of a resiliently deflectable support adapted to assume variable orientation with respect to the receive transducer and the telephone speaker.

3,592,967

ULTRASONIC DETECTOR

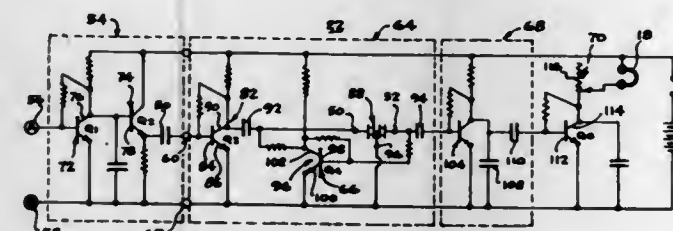
George A. Harris, 7764 W. 14th Court, Hialeah, Fla.

Filed May 20, 1968, Ser. No. 736,917

Int. Cl. H01v 7/00; H031 13/00

U.S. Cl. 179-1 A

4 Claims



This application discloses a detector for leaks which generate ultrasonic waves, such as illuminating gas leaks, and electrical leaks of the corona or arcing types. An ultrasonic detector is utilized to respond to the ultrasonic waves generated by the turbulence in the atmosphere caused by such leaks, and the electrical signals generated by the ultrasonic transducer are utilized to produce an indication of the presence of the leak, either an audible or visual indication.

This application also discloses a band-pass ultrasonic interstage coupler employing piezoelectric elements, and a combination local oscillator and band-pass interstage ultrasonic wave coupler employing piezoelectric elements.

3,592,968

AUTOMATIC TELEPHONE ANSWERING SYSTEM WITH A FAIL SAFE ARRANGEMENT

Kenzo Ogawa, and Akihiko Suemitsu, both of Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

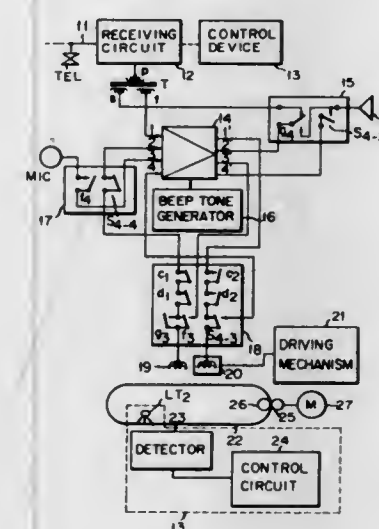
Filed July 14, 1969, Ser. No. 841,297

Claims priority, application Japan, July 17, 1968, 43/49945

Int. Cl. H04m 1/64

U.S. Cl. 179-6 R

13 Claims



An automatic telephone answering apparatus for an absent subscriber having a receiving circuit for detecting transmitted signals, a magnetic recording and reproducing device having an endless magnetic recording tape provided with a first and second rotation indicator, and a control device composed of a first and second detectors for detecting the rotation of the tape using the first and second indicator. The apparatus also includes a control circuit for causing the magnetic recording and reproducing device to operate in the absence of the subscriber.

3,592,969

SPEECH ANALYZING APPARATUS

Hirokazu Yoshino, and Tomio Yoshida, both of Kitakawachi-gun, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

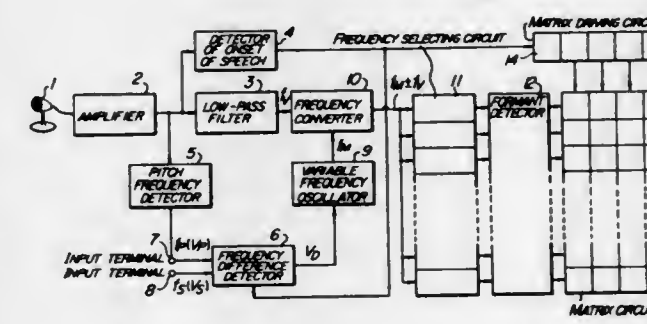
Filed July 22, 1969, Ser. No. 843,573

Claims priority, application Japan, July 24, 1968, May 27, 1969, 43/52897; 43/43421

Int. Cl. G101 1/00

U.S. Cl. 179-1 SA

10 Claims



One of the greatest problems tending to occur in an attempt to effect speech recognition with a speech recognition apparatus is that individual difference is present in the speech frequency distribution. Obviously, the apparatus fails to recognize a speech correctly which can naturally be recognized by the human being, if there is such individual difference.

This specification discloses an apparatus wherein individual difference is eliminated from the frequency to time pattern to normalize such pattern in an attempt to effect speech recognition, thereby making it possible to achieve accurate speech recognition.

3,592,970

TIME DIVISION SELF-CORRECTING SWITCHING SYSTEM

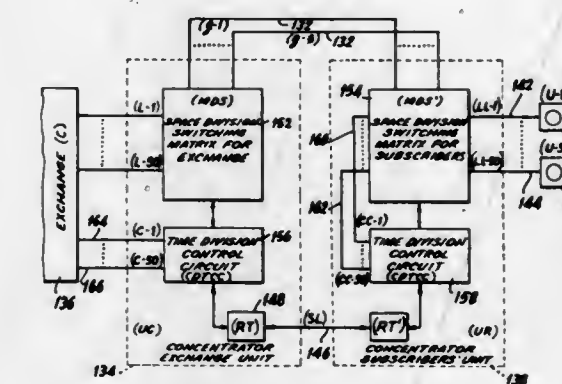
Ilio Cappetti, and Giovanni Perucca, both of Turin, Italy, assignors to CSELT Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed July 3, 1968, Ser. No. 742,295

Int. Cl. H04q 11/04

U.S. Cl. 179-18 J

9 Claims



A semielectronic line concentrator comprising electromechanical interconnection components and electronic control supervisory and control logic circuits. The concentrator adopts the principle of time division under control of a base frequency which is the highest frequency at which two successive operations on a plurality of stations may be performed. A second-order cycle whose frequency is a submultiple of the base frequency is used in conjunction with the base frequency. Furthermore, the system principle is arranged to be extended by the use of a third-or-more order cycle. There are control circuits responsive to these order cycles to correct automatically for errors in connections owing to noise or unexplained malfunctions.

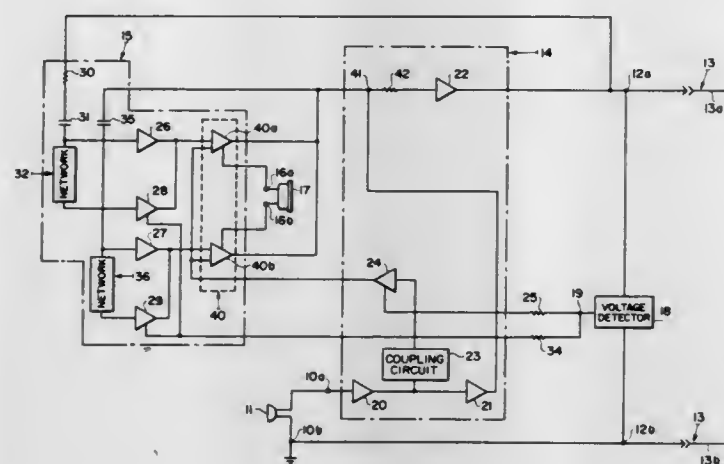
3,592,971 EQUALIZING AND ANTISIDETONE TELEPHONE CIRCUIT

Michael C. J. Cowpland, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Dec. 1, 1969, Ser. No. 881,189
Int. Cl. H04m 1/58

U.S. Cl. 179-81 A

5 Claims



A telephone circuit which equalizes transmit and receive signals to compensate for frequency dependent signal losses in a telephone line. Equalizing amplifiers are used which have a sloped frequency response and a variable gain characteristic that is responsive to the telephone line operating voltage which is itself responsive to the length of the telephone line. A balanced amplifier is also used to drive a telephone receiver with a balanced transmit signal and an unbalanced receive signal, the balanced transmit signal effectively cancelling out across the telephone receiver to provide antisidetone.

3,592,972 CARD TELEPHONE DIALING MACHINE

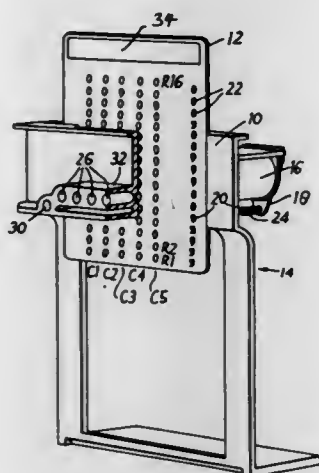
Ronald George Lane, Billingshurst, Sussex, England, assignor to Sontronic Limited, Edgware, Middlesex, England

Filed Nov. 29, 1968, Ser. No. 780,104
Claims priority, application Great Britain, Feb. 26, 1968, 9266/68

Int. Cl. H04m 1/48

U.S. Cl. 179-90

9 Claims



In a telephone dialing device the punched card is not driven through a chute but is dropped through a substantially vertical chute. An electromagnetically operated plunger intermittently arrests the card in the chute, causing the card to drop through the chute in a series of steps. Photoelectric cells sense successive rows of holes in the card as the card drops in successive steps through the chute to control the transmission of dialing code signals.

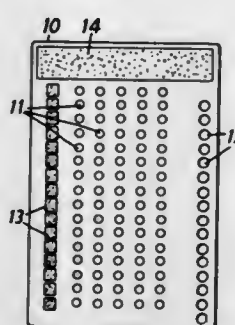
3,592,973 CODE CARDS FOR AUTOMATIC TELEPHONE DIALING

Derek Keith Gray, Barnet, England, assignor to Santronic Limited, Edgware, Middlesex, England

Filed Feb. 11, 1969, Ser. No. 798,360
Claims priority, application Great Britain, May 31, 1968, 26317/68

Int. Cl. G06k 21/04; G11b 23/00; H04m 1/26
U.S. Cl. 179-90 CS

10 Claims



A card blank for providing a coded dialling card for card-dialling apparatus in automatic telephone systems has a plurality of recessed apertures therethrough each obscured by an opaque screen removably mounted in the recessed portions of the apertures, the maximum transverse dimensions of the screen being substantially identical with the minimum transverse dimensions of the unrecessed portion. The screens substantially prevent all direct illumination from passing through the apertures.

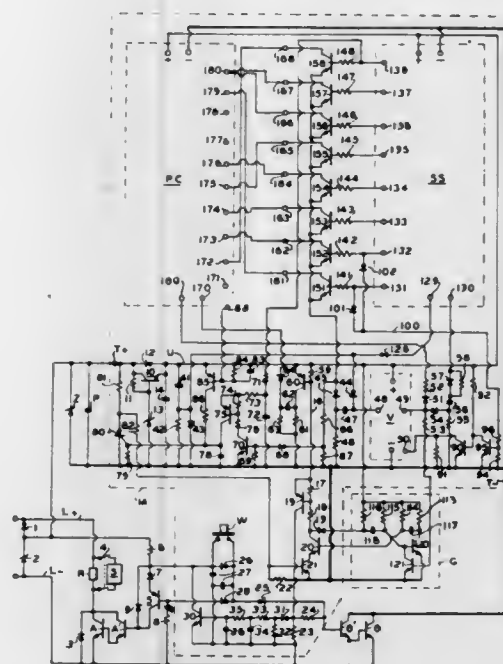
3,592,974 AUTOMATIC DIALING APPARATUS

Donald V. DiMassimo, Edison Township, Middlesex County, N.J., assignor to G-V Controls Inc., Livingston Township, N.J.

Filed Apr. 28, 1969, Ser. No. 819,819
Int. Cl. H04m 1/45

U.S. Cl. 179-90 B

6 Claims



The invention is addressed to a system comprising preprogrammable apparatus, having terminals through which energy may be supplied to that apparatus to energize it, effective when energized to generate a coded series of spaced signals, a telephone line, and circuit means for connecting the terminals across that line. With that system there are combined a normally nonconductive transistor whose collector-emitter path is serially included in the circuit means above mentioned, and a means controlled by said apparatus and effective upon the energization thereof and until the conclusion of

the ensuing series of signals to supply current to the base-emitter path of the transistor during the signal-preceding intervals but to open the circuit means during the signals. Energization of the apparatus is initiated by means, independent of said apparatus, for supplying a temporary initial current from the telephone line to said base-emitter path.

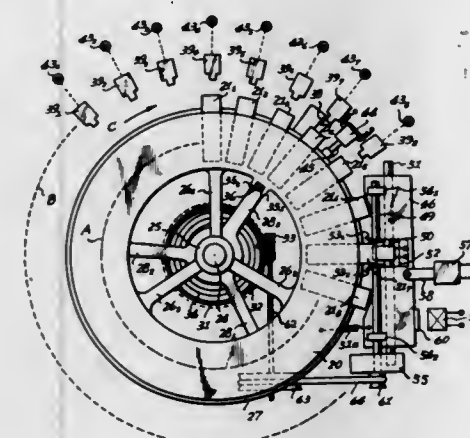
3,592,975 AUTOMATIC PLAYING APPARATUS UTILIZING PLURALITY OF ENDLESS TAPE CARTRIDGES

Itsuki Ban, 829, Higashi-Oizumachi, Nerima-ku, Tokyo-to, Japan

Filed Mar. 28, 1968, Ser. No. 716,833
Claims priority, application Japan, Mar. 30, 1967, 42/19552; 42/19553

Int. Cl. G11b 5/54, 15/66; B65h 19/06
U.S. Cl. 179-100.2 Z

7 Claims



The invention is directed to an automatic and remote-controllable playing apparatus utilizing a plurality of endless tape cartridges wherein a plurality of endless tape cartridges are releasably supported within a movable housing, a stop member is operable to be remote-controlled and arranged on a cabinet correspondingly opposite each of the endless tape cartridges, said housing being adapted to be retained by actuating said stop member when a preselected endless tape cartridge is brought in the play position, a capstan is synchronously and automatically brought into abutment with a pinch roller within each of cartridges to feed and drive an endless tape for reproduction, thereafter said capstan is automatically released from the pinch roller due to an end mark signal on the endless tape, a mechanism of said stop member for arresting movement of housing is brought into free condition to allow said housing to effect its movement to thus actuate said stop member whereby the endless tape is played within the cartridge which correspondingly faces to said stop member.

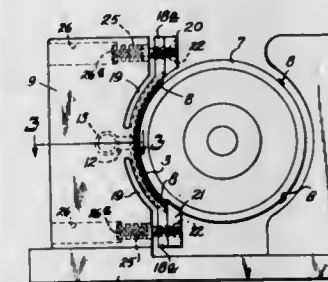
3,592,976 ADJUSTABLE CONCAVE GUIDES FOR ROTARY HEAD MAGNETIC TAPE MACHINES

James J. McGinnis, Sunbury, Pa., assignor to Forglo Corporation, Sunbury, Pa.

Filed Nov. 1, 1968, Ser. No. 772,651
Int. Cl. G11b 5/52; H04n 1/24; B65h 23/24

U.S. Cl. 179-100.2

8 Claims



A concave guide is so constructed that the shape of different portions of the guide can be adjusted to selectively

change the shape and curvature of the guide. The arrangement is such that the guide can be adjustably deformed to an S-shaped curvature if desired. In the preferred embodiment the guide includes two arms projecting from a point of rigid connection with a body, adjusting screws at the ends of the arms can be manipulated to change the curvature of the arms, and a vacuum source communicates with the guide at the location of connection with the body.

3,592,977 MIRROR-IMAGE MAGNETIC INFORMATION RECORDING METHODS PARTICULARLY FOR VIDEO SIGNALS

James U. Lemke, Del Mar, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Division of Ser. No. 649,540, June 28, 1967, Pat. No. 3,541,577.
Filed Oct. 2, 1969, Ser. No. 863,260

Int. Cl. G11b 5/86
U.S. Cl. 179-100.2 E

5 Claims



A method of producing a slant-track or transverse-scan master record on a master recording tape for subsequent copying onto a copy tape by a tape-to-tape copying process. The master tape is advanced, and at least one recording head is moved relatively to the advancing master tape along first recording tracks which extend on the master recording tape, with respect to longitudinal edges thereof, at angles which are mirror images of angles or corresponding second recording tracks required on the copy tape under a predetermined convention for playback of the information from the copy tape. Information is recorded in the mentioned first recording tracks by the one or more recording heads during their movement along the first recording tracks.

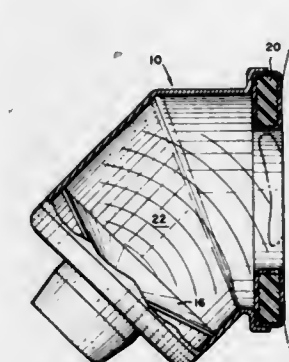
3,592,978 STEREO EARPHONES

David H. Hess, Box 15025, Broadview Station, Baton Rouge, La.

Filed Apr. 21, 1969, Ser. No. 817,689
Int. Cl. H04r 1/10; H04m 1/05

U.S. Cl. 179-182 R

6 Claims

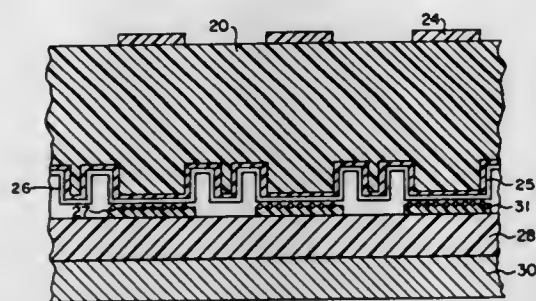


Stereo earphones having transducers positioned forwardly of the user's ears and directed rearwardly toward the ears to provide more realistic stereophonic sound effects.

3,592,979 ELASTOMERIC KEYBOARD WITH IMPROVED PRINTED CIRCUIT CONTACT MEANS

Samuel A. Redman, Garden City, N.Y., assignor to The National Cash Register Company, Dayton, Ohio
Filed Nov. 5, 1969, Ser. No. 874,198
Int. Cl. H01h 9/00, 9/26, 3/02
U.S. Cl. 200—1 R

5 Claims

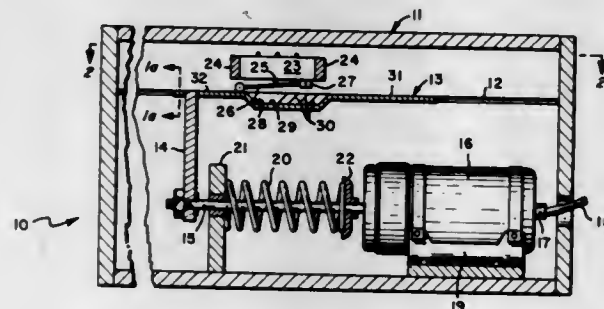


A signal-actuating device having its major component parts molded as a single piece. The actuating device includes a single body composed of an elastomeric material which is a glycol cured isocyanate terminated polyester formulated to be virtually a true gel, character symbols bonded on the body representing key positions and Mylar circuitry strips of etched copper wires bonded to raised projections located on the underside of the body. Contact made by depressing a key gives a binary-coded output, as well as providing a signal for activating distant devices.

3,592,980 PNEUMATIC STEP CONTROLLER WITH RECIPROCAL CAM MEANS

Leo Alamprese, Wooddale, Ill., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Nov. 19, 1969, Ser. No. 877,892
Int. Cl. H01h 35/26, 3/42
U.S. Cl. 200—81.4

6 Claims



A pneumatic step controller for use in a control system where a proportional pneumatic signal is to be converted into a sequenced switching action. The step controller includes a substantially rigid, rectangular, reciprocally movable, and molded or stamped cam plate which obviates many individual cam parts and costly cam calibration.

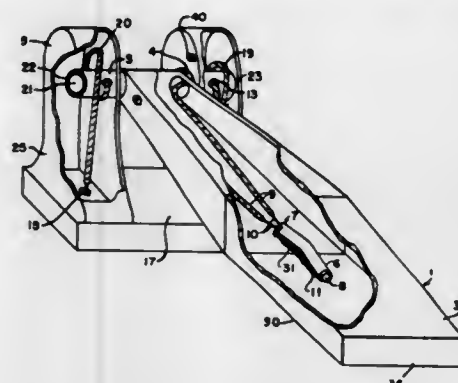
3,592,981 FLOAT SWITCH APPARATUS

Clinton Rule, Beverly Farms, Mass., assignor to Rule Marine, Inc., Beverly Farms, Mass.
Filed Feb. 20, 1968, Ser. No. 706,886
Int. Cl. H01h 35/18

U.S. Cl. 200—84 B

The present invention relates to float switch apparatus having unusual stability. Broadly, the float switch apparatus of the present invention comprises a buoyant lever arm having a fulcrum at one end thereof comprising a transverse shaft. Said shaft is pivotally associated with an appropriate mount. A switch means, responsive to angular deflection, is positioned within the lever arm and the conductor wires associated with said switch are routed through the transverse shaft and exit said shaft through radial apertures provided therein. Said wires then form a helical coil about said shaft

and are affixed to the mount. Additionally, for greatest efficiency and stability, it is much preferred that at least the bot-



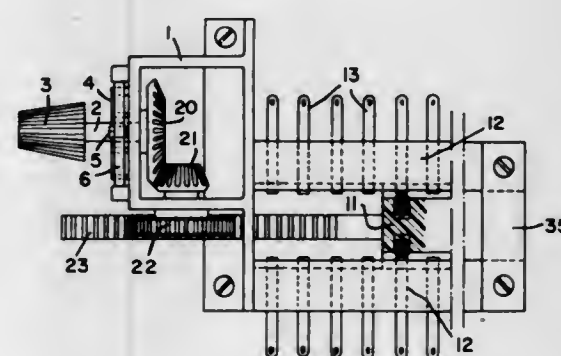
tom, and most preferably also the top, surfaces of the lever arm be tapered.

3,592,982 ROTARY SELECTOR SWITCHES FOR ELECTRONIC CIRCUITS

Marcel Henri Deltoer, 22 rue Ravon, Bourg-la-Reine, Hauts de Seine, France
Continuation-in-part of application Ser. No. 700,119, Jan. 24, 1968, now abandoned. This application Nov. 24, 1969, Ser. No. 879,453
Int. Cl. H01h 15/00, 9/00

U.S. Cl. 200—16 R

21 Claims



A multiple position switch in which the moving contact or contacts slide between a pair of parallel sets of fixed contacts, the movement of the moving contact being obtained from the rotation of a knob which is constrained to a plurality of circumferentially fixed positions so that step by step rotation of the knob causes adjacent pairs of fixed contacts to be bridged by the moving contact step by step.

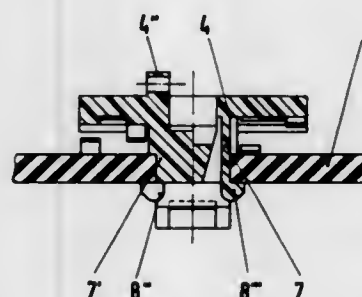
3,592,983 IMPROVED DETENT MEANS FOR SLIDE SWITCH AND PRINTED CIRCUIT STRUCTURE

Heinz E. J. Kroll, Heroldsberg, and Rolf J. Falkner, Nurnberg, both of, Germany, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Apr. 22, 1970, Ser. No. 30,876
Claims priority, application Germany, Apr. 24, 1969, P 19 20 784.2

Int. Cl. H01h 15/00

U.S. Cl. 200—16 R

7 Claims



A slide switch of low profile particularly adapted for use with printed circuits. The terminals of the switch are sta-

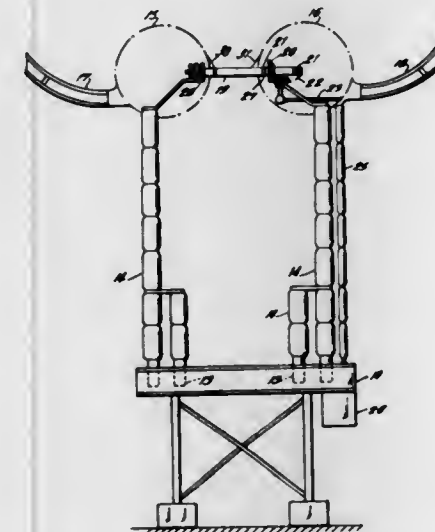
tionary conductor pattern elements of the printed circuit and the movable contact parts are carried by a slider of insulating material. The slider is mounted in a circuit board slot which serves as a track for axial slider action. A caliper type mechanism (resilient detent arm) engages detent slots in the circuit board or provides the coupling means for ganging multiple switch stages to each other.

3,592,984 ISOLATING SWITCH HAVING SPHERICAL, ELLIPSOID, TOROID OR SPHEROID ELECTRODES AND A RETRACTABLE SWITCHBLADE

Joseph A. Turgeon, Toronto, Ontario, Canada, assignor to I-T-E-Circuit Breaker (Canada) Limited, Port Credit, Ontario, Canada
Filed July 7, 1969, Ser. No. 839,456
Int. Cl. H01h 31/00

U.S. Cl. 200—48

9 Claims U.S. Cl. 200—144



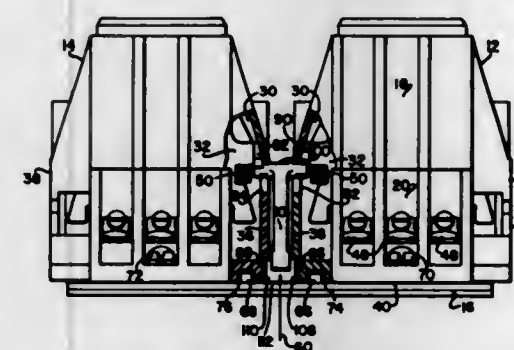
An isolating switch having spherical, ellipsoid, toroid or spheroid electrodes and a retractable switchblade. The electrodes in the open gap position have a relatively high withstand on switching voltage surge, impulse voltage and with a relatively small gap space. The extension of the retractable switchblade to contact both electrodes corresponds to the closed position of the switch while retraction of the switchblade into one of the electrodes corresponds to the open position. In that latter position, an open gap is produced between the electrodes and results in a substantially uniform electrostatic field in the gap. This has the advantage that the switch open gap may be made substantially shorter than the distance from the electrodes to ground and yet insure that any flashover will be between the electrodes and ground rather than across the switch open gap.

3,592,985 MECHANICAL INTERLOCK FOR TWO SWITCHES THAT ARE MOUNTED ON A COMMON SUPPORT

Don J. Arneberg, and Joseph J. Gribble, both of Milwaukee, Wis., assignors to Square D Company, Park Ridge, Ill.
Filed Feb. 6, 1970, Ser. No. 9,206
Int. Cl. H01h 9/20

U.S. Cl. 200—50 C

6 Claims



An inexpensive mechanical interlock for two switches that are mounted on a common support plate. The interlock con-

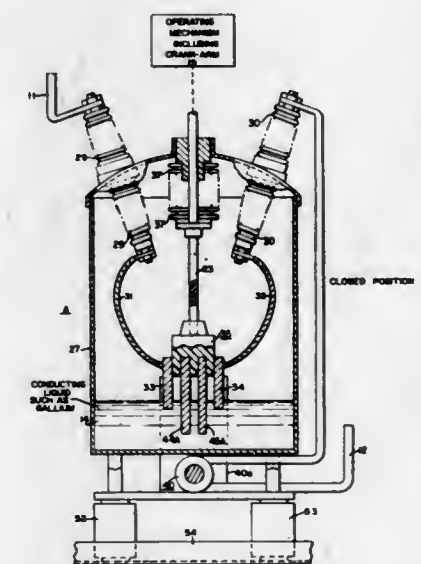
sists of a single member which is mounted in a space between the two switches when the switches are mounted adjacent to each other on the support plate. The member has a pair of bearing portions received in recesses in the adjacent walls of the switches and a pair of actuating portions that are engaged by inclined surfaces on portions of the movable contact carriers of the two switches to prevent a concomitant operation of the switches to a circuit closing position.

3,592,986 MULTICONTACT VACUUM-TYPE HIGH-VOLTAGE CIRCUIT BREAKER UTILIZING A LIQUID METAL AND DRAWING A PLURALITY OF SERIES ARC

Russell E. Fox, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 31, 1969, Ser. No. 889,516
Int. Cl. H01h 33/66, 29/00

U.S. Cl. 200—144

11 Claims



A high-voltage vacuum-type circuit breaker is provided having multiple spaced contacts, or electrodes, which are sequentially removed, or withdrawn from a pool of a liquid metal, such as gallium, or its alloys. A multiplicity of series arcs are thereby established, which are moved from the end electrodes to the adjacent surfaces of the intervening spaced electrodes. This enables a high-voltage circuit to be interrupted by the establishment of a number of arcs in series. If desirable, magnetic means may be employed to effect lateral movement of the established arcs. Gallium is particularly favorable for my circuit breaker application because of its extremely low vapor pressure in vacuum.

In another circuit breaker arrangement, an insulating rotating disc, or wheel carries a number of spokelike contacts, or electrodes, which are sequentially withdrawn from the pool of liquid metal to establish a plurality of series arcs.

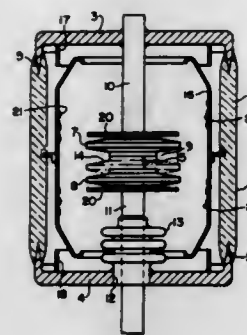
3,592,987 GETTERING ARRANGEMENTS FOR VACUUM-TYPE CIRCUIT INTERRUPTERS COMPRISING FIBERS OF GETTERING MATERIAL EMBEDDED IN A MATRIX OF MATERIAL OF GOOD CONDUCTIVITY

Joseph Lempert, Pittsburgh, Pa., and Gerald R. Kotler, Oak Park, Mich., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 19, 1968, Ser. No. 714,197
Int. Cl. H01h 1/00, 33/66

U.S. Cl. 200—144

To provide a gettering action in relatively high-power vacuum-type circuit interrupters, an active gettering material, such as titanium, tantalum, columbium, zirconium, tungsten or molybdenum is incorporated in the electrode structures or interior elements of a vacuum-type circuit interrupter, so as to be subjected to the heat of the arc, which is established during circuit interruption. By the raising of the temperature of the gettering materials, or agents, their gas-absorption characteristics are activated. The gettering

materials are incorporated as filaments, or rods, either disposed randomly, or in parallel alignment in a matrix of



3,592,988
GAS BLAST CIRCUIT BREAKER FOR HIGH ALTERNATING VOLTAGES

Walter Pucher, and Sven Bachler, both of Ludvika, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

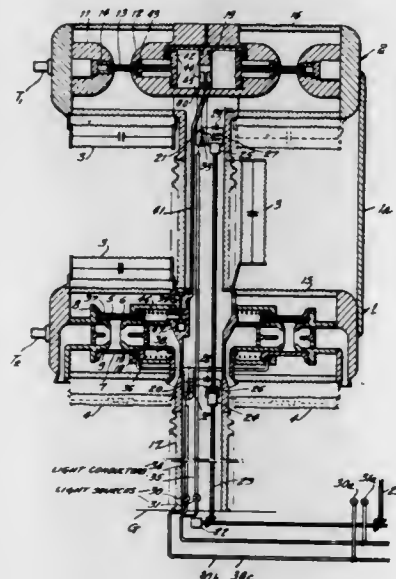
Filed Mar. 27, 1969, Ser. No. 810,989

Claims priority, application Sweden, Apr. 1, 1968, 4338/68

Int. Cl. H01h 33/59

U.S. Cl. 200—148

3 Claims



A high voltage gas blast circuit breaker is provided with series-connected pairs of contacts, one used to interrupt the circuit being protected, and the other used to close or make the circuit being protected. The contact used for circuit interruption may be operated synchronously to interrupt at or before a current zero. The contact used for closing the circuit may be operated when the instantaneous voltage across the contact is zero, thereby to prevent line voltage surges during closing. The operating circuits for the contacts are at the high voltage side of the breaker and contain a generator driven from ground by an insulation shaft. The operating circuits include a photosensitive switch which is energized by light sources located at ground potential.

3,592,989
HIGH VOLTAGE CIRCUIT BREAKER WITH PRESSURIZED BREAKING CHAMBER OF LOW LIQUID TYPE

Walter Pucher; Inge Gard, and Karl Gote Persson, all of Ludvika, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

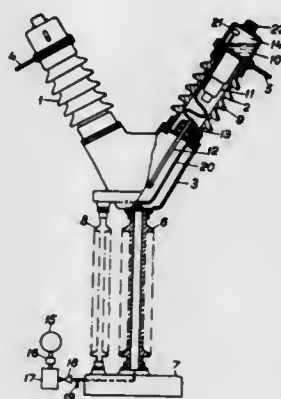
Filed Dec. 26, 1968, Ser. No. 787,179

Claims priority, application Switzerland, Dec. 27, 1967, 17790/67

Int. Cl. H01h 33/68

U.S. Cl. 200—150

9 Claims



An arrangement for preventing high voltage liquid minimum circuit breakers from restriking when breaking capacitive loads. The liquid in the breaking chambers is put under high pressure by supplying compressed gas through an insulating conduit from earth potential to a space above the liquid level in each chamber. Between the gas-filled space and the conduit is a valve, which is open during normal operation but closes during a breaking operation, thus preventing carbonized liquid from penetrating into the conduit.

3,592,990
CROSSBAR SWITCHING NETWORK

Pierre M. Lucas, 20, rue Tariel, Issy-les-Moulineaux; Auguste A. Sautel, 13, rue Anatole France, Bonneuil-sur-Marne; Jacques Chauvin, 6, residence du Clos, Verrieres-le-Buisson; Serge M. Chouplik, 1, rue des Fauvettes, Ris-Orangis, and Daniel J. Serezac, Ilot Victor Hugo, Bretigny-sur-Orge, all of, France

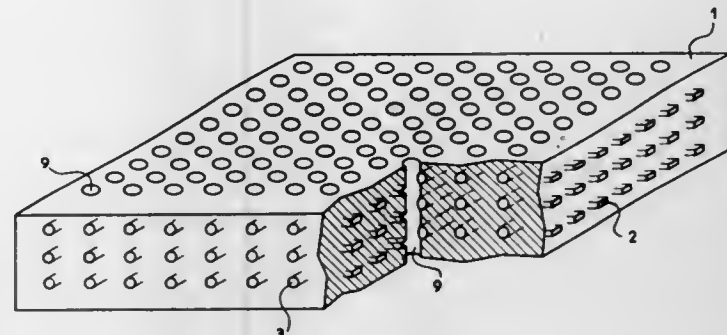
Filed July 28, 1969, Ser. No. 845,254

Claims priority, application France, July 26, 1968, Mar. 7, 1969, 160,855; 6,906,513

Int. Cl. H01h 29/00

U.S. Cl. 200—152

6 Claims



A switching arrangement comprising a block of insulating material provided with a first hole and a second hole intersecting the first hole, a third hole meeting the first and second holes at their intersection, liquid conducting medium contained in said first and second holes, a piston of insulating material which is slidably movable in the third hole, said piston being provided with a notch portion whereby, when the piston is positioned so that the notch portion overlaps the said first and second holes at their intersection, an electrically conducting connection exists between the medium in

the first and second holes via the medium located in the notch portion, and, when the piston is positioned so that the notch portion does not overlap said first and second holes at their intersection, no electrically conducting connection exists between the medium in the first and second holes by virtue of the presence in the intersection of the plunger of insulating material.

3,592,991
TORQUE CONVERTER

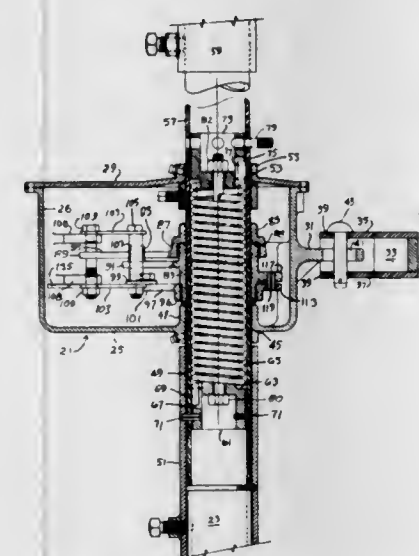
John L. Turner, East St. Louis, and Albert J. Hoppenjans, Jr., Belleville, both of, Ill., assignors to Turner Electric Corporation, East St. Louis, Ill.

Filed June 18, 1969, Ser. No. 834,454

Int. Cl. H01h 3/38

U.S. Cl. 200—153 V

30 Claims



A torque converter device for producing a uniform high velocity closure of electrical air break switches and the like, comprising coaxial input and output shafts, torsionally resilient means connecting both shafts for transmitting torsional movements from the input shaft to the output shaft, latch means operable during movements of the input and output shafts in one direction (toward closure of the switch) for interrupting movements of the output shaft at a predetermined point between extreme positions thereof while permitting continued movement of the input shaft in the same (switch closing) direction, and additional means, responsive to further movements of the input shaft for releasing the interrupting means and permitting torque accumulated in the torsion spring to rotate the output shaft throughout the remainder of its travel at uniform high angular velocities. The interrupting means is automatically cocked responsive to movement of the input and output shafts in unison in the opposite (switch opening) direction.

3,592,992
SOLDERING METHOD AND APPARATUS

Bernard J. Costello, Ringoes, N.J., assignor to Argus Engineering Company, Hopewell, N.J.

Division of Ser. No. 561,112, June 28, 1966, Pat. No. 3,469,061.

Filed Mar. 13, 1969, Ser. No. 828,041

Int. Cl. B23k 1/04

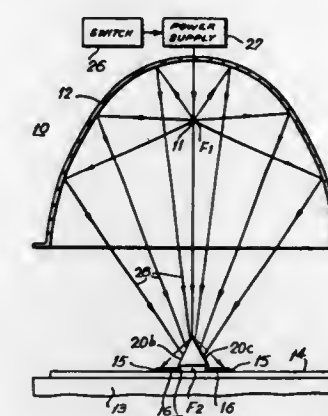
U.S. Cl. 219—85

4 Claims

A method of heating selected areas of an element having at least one portion that is to remain relatively unheated, in which radiant energy from a radiant energy source is focused upon the element by suitable reflector means, and a masking member is positioned over the protected portion to serve the dual functions of deflecting radiant energy away from the protected portion and directing the radiant energy which would otherwise strike the masked portion to impinge upon the selected areas and thereby increase the energy density upon the selected areas.

The above method may be utilized for either heating or tinning the leads of electronic devices, or soldering the leads of electronic devices to associated terminals.

In order that the soldering operation be performed rapidly and reliably, the solder may be prepared in granulated form suspended in a binder, and spread upon the selected areas to be tinned or soldered, and is exposed to the radiant energy



3,592,993
METHOD OF JOINING ALUMINUM TO ALUMINUM

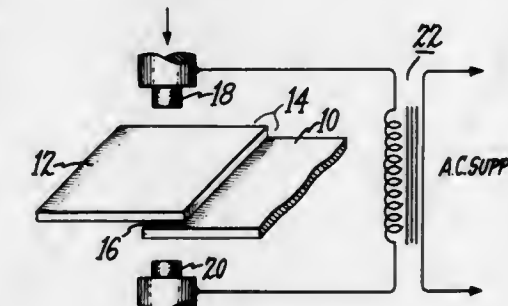
Moreland P. Bennett, Pittsfield, Mass., assignor to General Electric Company

Filed July 15, 1969, Ser. No. 841,835

Int. Cl. B23k 11/16

U.S. Cl. 219—93

3 Claims



A welded joint having good electrical and mechanical characteristics is obtained between aluminum members by using a copper or copper alloy cloth or screen between the members to the joint. Heat and pressure are applied through resistance electrodes to melt the small wires of the screen and cause the aluminum metal to bond together.

3,592,994
SPOT-WELDING APPARATUS

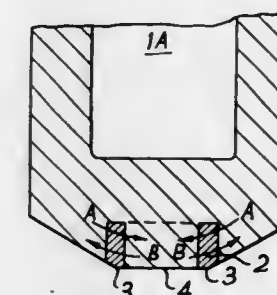
Leslie A. Ford, London, England, assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Continuation of application Ser. No. 573,016, Aug. 17, 1966, now abandoned. This application July 25, 1969, Ser. No. 847,805

Int. Cl. B23k 9/24; G23k 11/30

U.S. Cl. 219—119

6 Claims



A spot-welding electrode having a tip with a flat operative contact face and an annular recess surrounding the contact

face. The portion of the electrode body which extends beyond the recess is chamfered or tapered away from the contact face. The annular insert is force fit into the recess and extends into the electrode body from the periphery of the contact face. The outer end of the insert provides a flat annular zone which surrounds the contact face and is flush with it so as to constitute essentially a peripheral reinforced flat extension of the face. The insert is formed of a conductive material having greater strength and resistance to deformation under welding conditions than the material forming the contact face. The outer end of the insert is chamfered or tapered beyond the flat annular zone so as to coincide with the chamfer or tapered in the electrode body.

3,592,995

AUTOMATED ELECTRON BEAM WELDING

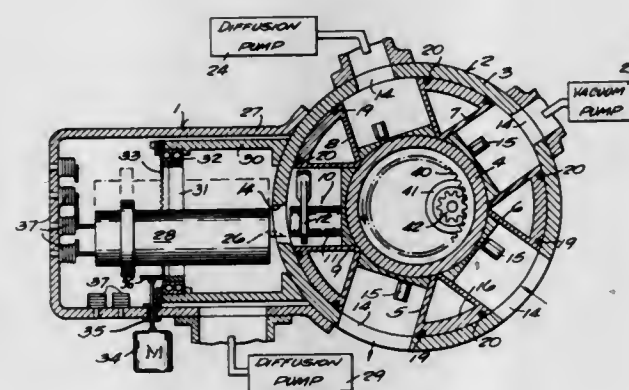
John F. Hinrichs, Menomonee Falls, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.

Filed Nov. 18, 1968, Ser. No. 776,405

Int. Cl. B23k 15/00

U.S. Cl. 219—121

5 Claims



This disclosure relates to an electron beam welding apparatus having a cylindrical outer housing. A plurality of equally circumferentially spaced chambers are secured to a central rotating support and project outwardly into sealing engagement with the outer housing. Operating stations are located about the assembly and include a loading station, a pair of vacuum pumping stations, a welding station and an unloading station. The welding station includes an opening through which an electron beam gun is secured to the outer portion of the housing in alignment with the opening. The gun is mounted to rotate to establish a circular weld.

3,592,996

METHOD OF SECURING AN ELECTRICAL CONTACT TO A SUPPORT

Lawrence Norman Sayer, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

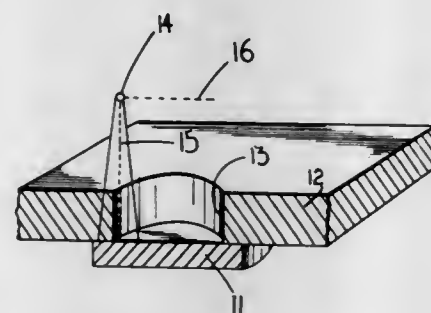
Filed July 24, 1969, Ser. No. 844,290

Claims priority, application Great Britain, Aug. 9, 1968, 38064/68

Int. Cl. B23k 15/00

U.S. Cl. 219—121

2 Claims



In manufacturing a movable contact for use in electrical apparatus, for example a contact breaker in a distributor, the

contact is maintained in facial engagement with a support which has a lower melting point than the contact. An electron beam is then caused to traverse the contact in support in such a way that the part of the support traversed by the beam melts and an area of the contact close to the melted portion of the support is heated to a temperature between the melting points of the contact and support so that the support flows to form a joint.

3,592,997

METAL FORMING

Philip Ian Durie, Thurso, Caithness, S.C. Great Britain, assignor to United Kingdom Atomic Energy Authority, London, England

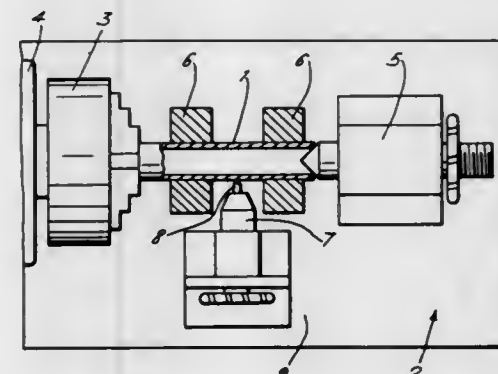
Filed Nov. 9, 1966, Ser. No. 593,103

Claims priority, application Great Britain, Nov. 15, 1965, 48477/65

Int. Cl. B23k 9/00

U.S. Cl. 219—137

9 Claims



A method of sealing a metallic tubular workpiece by rotating the workpiece relatively to a welding torch arranged transversely with respect to the axis of the workpiece, the speed of rotation of the workpiece relative to the torch being increased while the current fed to the torch is reduced so that the workpiece is cut into two portions, at least one having a sealed end closure formed by recasting of the metal of the workpiece melted by the torch.

3,592,998

PROCESS FOR RESISTANCE WELDING ELEMENTS HAVING DIFFERENT MASSES

Raymond A. Derclaye, Couillet, Belgium, assignor to Societe Metallurgique Hainaut-Sambre, Societe Anonyme, Couillet, Belgium

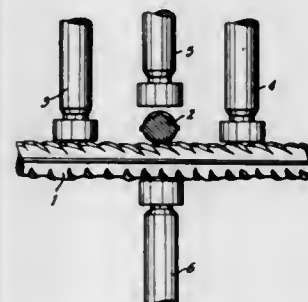
Filed Mar. 13, 1969, Ser. No. 815,246

Claims priority, application Belgium, Mar. 27, 1968, 712,793

Int. Cl. B23k 11/16

U.S. Cl. 219—117

15 Claims



A process for resistance welding of elements having different masses, at least one of which, having a greater mass, is of naturally hard steel, includes the step of substantially subjecting, before the normal welding process, the element having the greater mass to a preheat treatment. The treatment is controlled such that, after the normal welding process, the cooling kinetics in the element having the greater mass has a value equal or lower than that of the element having the smaller mass, said kinetics being kept lower than the critical hardening rate.

3,592,999

WELDING ELECTRODE

Joseph F. Quass, Island Park, N.Y., assignor to Eutectic Corporation, Flushing, N.Y.

Filed Mar. 23, 1970, Ser. No. 22,054

Int. Cl. B23k 35/22

U.S. Cl. 219—146

7 Claims

This invention relates to a coated welding electrodes which deposit upon a base metal a deposit with high wear and abrasion resistance properties. These welding electrodes have a unique core, comprising a mild steel tube and a fill of sintered tungsten carbide. The electrode coating contains a high concentration of iron bearing carbide forming elements.

3,593,000

APPARATUS FOR WELDING PLASTICS

Andre Forma, 7, Rue Livrey, 92 Levallois-Perret, France

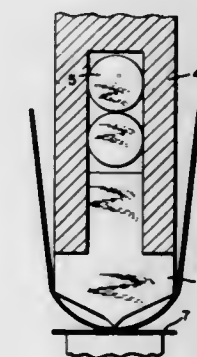
Filed Nov. 12, 1969, Ser. No. 875,779

Claims priority, application France, Nov. 15, 1968, 17342.3

Int. Cl. H05b 1/00

U.S. Cl. 219—243

10 Claims



Apparatus for the welding of plastics, consisting of a pointed heating bar having faces which form an angle in the range from 15° to 35° with a plane passing through the apex and having faces adjacent the apex whose included angle is in the range from 80° to 110°.

3,593,001

STUD-BONDING GUN

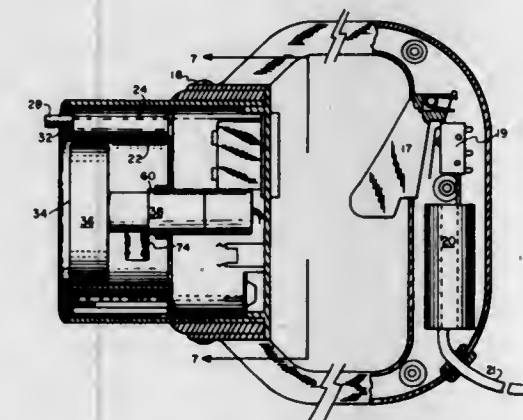
William G. Simpson, and Billy K. Davis, both of Huntsville, Ala., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Dec. 31, 1969, Ser. No. 889,437

Int. Cl. H05b 1/00

U.S. Cl. 219—243

9 Claims



A tool for mounting and removing studs having an adhesive coated head portion and a stem extending therefrom. The tool includes an outer housing with attached handle and a stud-receiving means mounted in the housing. The stud-receiving means includes a heater for softening the adhesive on the stud, a locking device for releasably holding the stud

in the tool and ejection means for ejecting the stud toward a mounting surface when the locking means is released by closing a trigger switch. Electrical contact elements mounted in the housing are actuated when pressed against the mounting surface. The contact elements are connected in series with the trigger switch to prevent release of the locking means unless the contact elements are properly actuated. This assures proper positioning of the tool with respect to the mounting surface. A heat-sensing device is provided for monitoring the temperature of the stud head portion.

3,593,002

SEALED TUBULAR ELECTRICAL RESISTANCE HEATER WITH GROUND CONNECTION

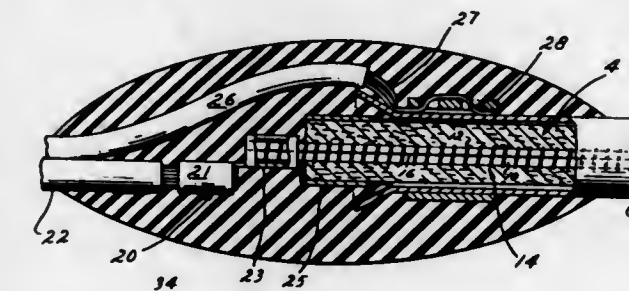
Rene D. Hebert, Chicopee Falls, Mass., assignor to Springfield Wire, Inc., Springfield, Mass.

Filed June 19, 1969, Ser. No. 834,664

Int. Cl. H05b 3/08

U.S. Cl. 219—541

2 Claims



Tubular electrical resistance heater having a flexible heater element composed of a core with a resistance wire wound helically around the core and integral unheated terminal portions. The heater element is disposed in an open ended metallic tube with its unheated portions extending from within to without the tube where a lead wire is connected to the ends of the unheated terminal portions. A conductive ground wire is in electrical contact with the outer surface of said tube at a location corresponding to the unheated terminal portions of the heater element. A unitary moisture impervious sealing material encapsulates the end of the tube, the connection of the heater to the lead wire and the connection of the ground wire to the tube.

3,593,003

DIGITAL DATA TRANSMITTER

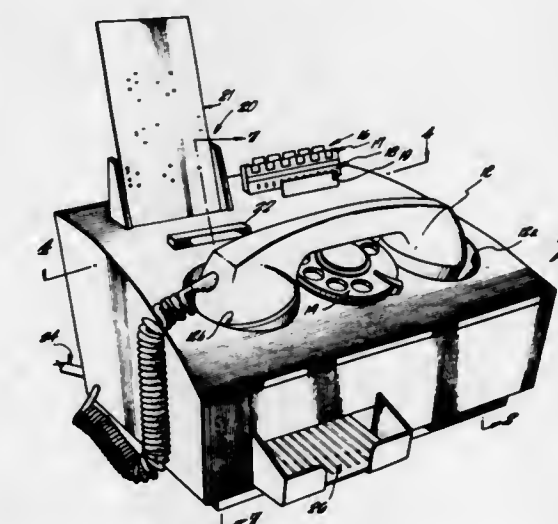
Walter Griffin Paige, Pasadena, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Sept. 6, 1968, Ser. No. 757,986

Int. Cl. G06k 7/02

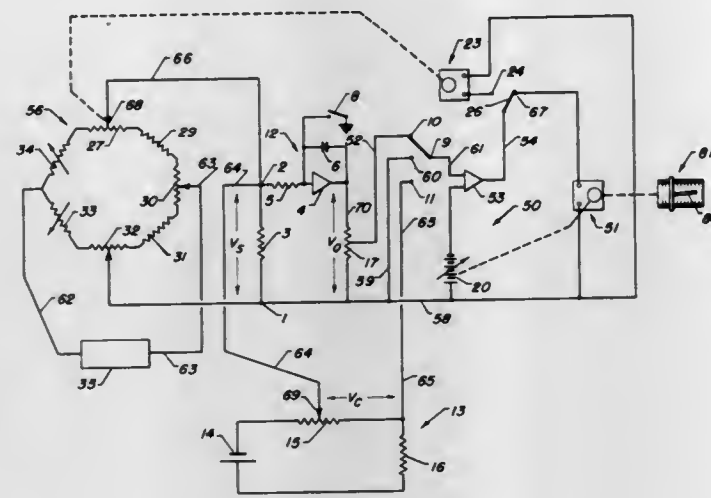
U.S. Cl. 235—61.11 J

18 Claims



A data transmitter for reading members having positions for openings therein which are arranged into rows and

on the primary signal voltage. A compensating voltage is developed in the primary signal network independent of the normal primary voltage signal. This compensating voltage



offsets the drift voltage and improves the accuracy of the integration of the primary signal voltage over the period of measurement and integration.

3,593,011 ANALOGUE CONTROL DEVICE FOR CHEMICAL PROCESSES

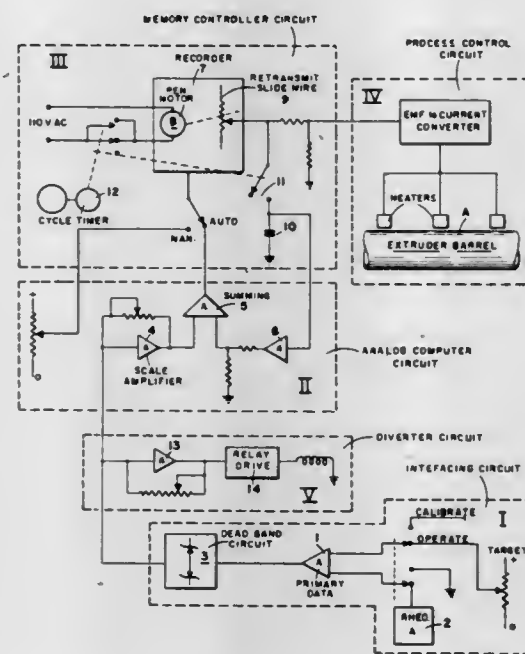
John O. Beauxis, Jr., and Ronald C. Kowalski, both of Baytown, Tex., assignors to Esso Research and Engineering Company

Filed May 9, 1968, Ser. No. 728,004

Int. Cl. G06g 7/58

U.S. Cl. 235-151.1

7 Claims



A simple analogue control device for controlling chemical processes comprises a primary interfacing circuit, and analogue computer circuit, a memory-controller, and a process control circuit. The memory-controller circuit in its most specific aspect comprises a recorder-controller, a storage device which stores the output voltage from the recorder-controller, a switch between the recorder-controller and the storage device, and a timer circuit which sequentially opens the switch between the recorder-controller in the storage device, actuates the pen motor of the recorder-controller to allow the pen to take a new position in response to the input voltage signal into the recorder-controller, deactivates the motor establishing a new output voltage proportional to the input voltage signal and closes the switch to store the new output voltage.

3,593,012 ENGINE LIFE RECORDER SYSTEM USING ENGINE TEMPERATURE AND RPM DATA

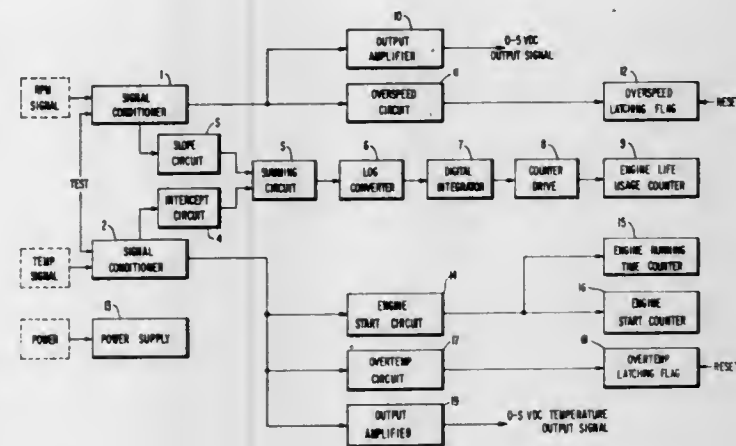
Walter T. Lang, Jackson Heights, N.Y., assignor to Simmonds Precision Products, Inc., Tarrytown, N.Y.

Filed Jan. 17, 1969, Ser. No. 791,897

Int. Cl. G06j 1/00

U.S. Cl. 235-193

6 Claims



A recording system for measuring and indicating engine life usage by providing analog data representative of engine temperature and engine r.p.m., summing the analog data and converting the information into serial digital form to analog to the base 2, integrating by counting and displaying the total count as an indication of percent engine life used.

3,593,013 THERAPEUTIC LAMP APPARATUS

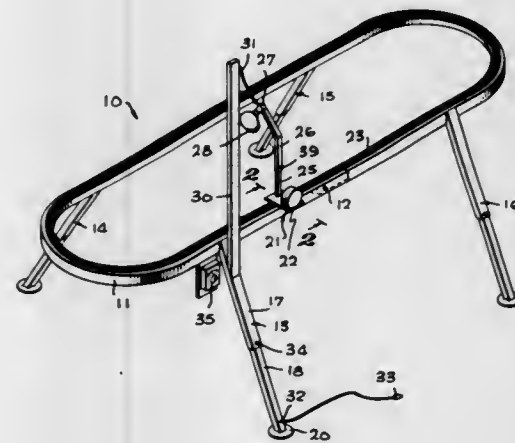
Alfred M. Mertes, 5071 Garden Grove, Los Angeles, Calif.

Filed Apr. 14, 1969, Ser. No. 815,650

Int. Cl. H01j 5/48

U.S. Cl. 240-1 A

10 Claims



A therapeutic lamp apparatus is disclosed herein having a frame providing a continuous oblong track encircling and defining a treatment area on which a movable carriage is mounted. A radiating lamp is carried on the carriage via an upright boom so that the radiation therefrom is directed toward a selected portion of the treatment area and which travels in an encircling horizontal path about the treatment

area in response to movement of the carriage on the track. Means are provided for automatically driving the carriage and for stabilizing the carriage and lamp on the track.

3,593,014 LOW LEVEL LIGHT FIXTURE

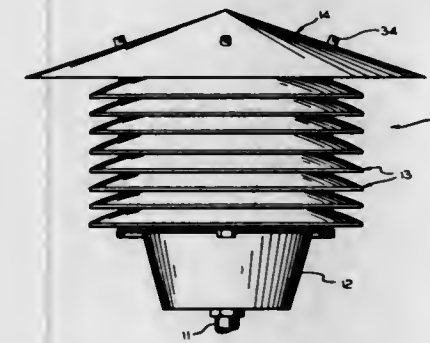
Donald V. Vesely, Lombard, Ill., assignor to General Signal Corporation, New York, N.Y.

Filed Jan. 17, 1969, Ser. No. 791,984

Int. Cl. F21p 5/00

U.S. Cl. 240-3

8 Claims



Low level light fixture for projection of usable light to all or part of the area surrounding the fixture while eliminating glare or direct light to persons walking thereby, and including a louvered construction that operates externally at temperatures not hazardous to persons touching same.

3,593,015 HEADLAMP WASHER PUMP

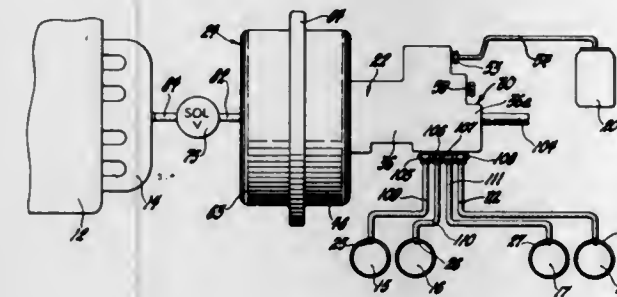
Joseph R. Marchant, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 27, 1969, Ser. No. 869,765

Int. Cl. B60s 1/56; B05b 1/10

U.S. Cl. 240-7.1

5 Claims



In a preferred form, this disclosure relates to a headlamp washer system for sequentially squirting washer fluid onto a plurality of spaced headlamps of an automotive vehicle. The washer system comprises a reservoir for containing a supply of washer fluid, a pump means including a movable pumping member for pumping washer fluid under pressure, valve means having an inlet in communication with the outlet of the pump means and a plurality of spaced outlet ports, and nozzle means adapted to be positioned adjacent each of the headlamps and with individual ones of the nozzles being respectively connected with individual ones of the outlet ports of the valve means. The valve means includes a valve member which is connected with the pumping member and which is movable in response to operation of the pump means to sequentially uncover the outlet ports to sequentially provide a full pressure squirt of washer fluid onto each of the headlamps.

3,593,016 CAR BATTERY OPERATED CAMP AND TROUBLE LIGHT

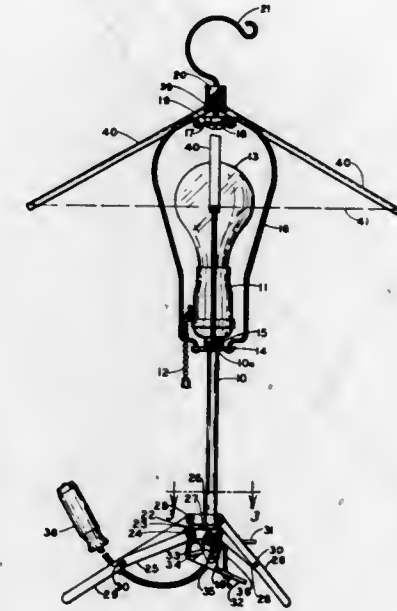
John P. Gerdel, 9405 E. 84th Terrace, Raytown, Mo.

Filed Oct. 2, 1969, Ser. No. 863,220

Int. Cl. B60q 1/26

U.S. Cl. 240-8.18

5 Claims



A car battery operated camp and trouble light including a stand, a foldable base, an open frame surrounding and protecting the light bulb, suspension means at both ends of the stand (top and bottom) and a removable shade.

The basic idea is to provide a camping and trouble light of multiple uses which will work from the power of a 12-volt car battery by plugging into the cigarette lighter socket on the car dashboard.

3,593,017 AIRTIGHT VEHICLE HEADLIGHT HAVING ONE-WAY VALVE

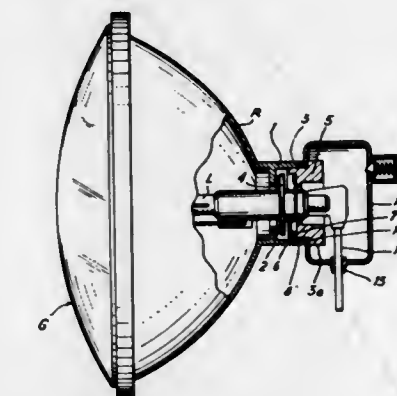
Pierre Cibie, Paris, France, assignor to Projecteurs Cibie, Bobigny, France

Filed Dec. 9, 1968, Ser. No. 782,118

Int. Cl. F21m 3/00

U.S. Cl. 240-41 R

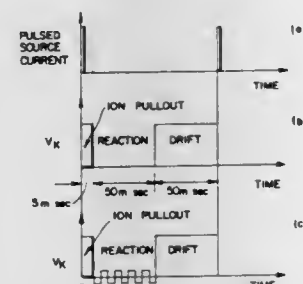
2 Claims



Headlight includes a reflector, having a removable bulb located at its focal point, sealed in airtight manner to a glass cover. Rear of bulb connected to a power source. A cap encloses the connection in airtight manner, the cap having a one-way valve permitting air to leave headlight but not to enter.

3,593,018

TIME OF FLIGHT ION ANALYSIS WITH A PULSED ION SOURCE EMPLOYING ION-MOLECULE REACTIONS
 Martin J. Cohen, West Palm Beach, Fla., assignor to Franklin GMO Corporation, West Palm Beach, Fla.
 Filed Apr. 1, 1969, Ser. No. 812,285
 Int. Cl. H01J 39/34; B01d 59/44; H01J 37/08
 U.S. Cl. 250—41.9 TE 19 Claims

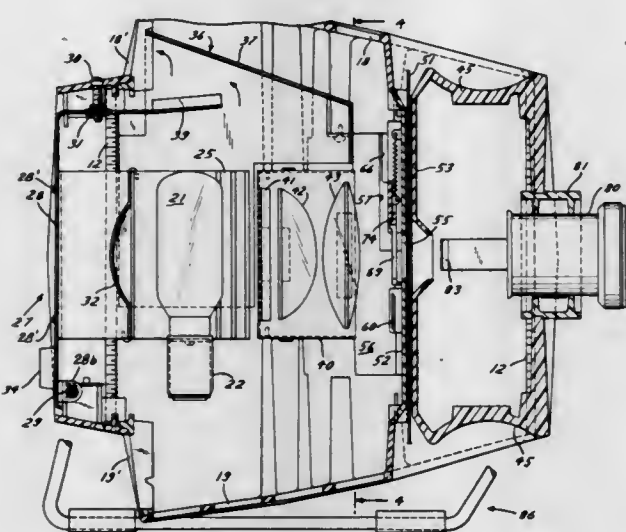


Apparatus and methods for sorting and detecting ions in a drift cell, the electric fields applied to the cell being controlled at appropriate times to minimize dispersion of bunched ions produced by a pulsed source. Bunched product ions produced by ion-molecule reactions are analyzed in accordance with their velocity in a drift field.

3,593,019

VENTILATING MEANS FOR LIGHT SOURCE FOR PROJECTOR

Eugene Martinez, Irvington-on-Hudson, N.Y., assignor to Robert H. Reibel, Croton-on-Hudson, N.Y., a part interest
 Division of Ser. No. 715,621, Mar. 25, 1968, Pat. No. 3,520,599.
 Filed Feb. 11, 1970, Ser. No. 10,344
 Int. Cl. F21v 29/00
 U.S. Cl. 240—47 19 Claims

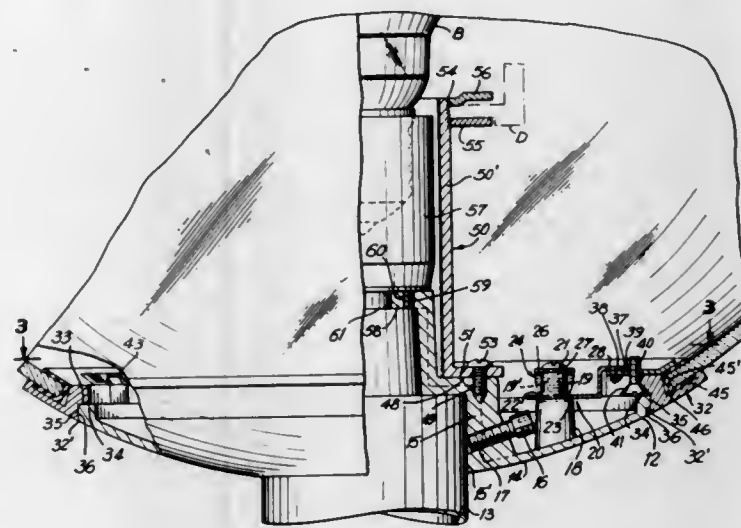


A projector having a molded plastic outer case which is supported by a curved steel stand which also serves as an elevating device and carrying handle. The projector can be tilted simply by sliding it up on the curved stand and locking it with two knobs. An electric lamp is mounted at a center location within the case and a pair of heat dissipating baffle plates are positioned on opposite sides of the lamp. A cover is positioned over the lamp and baffle plates to direct the cooling air rising adjacent the lamp toward the rear of the projector. A film advance mechanism is housed in the case and includes an arm which engages the film sprocket holes only during the advancing operation.

3,593,020

LIGHTING FIXTURE

Anthony C. Donato, Woodridge, N.J., assignor to Lightoller Incorporated, New York, N.Y.
 Filed July 11, 1969, Ser. No. 841,078
 Int. Cl. F21v 21/08
 U.S. Cl. 240—52.1 14 Claims

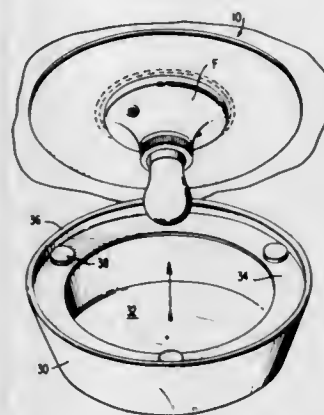


An improved lighting fixture comprising a mounting base member, a readily removable globe retainer member, the said members being interconnected by a bayonet connection which provides a degree of yielding relative movement between the mounting base and globe retainer, to render the fixture resistant to damage when exposed to high wind, vibration or shock.

3,593,021

LIGHTING FIXTURE DIFFUSER ASSEMBLY

Seymour Auerbach, 115 Hesketh St., Chevy Chase, Md.
 Continuation-in-part of application Ser. No. 568,236, July 27, 1966, now Patent No. 3,388,248. This application June 3, 1968, Ser. No. 734,096
 Int. Cl. F21v 17/06
 U.S. Cl. 240—128 15 Claims

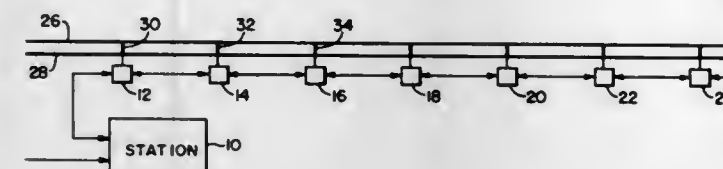


The lighting fixture diffuser assembly includes a circular support member having an adhesive backing and an opposite face formed of magnetic material. The support member is concentrically perforated to provide rings in graduated diameters. The rings are selectively removed to provide an opening of predetermined diameter through the support member as to locate and align the latter about light fixtures of various diameters. The support member is adhesively secured to the wall or ceiling surface about and independently of the light fixture. A diffuser carrying an inwardly directed flange adjacent its open end and mounting a plurality of magnets on the flange is applied about the support member so that the diffuser is magnetically secured to the support member. In another form, the magnetic material is provided on the diffuser flange with the magnets being secured to the support member.

3,593,022

CONTROL OF A VEHICLE ALONG A PATH DIVIDED INTO A PLURALITY OF SIGNAL BLOCKS

Robert C. Hoyler, Pittsburgh, and George M. Thorne-Booth, Murrysville, both of, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Sept. 25, 1968, Ser. No. 762,563
 Int. Cl. B61l 23/14
 U.S. Cl. 246—34 R 24 Claims



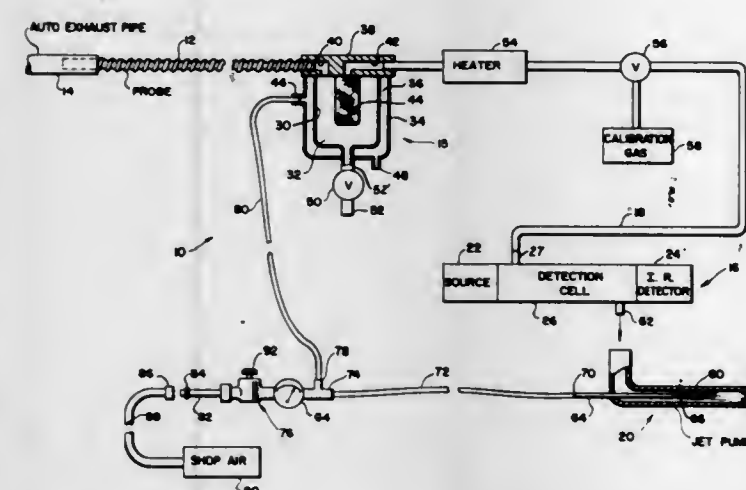
A train control signalling system is provided for train speed command signals and train position detection signals, which system is operative in a fail-safe manner with a plurality of isolated track circuit blocks. For a given train system, a plurality of wayside stations is provided, with each station being operative through a limited number of conductors to energize a predetermined number of track circuit blocks. Each station includes a crystal controlled signal generator to assure an accurate coherent base frequency control of the communicated signals and provide control signals for the signal communication operation relative to each station to thereby control, in effect as an extension of the crystal control concept, accuracy to each of the associated track circuit blocks.

Up to 32 separated track circuit block locations receive information from each wayside station, for this particular system as described, over a common time division multiplexed signalling system, so it is necessary that each location receive its particular information only at the correct time period. This is accomplished by an appropriate control signal sent for this purpose to each track circuit block location.

3,593,023

APPARATUS AND METHOD FOR EXHAUST ANALYSIS

Michael Dodson, Fullerton, and Raymond J. Gomez, Arcadia, both of, Calif., assignors to Beckman Instruments, Inc.
 Continuation-in-part of application Ser. No. 767,903, Sept. 18, 1968, now abandoned. This application Mar. 27, 1969, Ser. No. 814,509
 Int. Cl. G01n 21/26, 31/00
 U.S. Cl. 250—43.5 35 Claims



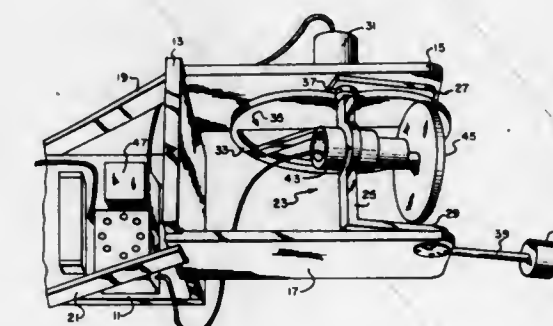
An apparatus and method for determining the content of certain constituents in hot gases, such as the exhaust of motor vehicles or the like. The exhaust gas is conveyed by a pump to an air cooled condenser to lower the temperature of the gas to essentially ambient temperature and thus condense water vapor therein. The gas is then heated to a temperature above said ambient temperature while being conveyed from the condenser through a conduit to a sample cell of a radiant energy analyzer so that water vapor in the gas passing

through the conduit and cell will not condense upon the walls thereof. The cell is positioned above a water trap in the condenser a distance sufficiently great so that no water in the trap will be carried into the cell by the flow of gas passing through the apparatus. The gas is preferably conveyed through the apparatus by means of a jet pump connected to an outlet port on the cell. The jet pump embodies a restriction at its outer end to provide automatic pressure regulation in the apparatus so that the gas pressure in the sample cell will remain relatively constant regardless of pressure fluctuations in the air supply that drives the pump.

3,593,024

APPARATUS FOR OBTAINING ISOTROPIC IRRADIATION OF A SPECIMEN

Lester Katz, Huntsville, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
 Filed Sept. 3, 1969, Ser. No. 855,004
 Int. Cl. H01J 37/26, 37/20
 U.S. Cl. 250—49.5 B 5 Claims

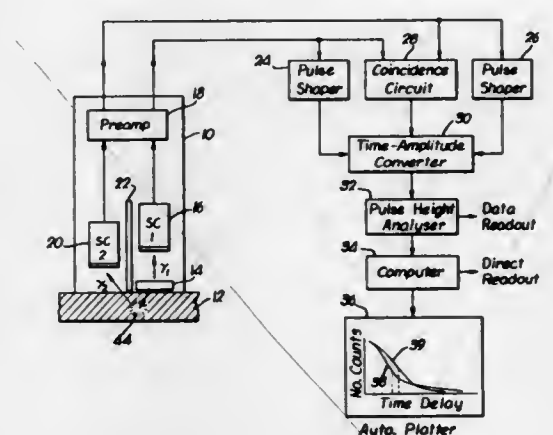


Apparatus for moving a film emulsion in a path of high-energy particles so as to obtain essentially an isotropic exposure. The apparatus rotates the film on a turntable along one axis and simultaneously shifts the turntable up and down within a limited range.

3,593,025

DETECTING DEFECTS BY DISTRIBUTION OF POSITRON LIFETIMES IN CRYSTALLINE MATERIALS

Joseph C. Grosskreutz, Prairie Village, Kans., assignor to Midwest Research Institute, Kansas City, Mo.
 Filed June 14, 1968, Ser. No. 737,030
 Int. Cl. G01t 1/20
 U.S. Cl. 250—83.3 10 Claims



A method of nondestructively testing a structural member of crystalline material employs positrons from a radioactive source as a probe to detect the presence of latent defects in the crystalline structure of the member, such as those due to early fatigue damage or microscopic porosity. The half-life of positrons is longer in materials containing such defects than in undamaged materials; therefore, a measurement of the time of existence of positrons in a given material is effected and serves as an indication as to whether the half-life of the positrons in the material under test is longer than normal.

3,593,026

LIGHT DEFLECTION COMPENSATION DEVICE UTILIZING AN OPTICAL FIBER HAVING A REFRACTIVE INDEX GRADIENT WHICH DECREASES RADIALLY

Teiji Uchida; Motoaki Furukawa, and Ryuji Tatsumi, all of Tokyo, Japan, assignors to Nippon Selfoc Company Limited, c/o Nippon Electric Company, Limited, Minato-ku, Tokyo, Japan

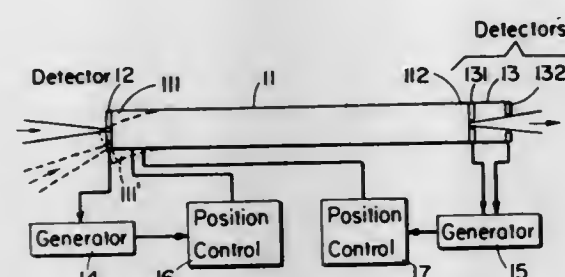
Filed July 7, 1969, Ser. No. 839,236

Claims priority, application Japan, July 6, 1968, 43/46958

Int. Cl. G01j 1/20; G02b 5/14

U.S. Cl. 250-201

3 Claims



A light beam incident upon one end of a fibrous light guide of the type having a refractive index gradient greatest at its axis and decreasing towards the surface, has its position and angle of incidence on one end of the guide detected. The detected signal is employed to control the incident position and angle to maintain them at a predetermined value to fix position and angle parameters of the light emanating from the other end of the guide.

3,593,027

WEB FAULT-DETECTING APPARATUS USING ROLLER CONSTRUCTED TO PREVENT BOUNCING

Dieter Grieger, Kiel, Germany, assignor to Dr. Ing. Rudolf Hell, Kommanditgesellschaft Kiel, Germany

Filed June 24, 1969, Ser. No. 835,930

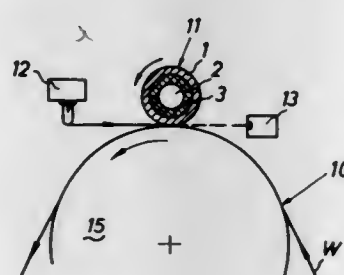
Claims priority, application Germany, June 28, 1968, H 63

183/42K

Int. Cl. G01n 21/32

U.S. Cl. 250-219

6 Claims



A fault sensing roller for use on a travelling web consisting of an outer shell and an inner core. The inner core is composed of a material having a greater mass than the outer shell and is spaced from the inner periphery of the outer shell by a yieldable elastomeric member thereby preventing "bouncing" of the roller after passage of a fault and maintaining true contact between the outer shell and the travelling web.

3,593,028

METHOD FOR PHOTOELECTRICALLY MEASURING WIRE MARKINGS IN PAPER TAKING RATIO OF AC TO DC COMPONENTS

Antti Lehtinen, Jyväskylä, Finland, assignor to Valmet Oy Punaotkonkatu, Helsinki, Finland

Filed Feb. 15, 1968, Ser. No. 705,682

Claims priority, application Finland, May 10, 1967, 1344/67

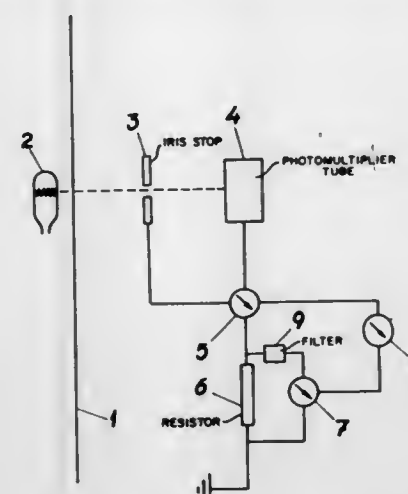
Int. Cl. G01n 21/30

U.S. Cl. 250-219

1 Claim

A beam of light is used to measure the extent of wire markings upon a sheet of paper which was dried upon a wire

mesh in a paper making machine. The beam of light is passed through a sheet of paper and then strikes a photomultiplier tube which produces an electrical current having AC and DC components. A milliammeter measures the DC component. The AC component before being measured is passed through a filter which removes from it all frequencies except the



frequency consistent with the wire marking. The filter may be connected with a switch and the switch may be a selector switch to vary the frequency bands passed by the filter. An instrument which measures the ratio of the filtered AC component to the DC component can indicate as percentage the extent of the wire.

3,593,029

ANALOG TO DIGITAL CONVERTER WITH GRAPHIC DISPLAY EMPLOYING HOLOGRAPHIC TECHNIQUES

Mitsuhito Sakaguchi, and Nobuo Nishida, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Minato-ku, Tokyo, Japan

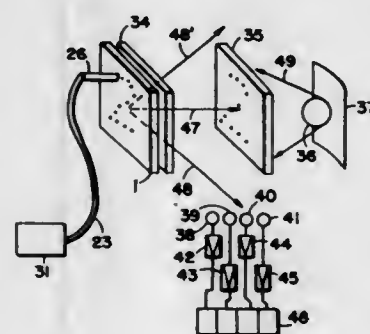
Filed Nov. 19, 1969, Ser. No. 878,142

Claims priority, application Japan, Nov. 27, 1968, 43/87218

Int. Cl. G01n 21/30; G02b 27/00

U.S. Cl. 250-219

5 Claims



A tablet device for use as a graphic display device includes a hologram plate on which interference patterns are selectively stored by irradiation of the plate by binary-code-modulated coherent light rays and a reference light beam. In a readout operation, the plate is irradiated by a thin light beam which produces first order diffraction light rays which denote the data stored in the irradiated area on the plate.

3,593,030

INFORMATION BEARING CARD AND APPARATUS FOR SENSING DATA THEREON

Jorg Jaskowsky, Ruit Wurttemberg, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 29, 1969, Ser. No. 854,182

Claims priority, application Germany, Sept. 5, 1968, P 17 74

783.0

Int. Cl. G01n 21/30; G06k 7/00; H01j 5/02

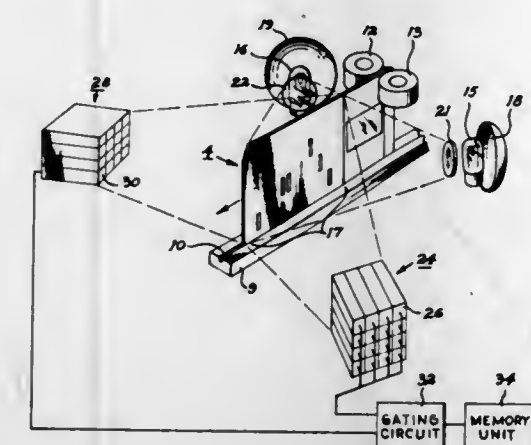
U.S. Cl. 250-219 DC

10 Claims

An information bearing card is disclosed as having information fields disposed on both sides of the card and further having indicia of a contrasting type disposed on each of the

fields. In addition, apparatus is provided for scanning both sides of the card at the same time and may illustratively take the form of a matrix of photoconductive elements sensitive to

oxide semiconductor field effect transistor (MOSFET) techniques which has a single RS flip-flop plus two MOSFET's per stage where the MOSFET's are gated by a clock pulse to conduct the output of a preceding RS flip-flop to a subsequent RS flip-flop.



3,593,033

DEVICE FOR ENERGIZING SEQUENTIALLY PLURAL LOADS

Tetsuji Shimizu; Shinichi Ueno, and Susumu Usami, all of Nagoya, Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aza-Sunairi, Oaza-Shimoodai Nishibrawajima-cho, Nishikasugai-gun, Aichi Prefecture, Japan

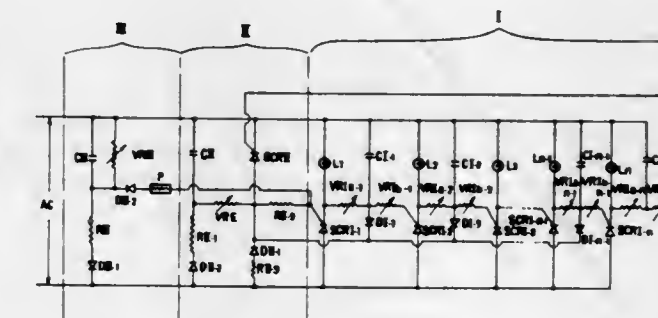
Filed Aug. 27, 1968, Ser. No. 755,623

Claims priority, application Japan, Sept. 19, 1967, 42/59631

Int. Cl. H03k 21/00, 17/00

U.S. Cl. 307-223 B

3 Claims



radiation reflected from the card and having transmissive portions disposed between the radiation sensitive elements to allow radiation to be directed therethrough and onto the information bearing card.

3,593,031

OUTPUT SWITCHING AMPLIFIER

Franz Jenk, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed Sept. 22, 1969, Ser. No. 859,685

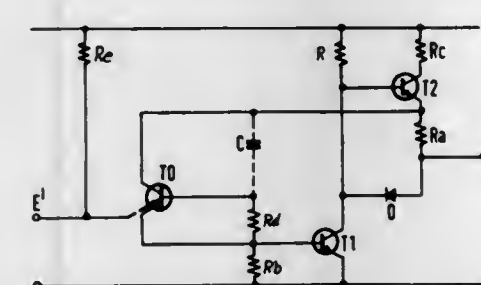
Claims priority, application Germany, Sept. 30, 1968, P 17

62 963.9

Int. Cl. H03k 19/40

U.S. Cl. 307-214

2 Claims



A low-ohmic resistor is connected between the collector of a first transistor and the emitter of a second transistor from which an output may be taken from a switching amplifier in order to aperiodically attenuate oscillations which arise at the output due to capacitive loading of the amplifier in order to prevent the heterodyning of such oscillations on the leading edge of the output signal.

3,593,032

MOSFET STATIC SHIFT REGISTER

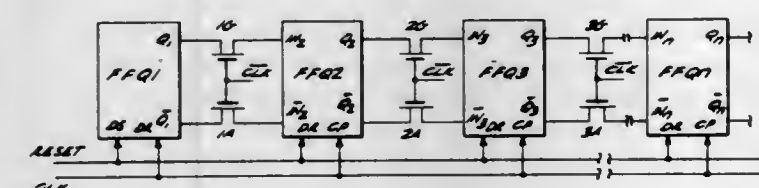
Stephen P. F. Ma, Santa Monica, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 15, 1969, Ser. No. 884,926

Int. Cl. G11c 19/00; H03k 21/00, 23/08

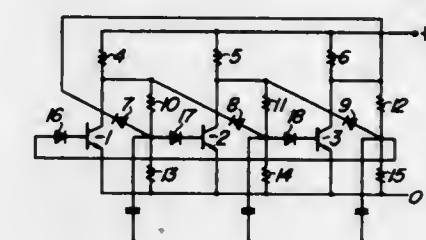
U.S. Cl. 307-221

5 Claims



A static serial shift register of a type that can be constructed on a single semiconductor substrate with metal

A tristable circuit of which the main components are three transistors and three diodes, wherein the conduction of the transistors is switched by applying a trigger pulse thereto so that when one of the transistors is rendered conductive, the other two transistors are rendered nonconductive.



3,593,034

ELECTRICAL RING COUNTER CIRCUIT

Hachiro Omote, Osaka, Japan, assignor to Matsushita Electrical Industrial Co., Ltd., Kadoma-shi, Osaka, Japan

Filed Dec. 24, 1968, Ser. No. 786,636

Int. Cl. H03k 21/00, 23/08, 3/26

U.S. Cl. 307-223

4 Claims

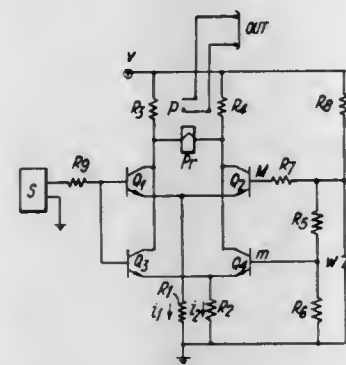
3,593,035

MARGINAL SWITCHING ARRANGEMENT

Jean Viktor Martens, Deurne-Zuid, Belgium, assignor to International Standard Electric Corporation, New York, N.Y.
 Filed Nov. 18, 1968, Ser. No. 776,473
 Claims priority, application Belgium, Dec. 29, 1967, Pat. No. 708,711
 Int. Cl. H03k 5/20

U.S. Cl. 307—235

7 Claims



transmitter and receiver. The shaping apparatus provides pulses of precise time duration, the duration being one of two discrete times dependent upon whether the transceiver is in the transmitting or receiving mode.

3,593,044

BIT SYNCHRONIZATION ARRANGEMENT FOR PCM SYSTEMS

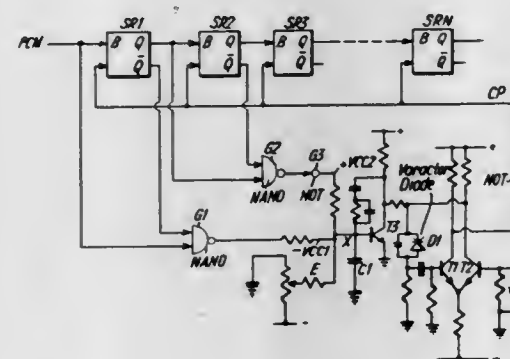
Joseph Hood McNeilly, Harlow, Essex, and Paul Barton, Bishop's Stortford, Hertfordshire, both of, England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Aug. 26, 1969, Ser. No. 853,137

Int. Cl. H03k 5/00, 17/26

U.S. Cl. 307-269

10 Claims



The local bit clock is provided by an astable multivibrator having a varactor diode included in the cross coupling thereof to adjust the phase of the bit clock. A variable-width pulse is derived from the phase relation of a nonreturn-to-zero PCM signal and the local clock. A constant width pulse of one-bit clock period is derived from the PCM signal and inverted. These two pulse signals are algebraically combined and integrated to provide a control bias to adjust the bias of the varactor diode and, hence, clock phase to achieve and maintain bit synchronization.

3,593,045

MULTIADDRESS SWITCH USING A CONFINED ELECTRON BEAM IN A SEMICONDUCTOR

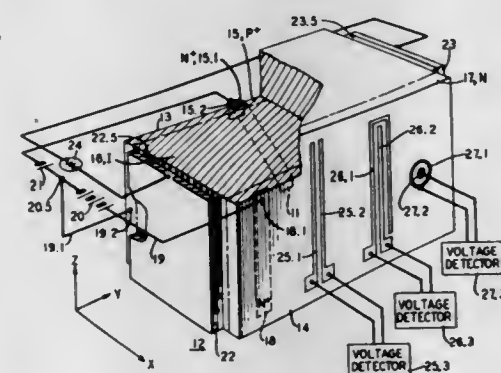
Dirk J. Bartelink, Morris Township, Morris County, and George Persky, North Plainfield, both of, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 29, 1969, Ser. No. 888,331

Int. Cl. H03k 3/26

U.S. Cl. 307-299

18 Claims



This invention involves a solid state charge carrier beam deflection apparatus (solid-state equivalent of a cathode-ray tube), utilizing a high resistivity semiconductor body for the

propagation medium of the beam. A relatively high electric field in the semiconductor body is utilized to propel a beam of electrons or holes in a direction from a rear surface to a front surface of the body, the beam being characterized by a confined cross section throughout the beam's trajectory. Deflection of the beam in the body can be accomplished by transverse electric or magnetic field; detection of the beam can be accomplished by a variety of means, including ohmic contacts and Schottky barrier diodes located at the front surface of the semiconductor body.

3,593,046

COMMUNICATION SYSTEM INCLUDING A PLURALITY OF SEMICONDUCTIVE CIRCUIT ARRANGEMENTS USING GUNN EFFECT DEVICES

Carl Peter Sandbank, and David Lane Thomas, both of Bishop's Stortford, England, assignors to International Standard Electric Corporation, New York, N.Y.

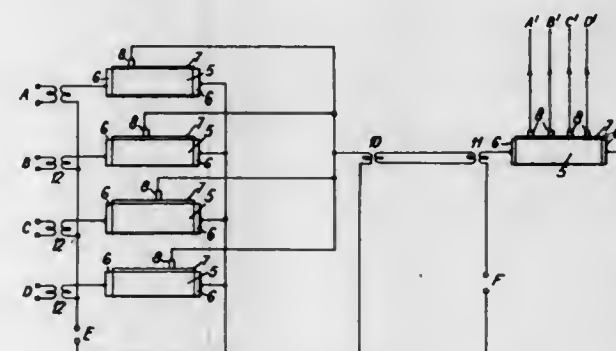
Filed Feb. 9, 1968, Ser. No. 704,384

Claims priority, application Great Britain, Feb. 14, 1967, 6924/67

Int. Cl. H03k 19/08

U.S. Cl. 307-299

9 Claims



A communication system designed with semiconductor circuit arrangements using "Gunn Effect" devices exhibiting high field instability effects when an applied electrical field exceeds certain critical values. The transmitter has a plurality of "Gunn Effect" devices being connected to a separate input channel. Input signals are time division multiplexed and transmitted to a receiver having one "Gunn Effect" device with provision to separate the signals into their individual channels.

3,593,047

METHOD AND APPARATUS FOR CONVERTING HEAT TO MECHANICAL ENERGY

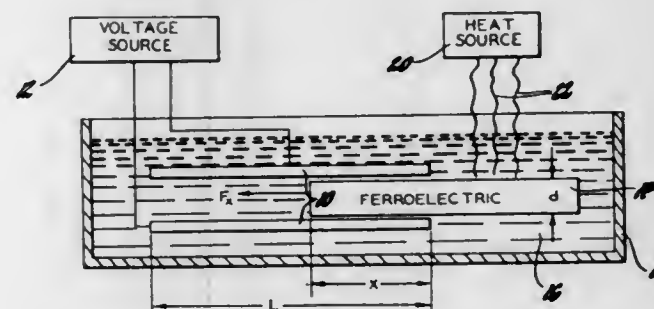
James P. Nolte, Warren; Norman W. Schubring, Troy, and Ronald A. Dork, Utica, all of, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 16, 1970, Ser. No. 11,556

Int. Cl. H02n 4/00

U.S. Cl. 310-4

7 Claims



A ferroelectric material having its permittivity dependent on temperature is disposed partially in an electric field between a pair of capacitor plates. A heat source is provided to heat the ferroelectric material just outside the capacitor plates to increase the permittivity above that existing

3,593,050

TROLLING MOTOR

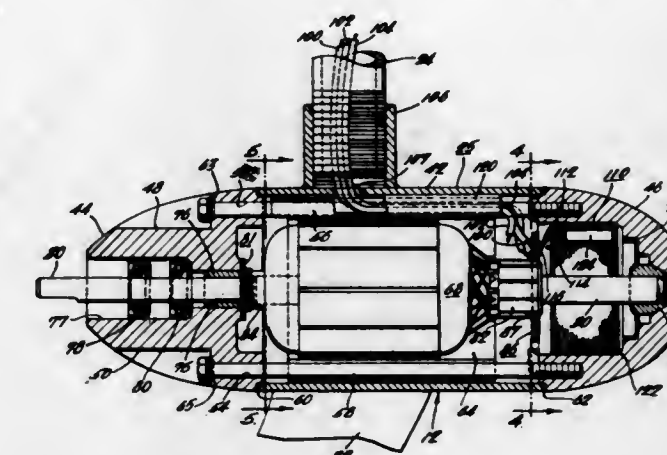
James Kittrell Ware, Columbus, Miss., assignor to AMBAC Industries, Incorporated, Columbus, Miss.

Filed Apr. 1, 1969, Ser. No. 812,257

Int. Cl. H02k 5/12

U.S. Cl. 310-87

6 Claims



A trolling motor for operation immersed in water is provided including a watertight motor housing, permanent magnet flux generating means supported by the motor housing and an armature assembly having a shaft rotatably supported by the motor housing, the trolling motor being arranged such that heat generated by operation of the motor is conducted through the motor housing directly to the water.

3,593,051

ELECTRIC MOTOR

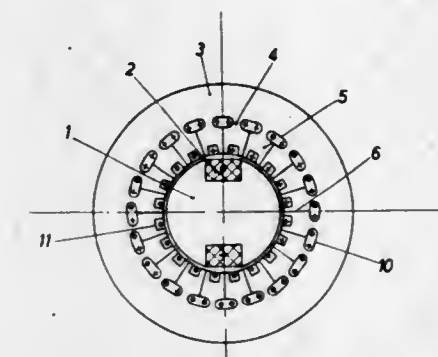
Samy Akbar, Berliner-Strasse 13-14, 1000 Berlin 31, Germany

Filed Jan. 29, 1970, Ser. No. 006,914

Int. Cl. H02k 17/00

U.S. Cl. 310-166

13 Claims



An induction motor is disclosed having a rotor part energized with alternating current to provide two alternating flux emitting areas or poles. The stator has its inner annular portion formed as a series of closely spaced poles spaced from one another by nonmagnetic gaps, and having the sides of pole shoe loops embedded in their surfaces facing the rotor. The root portions of the stator poles are flanked by the sides of pole loops which are interconnected with the pole shoe loops to provide closed electrical circuits providing the secondary winding of the machine. The spans of the pole shoe loops and the pole loops and their form of interconnection is such that when the rotor winding is energized the currents which flow in the secondary winding produce a relatively high starting torque. The positions of the windings on the rotor/stator may be reversed.

3,593,048

DIFFERENTIAL TRANSDUCER

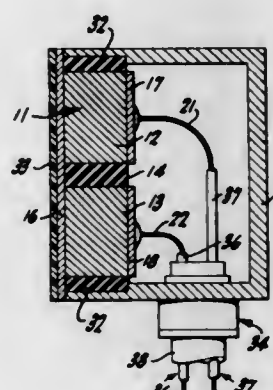
Harold L. Dunagan, 868 Leland Way, Livermore, Calif.; Albert E. Brown, 28242 Beaton Way, Hayward, Calif., and Paul L. Knauss, 1138 Aberdeen St., Livermore, Calif.

Filed Dec. 4, 1969, Ser. No. 882,205

Int. Cl. H01v 7/00

U.S. Cl. 310-8.1

5 Claims



A transducer such as piezoelectric crystal is halved and, with one half inverted, the parts are joined together with insulation therebetween. An electrical connection is made between faces of the two halves on one side of the unit and electrical conductors extend separately from the two halves on the other side of the unit to a differential amplifier. Ambient electrical fields do not influence the output of the transducer.

3,593,049

DC MIDGET MOTOR FREE OF COMMUTATOR AND SLIP RINGS

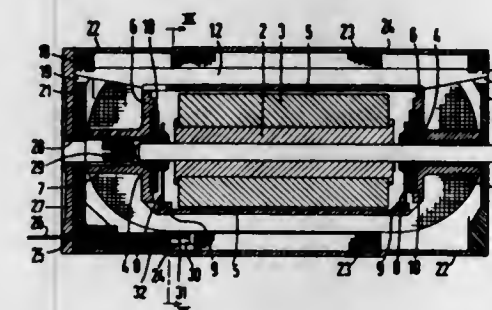
Werner Dittich, Nurnberg, and Klaus-Dieter Wahnschaffe, Katzwang, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Continuation of application Ser. No. 597,719, Nov. 29, 1966, now abandoned. This application Oct. 2, 1969, Ser. No. 863,764

Int. Cl. H02k 5/00

U.S. Cl. 310-40

12 Claims



Midget motor free of commutator or sliprings provided with a permanent magnet system secured to the shaft of the motor, a stationary armature winding mounted on a winding frame member, and a magnetic yoke surrounding the latter. The bearings for the rotor shaft adjoin the winding frame member, which is preferably of drum-shaped construction, both bearings being located in respective hub-shaped appendages of the end walls of the winding frame member.

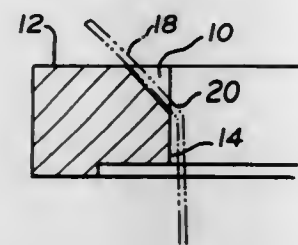
3,593,052

DYNAMOELECTRIC MACHINE COMMUTATOR WITH COIL END SLATS AND METHOD OF MAKING SAME
 Leslie L. Hoffman, Los Angeles, Calif., assignor to Vernitron Corporation, New York, N.Y.

Filed Aug. 18, 1969, Ser. No. 850,713
 Int. Cl. H02k 13/04

U.S. Cl. 310-234

3 Claims



Fine coil wire ends from an armature are connected to a metal commutator ring by first cutting fine diagonal slots in the ring at the corner of the outer face and periphery thereof, one slot for each wire end. The fine wire ends are then inserted in their corresponding slots, and such wire end is welded in place under heat and pressure, by placing the ring on an annular electrode and applying another electrode to the face of the ring sequentially at each slot, while conducting welding current between such electrodes thereby causing the metal adjacent each slot to fuse. Thus, upon removal of electrodes the fused metal cools and solidifies, leaving the fine wire terminals connected to the ring.

3,593,053

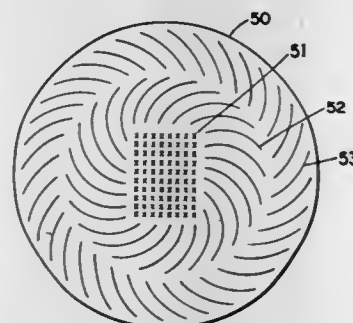
HIGH POWER DISSIPATION MATRIX FOR A CHARACTER DISPLAY TUBE

Johannes Mueller, San Diego, Calif., assignor to Stromberg Datagraphix, Inc., San Diego, Calif.

Filed July 2, 1969, Ser. No. 838,621
 Int. Cl. H01j 29/46, 61/52, 31/16

U.S. Cl. 313-86

3 Claims



A matrix configuration having a plurality of slits surrounding a group of character apertures is disclosed. Each slit is located along a line formed by a moving point having both a radial and a circumferential component. Typical slits have an approximately spiral appearance. Such slits have the characteristics of providing sufficient flexibility to accommodate differential thermal expansion in the matrix sheet without warping or distortion while permitting rapid dissipation of the heat from the matrix to the supporting structure.

3,593,054

IMAGE DEVICE HAVING 100 ANGSTROM BANDWIDTH PHOSPHOR EMISSIVE IN BLUE REGION

Simon Larach, Princeton, N.J., assignor to RCA Corporation Division of Ser. No. 338,191, Jan. 16, 1964, Pat. No. 3,454,716.

This application Feb. 28, 1969, Ser. No. 803,219

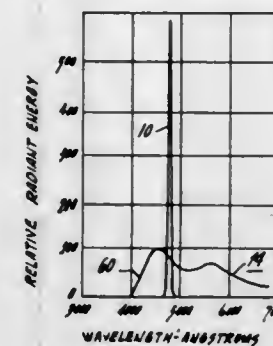
Int. Cl. H01j 29/20, 63/06, 31/20

U.S. Cl. 313-92

2 Claims

An image device includes a phosphor screen comprising a first phosphor which has a relatively broad emission band and a relatively low peak emission intensity and a second phosphor which has a relatively narrow emission band and

relatively high peak emission intensity. The narrow emission band of the second phosphor lies within the broad emission band of the first phosphor. In high ambient light, the phosphor screen may be viewed through optical filter means



3,593,055

ELECTRO-LUMINESCENT DEVICE

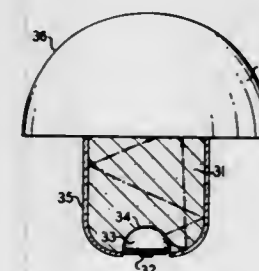
Joseph E. Geusic, Berkeley Hts., and Henry E. D. Scovill, New Vernon, both of, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Apr. 16, 1969, Ser. No. 816,763

Int. Cl. H05b 33/00

U.S. Cl. 313-108 D

9 Claims



Increased light output results from certain design modifications in a GaAs infrared emitting diode coated with a phosphor for converting this emission to visible light. These design modifications include shape and dimensional considerations for minimizing internal reflection and absorption of infrared emission within the diode as well as dimensional and compositional considerations as applied to the coating for reducing scattering losses and minimizing internal reflection of its emission.

3,593,056

MERCURY-ARC LAMP

Jiro Degawa, Chiba-ken, and Osamu Takeuchi, Tokyo, both of, Japan, assignors to Sony Corporation, Tokyo, Japan

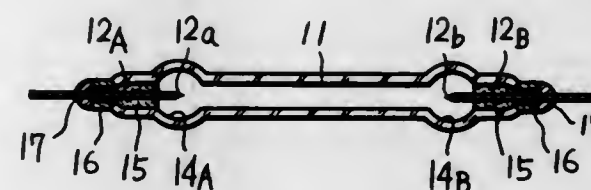
Filed June 26, 1969, Ser. No. 836,871

Claims priority, application Japan, June 29, 1968, 43/45376

Int. Cl. H01j 61/30

U.S. Cl. 313-220

3 Claims



A mercury-arc lamp formed of a generally cylindrical-shaped tube with electrodes mounted at either end thereof and comprising a line source of light when illuminated from the central portion of the tube between the electrodes and

with the tube enlarged adjacent the electrodes so as to reduce devitrification of the tube and provide a long-life mercury-arc lamp.

3,593,057

INJECTED BEAM CROSSED-FIELD AMPLIFIER EMPLOYING RF CONTROL OF THE INJECTED BEAM CURRENT

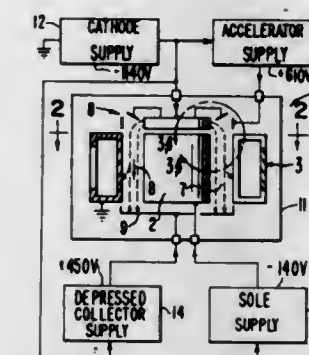
George Bernstein, Millburn, and Hunter L. McDowell, Chatham, both of, N.J.

Filed Aug. 31, 1967, Ser. No. 664,686

Int. Cl. H01j 25/50, 25/58

U.S. Cl. 315-39.51

4 Claims



An injected beam crossed-field amplifier is disclosed. The crossed-field tube includes a cylindrical nonemitting cathode sole electrode structure surrounded by a concentrically disposed slow wave anode circuit to define a magnetron-type interaction region in the annular space therebetween. An electron gun assembly is disposed at one end of the magnetron interaction region for injecting a beam of electrons into the magnetron interaction region axially thereof. A beam collector structure is disposed for collecting the electron beam after passage thereof through the magnetron interaction region. Radio frequency wave energy to be amplified is applied to the annular slow wave circuit, such circuit including a circuit sever to prevent reentrance of the wave energy on the circuit and to provide a drift space for debunching of the reentrant electron beam. By passing the electron beam through the magnetron interaction region to a collector structure, the dynamic range of the amplifier is extended down well into the low input signal regime, thereby providing an extremely wide dynamic range for the amplifier.

3,593,058

CROSSED-FIELD ELECTRON INJECTOR FOR AN ELECTRON ACCELERATOR

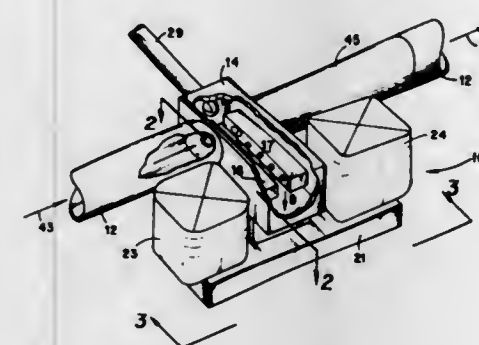
Harold A. Hogg, Cupertino, Calif.

Filed Mar. 17, 1970, Ser. No. 20,289

Int. Cl. H01j 7/46, 19/80

U.S. Cl. 315-39

10 Claims



An electron injector wherein a stream of electrons is emitted from a gridded thermionic emitter into a region between two electrodes. An electric field alternating at a microwave frequency is applied between the electrodes, and the electron stream leaves the thermionic emitter parallel to this field. A steady magnetic field is applied across the region

in a direction that is transverse to the electric field. The combined effects of the microwave electric field and the steady magnetic field on the electron stream are such that the stream becomes focused into a bunch that follows a quasi-cycloidal orbit in which the electrons strike a secondary emitter from which an amplified bunch of electrons is emitted to follow a similar orbit, to be further focused into a bunch and to strike another secondary emitter. This process is repeated until the desired intensity is achieved whereupon the final bunch of electrons is injected into an electron accelerator during the final orbit.

3,593,059

PARTIALLY INTEGRATED VELOCITY-MODULATED TUBE STRUCTURE AND HOUSING THEREFOR

Herbert Sarnetzki, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

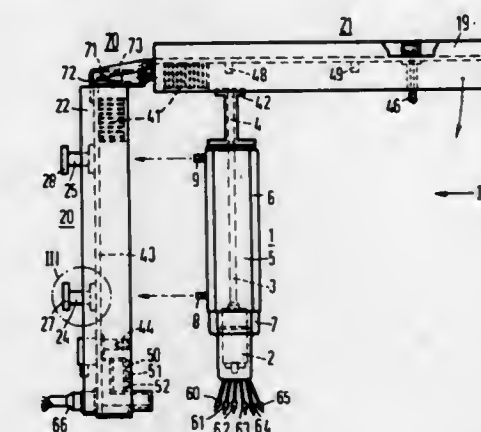
Filed Nov. 5, 1969, Ser. No. 874,289

Claims priority, application Germany, Dec. 12, 1968, P 18 14 320.9

Int. Cl. H01j 25/34

U.S. Cl. 315-3.5

5 Claims



A velocity-modulated tube, particularly a travelling wave tube, having an electron beam generator at one end and an electron collector at the opposite end, which is operatively enclosed, in adjusted relation, in a magnetic system for form an integrated assembly, a ribbed or finned component surrounding said assembly, constructed to dissipate heat, in which the finned component comprises a separable high frequency tight housing in which the velocity-modulated tube and integrated magnetic system is disposed, the latter having flangeless high frequency input and output coupling elements which are received in cooperable slots in the housing operative to retain said tube and integrated magnetic system in operative position, with said coupling elements communicating with corresponding input and output hollow wave guides connected to said housing.

3,593,060

FLUORESCENT LAMP APPARATUS INCLUDING INVERTER CIRCUIT AND REFLECTOR

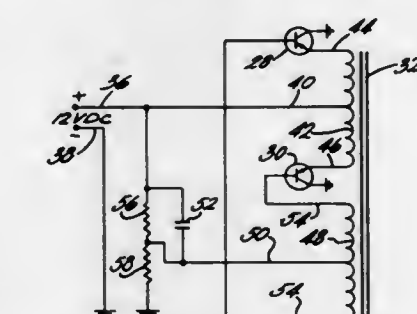
Roger L. Kryder, Fort Wayne, Ind., assignor to General Manufacturing, Inc., Fort Wayne, Ind.

Filed Apr. 9, 1969, Ser. No. 814,622

Int. Cl. H05b 41/02

U.S. Cl. 315-219

3 Claims



An electronic inverter circuit particularly suitable for energizing fluorescent lamps from a direct current power supply

wherein transistors are employed as switches in a self-excited oscillator circuit. The circuitry includes a transformer core alternately saturable at a high frequency under the control of the transistor switches, the transformer including a feedback winding controlling operation of the transistors. A transformer secondary winding supplies a high voltage output to the fluorescent lamp, and the high voltage output includes a conductor disposed adjacent the lamp to reduce the voltage required to initiate an arc therein.

3,593,061

APPARATUS FOR INCREASING THE LIGHTING OF PHOTOFLASH DISCHARGE LAMPS

Kouichi Takahata, and Takeshi Suda, both of Tokyo, Japan, assignors to Nippon Kogaku K. K., Tokyo, Japan

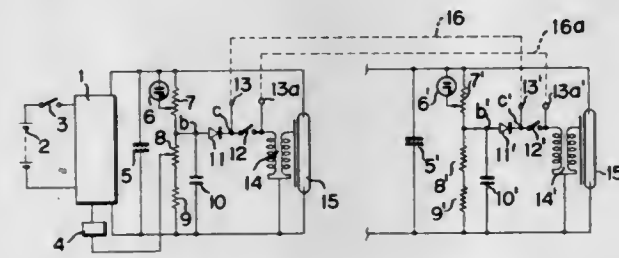
Filed Feb. 20, 1969, Ser. No. 801,019

Claims priority, application Japan, Feb. 23, 1968, 43/13,387

Int. Cl. H05b 37/00, 39/00

U.S. Cl. 315-241

3 Claims



Apparatus for increasing the lighting of photoflash discharge lamps including terminals for increased lamp lighting employs a diode, a trigger condenser, voltage dividing resistors and a synchroswitch in a main lighting circuit and the same components in a second circuit for the increased lamp lighting. Each diode in the main and increased lamp lighting circuits is connected in the positive direction relative to the discharge of its respective trigger condenser between a point connecting the trigger condenser to its voltage dividing resistors and a point connecting one side of the terminal to one side of its respective synchroswitch.

3,593,062

CONTROL APPARATUS RESPONSIVE TO EXCESS CURRENT UTILIZING TEMPERATURE SENSITIVE RESISTORS

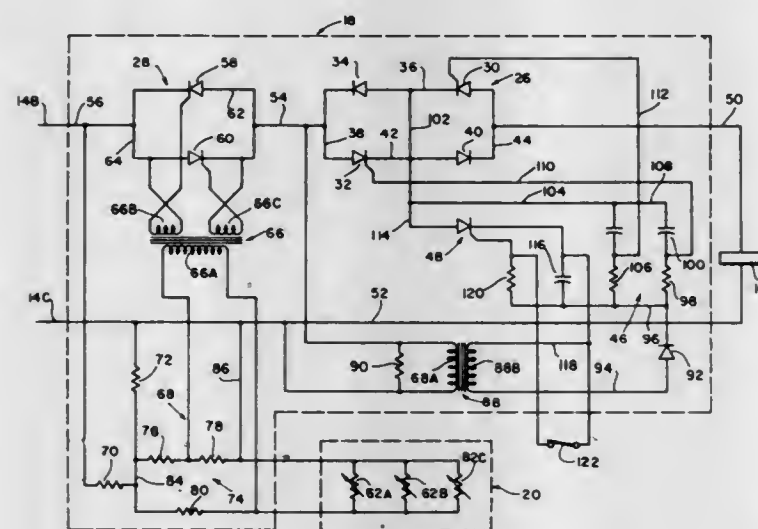
Frederic R. Quinn, Red Hook, N.Y., assignor to Zyrotron Industries, Inc., South Hackensack, N.J.

Filed Jan. 13, 1970, Ser. No. 2,569

Int. Cl. H02h 5/04, 3/08

U.S. Cl. 317-13

14 Claims



A control apparatus for controlling the operation of an associated device which includes a first switch comprising a pair of silicon controlled rectifiers connected in inverse parallel relationship between a load and a source of power.

The silicon controlled rectifiers or SCR's are gated on by a gate signal from a gate signal generator which is connected to the first switch SCR's by a control SCR. Conduction of the control SCR is regulated by a selectively operable device which, therefore, controls the operation of the first switch to connect power to the load. In practice, a second switch is serially connected to the first switch and similarly comprises a pair of SCR's connected in inverse parallel relationship. The conduction of the SCR's comprising the second switch are controlled by a condition responsive device which is operable to cause these SCR's to stop conducting in response to the occurrence of a preselected event. After such event, the selectively operable device must be actuated to close the first switch.

3,593,063

CHARGE REGULATOR FOR CAPACITOR IGNITION SYSTEM

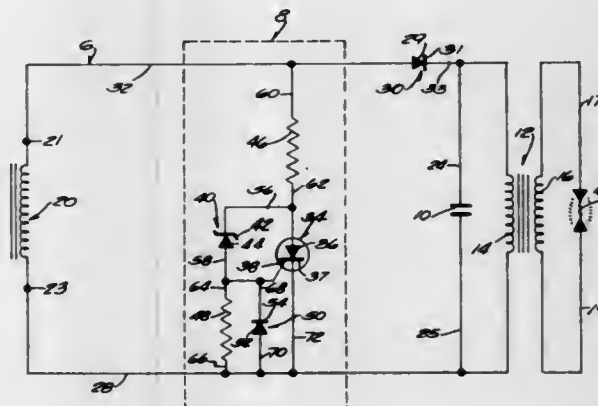
David T. Cavil, Menomonee Falls, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed May 14, 1969, Ser. No. 824,496

Int. Cl. H02h 3/20

U.S. Cl. 317-16

5 Claims



Disclosed herein is a charge regulator for a storage capacitor in a capacitive discharge ignition system. The charge regulator includes a switching device in the form of a thyristor and a zener diode. The thyristor is in parallel with the storage capacitor and the output terminals of a charging coil. When the charge on the capacitor reaches a predetermined maximum safe value, the thyristor will become conducting and switch a loading resistor into a shunt path across the output terminals of the charging coil to maintain the charge on the capacitor below the predetermined maximum value.

3,593,064

ASSEMBLY FOR SUPPORTING AND ENCLOSING ELECTRICAL AND ELECTRONIC COMPONENTS

Horst Wagner, Eltra; Horst Frohlich, Heringen/Werra, and Rudolf Hoeppe, Unterhaun, all of Germany, assignors to Zuse K.G., Bad Hersfeld, Germany

Filed June 11, 1969, Ser. No. 832,082

Claims priority, application Germany, June 12, 1968, P 17 65 575.3

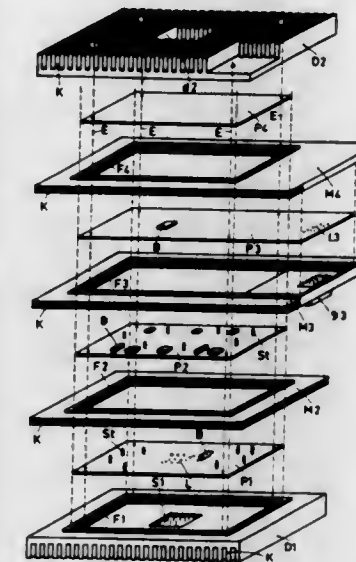
Int. Cl. H02b 1/00

U.S. Cl. 317-100

15 Claims

Plug-in insulating boards which carry logical building blocks, conductors or like components are accommodated in sockets of stacked profiled rectangular metallic frames which form part of a composite enclosure for the boards. The frames are provided with external cooling fins and cooperate with each other or with the metallic lids of the enclosure to sealingly engage the marginal portions of the boards. The

fasteners which separably connect the frames and the lids to each other extend at right angles to the plane of the boards. mon external conductor and each of the remaining receptacles is connected to individual external conductors, whereby



The plugs of adjoining boards are also separable from each other by moving the boards at right angles to their planes.

3,593,065

SHEET DETECTION APPARATUS

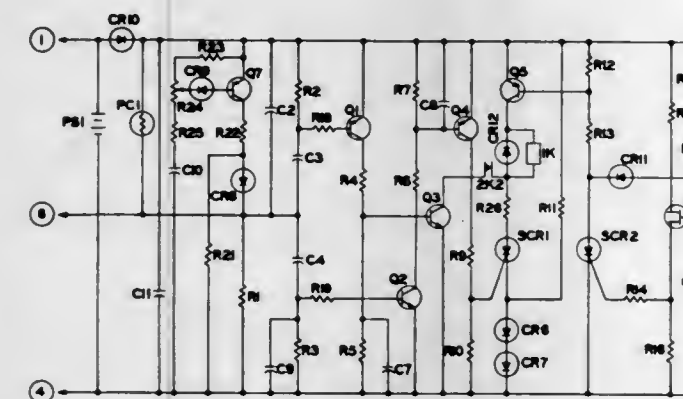
Robert A. Domalski, Rochester; Richard C. Kahler, Onatrio, and Donald J. Quant, Rochester, all of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed July 14, 1969, Ser. No. 841,516

Int. Cl. G01n 21/30

U.S. Cl. 317-124

2 Claims



Apparatus which inactivates a xerographic machine in response to a copy sheet misspuff. A sheet of paper remaining on the xerographic drum beyond the stripping station causes a change in light intensity at a photocell which receives reflected light from the drum. This intensity change results in a change in resistance within the circuit to cause a current flow through a capacitor. This, in turn, energizes a threshold switching means to energize a control relay to stop the machine.

3,593,066

ASSEMBLY HAVING A PLURALITY OF CAPACITORS

Rayford M. Norman, Sr., 2117 Windover Drive, N.E., Huntsville, Ala.

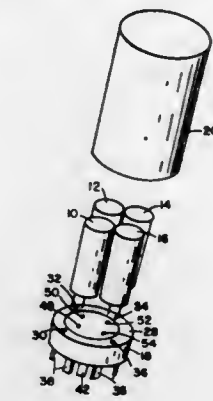
Filed Sept. 11, 1969, Ser. No. 857,024

Int. Cl. H01g 1/02

U.S. Cl. 317-230

5 Claims

An electrical capacitor assembly consisting of a base assembly having a plurality of like spaced pairs of electrical receptacles and a plurality of elongated electrolytic capacitor elements each having a pair of pronged terminals being adapted to be plugged into a pair of the receptacles. One receptacle of each pair of terminals is connected to a com-



a composite capacitor assembly is made up of a desired selected combination of capacitor elements.

3,593,067

SEMICONDUCTOR RADIATION SENSOR

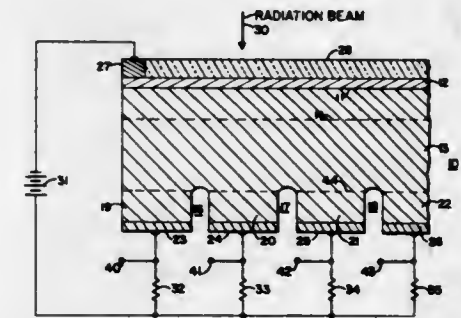
John B. Flynn, Belmont, Mass., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Aug. 7, 1967, Ser. No. 658,725

Int. Cl. H01l 15/00

U.S. Cl. 317-234 R

1 Claim



An integrated diode array for use as a radiation sensor is shown. The individual diodes are isolated by grooves formed on one side of the array and by biasing the array so that the charge depletion layer of the PN junction extends beyond the grooves.

3,593,068

BUS BAR TRANSISTOR AND METHOD OF MAKING SAME

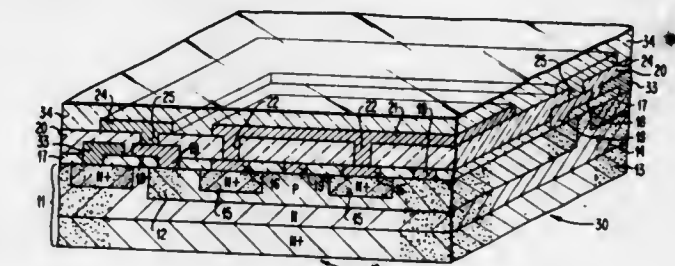
Laurence L. Rosier, Champaign, Ill., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 6, 1967, Ser. No. 688,488

Int. Cl. H01l 5/02, 7/60

U.S. Cl. 317-234

32 Claims



A transistor has its emitter formed as parallel strips in the surface of the body of the base with a first level of electrical contact for the emitter comprising parallel elongated members connected to each of the strips. The first level of electrical contact for the base comprises parallel elongated members extending parallel to each of the emitter elongated members and disposed between the emitter elongated members and on the outer sides of the two outermost emitter

elongated members. The first level of electrical contact for the base also includes a rectangular shaped member, which contacts the ends of all of the base elongated members and the sides of the two outermost base elongated members. An electrical insulating layer is disposed over the first level of contacts and has holes therein to permit each of the emitter elongated members to be connected to a bus bar on a second level. Each of the sides of the rectangular shaped member is connected through holes in the insulating layer to a bus bar that forms a second level base contact.

3,593,069

INTEGRATED CIRCUIT RESISTOR AND METHOD OF MAKING THE SAME

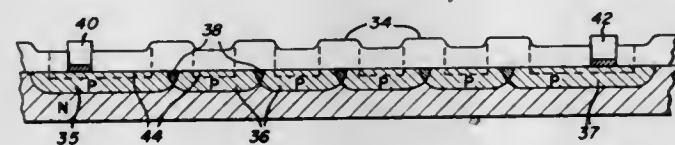
Lee P. Madden, Sunnyvale, Calif., assignor to National Semiconductor Corp., Santa Clara, Calif.

Filed Oct. 8, 1969, Ser. No. 864,812

Int. Cl. H011 5/00

U.S. Cl. 317-234

5 Claims



A monolithic integrated circuit diffused resistor and method of making same by diffusing impurities of a first conductivity type into a substrate of a second conductivity type through a mask including a plurality of openings spaced along a line at intervals such that the diffusion through each of the openings overlaps the diffusions through the adjacent openings to provide a string of interconnected diffused regions through which an electrical current may be passed.

3,593,070

SUBMOUNT FOR SEMICONDUCTOR ASSEMBLY

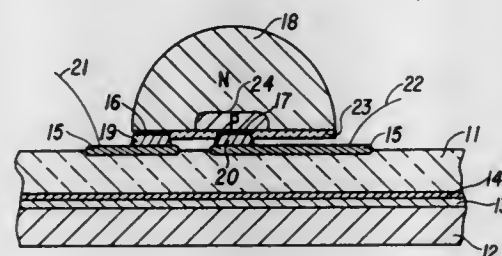
Bruce S. Reed, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 17, 1968, Ser. No. 784,315

Int. Cl. H011 1/12, 15/00

U.S. Cl. 317-234 R

3 Claims



A radiant diode assembly is provided with a thermally conductive, electrically nonconductive submount, in combination with a metallic heat sink mounting member, thereby permitting series interconnection of the individual units of a multi-diode array. Gold-doped silicon is the preferred submount, having a gold content of about 10^{16} atoms per cm^3 , a thermal conductivity of about 6 watts per $\text{cm} \cdot ^\circ\text{K}$, and an electrical resistivity of about 20,000 ohm-cm. at an operating temperature of about 80°K . to 120°K .

3,593,071

POINTED GATE SEMICONDUCTOR DEVICE

John L. Janning, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Apr. 4, 1969, Ser. No. 813,633

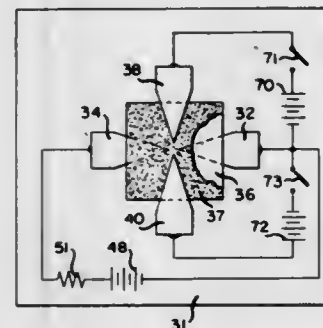
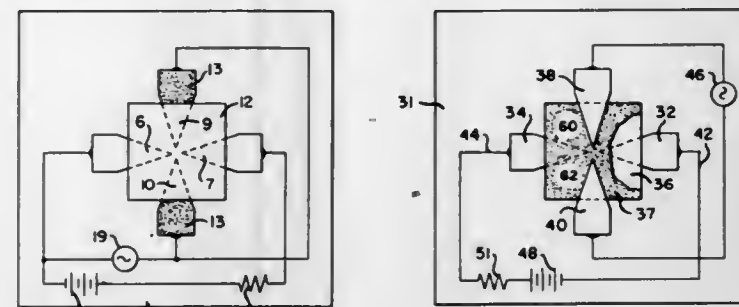
Int. Cl. H011 1/14

U.S. Cl. 317-235 R

11 Claims

The present invention relates to a field effect semiconductor device which has a pointed source electrode pointing toward a pointed drain electrode. A pointed gate electrode is placed to each side of said pointed source and drain elec-

trodes, in insulative contact with semiconductor material, which lies between the pointed source electrode and the pointed drain electrode. A control potential is applied between the pointed gate electrodes and the pointed source



electrode, the control potential being thus concentrated within the semiconductor material. The field effect semiconductor device of the present invention has good transconductance.

3,593,072

METALLIZED CAPACITOR

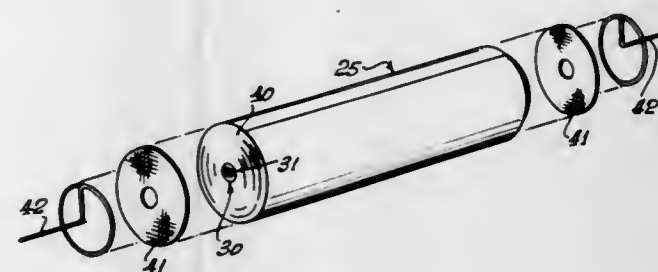
Richard Rolland Bailey, Ogallala, Nebr., assignor to TRW, Inc., Los Angeles, Calif.

Filed Nov. 19, 1969, Ser. No. 878,129

Int. Cl. H01g 1/08

U.S. Cl. 317-243

3 Claims



A capacitor utilizing metallized dielectric layers. A surface of a dielectric layer is coated with a metal film. A plurality of layer of the metallized dielectric are stratified whereby the metallized surface of a dielectric layer is in substantial abutment with the metallized surface of another dielectric layer, the metallized surface not contacting a nonmetallized surface. An offset in the stratification establishes two electrodes. After convolutedly winding the plurality of stratified, metallized dielectric layers, electrical contact is made to the two electrodes.

3,593,073

ANTENNA SYSTEM FOR CAPACITANCE RESPONSIVE CIRCUIT

Carl E. Atkins, Montclair, N.J., assignor to Wagner Electric Corporation

Continuation-in-part of application Ser. No. 674,833, Oct. 12, 1967. This application Dec. 16, 1968, Ser. No. 786,819

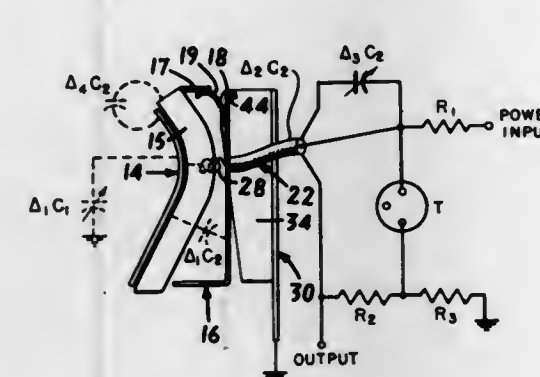
Int. Cl. H01g 1/06

U.S. Cl. 317-256

11 Claims

Each of two embodiments of an antenna system for capacitance-controlled circuits comprises an antenna

member which forms a common plate of first and second capacitances, and a shield for interrupting electric flux between the antenna and grounded elements near the rear surface of the antenna. A first embodiment also comprises a fixed increment of the first capacitance between the antenna and a conductive element situated between the antenna system encasement and the controlled sanitary facility which the encasement abuts. The encasement functions as a dielectric in the aforementioned increment of capacitance, and the



conductive element operates to prevent spurious increases in antenna capacitance to ground which result from the intermittent flow of water in the controlled sanitary facility. A second embodiment comprises a conductive element disposed about the periphery of the antenna member and spaced therefrom. This conductive element forms a second plate to the second capacitance, and effectively shields the antenna member from electric fields passing through the encasement.

3,593,074

APPARATUS AND PROCESS

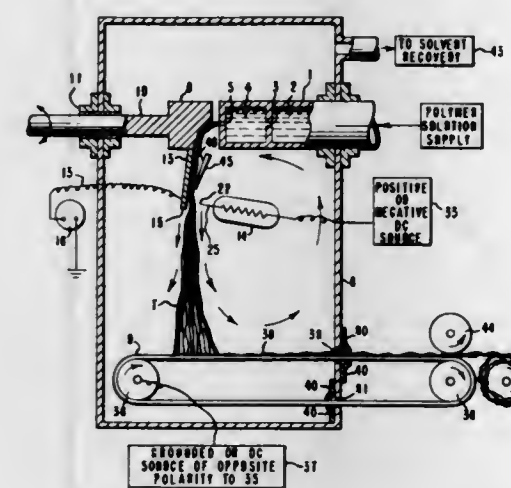
Lawrence Isakoff, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 22, 1969, Ser. No. 886,967

Int. Cl. D04h 5/00

U.S. Cl. 317-262 A

6 Claims



A process for preparing fibrous sheets of organic synthetic polymers in which a filamentary web is entrained in a gaseous stream flowing in a path toward a receiving surface and the web is electrostatically charged before being collected, the improvement being confining the gaseous flow before charging by directing it through a critically dimensioned passage which converges in the direction of flow. The apparatus includes an element which together with the target plate of the charging device for electrostatically charging the fibers structurally defines the passage.

3,593,075

MOTOR CONTROL SYSTEM WITH LINEAR ACCELERATION CIRCUIT

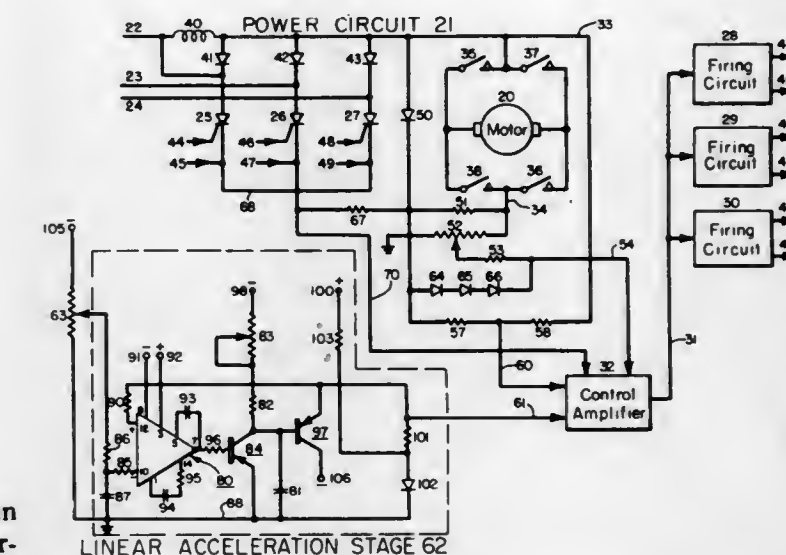
Thomas Pantelakis, Margate, and Dudley D. Nye, Jr., Fort Lauderdale, both of, Fla., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed June 30, 1969, Ser. No. 837,456

Int. Cl. H02p 1/04

U.S. Cl. 318-391

8 Claims



A DC motor control system is energized over power semiconductor switches controlled by firing circuits. A control amplifier is connected to regulate the firing circuits and thus regulate motor energization. An adjustable potentiometer provides a speed reference signal. A linear acceleration stage, coupled between the adjustable potentiometer and the control amplifier, translates step function increases of the potentiometer setting into a smooth speed increase signal. The linear acceleration stage includes a capacitor connected in a charging circuit to provide this smooth speed increase signal in response to turnoff of a transistor which, when conducting, disables the charging circuit. An operational amplifier is connected to turn off the transistor and allow the capacitor to charge when the speed control potentiometer is adjusted to signal a speed increase. Responsive to a speed decrease, the transistor is immediately gated on to discharge the capacitor and subsequently assist the system in preventing motor coast-down below the new speed setting.

3,593,076

WHEEL SLIP CONTROL ARRANGEMENT

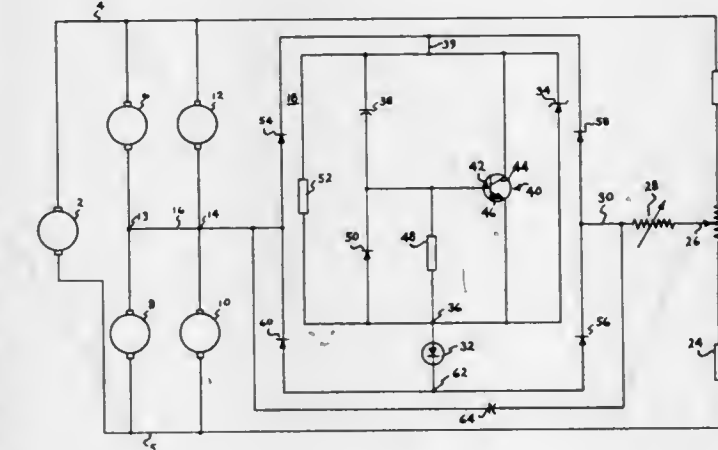
Lloyd W. McSparran, Erie, and Russell M. Smith, North East, both of, Pa., assignors to General Electric Company

Filed Feb. 2, 1970, Ser. No. 7,786

Int. Cl. B61c 15/12

U.S. Cl. 318-52

16 Claims



A wheel slip control arrangement for traction vehicles wherein a pair of DC series field traction motors are con-

nected in series by a common junction. A plurality of such pairs are preferably connected in parallel across the output of the traction generator with their common junctions being interconnected. A voltage responsive circuit and current responsive actuating device, such as a light emission device, are connected in a circuit between the common junction and the output of a voltage reference circuit whereby the device is actuated by a time derivative of the voltage difference between the common junction and the output of the reference circuit. The disclosed circuit includes a bridge rectifier whose output is connected in series circuit with a semiconductor device and the light emitting diode. The semiconductor device is gated on by voltage variations coupled by capacitance means to its control electrode. A control circuit electrically insulated from the above described circuitry is responsive to the output of the light emission device to modify the excitation of the traction generator.

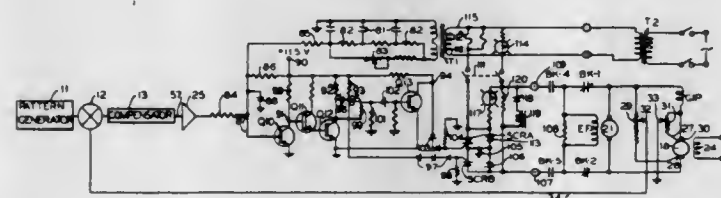
3,593,077

ELECTRICAL CIRCUIT FOR PULSE FED INDUCTIVE LOAD

Richard C. Loshbough, Toledo, Ohio, assignor to Reliance Electric Company, Euclid, Ohio
Division of Ser. No. 373,136, June 4, 1964, Pat. No. 3,435,916.
This application Oct. 14, 1968, Ser. No. 767,276
Int. Cl. H02p 5/24, 7/24

U.S. Cl. 318-158

6 Claims



A circuit for applying current pulsations of opposed polarity to an inductive load wherein the net current in the load is the difference in the magnitude of the pulsations. A capacitance is connected across the inductive load to permit the buildup of a net current. Circulating currents in the capacitance can be restricted by inductance or resistance in series between the source of pulsations and the capacitance.

3,593,078

STARTING AND OPERATING CONTROL FOR AN AC MOTOR POWERED BY A DC POWER SUPPLY

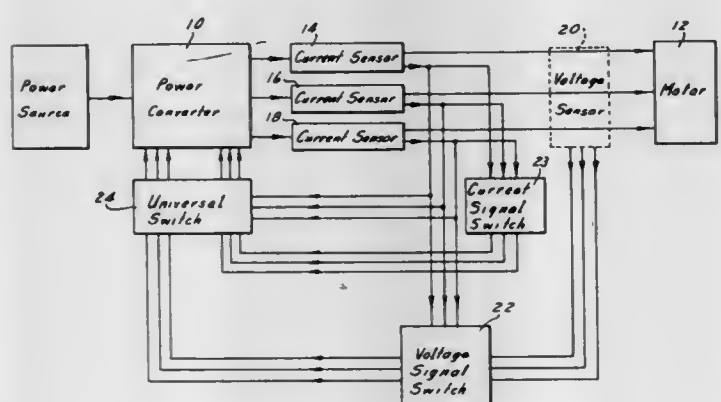
Ernest H. Domshy, Downey, and Victor Moller, Sierra Madra, both of, Calif., assignors to North American Rockwell Corporation

Filed Sept. 8, 1969, Ser. No. 855,998

Int. Cl. H02p 1/46

U.S. Cl. 318-180

7 Claims



An AC Motor Control, wherein the AC motor is powered by a DC power supply through a DC to AC converter circuit,

and wherein the control has an AC current sensor for producing a current signal indicative of the current supplied to the motor which signal is coupled to the converter to prevent excessive current drain on the power supply under starting condition and an AC voltage sensor for producing a voltage signal indicative of the potential across the motor leads and this voltage signal is used to control the converter under operating conditions so that synchronous speed is maintained. Since, under operating condition, the current is inherently substantially stable at rated current, a switch is incorporated responsive to the current signal at rated current to decouple the current signal from the converter and couple the voltage signal thereto.

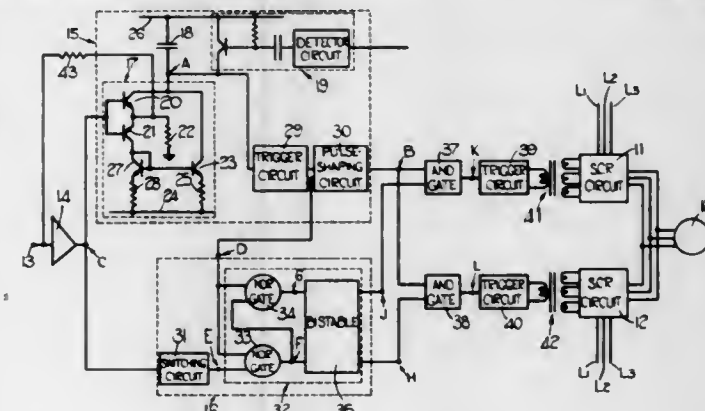
3,593,079

POLYPHASE ELECTRIC MOTOR CONTROL SYSTEM FOR SPEED AND DIRECTION OF ROTATION

Anthony Brian Plant, Birmingham, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Aug. 25, 1969, Ser. No. 852,552
Int. Cl. H02p 3/20

U.S. Cl. 318-202

10 Claims



The invention relates to a system for controlling the speed and direction of rotation of a polyphase AC motor in accordance with the magnitude and polarity respectively of an input signal. The input signal is fed to a firing circuit which is also controlled by the voltage in one of the phase lines of the motor supply. The firing circuit produces a train of square pulses of constant width and whose phase relationship with the voltages in the motor supply phase lines is dependent on the magnitude only of the input signal. The input signal is also fed to a direction sensing circuit which produces a direction signal in one of two lines depending on the polarity only of the input signal. The pulse train is gated by the presence or otherwise of the direction signal to one of two sets of semiconductor controlled rectifiers which control the current in the phase lines of the motor supply for forward and reverse rotation respectively. The speed of this rotation is dependent in a known manner on the aforesaid phase relationship.

3,593,080

MOTOR CONTROL CIRCUIT WITH PROVISION FOR PHASE REVERSAL AND DC BRAKING

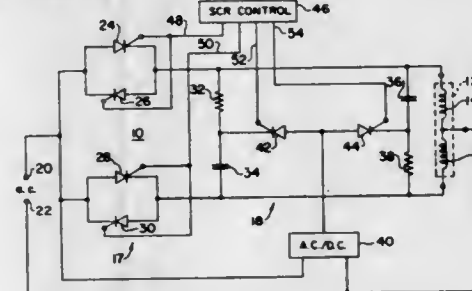
Jack H. Reynolds, Bellbrook, and Ernest R. Schelling, Kettering, both of, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Apr. 22, 1970, Ser. No. 030,692

Int. Cl. H02p 1/40

U.S. Cl. 318-203 A

10 Claims



A motor control circuit is described by which an induction stepping motor can be controlled to rotate either clockwise

or counterclockwise, or to cease rotating. The control circuit uses silicon-controlled rectifiers to accomplish the necessary switching and includes a network which has the double function of a phase-shifting network and a silicon control rectifier commutating network.

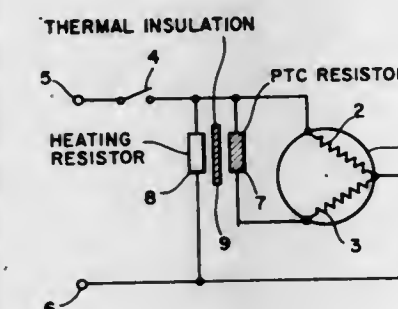
3,593,081

STARTING DEVICE WITH A PTC-RESISTOR FOR A SINGLE PHASE MOTOR

Sven Forst, Costa Mesa, Calif., assignor to Danfoss A/S, Nordborg, Denmark
Filed Sept. 19, 1968, Ser. No. 760,780
Int. Cl. H02p 1/44

U.S. Cl. 318-221 E

3 Claims



This invention relates to a single phase motor which includes in the circuit means thereof a starting winding in series with a PTC-resistor having lower and upper resistance ranges. The PTC-resistor is designed so that it is only operable in the low resistance range when heated solely by the effects of the starting current flowing therethrough. External heating means is provided for supplying an amount of auxiliary heat to the PTC-resistor to effect a shift to the high resistance range. The external heating means supplies heat at a rate which causes the shift to the higher resistance range to occur at a predetermined time.

3,593,082

AC MOTOR DRIVING MEANS

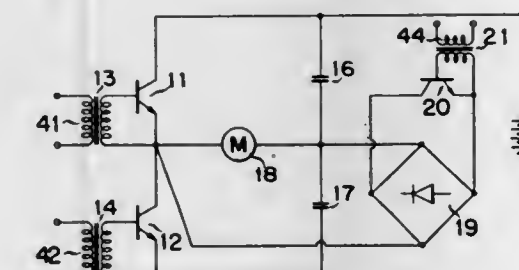
Susumu Tadakuma, and Yasuaki Miyazaki, both of Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Sept. 9, 1968, Ser. No. 758,553

Claims priority, application Japan, Sept. 30, 1967, 42/62746

Int. Cl. H02p 5/38

U.S. Cl. 318-227

6 Claims



AC motor driving means comprising a DC source, an inverter converting said DC to AC, a semiconductor switch element connected in parallel to the motor connected to the output terminal of the inverter which serves to short the motor terminals, and a control means to allow only a 120° period output to be issued by the inverter per semicycle.

3,593,083

APPARATUS FOR PROVIDING THE PILOT VALUES OF CHARACTERISTICS OF AN ASYNCHRONOUS THREE PHASE MACHINE

Felix Blaschke, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Apr. 17, 1969, Ser. No. 816,959

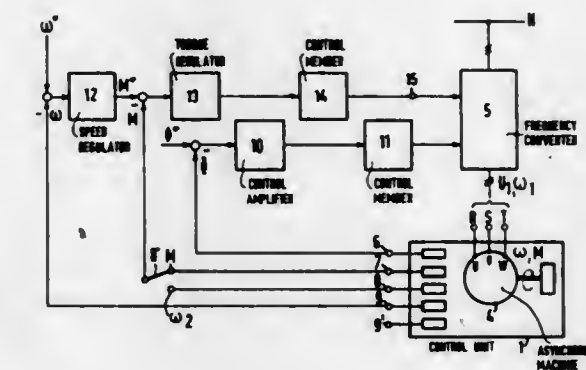
Claims priority, application Switzerland, Apr. 18, 1968,

5765/68; 5766/68

Int. Cl. H02p 5/40

U.S. Cl. 318-195

13 Claims



Multipliers produce a signal having a magnitude proportional to the sum of the squares of the rotary flux vectors and the induced three phase voltage vector of an asynchronous three phase machine by first producing signals having instantaneous magnitudes proportional to flux components of voltages induced in two winding axes spaced from each other by 120°. The multipliers multiply each signal magnitude by itself as well as by the other. The resultant products are then algebraically added.

3,593,084

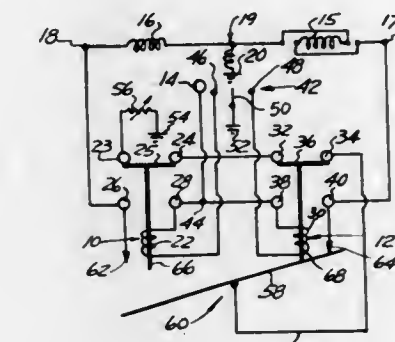
ELECTRIC MOTOR CONTROL CIRCUIT AND SWITCHING MEANS

Thomas B. Dalton, Muskegon, Mich., assignor to Westran Corporation, Muskegon, Mich.
Filed Jan. 12, 1970, Ser. No. 002,259

Int. Cl. H02p 1/22

U.S. Cl. 318-261

7 Claims



An electric motor control circuit for selectively connecting and disconnecting a pair of input terminals of an armature of an electric motor to a source of electrical power to selectively brake and reverse the rotation of the armature. Switching means associated with the control circuit directs current to a first terminal of the armature to cause a selected direction of rotation and when braking is desired the first terminal is disconnected from the power source, while the second of the armature terminals is grounded directly or through a resistor to provide a dynamic braking without the application of an external voltage being applied across the pair of terminals of the armature. The switching means is so arranged that neither terminal of the armature can be prematurely grounded during the braking or reversing operations.

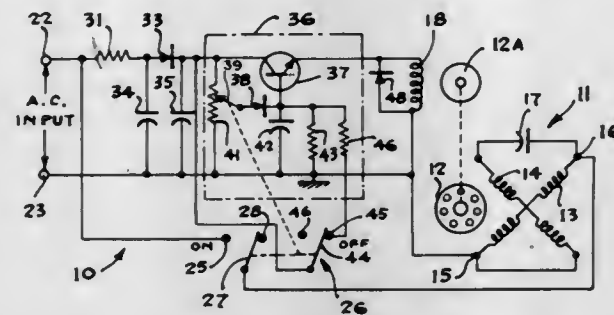
3,593,085

SPEED AND POSITION CONTROL FOR ELECTRIC MOTOR

Ernest J. Decker, Jr., Carpentersville, Ill., assignor to Jerry K. Kelley, Rosmont, Cook County, Ill.
Filed Dec. 18, 1969, Ser. No. 886,066
Int. Cl. H02p 7/04

U.S. Cl. 318-302

5 Claims



A precision speed and position control for an electric motor having a DC brake winding, comprising a transistor amplifier for energizing the brake winding and having a control potentiometer for varying the amplifier output, and an on-off switch for opening and closing the drive circuit of the motor; the on-off switch is mechanically interlocked with the potentiometer to afford maximum brake excitation whenever the switch is off.

3,593,086

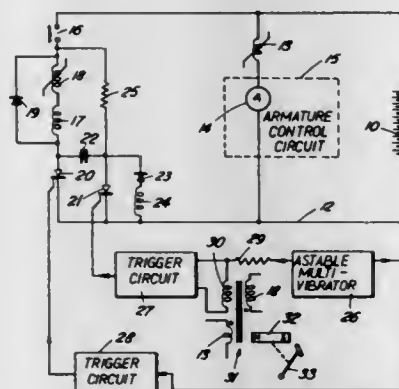
DIRECT CURRENT MOTOR CIRCUITS

Duncan Ulick Thombs, Basingstoke, England, assignor to Lansing Bagnall Limited, Basingstoke, England
Filed Feb. 19, 1970, Ser. No. 12,757
Claims priority, application Great Britain, Feb. 28, 1969, 10898/69

Int. Cl. H02p 5/16, 7/10

U.S. Cl. 318-308

6 Claims



A direct current motor circuit in which power in the motor is controlled by a main controllable rectifier whose condition is terminated by an auxiliary controllable rectifier fed with trigger signals alternately with the main rectifier. A winding coupled to a magnetic circuit inhibits the triggering of the auxiliary rectifier when the magnetic flux density in the magnetic circuit is high. The actual flux density is a balance between a flux produced by the field current of the motor, an opposing flux from an adjustable magnet and a flux produced by the armature current of the motor.

3,593,087

MOTOR CONTROL SYSTEM WITH DOUBLE IR COMPENSATION

Thomas Pantelakis, Margate, and Dudley D. Nye, Jr., Fort Lauderdale, both of, Fla., assignors to Borg-Warner Corporation, Chicago, Ill.
Filed June 30, 1969, Ser. No. 837,457

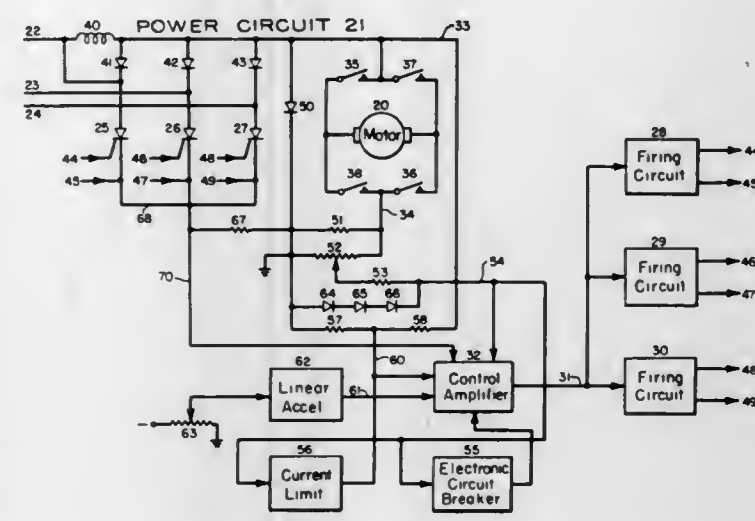
Int. Cl. H02p 5/16

U.S. Cl. 318-345

8 Claims

A DC motor control system is energized by semiconductor switches controlled by firing circuits. A control amplifier is

connected to regulate the firing circuits and to energize the motor as a function of the armature terminal voltage, motor



speed control setting, average current flow through the armature, and average current flow through the semiconductor switches.

3,593,088

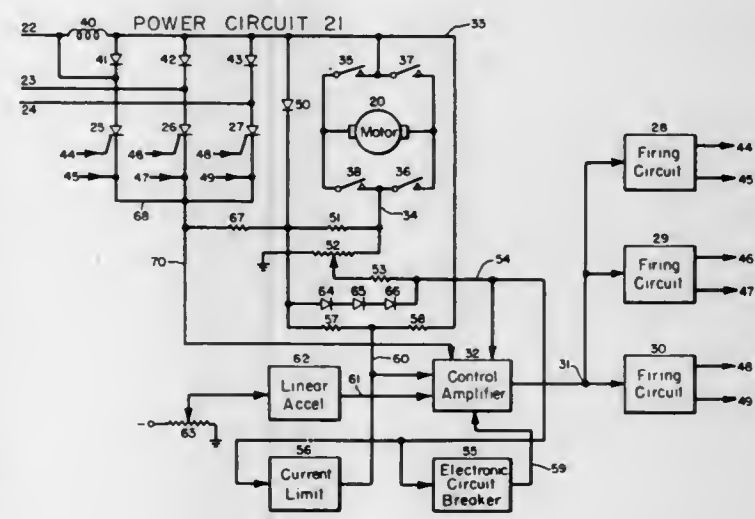
MOTOR CONTROL SYSTEM WITH CONTROL AMPLIFIER STAGE HAVING ANTIUNDERSHOOT CIRCUIT

Thomas Pantelakis, Margate, and Dudley D. Nye, Jr., Fort Lauderdale, both of, Fla., assignors to Borg-Warner Corporation, Chicago, Ill.
Filed July 3, 1969, Ser. No. 838,978

Int. Cl. H02p 5/16

U.S. Cl. 318-345

7 Claims



A DC motor control system is energized by semiconductor switches controlled by firing circuits to regulate the conduction times of the switches. A control amplifier stage provides a signal to regulate the firing circuits and thus regulate motor energization. The control amplifier stage includes an operational amplifier (op amp), and a feedback capacitor. A bias voltage is applied in the output circuit to run the op amp near its saturation point at the minimum speed point, or minimum conduction time of the semiconductor switches. As a speed increase is signalled the op amp conduction level decreases. With this arrangement, with a speed reduction signal to reduce conduction of the semiconductor switches, only negligible excess charge appears across the feedback capacitor to minimize undershoot as the motor comes to the new, lower speed.

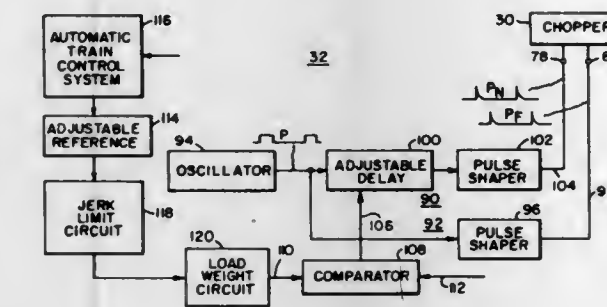
3,593,089

SYSTEM FOR BLENDING DYNAMIC AND REGENERATIVE BRAKING

Hendrik C. Appelo, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Nov. 24, 1969, Ser. No. 879,343
Int. Cl. H02p 3/14

U.S. Cl. 318-370

12 Claims



A method and a system wherein the electric power generated by a motor in the braking mode is distributed between a dynamic brake resistor and the motor supply lines in a ratio that varies as a function of the degree of power receptivity of the motor supply lines. Power receptivity is the capability of the supply lines to accept the power generated by the motor in the braking mode at a given time.

3,593,090

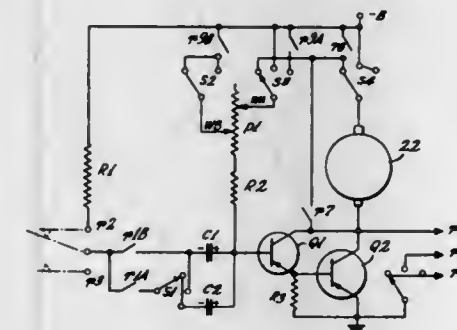
INTERMITTENT WINDSHIELD WIPER CONTROL

Robert W. Kearns, Detroit, Mich., assignor to Tann Company, Detroit, Mich.
Division of Ser. No. 523,433, Mar. 7, 1966, Pat. No. 3,483,459.
Filed Apr. 16, 1969, Ser. No. 816,748

Int. Cl. H02p 1/04

U.S. Cl. 318-444

18 Claims



A control for the electric motor of a windshield wiper motor unit which operates the unit intermittently with a dwell period after each wiping cycle with the length of time of the dwell periods varying inversely with the amount of moisture on the windshield.

3,593,091

SYSTEM FOR POSITIONING MOVABLE MEMBERS WITH ABSOLUTE DIMENSION WITH SELECTABLE OFFSET POINT

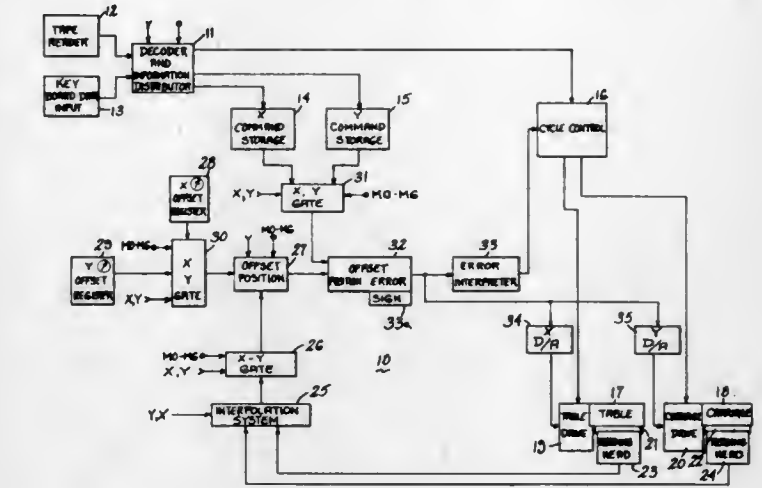
Geoffrey A. Ross, Canton Center, Conn., assignor to Pratt & Whitney Inc., West Hartford, Conn.
Filed Apr. 24, 1969, Ser. No. 818,878
Int. Cl. G05b 1/118

U.S. Cl. 318-572

10 Claims

A positioning system in which the actual position of a controlled member is always expressed in absolute dimension with respect to a fixed reference point and its position with

respect to a second selectable reference or offset point is determined by subtracting the absolute value of the second



reference point from the actual position of the controlled member.

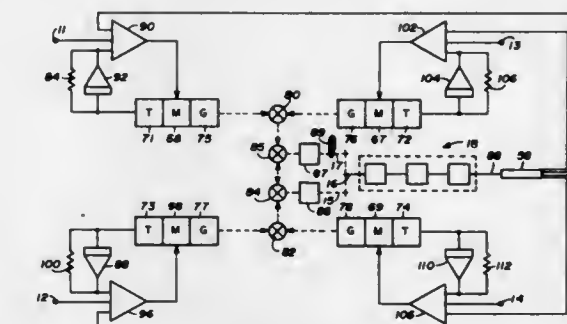
3,593,092

MULTIPLE OUTPUT MULTIPLEX ACTUATOR

Robert V. Filippo, Dallas, Tex., assignor to LTV Electronics, Inc., Dallas, Tex.
Filed Feb. 2, 1970, Ser. No. 7,674
Int. Cl. G05b 9/02

U.S. Cl. 318-564

11 Claims



Four servomotors are coupled together in a velocity-summing arrangement to produce two output motions. These two output motions are combined in a linkage arrangement that results in a single output. Two of the four servomotors are coupled together through a differential gearset that has a single rotary output and the second servomotor pair is also coupled together through a differential gearset that produces a single rotary output. These two rotary outputs are in turn coupled through two additional gearsets that each have a single rotary output. Each of these two additional gearsets has one input connected to one of the motor pair outputs and a second input in a common coupling arrangement. The rotary output of each of the second and third gearsets may be converted into a linear motion by means of a rotary-to-linear motion transducer, or used as a rotary motion. Operation of one of the rotary-to-linear motion transducers is restrained below a preestablished force level. Each of the four servomotors is controlled individually by a separate generated control signal in a system that includes a tachometer for generating velocity feedback signals and a linear voltage differential transformer for generating position feedback signals.

3,593,093

MARINE AUTOPILOT SYSTEM

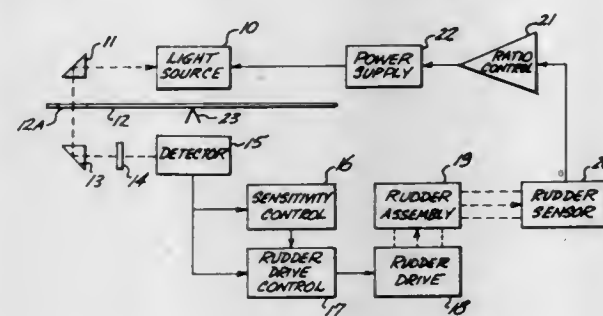
Bruce H. Bettcher, Bellevue, Wash., assignor to Energy Control Corporation, Bellevue, Wash.
Filed May 21, 1969, Ser. No. 826,592
Int. Cl. G05d 1/00; B64c 13/18

U.S. Cl. 318-588

12 Claims

This application discloses a novel low-cost autopilot assembly for ships. The system includes a simplified control loop between the rudder and the course-determining ap-

paratus with the signal paths between the course-determining apparatus and the rudder used for course corrections being maintained separate from the signal path used for conveying rudder position information to the course-determining apparatus. Radiant energy passing through a set of arcuate prisms and a slit in a compass card to a light detector pro-



vides error signals when the ship is not on course. Corrective action then takes place in response to such signals. A rudder position-sensing device controls the energization of the light source so that as the ship is brought to an on-course condition the intensity of the light source is adjusted. Details of the electrical system as well as mechanical details of one preferred embodiment are provided.

3,593,094

AUTOMATIC LEVEL ADJUSTING MEANS FOR SUSTAINING THE CROSSRAIL USED IN DOUBLE HOUSING TYPE MACHINE TOOLS IN ITS ACCURATE HORIZONTAL POSITION

Takao Katsumaru, Sakai, Japan, assignor to Shin Nippon Koki Co., Ltd., Osaka, Japan

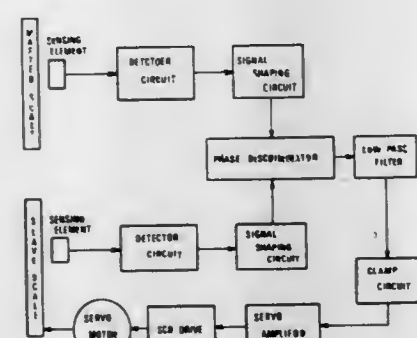
Filed Apr. 30, 1970, Ser. No. 33,426

Claims priority, application Japan, May 7, 1969, SHO 44/35354

Int. Cl. G05b 1/01

U.S. Cl. 318—608

3 Claims



In a large-sized double housing type machine tool, an automatic level adjusting means for sustaining the crossrail in its accurate horizontal position is provided; said means comprises a pair of electrosensing elements for detecting the crossrail losing its horizontal balance in the course of shift or swivel of the toolhead mounted on said crossrail, adjustment signal transfer circuit connected to said electrosensing elements, a servomotor means adapted to be driven when receiving said adjustment signal, and compensating gear means coupled with said servomotor means.

3,593,095

SYSTEM TO COMPENSATE FOR THE NONLINEARITY OF A SELF-SYNCHRONOUS TORQUE TRANSMITTER

Sidney Davis, East Norwich, N.Y., assignor to Vernitron Corporation, New York, N.Y.

Filed Dec. 26, 1968, Ser. No. 786,905

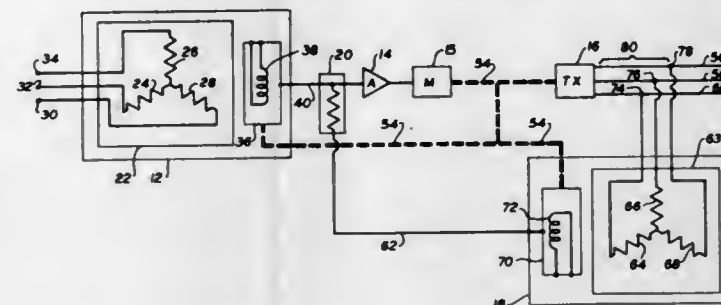
Int. Cl. G05b 1/12; G05d 23/275

U.S. Cl. 318—692

2 Claims

The invention is concerned with a conventional servosystem which in response to an input electrical signal produces a torque output via a mechanical feedback shaft which drives a synchro torque transmitter. A feedback trans-

ducer responsive to the electrical output signal of the torque transmitter and to its torque input (actually the torque output of the servomechanism) produces an electrical feedback



signal for continually compensating the system for inaccuracy in the torque transmitter and for capacitance losses resulting from lengthy output leads of the torque transmitter.

3,593,096

PULSE CONTROL CIRCUIT FOR STEP MOTORS

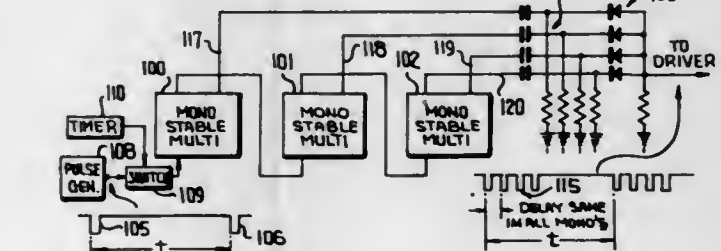
Harold R. Newell, South Newbury, N.H., assignor to Mesur-Matic Electronics Corporation, Warner, N.H.

Filed Aug. 15, 1969, Ser. No. 850,545

Int. Cl. H02k 37/00

U.S. Cl. 318—696

6 Claims



A control circuit for supplying pulses to sequentially excite the windings of a multiple phase step motor includes a generator for supplying stepping pulses at a preselected repetition rate. In response to each of these stepping pulses, a further portion of the control circuit produces a series of further pulses, each series containing an identical number of pulses, less than the number of phases of the step motor, and the pulses in each series occurring at a rate sufficiently greater than the repetition rate of the original stepping pulses that at the conclusion of each series of further pulses the motor has adequate time to respond mechanically to the excitation of windings produced by that series of pulses prior to initiation of the next successive series of pulses.

3,593,097

DIGITAL PROPORTIONAL SERVOSYSTEM

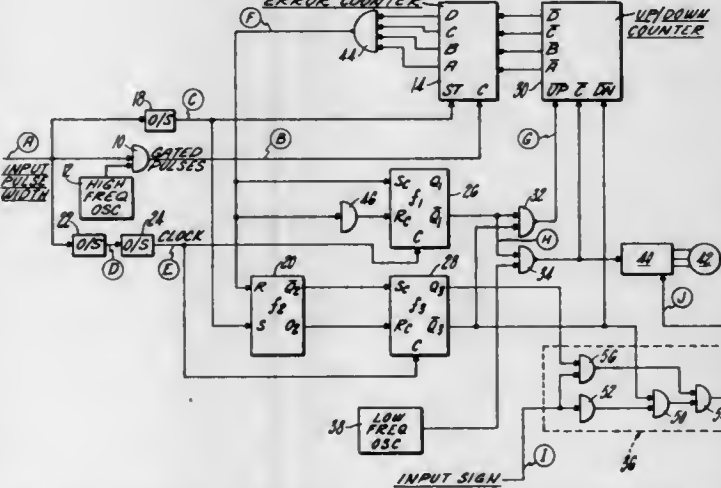
Edward F. Gebelein, Jr., Harwinton, Conn., assignor to Chandler Evans Inc., West Hartford, Conn.

Filed June 24, 1969, Ser. No. 836,122

Int. Cl. G05b 19/40

U.S. Cl. 318—696

17 Claims



A proportional, open loop motor control which synthesizes a pulse count proportional to the width of pulse width modu-

lated command signals, the thus synthesized pulse count being compared to the accumulation of previously synthesized counts sent to a step motor or other type of incremental actuator to determine existence and direction of a position error, an indication of error being employed to gate proportional pulses from a low frequency oscillator to said motor to be controlled.

3,593,098

SPECTROMETER INTEGRATOR SYSTEM FOR PROVIDING OVERLAPPING INTEGRATION PERIODS

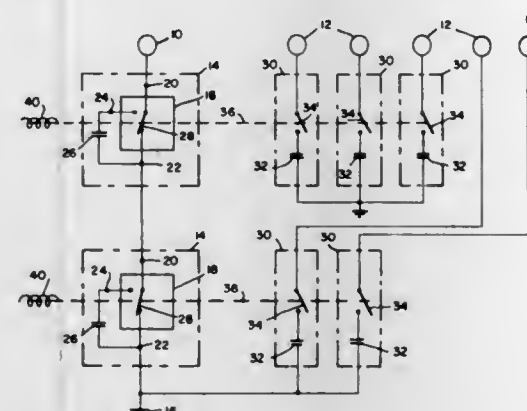
Veijo V. Varnela, San Gabriel, Calif., assignor to Angstrom, Inc., Chicago, Ill.

Filed Dec. 26, 1968, Ser. No. 786,924

Int. Cl. G06g 7/18

U.S. Cl. 320—1

10 Claims



Spectrometer photocurrent integrator apparatus for analyzing different component groups of a radiation spectrum over different, overlapping integration periods utilizing the dual component ratio technique and a common reference component. The apparatus includes a plurality of integrators coupled to a reference component transducer in such manner that the current integrated by any one of the integrators is unaffected by the occurrence of contemporaneous integrations by any one or more of the other integrators.

3,593,099

AUTOMATIC BATTERY TESTER WITH RECORDING MEANS FOR BATTERY PERFORMANCE

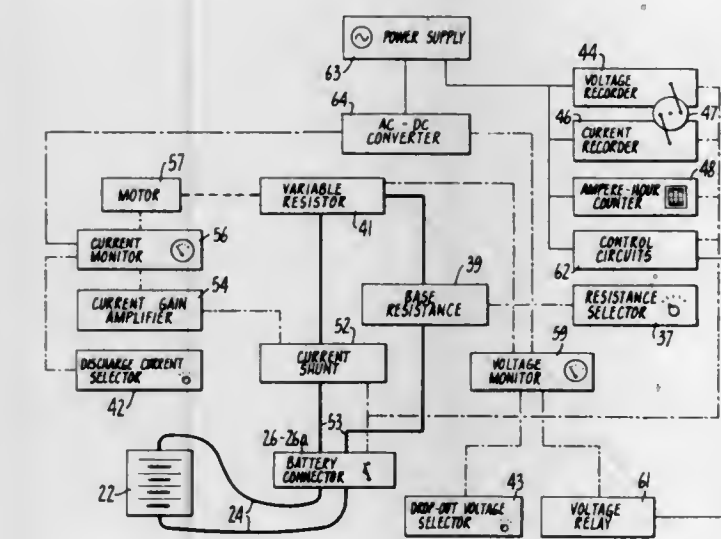
Hans K. Scholl, 108 Franciscan Drive, Vallejo, Calif.

Filed July 24, 1969, Ser. No. 844,500

Int. Cl. H02j 7/00

U.S. Cl. 320—13

2 Claims



An automatic battery discharger and tester for recording the performance of a battery being discharged under a selected resistance load wherein the battery's current and

voltage are continuously monitored and compared against preselected current and voltage values, and includes means for maintaining a constant discharge current by varying the load resistance in response to any deviations of the battery current against the preselected current value, and similarly includes means to disconnect the battery from the load and interrupt the test when the battery voltage drops below a preselected voltage value signifying the discharged state of the battery.

3,593,100

APPARATUS FOR CONTROLLING A PULSATING BATTERY CHARGER

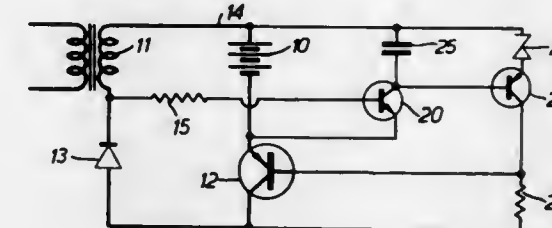
George William Foster, Manchester, England, assignor to Electric Power Storage Limited, Manchester, England

Filed Oct. 2, 1969, Ser. No. 863,074

Int. Cl. H02j 7/10

U.S. Cl. 320—22

8 Claims



An automatic battery charging circuit employing rectified alternating current includes a capacitor which is connected across the battery by a switching transistor only during the intervals between the pulses of charging current, and a level responsive transistor or trigger circuit, which responds when the voltage across the capacitor exceeds a predetermined value, and then cuts off or reduces the charging current. Thus the duration of the charge (or a phase of it) is determined by the battery voltage during the intervals between pulses of charging current, and is less dependent on battery resistance and temperature than conventional systems.

3,593,101

ARRANGEMENT FOR CONNECTING AN ELECTRIC BATTERY TO A SOURCE OF CHARGING CURRENT

Derk Jan Chris Wassink, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

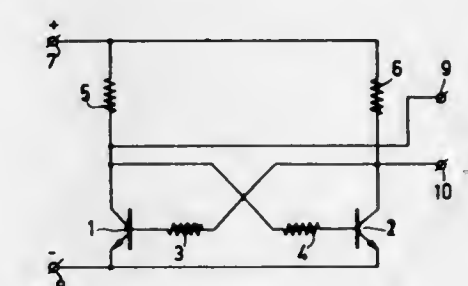
Filed Sept. 5, 1968, Ser. No. 757,572

Claims priority, application Netherlands, Sept. 8, 1967, 6712329

Int. Cl. H01m 45/04; H02j 7/00

U.S. Cl. 320—25

9 Claims



A switching device for interconnecting an electric battery with a DC source of charge current includes a bistable trigger circuit having input terminals connected to the current source and output terminals for connection to a battery to be charged. The trigger circuit is controlled by the battery polarity so that it always assumes the proper state for charging the battery for either of the two possible battery connections.

3,593,102

SEMICONDUCTOR VOLTAGE REGULATOR

Yoshichi Kawashima, Gifu-shi, and Hisami Mitsueda, Mie-gun, Mie-ken, both of, Japan, assignors to Nippon Denso Company Limited, Kariya-shi, Japan

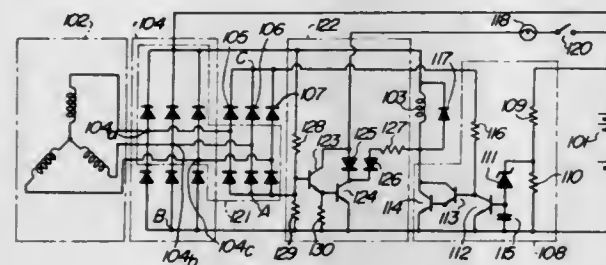
Filed May 8, 1969, Ser. No. 822,952

Claims: priority, application Japan, May 16, 1968, May 21, 1968, 43/33081; 43/34199

Int. Cl. H02j 7/18

U.S. Cl. 320-64

10 Claims



A semiconductor voltage regulator for storage battery charging means having a full-wave rectifying circuit, wherein the regulator includes an AC generator rotation detecting element connected to the half-wave rectifying ends of the full-wave rectifying circuit, a field current control transistor circuit, and an auxiliary full-wave rectifying circuit for controlling through another control circuit the flashing of a charge indication lamp and the initial exciting current of a field winding.

3,593,103

INVERTER SYSTEM WITH AUTOMATIC RIDETHROUGH

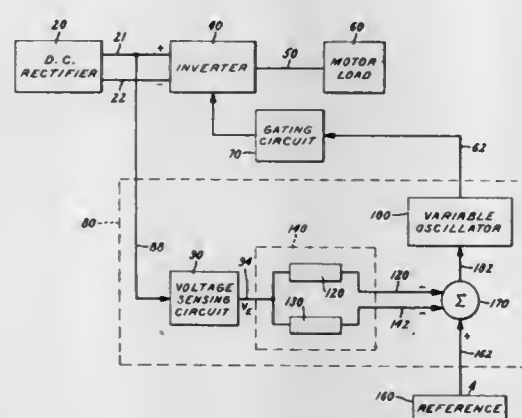
Edgar F. Chandler, Media, Pa., and Arthur M. Roberts, Cherry Hill, N.J., assignors to General Electric Company

Filed Mar. 4, 1969, Ser. No. 804,203

Int. Cl. H02m 5/44

U.S. Cl. 321-2

12 Claims



For enabling a variable frequency electric power inverter to ride through a temporary loss or reduction of input power, means is provided for sensing an excursion of DC bus voltage beyond a predetermined normal magnitude range and for deriving first and second signals respectively proportional to the magnitude of the excursion and to its integral, and the frequency of the inverter is varied according to the difference between a given signal and the sum of said first and second signals.

3,593,104
FREQUENCY CONVERTER PROVIDING EMPLOYABLE OUTPUT FREQUENCIES

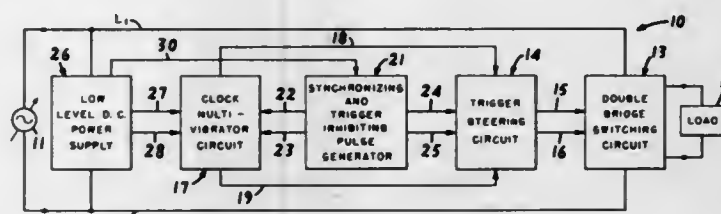
William W. Fisher, Woodstock, and John W. Pike, Endwell, both of, N.Y., assignors to Rotron Incorporated, Woodstock, N.Y.

Filed June 26, 1969, Ser. No. 836,758

Int. Cl. H02m 5/40

U.S. Cl. 321-4

11 Claims



A frequency converter for providing output frequencies to a load within a range of frequencies employable by the load includes a double bridge switching circuit having two controlled rectifier bridges connected across an input of a frequency ranging from within to greatly exceeding the range of output frequencies desired. A steering circuit alternately triggers the two bridges into conduction for alternate periods of rectification of opposite polarities when the input frequency exceeds the range of desired output frequencies to provide polarity reversal within the desired frequency range. For input frequencies employable by the load, the two bridges are alternately triggered with each reversal of input polarity thereby applying the input, substantially unaltered, to the load. Timing of the alternate triggering of the two bridges is provided by an astable multivibrator having a natural frequency lower than any frequency within the desired range of output frequencies and a pulse generator supplies output pulses in synchronization with the crossover points of the input to override the natural frequency of the multivibrator. Pulses produced by the pulse generator additionally are employed to inhibit triggering of the controlled rectifier bridges during input crossover to allow extinguishing of the component controlled rectifiers and these pulses are derived from a rectified unsmoothed DC signal of a low level DC power supply which provides DC bias potential for the multivibrator, pulse generator and steering circuit.

3,593,105

PHASE SEQUENCE INSENSITIVE FIRING CIRCUIT

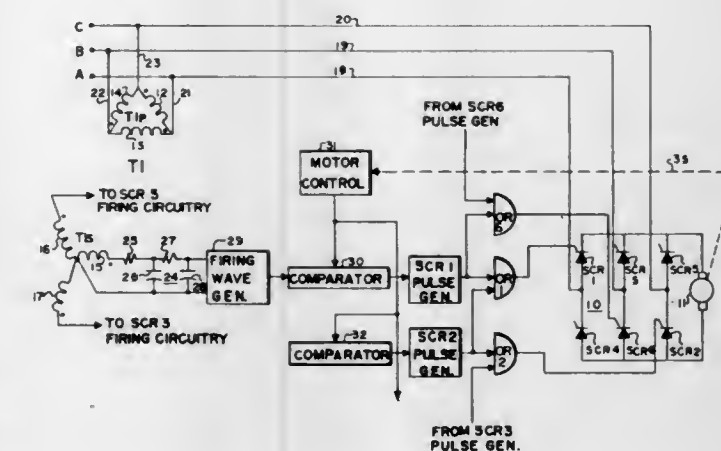
Paul D. Grohaugh, New Berlin, Wis., assignor to The Louis Allis Company

Filed Sept. 3, 1969, Ser. No. 854,881

Int. Cl. H02m 1/08; H02p 5/06

U.S. Cl. 321-5

8 Claims



A firing circuit for a phase controlled rectifier system employs the line to line phase voltage to be conducted by a pair of the thyristors of the phase controlled rectifier to develop the firing wave for controlling the firing of the thyristors. The

line to line phase voltage is phase shifted a constant amount to produce the appropriate firing wave regardless of the phase sequence or order of connection of the source to the phase controlled rectifier system. Coupling, as by an OR gate, between firing pulse generators for thyristors of a pair, insures that whichever of the two is controlled to fire first because of the sequence of the phases of the source, the firing pulse is also applied to the other thyristor of the pair to cause it to fire.

3,593,106

CYCLOCONVERTER WITH RECTIFIER BANK CONTROL FOR SMOOTH SWITCHING BETWEEN RECTIFIER BANKS

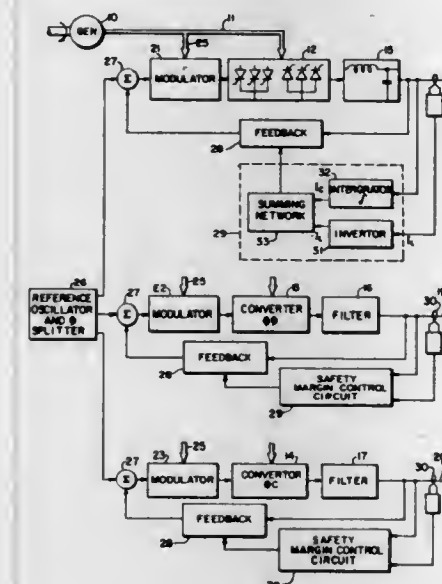
David Logan Lafuze, Waynesboro, Va., assignor to General Electric Company

Filed Mar. 11, 1970, Ser. No. 18,540

Int. Cl. H02m 5/30

U.S. Cl. 321-7

14 Claims



The invention relates to a cycloconverter of the type utilizing phase controlled rectifier banks for generating a constant output frequency signal from a variable frequency input signal. Switchover from the positive to the negative phase controlled rectifier banks is controlled to minimize distortion of the output signal, while yet at the same time, protecting the system against circulating currents between the rectifier banks. The zero crossover point of the converter output current is sensed and utilized to change the programmed output level of the rectifier banks so that there is smooth transition from one bank to the other even though the output levels of the two rectifier banks are normally programmed for different output levels to reduce or eliminate any circulating current between the rectifier banks. A further aspect of this invention lies in the manner in which the zero crossover of the converter current is sensed to minimize errors due to wave form distortion in the converter current. The converter current zero crossover is sensed indirectly by reconstructing the converter current from the load voltage and the load current and sensing the zero crossover of the reconstructed wave.

3,593,107

HIGH VOLTAGE MULTIPLIER CIRCUIT EMPLOYING TAPERED MONOLITHIC CAPACITOR SECTIONS

George E. Chilton, Haworth, and Karabet Simonyan, Saddle Brook, both of, N.J., assignors to Computer Diode Corporation, Fair Lawn, N.J.

Filed Aug. 19, 1969, Ser. No. 851,391

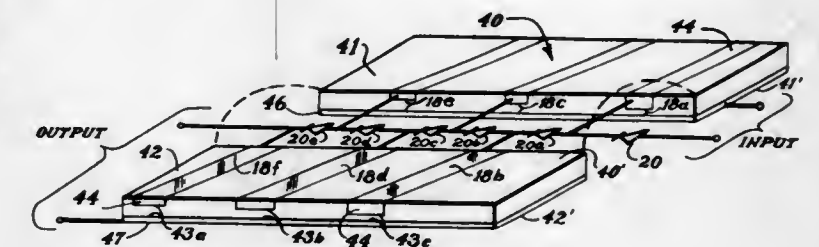
Int. Cl. H02m 7/00

U.S. Cl. 321-8 R

12 Claims

A high voltage multiplier circuit employing an integrated assembly of diode junctions and a pair of multiple capacitor sections. Each capacitor section is formed from a single

block of dielectric, and the individual capacitors are arranged with dielectric portions of varying thickness, the



thickness being increased to accommodate the higher voltages applied to successive cascaded sections.

3,593,108

AUTOMATICALLY REGULATED DIRECT CURRENT GENERATING SYSTEM

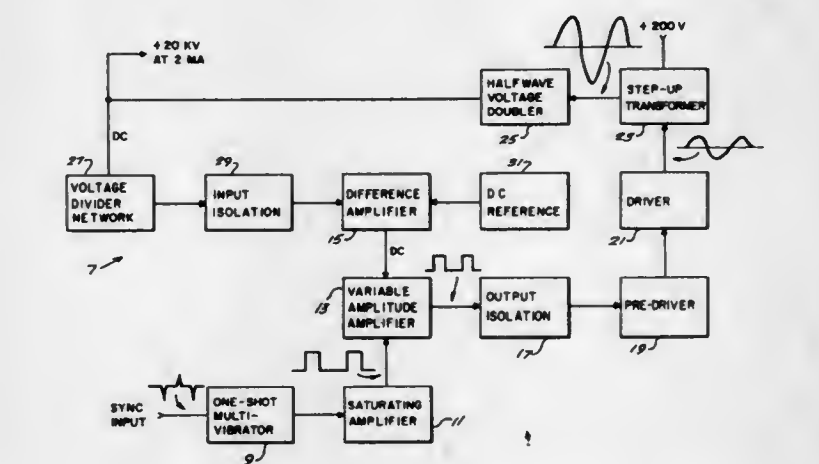
Michael E. Halleck, Boulder, Colo., assignor to Ball Brothers Research Corporation, Boulder, Colo.

Filed Apr. 1, 1969, Ser. No. 812,188

Int. Cl. H02m 7/00

U.S. Cl. 321-18

8 Claims



An automatically regulated direct current generating system wherein the amplitude of a square wave signal is controlled by an error voltage derived from a direct current output signal produced by coupling the amplitude controlled square wave signal through an isolation stage and drives to a transformer where a sine wave is produced and the output rectified. The direct current signal is a high voltage, high current signal suitable for use in providing DC voltages to a cathode-ray tube in a TV system.

3,593,109

TRANSISTOR INVERTER WITH SATURABLE WINDING AND SERIES CAPACITOR FOR FORCED SWITCHING

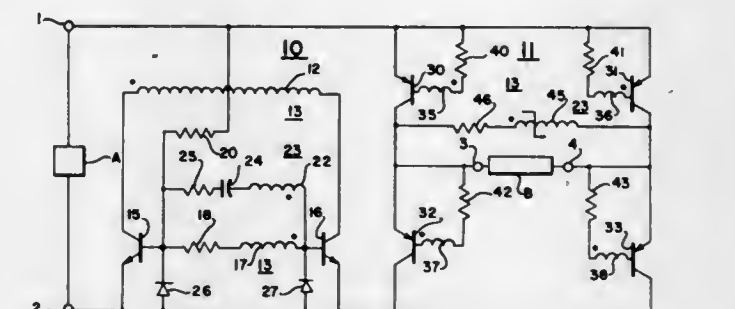
Armistead L. Wellford, Raleigh, N.C., assignor to General Electric Company

Filed Nov. 25, 1969, Ser. No. 879,874

Int. Cl. H02m 7/52; H03k 3/28

U.S. Cl. 321-45 R

5 Claims



A transistor inverter circuit is provided having a current drive arrangement in which first and second transistors are

alternately rendered conductive to switch main transistors in the inverter circuit. A winding of a saturable reactor and a capacitor are connected in series between the bases of the transistors so that during one half-cycle the capacitor charges in a first direction and, when the reactor saturates, it discharges to turn the first transistor on and the second transistor off. During the next half-cycle, the capacitor charges in the opposite direction, discharging to turn the second transistor on and the first transistor off when the reactor saturates. The reactor winding is coupled to another winding in which the current flow reverses during each half-cycle of inverter output frequency.

3,593,110 DIRECT-CURRENT GENERATOR FOR SUPERCONDUCTING CIRCUITS

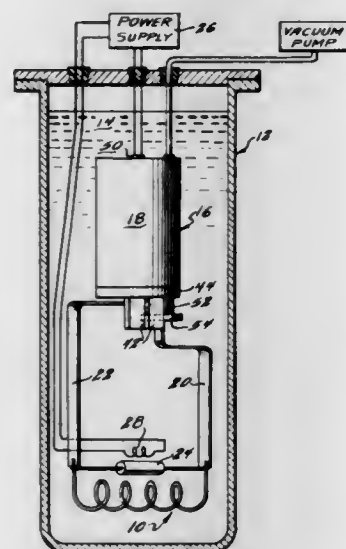
Rudolf P. Huebener, Downers Grove, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 17, 1969, Ser. No. 858,828

Claims priority, application Germany, Oct. 18, 1968, P 18 03 804.5

Int. Cl. H02n 11/00

U.S. Cl. 322-2



A DC generator for a superconducting circuit includes a thermoelectric material member with superconductors connected across the member and the superconducting circuit. A heater attached to one end of the thermoelectric member creates a potential gradient along the member while the member is subject to an environmental temperature which maintains the superconductors in a superconducting state.

ERRATUM

For Class 322-73 see:
Patent No. 3,593,121

3,593,111 VOLTAGE REGULATING DEVICE UTILIZING SERIES TRANSISTORS CONTROLLED BY MEANS INCLUDING ZENER DIODES

Herbert Moerlein, Chicago, Ill., assignor to Chicago Condenser Corporation, Chicago, Ill.

Filed June 4, 1969, Ser. No. 830,251

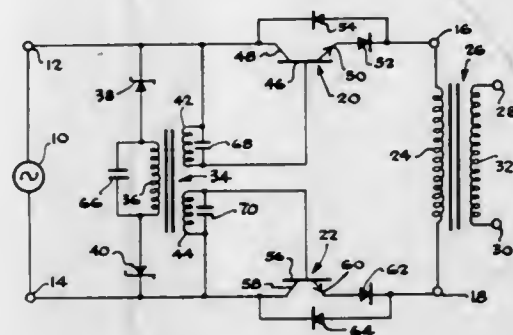
Int. Cl. G05f 1/44; H02m 7/20

U.S. Cl. 323-17

10 Claims

A device for controlling the peak amplitude of an alternating current wave utilizing an alternating current control circuit. The alternating current control circuit employs a transistor connected between the input and output terminals of the device for reducing the amplitude of the output to a controlled level in response to a control signal impressed on the transistor. The control signal is generated by a zener diode having a breakdown potential at the controlled level connected in series with the primary of a control transformer across the input terminals, the output of the transformer

being connected across the transistor to oppose the alternating current input impressed thereon. Duplicate circuits are



used between corresponding input and output terminals of the device.

3,593,112 SOLID-STATE AC POWER CONTROL APPARATUS

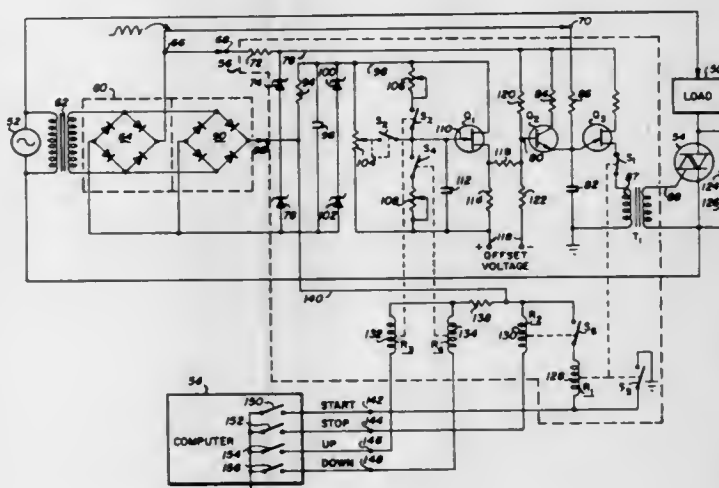
John C. Coats, and George W. Wilson, III, both of Garland, Tex., assignors to Varo, Inc., Garland, Tex.

Filed Dec. 22, 1969, Ser. No. 887,127

Int. Cl. G05f 1/44

U.S. Cl. 323-24

10 Claims



A solid-state AC power control circuit intended for use with digital computers and which can increase or decrease, and turn on or turn off the AC power supplied to a work load in response to the application of computer generated electrical signals to the proper input terminal. The amount of power change is determined by certain characteristics of the signals and the RC time constant of a memory circuit in the device. In addition to input terminals for receiving power increase and decrease input signals, two other input terminals are provided for allowing the controlled power to be turned full off or back on to a preset level by the computer without disturbing the memory circuit.

3,593,113 VOLTAGE REGULATORS USING PLANAR TRANSISTORS WITH RADIO INTERFERENCE SUPPRESSION

David Wiley, Walsall, England, assignor to Joseph Lucas Industries Limited, Birmingham, England

Filed July 24, 1969, Ser. No. 844,291

Claims priority, application Great Britain, Aug. 1, 1968, 36718/68

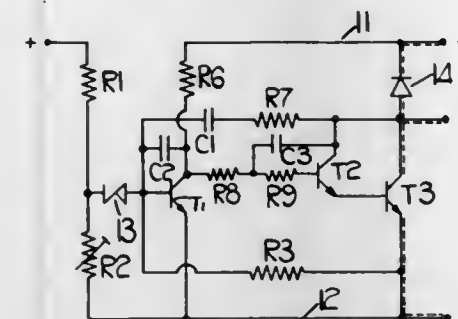
Int. Cl. H02p 9/30; H02k 11/00

U.S. Cl. 322-28

1 Claim

A voltage regulator for a battery charging system has a first transistor which when conductive permits current to flow in a field winding of a generator used to charge the battery. A second transistor has its collector-emitter path connected in a circuit across the base emitter path of the first transistor so that conduction of the second transistor removes base cur-

rent from the first transistor. The second transistor is controlled by voltage sensitive means in its base circuit and the collector of the second transistor is connected to the base of



the first transistor through a pair of resistors in series, the junction of the resistors being connected through a capacitor to the collector of the first transistor to minimize radio interference.

3,593,114 ELECTRICAL ISOLATING TRANSFORMER

Alexandre Pierson, Le Chalet 38, Biviers, France

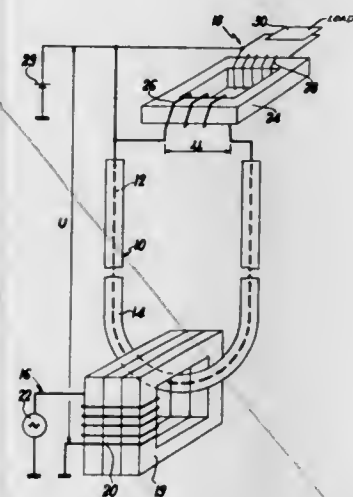
Filed Mar. 18, 1969, Ser. No. 808,079

Claims priority, application France, Mar. 20, 1968, 144633

Int. Cl. G05f 3/00; H02p 13/04

U.S. Cl. 323-44

8 Claims



An isolating transformer is described for transmitting AC electrical power from a power-supply circuit at ground potential to a load circuit which is at DC high voltage; the transformer comprises a single transfer loop equipped with insulation which withstands the DC voltage, which loop is inductively coupled to a first of said electrical circuits by way of a magnetic circuit completely surrounding the said turn, and inductively coupled to the other of said electrical circuits and at DC potential thereof.

3,593,115 CAPACITIVE VOLTAGE DIVIDER

Herbert Dym, and Robert V. Mazza, both of Mahopac, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

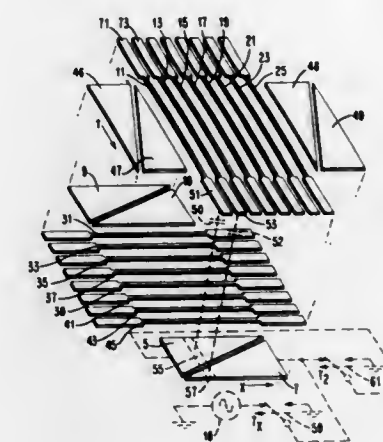
Continuation-in-part of application Ser. No. 837,820, June 30, 1969, now abandoned. This application Sept. 10, 1969, Ser. No. 856,745

Int. Cl. H01g 7/00; G08c 19/10, 21/00

U.S. Cl. 323-93

34 Claims

A capacitive voltage divider arrangement for driving a position transducer. Individual ones of a first plurality of individual capacitor plates are respectively capacitively coupled to individual ones of a second like plurality of capacitance plate areas, the second plurality of capacitance areas being conductively connected together and varying in area from plate area to plate area. Individual ones of a third plurality of capacitance plate areas, which are conductively



lines, individual ones of which are connected to respective individual ones of the first plurality of plates, varies in accordance with the varying in areas from plate area to plate area of the second plurality of plate areas.

3,593,116 NUCLEAR MAGNETIC LOGGING APPARATUS COIL CONFIGURATION

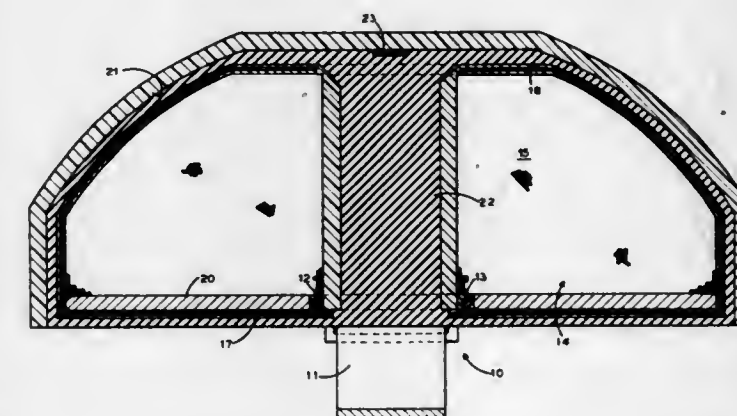
Willie C. Culpepper, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed July 29, 1969, Ser. No. 845,786

Int. Cl. G01n 27/78

U.S. Cl. 324-0.5

2 Claims



An illustrative embodiment of the invention selectively shortens the relaxation time of the signal from precessing protons observed with a nuclear magnetic logging tool. The region affected is located immediately adjacent to the formation side of the polarizing-receiving coil, thereby reducing the adverse response resulting from failure of the coil to be positioned closely against the face of the formation. This improvement is obtained through a vertical strip that contains a ferromagnetic material that is located inside of the tool housing generally coextensive with the coils.

3,593,117 SAMPLE CELLS FOR ELECTRON-RESONANCE TESTS

Gerhard Koch, Jena, Germany, assignor to VEB Carl Zeiss Jena, Jena, Germany

Filed Mar. 12, 1969, Ser. No. 806,788

Int. Cl. G01n 27/78

U.S. Cl. 324-0.5

1 Claim

A sample cell for the reception of highly polar samples to be tested for EPR comprises two parts which are so fitted

together as to form a tube of rectangular cross section inside for affecting current conditions in a sensing circuit, the characteristics of the circuit being monitored by a variable



and annular cross section outside. The cell is easy to disassemble for cleaning.

3,593,118

APPARATUS FOR MEASURING THE ELECTRICAL CONDUCTIVITY OF LIQUIDS HAVING DIELECTRIC-FACED ELECTRODES

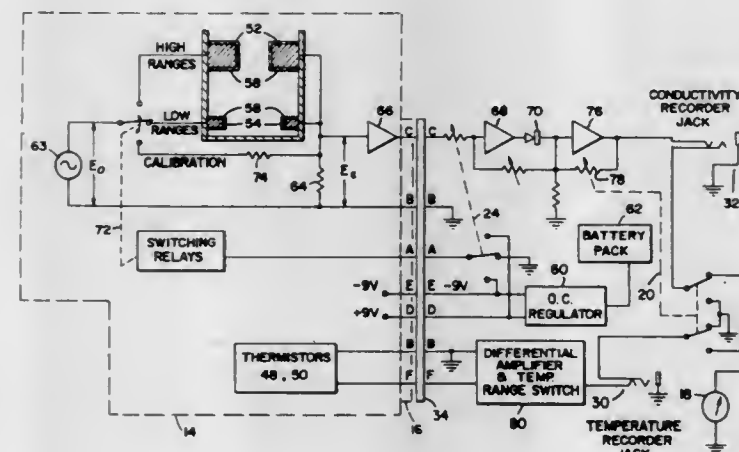
Nathan H. Chaney, Fountain Valley, and Jerry L. Dillon, Morro Del Mar, both of, Calif., assignors to Montedoro Corporation, San Luis Obispo, Calif.

Filed Sept. 30, 1968, Ser. No. 763,597

Int. Cl. G01n 27/42

U.S. Cl. 324-30 R

4 Claims



A conductivity meter for measuring the conductivity of liquids can be made to give a reliable, direct conductivity reading on a linear scale by impressing an AC signal across a sample of the liquid between a pair of dielectric-faced, liquid-proofed electrodes, which together with the liquid form a lossy capacitor, and then proceed to measure the loss by an AC ohmmeter or servoed bridge circuit. A linear conductance scale on the ohmmeter is obtained by making the loss the major impedance in the circuit.

3,593,119

ELECTRONIC TITRIMETER

Thomas W. Brum, North Madison, and Frank E. Cochran, Menton, both of, Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

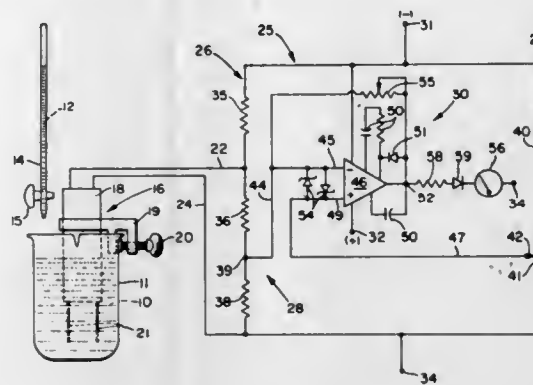
Filed May 28, 1969, Ser. No. 828,596

Int. Cl. G01n 27/42

U.S. Cl. 324-30 R

3 Claims

Apparatus for electronically standardizing titration techniques by evaluating end point conditions utilizing a high gain, normalized, conductivity sensor comprising a pair of platinum electrodes immersed in the solution being titrated



gain integrated circuit operational amplifier and DC meter indicating combination.

3,593,120

APPARATUS MOVABLE RELATIVE TO AN ARTICLE FOR CARRYING A TESTING PROBE AT THE SURFACE OF THE ARTICLE

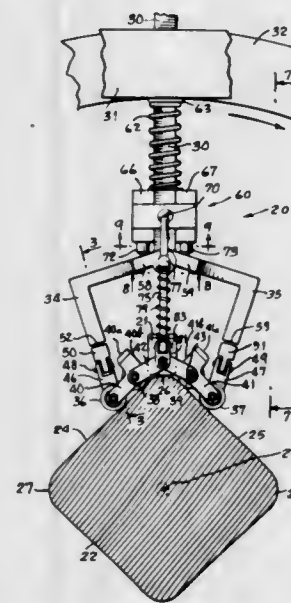
Joseph M. Mandula, Jr., Seven Hills, and Jack C. Irving, Mentor, both of, Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio

Filed June 3, 1969, Ser. No. 829,872

Int. Cl. G01v 33/00

U.S. Cl. 324-34 R

26 Claims



A carrier for a testing probe, e.g. for eddy current testing, comprising a yoke having a pair of arms flexibly connected at one end and spanned between their other ends by a chain of rolling members supporting the probe so that by means, e.g. spring loaded, which engages the yoke at its flexible connection, the rolling chain can travel on the surface of an article, and over corners or curves, holding the probe in testing contiguity. Supplemental spring-biased means cooperate in guiding the probe, with articulated structure in the carrier to accommodate other surface irregularity, and means are indicated whereby relative rotation is effected between the article and the carrier about an axis through the article, and likewise relative axial displacement, so that the probe may scan the surface of a billet, cylinder or other article along a helical path.

3,593,121

POWER SUPPLY ALTERNATOR HAVING FIELD CURRENT CONTROL AND A VARIABLE TRANSFORMER CONNECTED ACROSS THE OUTPUT

William A. Jones, 45 Lyman Road, Brookline, Mass.

Filed Apr. 30, 1969, Ser. No. 820,445

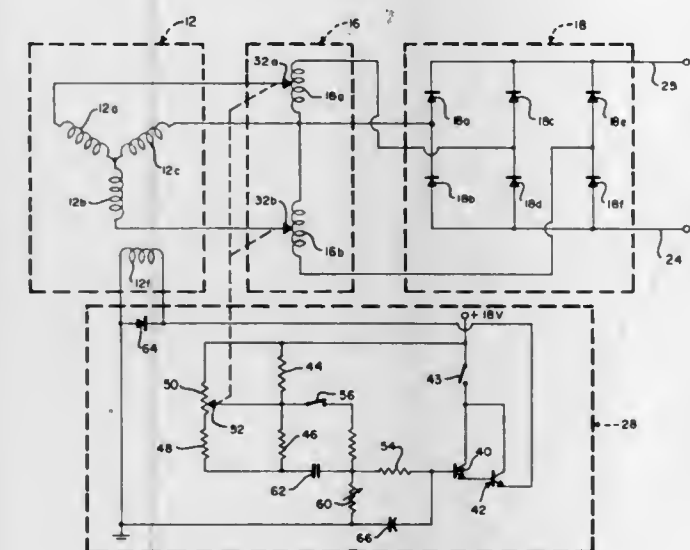
Int. Cl. H02p 9/30

U.S. Cl. 322-73

6 Claims

A power supply for use with a tungsten inert gas or plasma-type arc-welding machine comprises an alternator, a variable

transformer connected to the alternator output, and control means for adjusting the field strength of the alternator to regulate the current output to the welding apparatus. The control means determines the transformation ratio of the transformer for the purpose of maintaining the open circuit



voltage at the transformer output terminals at a preselected level which will provide optimum arc striking regardless of the selected welding current. The field control means may also include a variable exponential decay circuit to adjust the current flow in the alternator at the end of a welding cycle.

3,593,122

METHOD AND APPARATUS FOR IDENTIFYING HARDSPOTS IN MAGNETIZABLE MATERIAL

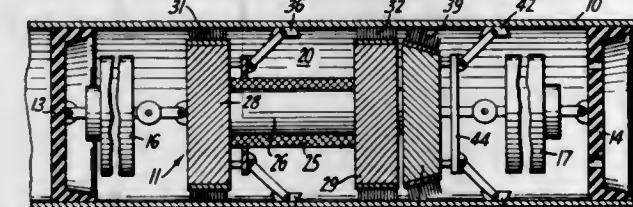
Robert D. Barton, Houston, and Fenton M. Wood, Sugarland, both of, Tex., assignors to AMF Incorporated, New York, N.Y.

Filed Mar. 27, 1969, Ser. No. 810,953

Int. Cl. G01r 33/12

U.S. Cl. 324-37

13 Claims



Hardspots are detected in a steel pipeline by noting the unique relationship existing between the relative magnitudes of the flux leakage detection signals caused by different types of anomalies, the compared signals, being produced by separately inspecting the pipeline with an active magnetic flux field and with a residual magnetic flux field.

3,593,123

DYNAMO ELECTRIC MACHINES INCLUDING ROTOR WINDING EARTH FAULT DETECTOR

Alan Charles Williamson, and Leonard George Wardle, both of Stafford, England, assignors to The English Electric Company Limited, London, England

Filed Mar. 17, 1969, Ser. No. 807,550

Claims priority, application Great Britain, Mar. 15, 1968, 12636/68

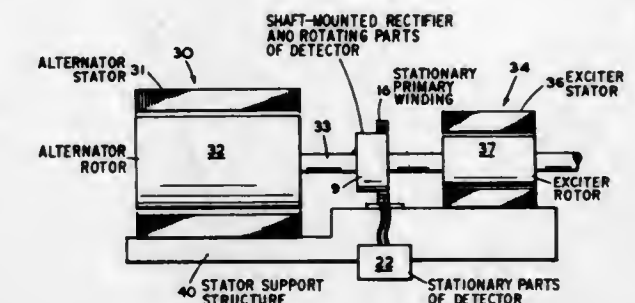
Int. Cl. G01r 31/02

U.S. Cl. 324-51

4 Claims

A dynamo electric machine having a rotor with a field winding energized by a rotatable rectifier network is provided with a transformer the secondary winding of which rotates with the rotor and the primary winding is stationary.

In conjunction with ancillary apparatus this enables a flow of fault current between the rotor winding and rotor body to be



detected by consequent changes in an electrical quantity at the stationary primary winding.

3,593,124

METHOD AND DEVICE FOR DETECTING AND LOCALIZING PHASE-TO-PHASE AND PHASE-TO-EARTH FAULTS WHICH OCCUR IN A SECTION OF A POLYPHASE ALTERNATING CURRENT LINE

Gilbert Moise Cahen, Paris; Henri Georges Guyard, Paris, and Michel Henry Pierre Souillard, Fontenay-aux-Roses, all of, France, assignors to Compagnie Des Compteurs

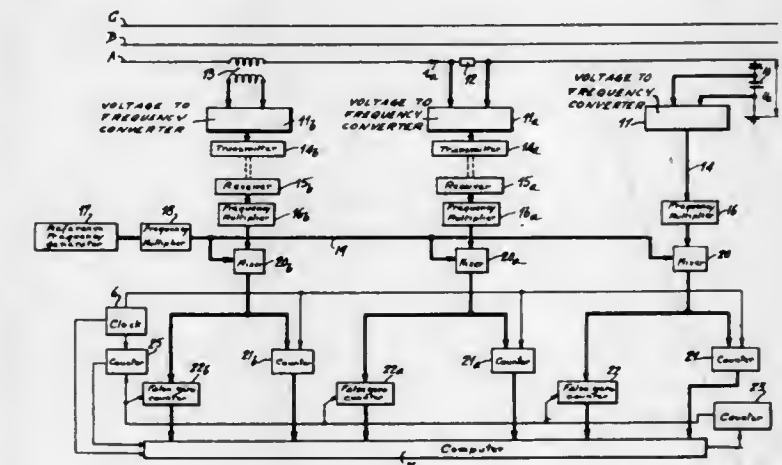
Filed June 3, 1968, Ser. No. 734,027

Claims priority, application France, June 1, 1967, Mar. 20, 1968, 108,704; 144,506

Int. Cl. G01r 31/08

U.S. Cl. 324-52

16 Claims



A method for detection of faults in a polyphase alternating current transmission line system includes the steps of measuring the voltage, current and derivative of the latter for each phase, formulating the equations for the relationship between the measured values of different phases in accordance with Ohm's law, transforming these equations into forms having straight line characteristics by application of numerical coefficients, and repeating the foregoing steps at regular intervals to obtain successive straight lines which intersect in a single point and the coordinates of which characterize the operation of the system thus to show line operation in either a normal manner or the existence of a phase-to-phase or phase-to-earth fault. The related apparatus for carrying out the method includes various instruments for measuring the voltage, current and derivative of the current at regular intervals, instruments for recording the data and a computer for processing the data thus obtained.

3,593,125

CRYSTAL TESTING APPARATUS FOR USE WITH AN OSCILLOSCOPE

Peter G. Wilhelm, 6710 Elroy Place, Oxon Hill, Md., and Harry T. Shover, 4683 Cedar Ridge Drive, Oxon Hill, Md.

Filed July 16, 1969, Ser. No. 842,318

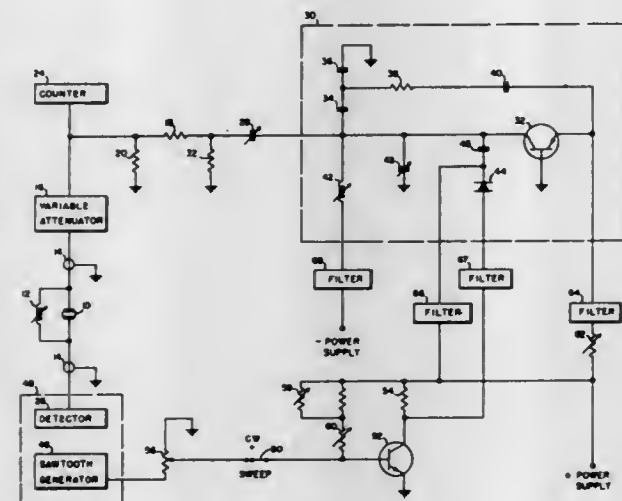
Int. Cl. G01r 27/00

U.S. Cl. 324-56

2 Claims

Apparatus for quickly determining the characteristics of a crystal. An oscillator, the frequency range of which is varied

by either varying or inserting different impedances in the tank circuit, energizes the crystal being tested. The sawtooth sweep signal of an oscilloscope is used to vary the



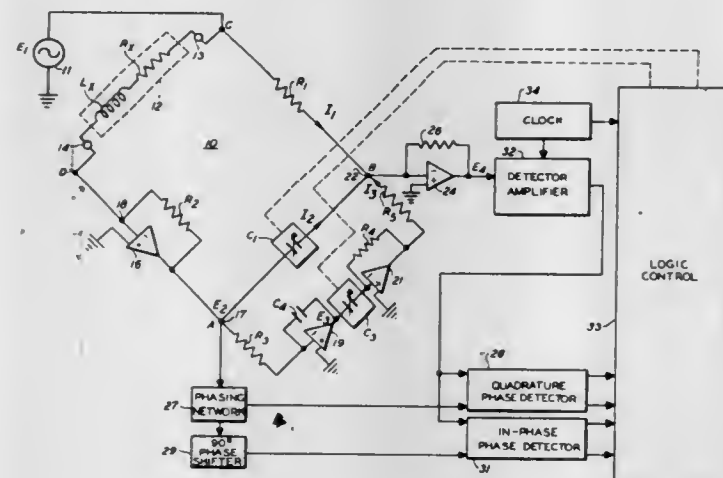
capacitance of a diode which in turn causes the oscillator to sweep through the frequency range broadly set by the tank circuit impedance.

3,593,126 AUTOMATIC SELF-BALANCING OPERATIONAL AMPLIFIER IMPEDANCE BRIDGE

Howard V. May, Winston-Salem, N.C., assignor to Western Electric Company Incorporated, New York, N.Y.
Filed May 16, 1969, Ser. No. 825,266
Int. Cl. G01n 27/00

U.S. Cl. 324-57 R

6 Claims



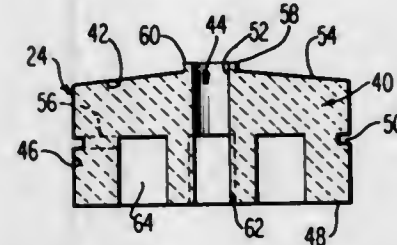
An automatic self-balancing bridge measures the parameters of series L-R or C-R impedances. The bridge proper utilizes operational amplifiers to provide current conversion in one of its product arms and integration and current inversion in its standard arm. The bridge standards may be banks of three terminal capacitors or resistors, which are switched in automatically by relays through a logic-controlled balancing system. The automatic balancing system is based on the phase characteristics of the bridge circuit and includes two phase-sensitive detectors, one for one parameter of the bridge which may be inductance or capacitance and one for resistance. The phase-sensitive detectors control the counting directions of two banks of up-down decade counters, the outputs of which drive the relays and two digital display indicators for the parameters to be measured. The bridge standards may be operated at a fixed frequency independent of the test frequency by providing the apparatus with a heterodyning means.

3,593,127 DIRECTIONAL DISPLACEMENT CAPACITIVE PICKUP

Eugene R. Lucka, Columbus, Ohio, assignor to Reliance Electric and Engineering Company, Columbus, Ohio
Filed June 12, 1968, Ser. No. 736,325
Int. Cl. G01n 27/26

U.S. Cl. 324-61

21 Claims



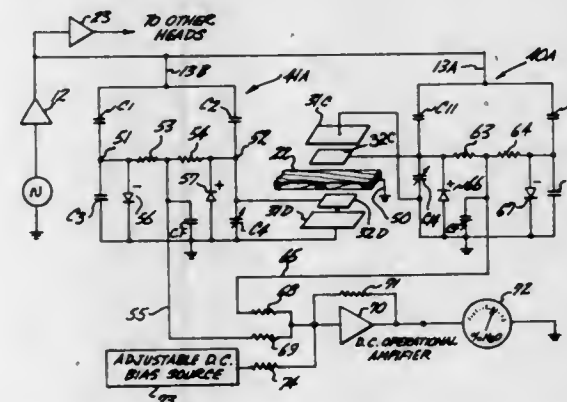
There is disclosed herein a noncontact proximity-sensitive transducer having improved directional properties formed of an elongated rodlike pickup adapted to provide a distance-sensitive variable capacitance and an annular shielding member fitted onto the end of the pickup. The shielding member includes a conducting plane electrically isolated from the pickup, and maintained at the same electrical potential as the object under inspection. The capacity variation serves as a frequency control element to modulate the output in a high frequency oscillator in accordance with the distance variations being measured.

3,593,128 MOISTURE-CONTENT-MEASURING SYSTEM EMPLOYING A SEPARATE BRIDGE CIRCUIT FOR EACH SENSING ELECTRODE THEREOF

William D. Perry, Longview, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed May 21, 1969, Ser. No. 826,569
Int. Cl. G01r 27/26

U.S. Cl. 324-61

10 Claims



The application discloses a moisture-content-measuring system utilizing shielded electrodes arranged in pairs on opposite sides of the material and wherein adjacent pairs of electrodes are energized in an out-of-phase relationship. Each electrode in each pair constitutes a portion of an individual bridge circuit with the arrangement being such that an output signal proportional to the moisture content of the material is derived from each electrode. The signals from each pair of electrodes are then combined and used in an overall system arrangement for determining moisture content. The effects of long cable runs and associated undesirable capacitance effects are avoided through the use of the system disclosed.

3,593,129 ELECTRICAL TESTING APPARATUS

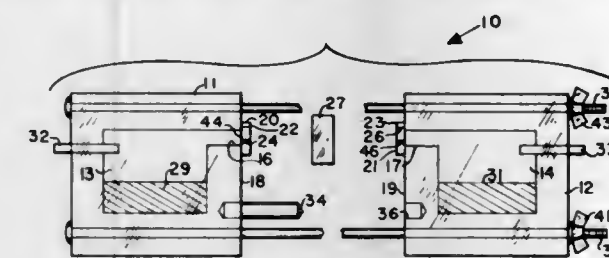
Robert M. Wade, Wabash; Robert M. Hazelett, Marion, and Walter R. Ring, Montpelier, all of, Ind., assignors to Anaconda Wire and Cable Company
Filed May 21, 1969, Ser. No. 826,420
Int. Cl. G01r 27/02

U.S. Cl. 324-62

3 Claims

For electrically testing articles, such as specimen slabs of plastic, where good electrical contact is required over large

areas of the surface, the present invention provides contact apertures between which the specimen can be pressed and



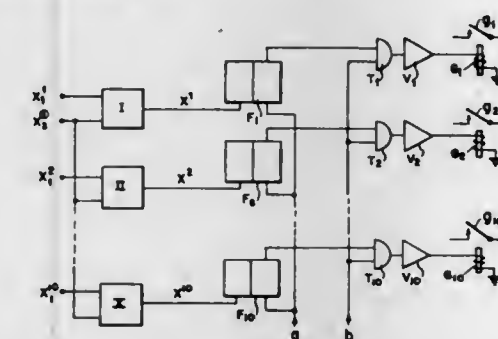
which are then filled with mercury by changing the position of the apparatus.

3,593,130 CIRCUIT FOR A SORTING UNIT OF A PROGRAMMED AUTOMATIC MEASURING DEVICE ESPECIALLY ADAPTED FOR TESTING OF INTEGRATED CONTROL CIRCUITS

Helmut Trautmann, Dresden, Germany, assignor to Arbeitsstelle für Molekularelektronik Königsbrucker Landstrasse, Dresden, Germany
Filed Oct. 1, 1968, Ser. No. 764,100
Int. Cl. G01r 17/02

U.S. Cl. 324-73 R

3 Claims



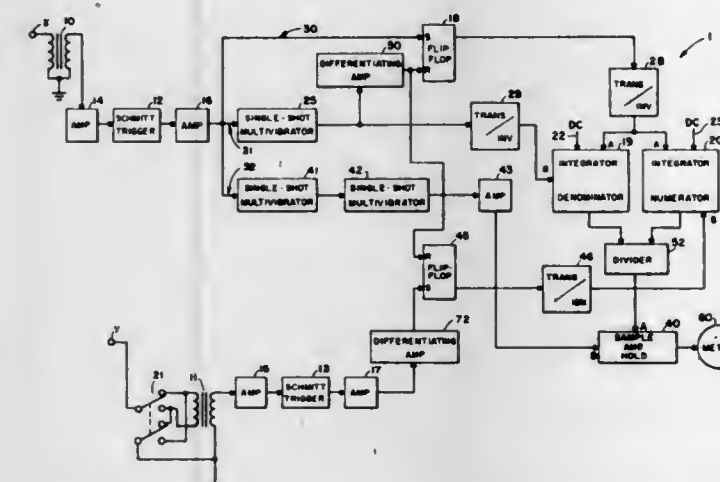
A circuit for a programmed automatic measuring device, especially for integrated circuit testers comprising a plurality of input logics for determining the conformity of measured test results with predetermined standards, with two parallel AND gates, one with input negation, and an OR gate with output negation arranged in series with the AND gates; flip-flops in series with the input logics; and means for automatically conforming the test result to the respective standard if the respective test results is not to be evaluated.

3,593,131 MEANS AND METHOD FOR MEASURING THE PHASE OF AN ALTERNATING ELECTRICAL SIGNAL

Henry Mittel, Jr., Arlington, and Charles J. Stalmach, Jr., Grand Prairie, both of, Tex., assignors to LTV Aerospace Corporation, Dallas, Tex.
Filed June 2, 1969, Ser. No. 829,628
Int. Cl. G01r 25/00

U.S. Cl. 324-83 A

17 Claims



A method and circuitry for measuring the phase difference between two alternating electrical signals wherein one of the

signals maintains parameters which are known and the second of the signals bears an unknown, varying phase relationship with respect to the first signal. The integrate modes of a pair of three-mode integrators are simultaneously initiated by a signal responsive to an initial zero-crossing point of a half-cycle of a reference signal, and the hold mode of one of the integrators is initiated by a signal responsive to the next half-cycle zero-crossing point of the reference signal; the hold mode of the second integrator is initiated by a signal responsive to the initial zero-crossing point of a half-cycle of a variable-phase signal. The output signals from the integrators are coupled to an analog divider which output is selectively sampled by sample-and-hold circuitry, and the output signal from the sample-and-hold circuitry is displayed on coupled indicating means. The command signal to the sample-and-hold circuitry is triggered by means responsive to the zero-crossing point of the half-cycle reference signal.

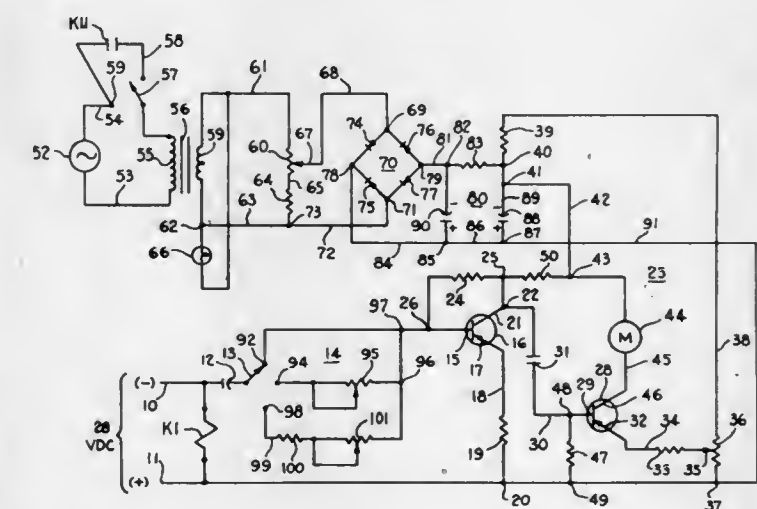
3,593,132 RIPPLE INDICATOR

Walter H. Houck, and James K. Davidson, both of Titusville, Fla., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Apr. 18, 1969, Ser. No. 817,481
Int. Cl. G01r 19/00, 19/22

3 Claims

U.S. Cl. 324-102

6 Claims



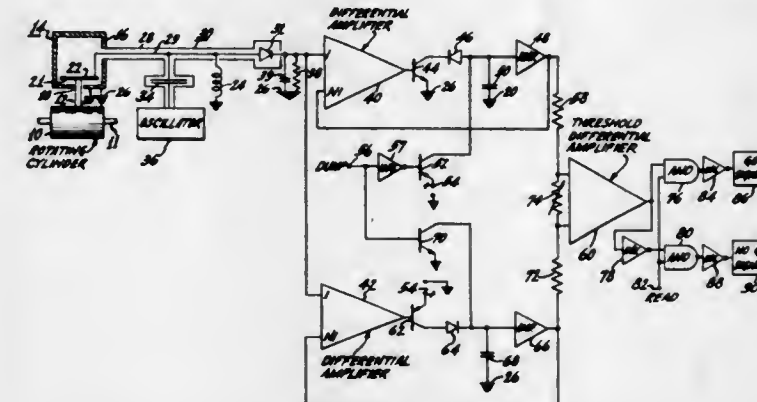
A circuit for monitoring a power supply so as to determine when the voltage level of the power supply deviates. The circuit includes an isolating capacitor which blocks the DC portion of the power supply and allows the AC ripple to pass therethrough. This AC ripple is fed to a balanced circuit which detects variations therein for indicating when the power supply deviates from a predetermined level.

3,593,133 APPARATUS FOR COMPARING TWO DIMENSIONS

Daniel A. Wisner, Detroit, Mich., assignor to RCA Corporation
Filed Dec. 27, 1967, Ser. No. 693,776
Int. Cl. G01r 19/16, 7/00

U.S. Cl. 324-103 R

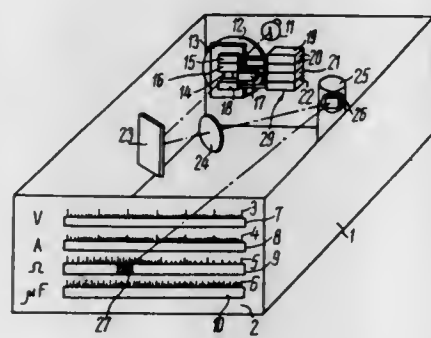
4 Claims



An apparatus is provided for storing a voltage corresponding to one dimension, for storing a second voltage cor-

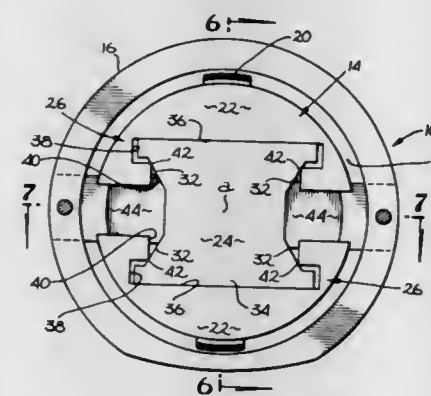
responding to a second dimension, for comparing two voltages, and for indicating whether the difference between the two voltages is within an acceptable range. Such an apparatus can be used to indicate whether the maximum and the minimum diameters of a round object are close enough in value for the round object to be acceptable for use in applications where perfect roundness is desirable.

3,593,134
MULTIMETER COMPRISING ILLUMINATING MEANS WITH A DIAPHRAGM
 Boris Abelevich Selber, ulitsa Rentgena, 15/13, kv. 53, Leningrad, U.S.S.R.
 Filed Mar. 11, 1969, Ser. No. 806,108
 Claims priority, application U.S.S.R., Mar. 25, 1968, 1228501
 Int. Cl. G01r 15/12, 13/38
 U.S. Cl. 324—115 3 Claims



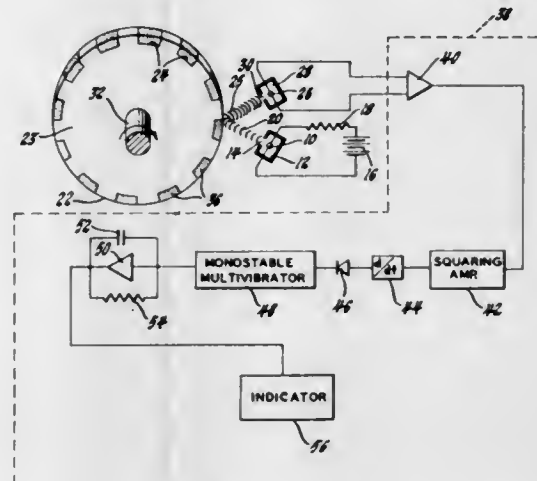
A multimeter having an optical pointer capable of being switched from one scale to another in compliance with the variable to be measured and comprising an illuminating assembly with a diaphragm and an active part or movement with a movable mirror intended for directing the optical pointer onto scales, wherein the illuminating assembly of the selector type is linked to a scale changer, provision being made for the scale changer to shift the light beam emerging from the aperture of the diaphragm into different positions corresponding to the selected scale and to the light beam to fall on the movable mirror of the active part on movement at different angles, depending upon the position selected.

3,593,135
RING CORE METER MOVEMENT
 Edwin L. Schwartz, Los Angeles, Calif., assignor to Rite Autotronics Corporation, Los Angeles, Calif.
 Filed Apr. 1, 1969, Ser. No. 812,197
 Int. Cl. G01r 1/16
 U.S. Cl. 324—151 A 5 Claims



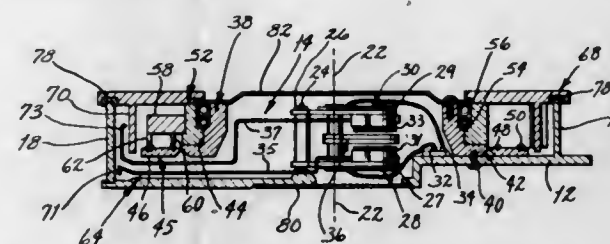
An electrical current responsive movement for ring core moving coil meters and the like wherein the magnet and its pole pieces have mating interfitting formations, such as tongue and groove formations, which join the pole pieces to the magnet without the aid of solder, adhesive, or other fastening means.

3,593,136
SENSING ROTATIONAL SPEED BY AMPLITUDE MODULATING A CONTINUOUS MICROWAVE SIGNAL
 Frederick W. Chapman, Birmingham; Frank E. Jamerson, Troy, and Nils L. Muench, Bloomfield Hills, all of, Mich., assignors to General Motors Corporation, Detroit, Mich.
 Filed Sept. 11, 1969, Ser. No. 857,135
 Int. Cl. G01p 3/36
 U.S. Cl. 324—175 1 Claim



A rotating member speed sensor in which microwaves are beamed toward the rotating member so as to be reflected from a surface of the rotating member to a detector. The surface of the rotating member has grooves therein so as to amplitude modulate the beamed microwaves such that the reflected microwaves as sensed by the detector have a frequency of modulation corresponding to the speed of rotation of the rotating member.

3,593,137
PROCESS CONTROL INSTRUMENT INCLUDING ROTATABLE INDICIA CARRYING MEMBER FOR CHANGING ELECTRICAL OUTPUT SIGNALS
 Robert F. Wall, Chesterfield, Mo., assignor to Monsanto Company, Saint Louis, Mo.
 Filed Sept. 23, 1968, Ser. No. 761,607
 Int. Cl. G01r 1/00
 U.S. Cl. 324—157 4 Claims

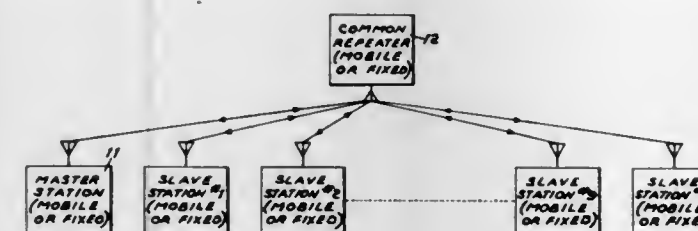


A display and control instrument consisting of a housing member in which an annular wheellike indicia-carrying member is rotatably mounted. The indicia-carrying wheel member includes leaf contacts which are arranged to be slidably rotated in contact with potentiometer means rigidly secured to the instrument housing member. A plurality of meter movements are coaxially mounted within the housing member such that their pointers or indicators are freely movable in arcuate paths in close proximity to a scale located on the indicia-carrying member.

3,593,138
SATELLITE INTERLACE SYNCHRONIZATION SYSTEM
 James G. Dunn, Montclair; Irving A. Krause, Nutley; Irving Lane Fletcher, East Rutherford, N.J.; Walter K. Allen, Silver Spring, and John E. Miller, Wheaton, Md., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
 Filed July 31, 1968, Ser. No. 749,121
 Int. Cl. H04b 7/20
 U.S. Cl. 325—4 14 Claims

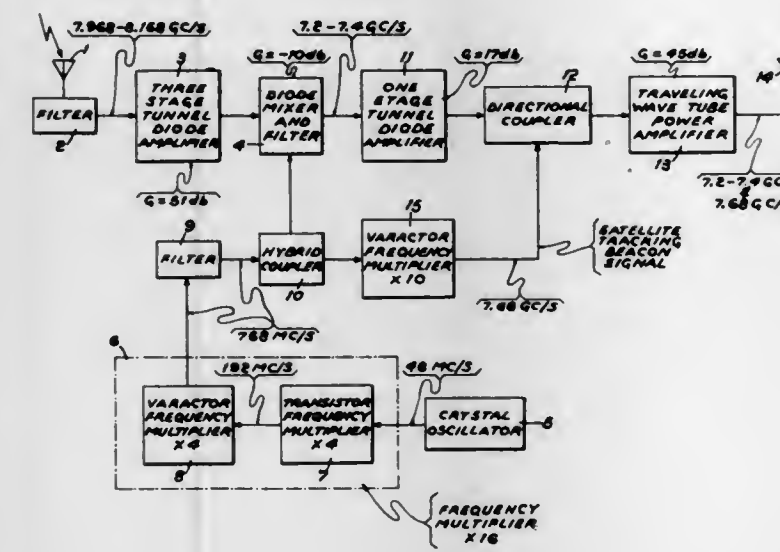
A master station and a plurality of slave stations include synchronization equipment to enable each of the stations to

have access to a common repeater in a different time slot of a time division multiplex format at the repeater, there being motion between the stations and the repeater. The master station propagates a sync burst through the repeater. Each of the stations receives this sync burst from the repeater and adjusts the frequency of the timing signals therein to compensate for the doppler shift experienced in the propagation path from each of the stations to the repeater so that the desired frequency of the timing signals is present in the repeater.



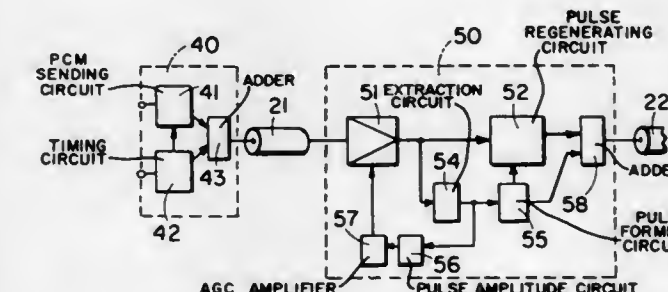
Each of the slave stations also propagates different low power level, pseudo noise code ranging signal through the repeater back to itself which is used to adjust the phase of the timing signals digitally and in an analog manner by means of a motor-driven phase shifter to account for the changing range between the repeater and each of the slave stations so that a data burst of each of the slave stations appears in the proper time slot of the time division multiplex format at the repeater.

3,593,139
TRANSPONDER
 David E. Hershberg, Livingston, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
 Filed June 28, 1968, Ser. No. 740,870
 Int. Cl. H04b 1/59; 7/14
 U.S. Cl. 325—9 8 Claims



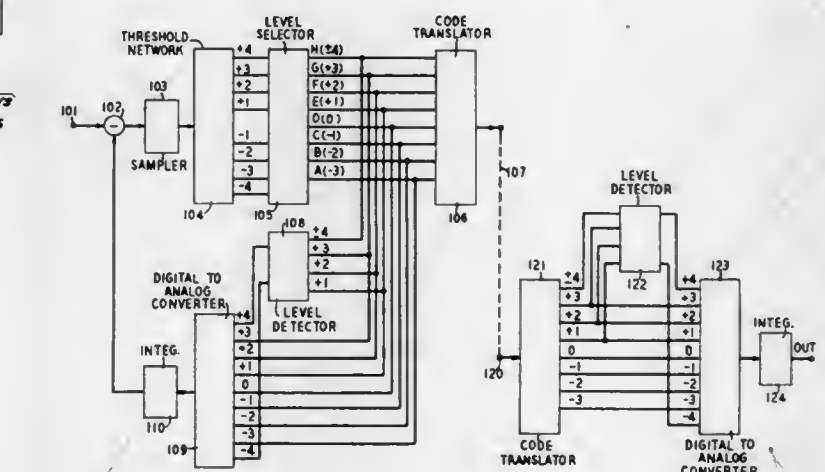
An RF signal in one RF range is amplified and amplitude limited by a three stage tunnel diode amplifier, a mixer and local oscillator operate on the RF signal output of the three stage amplifier to translate the RF signal to a different RF range, a single stage tunnel diode amplifier amplifies and amplitude limits the output of the mixer and a TWT amplifier transmits the output of the single stage amplifier. Where tracking is required, such as in a satellite transponder, a frequency multiplier coupled to the oscillator produces an RF tracking signal outside the translation frequency range which is transmitted by the TWT amplifier simultaneously with the translated RF signal.

3,593,140
PCM TRANSMISSION SYSTEM EMPLOYING PULSE REGENERATORS
 Hisashi Kaneko, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
 Filed May 5, 1969, Ser. No. 821,667
 Claims priority, application Japan, May 10, 1968, 43/31403
 Int. Cl. H04b 7/18 3 Claims



A method and apparatus for reducing the pulse jitter encountered in a pulse code modulated (PCM) transmission path is described. A timing wave is superimposed on a PCM pulse train and utilized to initiate regeneration of pulses at spaced intervals along the transmission path. The pulse jitter is significantly reduced by alternating the polarity or selecting the phase of the timing wave as it is reimposed on regenerated pulses.

3,593,141
SIGN PREDICTION CODING FOR PULSE CODE COMMUNICATION SYSTEMS
 Earl F. Brown, Piscataway; William Kaminski, West Portal; John O. Limb, New Shrewsbury, and Frank W. Mounts, Colts Neck, all of, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
 Filed Sept. 26, 1969, Ser. No. 861,322
 Int. Cl. H04b 1/00 4 Claims



A differential pulse code communication system is disclosed with sign prediction coding which reduces the number of digits required to describe the levels produced in the quantization of the differential signal. In the system the sign of the largest positive and negative levels of the quantizer are predicted by assuming that they have the same sign as the previous level. If the prediction is wrong a lower level with the correct sign is transmitted rather than the level with the predicted sign. Because of the prediction, additional levels may be added in the quantizer in the space otherwise reserved for the signs predicted without increasing the pulse rate of the system.

3,593,142

DIGITAL TRANSMISSION SYSTEM EMPLOYING BAND LIMITED ANALOG MEDIUM WITH ADAPTIVE EQUALIZER AT TRANSMITTER

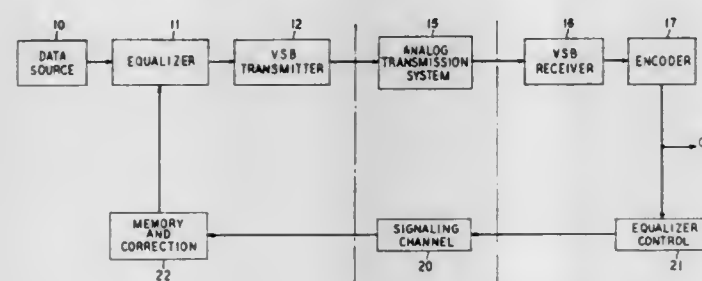
Stanley L. Freeny, Middletown; Bernard G. King, Rumson, and Thomas J. Pedersen, Lincroft, all of, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 20, 1969, Ser. No. 878,340

Int. Cl. H04b 1/00

U.S. Cl. 325-42

4 Claims



A transmission system for transmitting multilevel digital signals over an analog band limited transmission medium. The digital signals to be transmitted are predistorted by a transversal preequalizer located at the transmitter which operates under the control of equalizer correction signals derived from the output of an analog-to-digital encoder at the receiver; which signals are sent from the receiver to the transmitter over a relatively low-speed signaling or reverse channel. After such predistortion the multilevel signals are transmitted using vestigial sideband techniques so that digital apparatus is required only in the transmitter and receiver with none required at intermediate points.

3,593,143

MOBILE RADIO COMMUNICATION SYSTEM

Tsunao Nakahara, Nishinomiya-shi, and Hiroshi Kitani, Higashi, both of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Nov. 15, 1968, Ser. No. 776,100

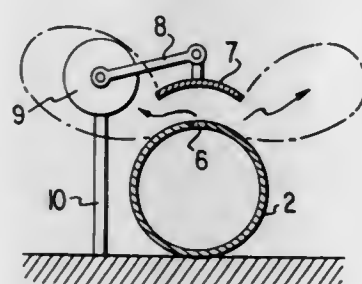
Claims priority, application Japan, Nov. 17, 1967,

42/73977; 42/73979; 42/73980

Int. Cl. H04b 3/60

U.S. Cl. 325-51

5 Claims



A mobile radio communication system operating between a moving train and a stationary land station comprises a leaky waveguide or the like which is partly opened by providing a plurality of perforations or slits and a controlling device distributed along the waveguide or the like so that the electromagnetic wave transmitted in the waveguide leaks out of the waveguide only at that portion where the train is progressing. The controlling device may comprise a metallic cover to open or close the perforations or slits or matching elements which may vary the leakage impedance through the perforations or slits upon detection of the approaching train.

3,593,144

FREQUENCY GENERATOR WITH DECADIC ADJUSTMENT FOR USE IN FREQUENCY CHARACTERISTICS TESTS

Frank Coenning, Reutlinger, and Gunther Hoffmann, Enlingen, both of, Germany, assignors to Wandel u. Goltermann, Reutlinger, Wurttemberg, Germany

Filed Sept. 12, 1968, Ser. No. 759,305

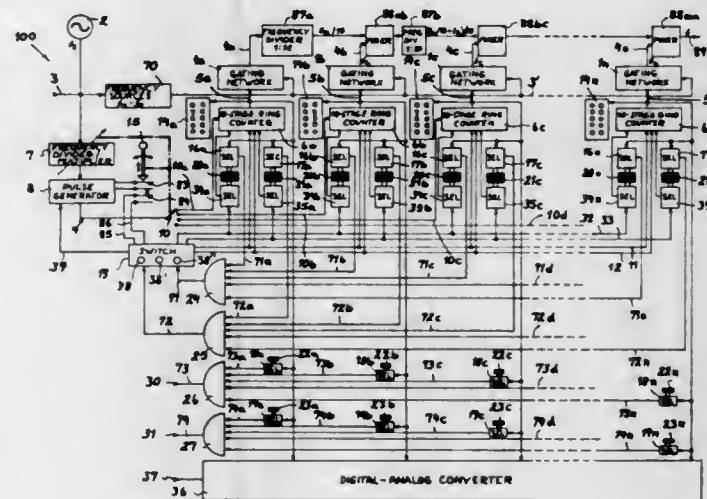
Claims priority, application Germany, Sept. 13, 1967,

P 15 91 814.6

Int. Cl. H04b 3/46; H03b 3/08

U.S. Cl. 325-67

17 Claims



Frequency generator with several decades each having a 10-stage ring counter for the consecutive unblocking of respective frequency gates whose outputs are combined to yield a composite output frequency variable by uniform increments with an adjustable range, the limits of the range and/or intermediate points thereof being determined by a monitoring circuit including lines extending from the several ring counters a coincidence gate so as to generate a signal whenever the ring counters occupy a predetermined position corresponding to a selected output frequency.

3,593,145

MUSICAL INSTRUMENT MOUNTING FOR RADIO TRANSMITTERS

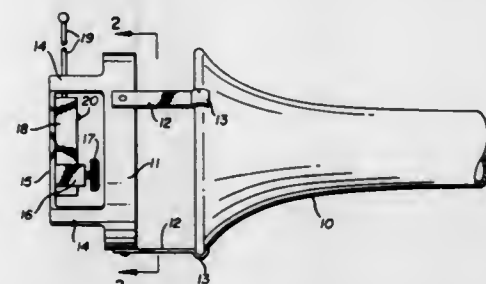
Anthony J. Valley, 775 Alameda Ave., Youngstown, Ohio

Filed June 10, 1968, Ser. No. 735,707

Int. Cl. H04b 1/02

U.S. Cl. 325-102

4 Claims



The combination of a mounting structure and a miniaturized radio transmitter mounted thereby on a musical instrument such as a trumpet or trombone for picking up and transmitting the sounds of the musical instrument without detracting from the appearance or function of the musical instrument.

3,593,146

PERSONNEL AND TARGET LOCATOR BEACON

William E. Schriewer, Rt. 2, Box 425 B, New Braunfels, Tex.

Filed Oct. 5, 1967, Ser. No. 672,916

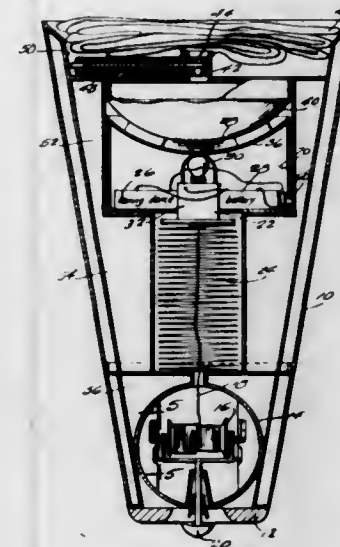
Int. Cl. H04b 1/02

U.S. Cl. 325-112

2 Claims

A personnel and target locator beacon provided with an inflatable helium balloon from a helium storage tank, a beacon

mounted in a recess having an illuminating light that is observable only from aircraft and not from the ground when the beacon is supported from the balloon, and a 300-foot line releasable from a storage reel upon the beacon structure



being subject to impact or triggered by a releasable button, upon which conditions the reel becomes free to spin, the balloon becomes inflated from said storage tank, and the beacon light becomes energizable.

3,593,147

EQUAL GAIN DIVERSITY RECEIVING SYSTEM WITH SQUELCH

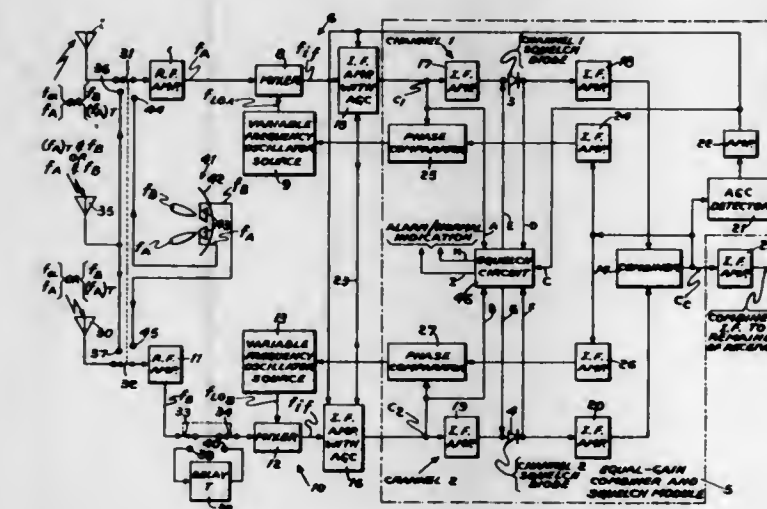
Richard J. Gurak, Summit, and Milton D. Reicher, Parkridge, both of N.J. and International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Mar. 4, 1969, Ser. No. 804,175

Int. Cl. H04b 7/08

U.S. Cl. 325-303

10 Claims



A pair of RF diversity signals are routed to separate channels and heterodyned to two IF signals having the same IF frequency. The IF signals are combined to provide a common IF signal for demodulation. An automatic gain control signal is generated from the common IF signal and is used to control the gain of each IF signal prior to combining to assure a constant amplitude, common IF signal. The common IF signal is also used as a reference signal for a phase comparator in each channel. Each phase comparator compares the phase of its associated IF signal to the reference signal and adjusts its associated IF signal for inphase combining thereof. A squelch diode is included in each channel prior to combining under control of a squelch circuit which responds to the automatic gain control signal and the relative carrier ratios of the two IF signals. The squelch diodes supply no attenuation when the relative carrier ratios are less than a predetermined

value and the squelch diode associated with the weaker IF signal supplies substantial attenuation when one of the relative carrier ratios is equal to or greater than the predetermined value. An alarm/normal arrangement is driven by the squelch circuit to indicate critical signal levels for the IF signals.

3,593,148

CLOCK RADIO RECEIVER HAVING PRESETTABLE TIME RESPONSIVE AUTOMATIC VARACTOR TUNING WITH MEMORY FEATURES

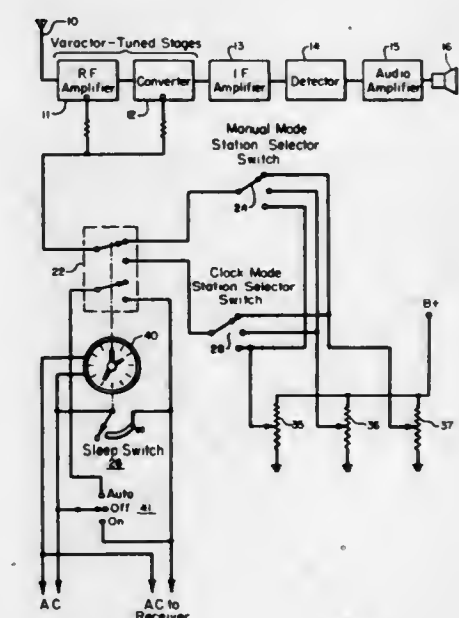
Eugene M. Cummings, Park Ridge, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Sept. 25, 1969, Ser. No. 861,098

Int. Cl. H04b 1/16

U.S. Cl. 325-396

2 Claims



A clock radio of the type including a voltage variable capacitance diode in its tuned circuitry is disclosed in which adjustable voltage sources are arranged with switches and the radioclock to permit both the choice of a station for normal operation by the adjustment of a first voltage source applied to the variable capacitor, and the like preselection of another station on a second voltage source to be applied automatically at a later preset time by a clock-controlled switch. The former station choice can always be immediately restored without any returning by causing the appropriately adjusted voltage source to be switched back into the tuned circuit. In addition, provision is easily made for allowing the listener to select both his normal mode station choice and his clock mode station choice from a number of preset station possibilities.

3,593,149

AUTOMATIC CIRCUIT FOR RECEPTION OF REDUCED CARRIER SIGNALS

Joseph A. Worcester, Frankfort, N.Y., assignor to General Electric Company

Filed Jan. 30, 1970, Ser. No. 7,145

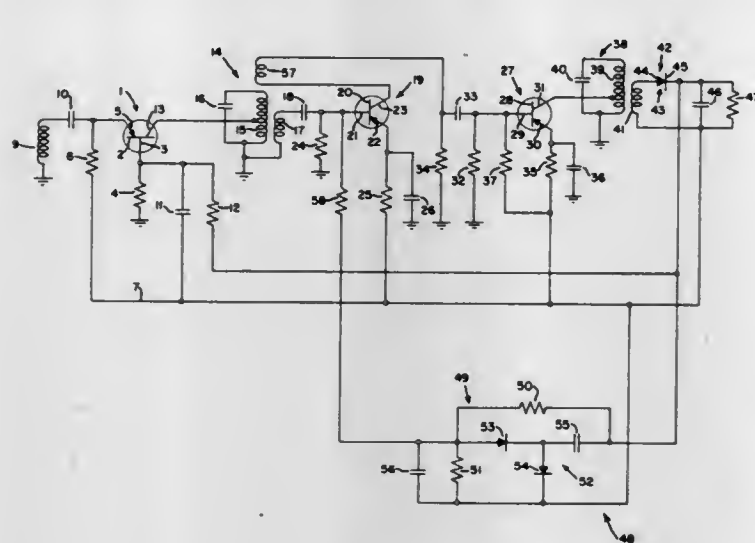
Int. Cl. H04b 1/68

U.S. Cl. 325-329

7 Claims

A carrier signal restoration circuit adopted to cooperate with a conventional intermediate frequency amplifier having a standard diode detector connected to the output thereof. The circuit includes a voltage divider connected to the detector output for developing a positive potential indicative of the amplitude of the carrier in the detected signal. A negative potential indicative of the average sideband amplitude in the signal is developed by a pair of voltage doubling diodes and a capacitor also connected to the detector output. When the carrier is attenuated or suppressed, the circuit develops a net

negative potential which increases the conduction of a transistor and the current flow through a feedback winding in continue operation until the carrier signal falls below a second frequency corresponding to an adjusted bias applied



the amplifier circuit so as to activate a tuned circuit which restores the carrier signal.

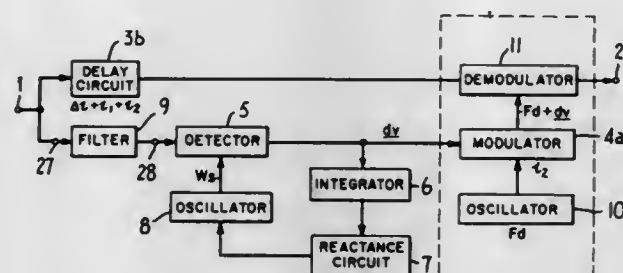
3,593,150

SYSTEM FOR ELIMINATING PHASE- AND FREQUENCY-FLUCTUATION INCLUDED IN A TRANSMITTED SIGNAL
Hisakichi Michishita, and Kazuo Kwai, both of Tokyo-to, Japan, assignors to Kakusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan
Continuation of application Ser. No. 577,952, Sept. 8, 1967, now abandoned. This application Dec. 3, 1969, Ser. No. 876,166

Int. Cl. H04b 3/04, 3/10

U.S. Cl. 325-422

6 Claims



A system for eliminating phase- and frequency-fluctuations in transmitted signals including a reference signal of phase-position or frequency, where the transmission times of the respective signals are at first equalized by passing the transmitted signals through an equalizer compensating the transmission characteristic of a transmission medium at one end of which the fluctuations occur, and the fluctuations included in the transmitted signals are simultaneously eliminated by combining the transmitting signals passed through the equalizing means with a different signal between phase-positions or frequencies of a standard signal of stable phase-position and the transmitted reference signal in synchronous timing of the fluctuations. thereof.

3,593,151

DETECTOR FOR RECEIVER PRINTER STARTUP
John R. Veale, London, England, assignor to Xerox Corporation, Rochester, N.Y.

Filed Aug. 12, 1968, Ser. No. 752,072

Int. Cl. H04b 1/16; H04q 1/24

U.S. Cl. 325-466

6 Claims

A detector for controlling the startup of a facsimile printing transducer. The detector includes a comparator which activates the transducer when a FM carrier signal of a first frequency is received and enables the facsimile transducer to

to the comparator input when the carrier signal of said first frequency is received.

3,593,152

PUSHBUTTON TUNER AND INDICATING DEVICE THEREFOR

Masatsugu Aoki, Tokyo, Japan, assignor to Alps Electric Company, Limited, Tokyo, Japan

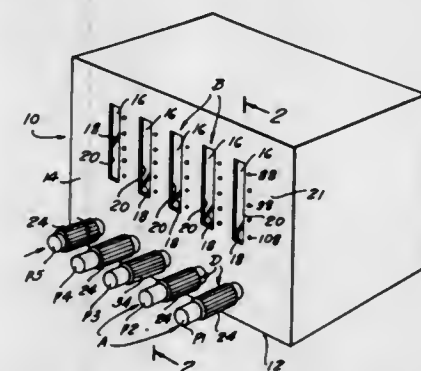
Filed Jan. 2, 1969, Ser. No. 788,444

Claims priority, application Japan, Feb. 16, 1968, 43/11070

Int. Cl. H04b 1/08

U.S. Cl. 325-352

20 Claims



A communication receiver having selectively actuatable frequency selectors comprises a plurality of indicators each of which is operatively connected to a corresponding one of the selectors. The actuation of one of the selectors tunes the receiver to a predetermined frequency and renders operative its associated indicator to provide an indication of the frequency to which the receiver is tuned.

3,593,153

NARROW BANDWIDTH RADIO RECEIVER HAVING MEANS TO POSITION AN RF SIGNAL WITHIN A STEEP SIDED PASSBAND FILTER

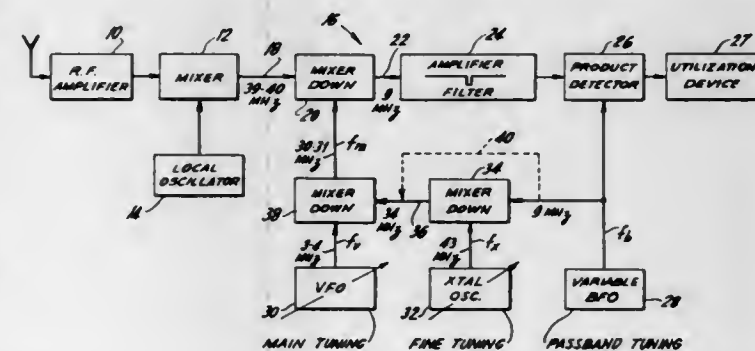
Peter Maitland, St. Petersburg, and Richard W. Ehrhorn, Largo, both of Fla., assignors to Electronic Communications, Inc., St. Petersburg, Fla.

Filed Jan. 7, 1969, Ser. No. 789,501

Int. Cl. H04b 1/26; H03d 7/16

U.S. Cl. 325-432

5 Claims



A narrow bandwidth radio receiver is described wherein pass band tuning of an RF signal is accomplished by using a variable beat frequency oscillator (BFO) signal to alter an injection frequency in a direction to selectively position an RF

signal within a passband filter having a steep side without changing the relationship between the RF signal and the BFO signal.

3,593,154

FREQUENCY-SELECTIVE COUPLING NETWORK FOR A TELEVISION TUNER

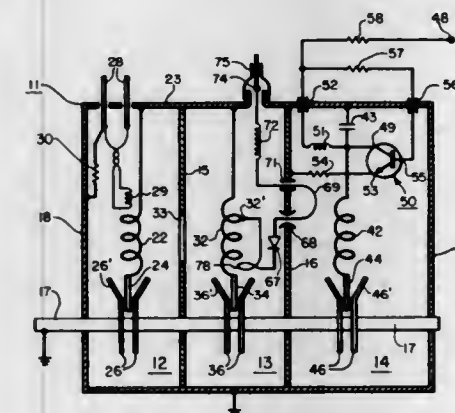
David A. Blass, Elmwood Park, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Jan. 28, 1969, Ser. No. 794,518

Int. Cl. H04b 1/26

U.S. Cl. 325-437

8 Claims



Tuning to a desired television channel, while rejecting its image channel, is accomplished by a novel coupling network combining a frequency selector and an image rejection trap simultaneously tunable to different frequencies by means of a single common tuning element. By the adjustment of a variable air capacitor, shunt connected to the primary inductor of a transformer, the frequency selector may be tuned to maximize the response of the coupling network to a selected television channel. The image rejection trap is formed by the mutual inductance and capacity coupling between the primary inductor and a secondary inductor of the transformer. Variations of the air capacitor effect changes in the coefficient of capacitive coupling between the inductors, with the result that the trap tracks the frequency selector; namely, as the frequency selector is tuned to a different selected channel the trap is automatically tuned to that channel's image frequency to achieve image signal suppression.

3,593,155

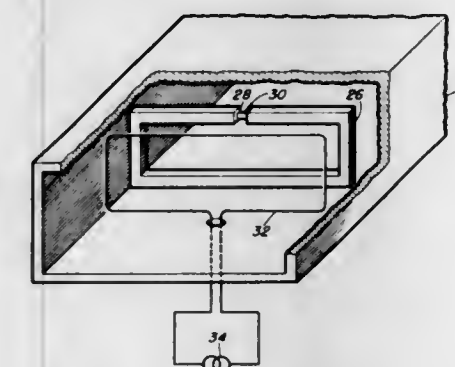
RESONANT RING VARACTOR CIRCUIT
Frederick B. Lowe, and Robert G. Leib, both of York, Pa., assignors to The Bendix Corporation

Filed Dec. 27, 1968, Ser. No. 787,423

Int. Cl. H04b 1/26

U.S. Cl. 325-445

9 Claims



A waveguide has disposed coaxially therein and perpendicular to the axis of microwave propagation a resonant ring structure including a varactor bridging an electrical discontinuity in the ring. The structure is used as a switch, tunable filter or up-converter by suitably biasing the varactor from an outside biasing source. For use as a frequency multiplier or limiter the varactor generally needs no external biasing source.

888 O.G.-23

3,593,156

FREQUENCY DOUBLER

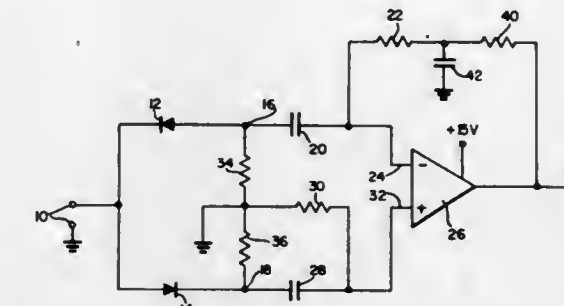
Harley D. Jordan, South Daytona, Fla., assignor to General Electric Company

Filed Dec. 31, 1968, Ser. No. 788,145

Int. Cl. H03k 5/153

U.S. Cl. 328-20

5 Claims



A circuit for doubling the frequency of an alternating signal. The signal is rectified into positive and negative components. Each component is then shifted from the zero reference by blocking capacitors so that it has equal areas under the positive and negative half-cycle waveforms. The signals are compared in a difference amplifier which produces a positive or negative output depending on which input is more positive. In one cycle of the input signal four such changes occur, producing a square wave output of double the input frequency.

3,593,157

VOLTAGE-CONTROLLED FREQUENCY DIVIDER

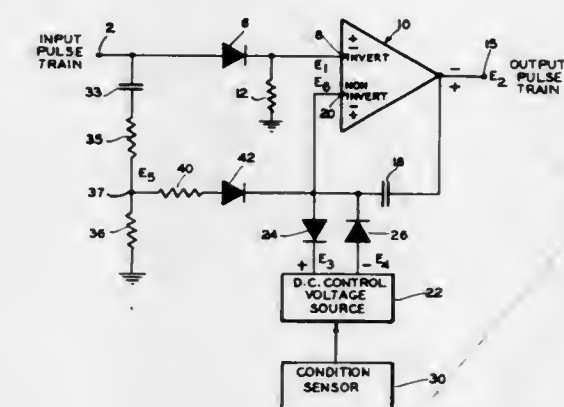
Henry R. Kosakowski, Lyndhurst, N.J., assignor to The Bendix Corporation

Filed May 29, 1969, Ser. No. 828,927

Int. Cl. H03k 25/02

U.S. Cl. 328-41

9 Claims



A frequency divider comprising a one-shot multivibrator operated by a fixed frequency pulse train applied to one of its inputs and controlled by a voltage signal to provide an output pulse train having a frequency corresponding to the voltage signal. The output pulse train is fed back to a second input of the multivibrator through a decay network to switch the multivibrator and the decay time t is controlled by the voltage signal. The frequency of the output pulse train is determined by the decay time t and varies from $1/t$ c.p.s. to the frequency of the input pulse train as determined by the magnitude of the voltage signal.

3,593,158

VARIABLE FREQUENCY PULSE GENERATOR

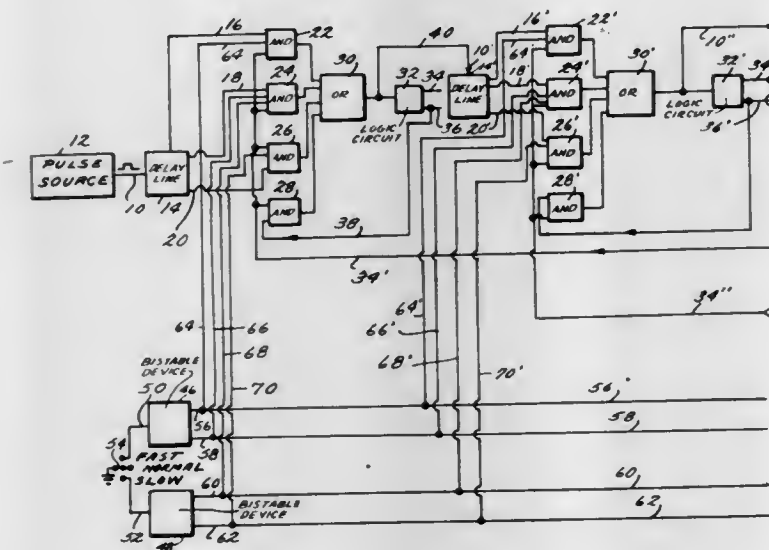
Richard C. Day, New Brighton; Frederick M. Green, Bloomington, and William A. Mitchell, Bloomington, all of Minn., assignors to Control Data Corporation, Minneapolis, Minn.

Filed June 4, 1969, Ser. No. 830,446

Int. Cl. H03k 5/159

U.S. Cl. 328-55

10 Claims



A variable timing system for use with digital devices or computers wherein the system includes a plurality of stages and whereby the system enables the selection of a predetermined rate and length of the timing pulses whereby the timing of at least a portion of the associated computer is controlled by the system of this invention.

3,593,159

RF ECHO APPARATUS

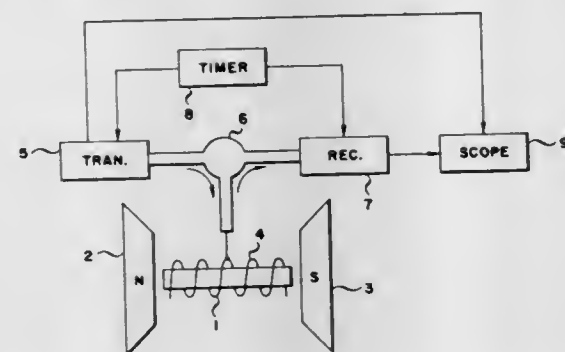
Daniel E. Kaplan, Los Altos Hills; Robert M. Hill, Palo Alto; Gabriel F. Herrmann, Los Altos Hills, and Stephen K. Ichiki, Los Altos Hills, all of Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Dec. 23, 1968, Ser. No. 786,078

Int. Cl. H03f 9/00

U.S. Cl. 330-63

11 Claims



RF echo apparatus in which the echo signal pulse is amplified with respect to the signal pulse, such apparatus being characterized by broadband, high signal-to-noise operation at room temperatures and being particularly useful in various forms of signal processing such as, for example, delaying, amplifying, detecting, compressing and expanding RF pulses. These characteristics are obtained by a new echo forming mechanism in which the sample is characterized by collective particle oscillation modes which are substantially localized with a nonlinear coupling between modes. Such coupling introduces a mode instability during the drift period prior to echo which causes amplification of the echo pulse. In the example described in detail, the sample is the form of a ferrite having structural discontinuity with pulses being coupled to and from the sample through a broadband slow wave structure.

3,593,160

CLOCK-SYNCHRONIZING CIRCUITS

John Richard Moore, Weston, near Crewe, England, assignor to International Computers Limited, London, England

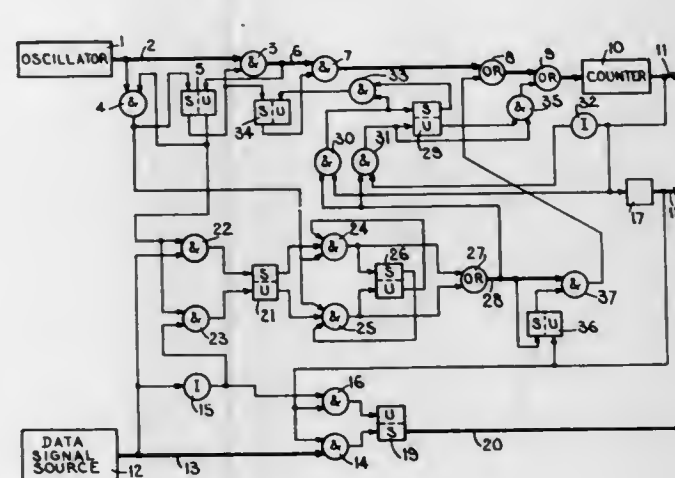
Filed Nov. 21, 1968, Ser. No. 777,843

Claims priority, application Great Britain, Nov. 21, 1967, 53020/67

Int. Cl. H04I 7/00

U.S. Cl. 328-63

6 Claims



A system for the generation of clock signals in a data processing apparatus is disclosed, in which the clock signals are developed from a source of higher frequency pulses. The clock signals are applied to an apparatus in which data signals are represented in nonreturn-to-zero (NRZ) manner, and the clock signals are synchronized to the occurrence of changes in data item representation. It is recognized that the synchronization of the signals may vary and, in particular that there is a condition of spurious synchronization in which the clock signals may occur 180° out of phase with data changes. The system proposed is arranged to recognize both variations in synchronism and the spurious synchronism condition and to correct the relative timing between clock and data change signals to bring the system into true synchronism by modifying the application of the higher frequency pulses to a clock signal generating countdown arrangement.

3,593,161

PULSE COINCIDENCE DETECTION CIRCUIT

Gerold Ritz, deceased, late of Stuttgart, Germany, and Erika Ritz, Gerold Ritz and Anna Ritz, all legal successors, all of Tiengen, Hochrhein, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Dec. 6, 1968, Ser. No. 782,009

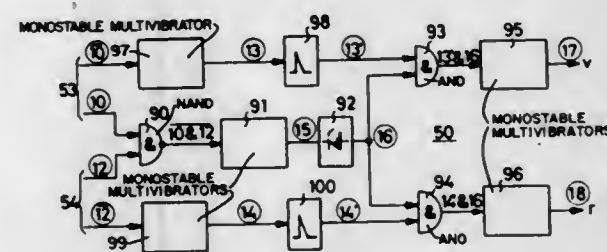
18011/67

Claims priority, application Switzerland, Dec. 20, 1967, 18011/67

Int. Cl. H03k 5/20

U.S. Cl. 328-109

6 Claims



Simultaneous pulses occurring in two or more pulse trains are suppressed, and only discretely appearing pulses of a minimum time separation are propagated. A circuit detects coincidence, by time-extending a pulse representative of the inverse of the logical conjunction of both pulses. The time-extended, inverted pulse is used as an information signal indicative of noncoincidence to control AND gates to another input of which, the pulses, regenerated from the trailing edges of the pulses of the pulse trains, are applied.

3,593,162

ANALOG COMPARATOR

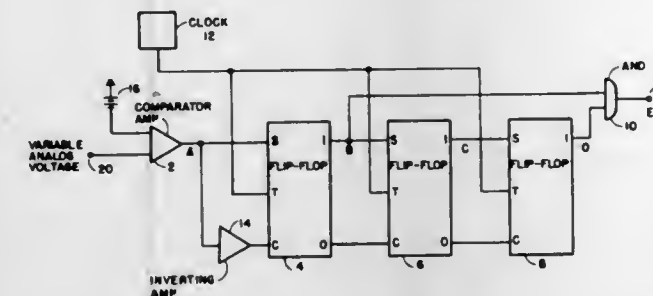
James R. Patmore, Neptune, N.J., assignor to Electronic Associates Inc., Long Branch, N.J.

Filed Mar. 25, 1969, Ser. No. 810,195

Int. Cl. H03k 5/20

U.S. Cl. 328-111

2 Claims



A circuit arrangement for eliminating noise-generated ambiguous outputs of an analog comparator is disclosed providing a number of flip-flops operating in the shift register mode resulting in a pulse width discrimination of the comparator output directly proportional to the number of flip-flops.

3,593,163

ANALOG MULTIPLIER

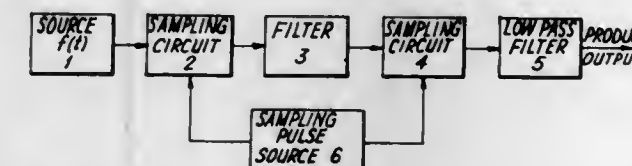
Remi Quet, Hardy Mantes-la-Ville, and Marc Jules Theodore Schneider, Versailles, both of France, assignors to International Standard Electronic Corporation, New York

Filed Mar. 6, 1969, Ser. No. 804,885

Int. Cl. G06g 7/16

U.S. Cl. 328-160

6 Claims



An analog circuit to multiply signal $f(t)$ by a signal $g(t)$, where signal $g(t)$ has limited duration and zero as its initial and final amplitudes. $f(t)$ is sampled at a first predetermined frequency. The resultant PAM is filtered by a first filter having a predetermined impulse response proportional to $g(t)$. The output of the first filter is sampled at a second predetermined frequency different than the first sampling frequency. The result of the second sampling is filtered by a low pass filter having a predetermined cutoff frequency. The first and second predetermined frequency, the predetermined impulse response and the predetermined cutoff frequency determine the precision of the resultant product.

3,593,164

ELECTRIC LINEAR AND SQUARE ROOT INTEGRATOR AND MULTIPLIER/DIVIDER

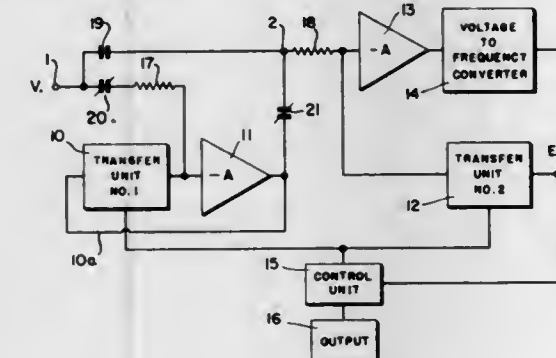
William F. Newbold, Springfield Township, Montgomery County, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 1, 1968, Ser. No. 709,575

Int. Cl. H04b 1/04

U.S. Cl. 328-144

2 Claims



A circuit is provided for performing various arithmetic operations. These arithmetic operations include linear in-

tegration, square root extraction, multiplication and division. The circuit includes an integrator having capacitive transfer, sampling and holding circuits. A voltage-to-frequency converter network is interconnected by operational amplifiers.

3,593,165

COMB FILTER WITH MAXIMUM VALUE SIGNAL SELECTION CIRCUIT

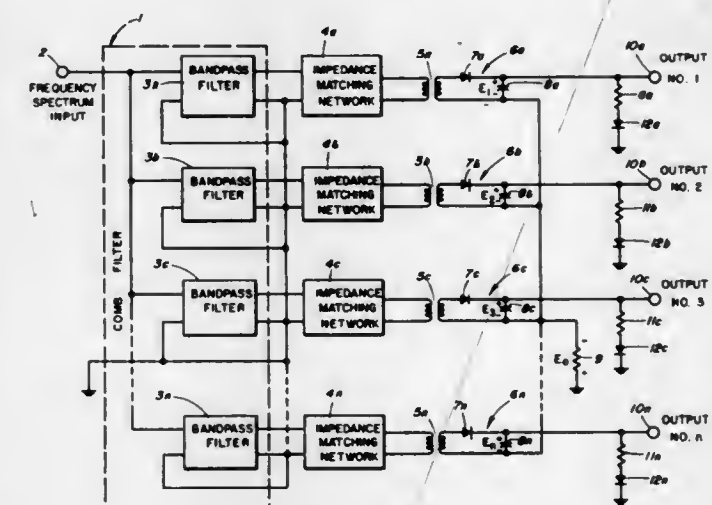
Jack L. Grubbs, Jr., Silver Spring, Md.

Filed Sept. 26, 1966, Ser. No. 582,794

Int. Cl. H03k 5/20

U.S. Cl. 328-149

8 Claims



A maximum value signal selection circuit having a plurality of channels connected to receive signals from band-pass filters in a comb filter arrangement which rectifies and filters the signals and subtracts a voltage proportional to the sum of the rectified signals from each of the signals to provide a plurality of outputs wherein only the maximum signal channel produces a positive voltage.

3,593,166

ZERO CROSSING DETECTOR

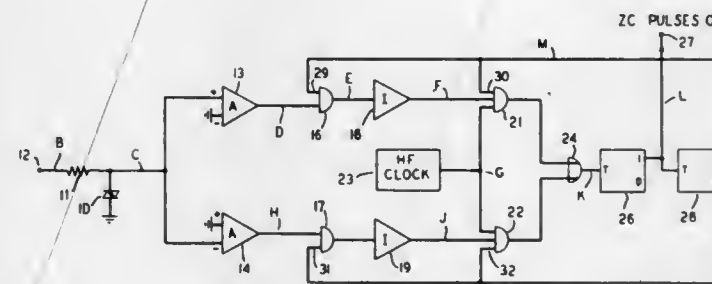
William H. Martin, Jr., Morristown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 17, 1969, Ser. No. 885,807

Int. Cl. H03k 17/00

U.S. Cl. 328-150

5 Claims



A pulse of controllable width is emitted from a pulse divider in response to each zero crossing of an input signal. The input signal polarity is sensed, and a separate gate for each polarity gates pulses from a clock oscillator to the pulse divider in response to the termination of that particular input polarity. The pulse divider produces one pulse out for a fixed even number of clock pulses received, and a flip-flop alternately disables each gate to block the clock pulses after one output pulse. The clock oscillator frequency and the pulse division rate determine the output pulse width.

3,593,167

SYNCHRONOUS READ CLOCK APPARATUS

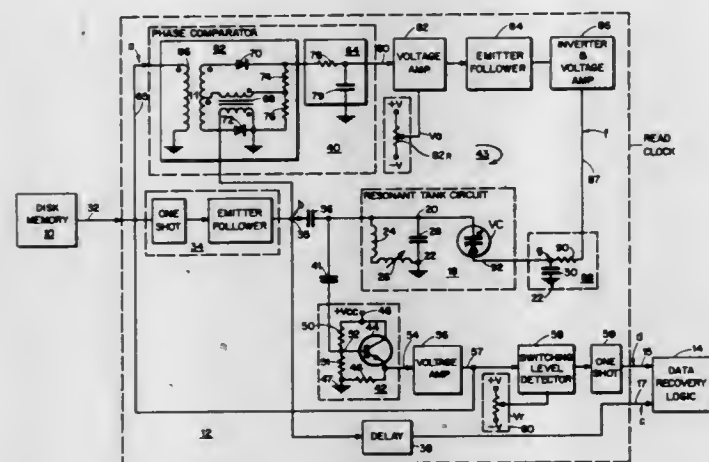
Michael A. Koulopoulos, Watertown, Mass., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Jan. 28, 1969, Ser. No. 794,576

Int. Cl. H03b 3/04

U.S. Cl. 328—155

9 Claims



A self-synchronizing read clock apparatus receives from a random access memory an encoded information pulse train consisting of data and synch pulses, and applies it across a normally inactive resonant tank circuit. The tank circuit generates a periodic sinusoidal reference signal, and a detection circuitry derives a reference timing train from reference points of the sinusoidal reference signal. The apparatus includes circuitry which delays the input data train to coincide with other reference points of the same reference signal and, further, has circuitry for generating an error voltage whose magnitude is proportional to the discrepancy in phase between the data train and reference signal and applies a correction voltage to the tank which adjusts the frequency to decrease the discrepancy in phase at a critically damped rate.

3,593,168

VIDEO PULSE NORMALIZER

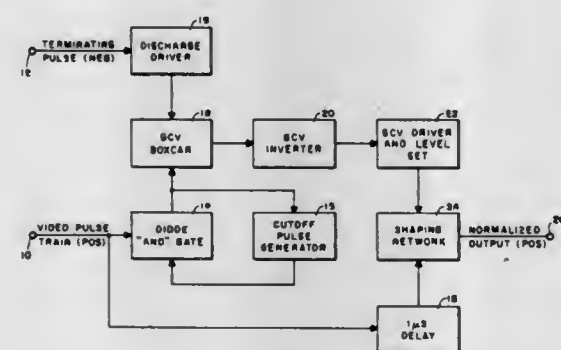
Criley Orton, Arlington, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Aug. 31, 1966, Ser. No. 576,780

Int. Cl. H03k 5/08

U.S. Cl. 328—168

7 Claims



A circuit for normalizing over a wide video input range, the first pulse of a chain of pulses whose relative amplitude ratios contain information. The video input pulses are applied to a resistance divider and the output is taken from a junction within the divider. The second, or lower resistor resistance value is changed in inverse ratio to the amplitude of the first video pulse so that the output amplitude of the first pulse remains constant.

3,593,169

TONE BURST GENERATOR

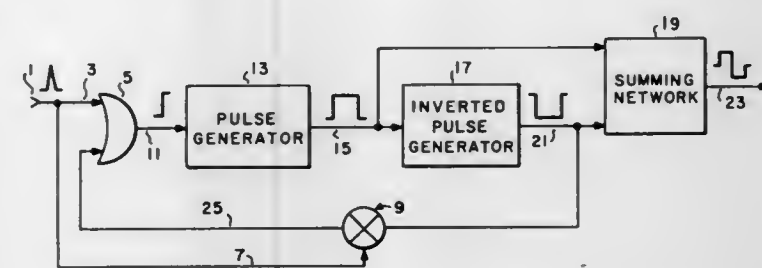
Elliott W. Markow, Burlington, Mass., assignor to Newton Electronic Systems, Inc., Waltham, Mass.

Filed Sept. 16, 1969, Ser. No. 858,413

Int. Cl. H03k 1/12

U.S. Cl. 328—223

12 Claims



A tone burst generator for applying balanced signals to a transmission line, comprising complementary pulse generators connected in series and a switching circuit connected between the output terminal of one and the input terminal of the other. The switching circuit is enabled by the presence of a signal applied to one of the pulse generators. A summing amplifier combines the outputs of the pulse generators for application to a transmission line.

3,593,170

PULSE-WIDTH DISCRIMINATOR HAVING CONDUCTION CONTROLLED MEANS

Gerhard Gunter Gassmann, Berkheim, Germany, assignor to International Standard Electric Corporation, New York, N.Y.

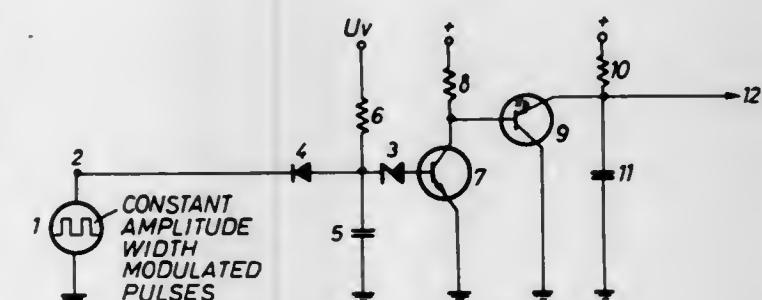
Filed July 15, 1969, Ser. No. 841,863

Claims priority, application Germany, Sept. 24, 1968, P 17 62 921.9

Int. Cl. H03k 9/8

U.S. Cl. 329—106

10 Claims



A pulse-width discriminator providing a very steep discriminator characteristic. The width modulated input pulses limited to a constant amplitude are rectified and applied to an RC time constant circuit prior to being applied to a transistor whose conduction is controlled by resultant linear sawtooth signals whose duration are equal to the duration of the input pulses. The time constant of the RC circuit, the bias potential applied to the RC circuit and the bias potential applied to the transistor, by means of a Zener diode coupled between the RC circuit and base of the transistor, are so selected that the transistor is blocked for pulse widths below t_{min} , momentarily unblocked for pulse widths between t_{min} and t_{max} to pass pulses having amplitudes increasing linearly in the negative direction as the pulse width increases, and saturated for pulse width above t_{max} to pass pulses having a negative going constant maximum amplitude. The discriminator output voltage is obtained by peak rectification of the pulses passed by the transistor. In another disclosed embodiment, the discriminator output voltage is passed through a low pass filter to provide the bias potential coupled to the RC circuit.

3,593,171

FREQUENCY DISCRIMINATOR HAVING CONDUCTION CONTROLLED MEANS

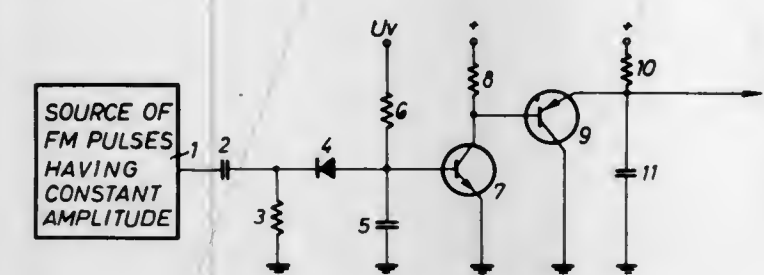
Gerhard Gunter Gassmann, Berkheim, Germany, assignor to International Standard Electric Corporation, New York, N.Y.

Filed July 15, 1969, Ser. No. 841,764

Claims priority, application Germany, Sept. 21, 1968, P 17 62 917.3

U.S. Cl. 329—102

10 Claims



A frequency discriminator for frequency-modulated (FM) pulse signals having a steep discriminator characteristic. The FM pulse signals are amplitude limited, differentiated and then rectified. The time constant of a subsequent RC circuit and the fixed bias applied to the RC circuit are so selected to produce a linear sawtooth signal having a duration equal to the period of the FM pulse signals so that a subsequent transistor is always blocked at pulse frequencies above f_{max} , unblocked momentarily at pulse frequencies between f_{min} and f_{max} to pass pulses with an amplitude increasing in the negative direction linearly as the frequency decreases, and passes constant maximum negative going amplitude pulses at pulse frequencies below f_{min} . The discriminator output voltage is obtained by peak rectification of the pulses passed by the transistor. In another disclosed embodiment, the discriminator output voltage is passed through a low pass filter to provide the bias for the RC circuit.

3,593,172

SEMICONDUCTOR AMPLIFIER

Berthold Bosch, Ulm; Wolfgang Heinle, Neu-Ulm, and Reinhard Engelmann, Ulm, all of Germany, assignors to Telefunken Patentverwaltungsgesellschaft m.b.H., Ulm am Danube, Germany

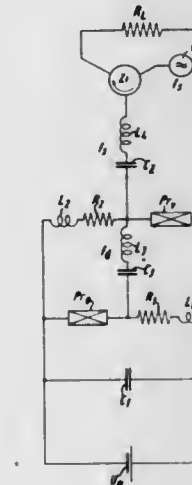
Filed Aug. 21, 1969, Ser. No. 851,898

Claims priority, application Austria, Aug. 21, 1968, 8158/68

Int. Cl. H03b 7/06

U.S. Cl. 330—5

13 Claims



An amplifier circuit including a Gunn effect semiconductor which exhibits increased limit frequencies and higher negative conductance. The Gunn effect semiconductor is constructed to possess a region in the vicinity of its cathode in which the field strength as effected by a steady state biasing voltage lies between the critical value at which the Gunn oscillation is initiated and a lower value at which the Gunn

oscillation is extinguished, while the remainder of the semiconductor body possesses a field strength less than such lower value. The first region is periodically pulse triggered to initiate the Gunn oscillation, the period between pulses being approximately equal to the transit time of a high field zone through the semiconductor body. The triggering pulses may be produced by a second Gunn element or they may be produced in the first Gunn element itself.

3,593,173

INPUT LIMITING FOR BIPOLAR OPERATIONAL TRANSISTOR AMPLIFIER

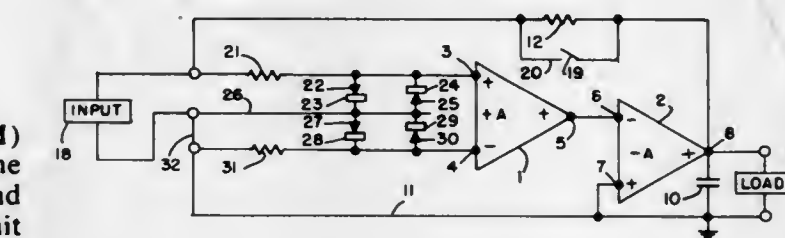
Sarkis Nercessian, Long Island City, N.Y., assignor to Forbro Design Corp., New York, N.Y.

Filed Dec. 30, 1968, Ser. No. 787,776

Int. Cl. H03f 1/02; G06g 7/12

U.S. Cl. 330—25

8 Claims



Two pairs of back-to-back diodes one pair from each input terminal of an operational amplifier to a floating neutral provides input voltage limiting in a bipolar amplifier. A resistor in series with each pair of diodes provides current limiting to the voltage limiting diodes.

3,593,174

SOLID STATE AMPLIFIER FOR MICROWAVE FREQUENCY SIGNALS

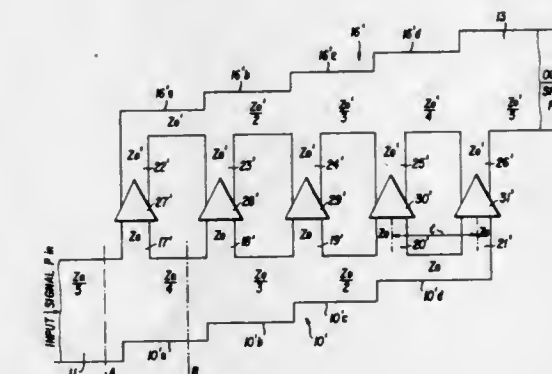
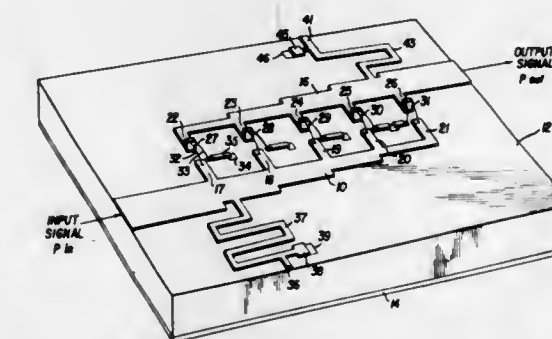
Marvin H. White, Laurel, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 5, 1969, Ser. No. 830,671

Int. Cl. H03f 3/60

U.S. Cl. 330—53

8 Claims



A solid state apparatus for amplifying signals in the microwave frequency range by phase coherent addition of the signal output of a plurality of amplifier elements achieves high power output and wide bandwidth operation, with im-

ing each radiating element to prevent gain in the transverse direction. The mosaic of radiating elements may be formed by etching or cutting slots in a semiconductor slice or by direct growth on the semiconductor slice.

3,593,191

ELECTRICALLY FOCUSED LASER DIODE

Heinz Henker, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

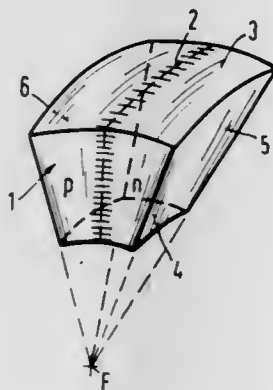
Filed Sept. 24, 1969, Ser. No. 860,634

Claims priority, application Germany, Sept. 30, 1968, P 17 89 061.8

Int. Cl. H01s 3/18

U.S. Cl. 331—94.5

8 Claims



A laser diode for producing focused or defined divergent light comprises a semiconductor crystal having a planar PN junction and two parallel end faces extending perpendicular to the PN junction and conjointly forming a resonator for optical radiation. The end faces comprise portions of two confocal surfaces. The PN junction extends between the two confocal surfaces in a radial plane relative to the focal locus. One of the end faces is impermeable to optical radiation and the other of the end faces is a mirror partially permeable to optical radiation.

3,593,192

DOUBLE CAVITY TYPE SOLID STATE OSCILLATOR DEVICE

Shigemichi Nagano, and Tsutomu Itano, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

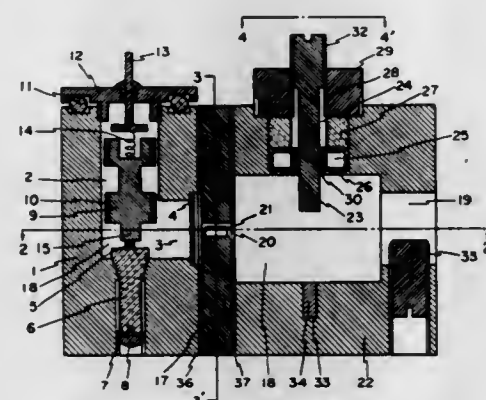
Filed July 29, 1969, Ser. No. 845,741

Claims priority, application Japan, July 30, 1968, 43/54219

Int. Cl. H03b 7/14

U.S. Cl. 331—96

3 Claims



A double cavity type oscillator device is provided wherein a throttle window and iris are disposed between a main cavity having a built-in solid state oscillator element and an auxiliary cavity. The window electromagnetically couples the tunable auxiliary cavity with the main cavity. The iris, which is a low impedance capacitive iris, has a lateral width approximately equal to that of the end portion of the throttle window and to that of the auxiliary cavity, and a vertical dimension smaller than that of said throttle window.

3,593,193
HIGH POWER AVALANCHE DIODE MICROWAVE OSCILLATORS HAVING OUTPUT FREQUENCY ABOVE DIODE TRANSIT TIME FREQUENCY

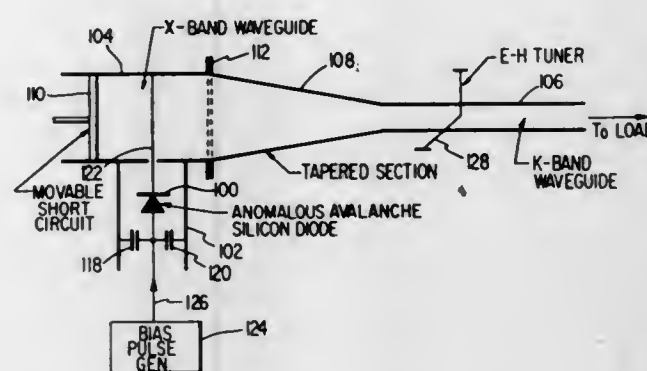
Kern Ko-Nan Chang, Princeton; Shing-Gong Liu, Princeton, and John Joseph Risko, Cranbury, all of, N.J., assignors to RCA Corporation

Filed June 19, 1969, Ser. No. 834,805

Int. Cl. H03b 7/14

U.S. Cl. 331—96

11 Claims



A wave tuning structure including a first portion in cooperative relationship with an anomalous silicon avalanche diode, a second portion coupled to the first portion for supporting oscillations at the transit time frequency of the diode, and a third portion coupled to at least one of the first and second portions for supporting oscillations at a given frequency significantly higher than the transit time frequency, serves to provide relatively high power at the given frequency to a load coupled to the third portion of the wave tuning structure, such as 17 watts at 24 gigahertz and 28 watts at 10.5 gigahertz for instance, in response to a bias pulse being applied to the diode. A significant output power is still obtained at frequencies exceeding 33 gigahertz.

3,593,194

LASER COOLANT AND ULTRAVIOLET FILTER

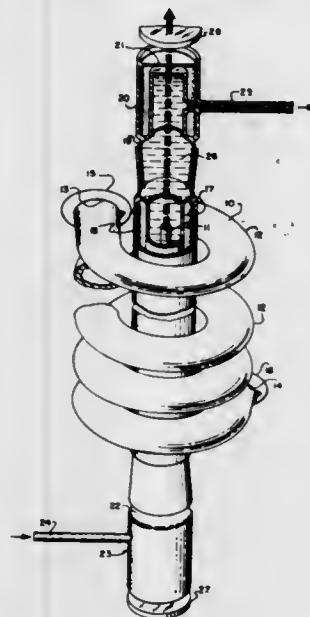
T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; John R. Rasquin, 1003 Cardinal Ave., Madison, Ala., and Fred R. McDevitt, 1713 Dartmouth Ave., Melbourne, Fla.

Filed Oct. 2, 1969, Ser. No. 863,276

Int. Cl. H01s 3/04, 3/09; G02l 5/24

U.S. Cl. 331—94.5

5 Claims



Ruby lasers are cooled and protected from detrimental ultraviolet radiation by means of a solution of copper sulfate in an alcohol solvent. The coolant-filter solution is disposed between the ruby crystal and the laser-actuating light source so as to absorb short-wavelength ultraviolet radiation, while allowing energy in the ruby pumping bands to pass through.

Circulation of the solution removes heat from the laser crystal and improves its operation.

3,593,195

OSCILLATOR CIRCUIT

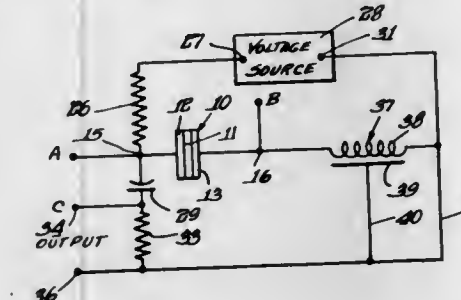
Roy R. Shanks, Royal Oak, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.

Filed Oct. 16, 1968, Ser. No. 767,994

Int. Cl. H03b 7/14

U.S. Cl. 331—107 R

4 Claims



An oscillator circuit using a symmetrical threshold semiconductor device as the active component, a resistance-reactance circuit for generating exponential waveforms and a time delay line to control the operation of the semiconductor device and resistance-reactance circuit.

3,593,196

TYPE OF AVALANCHE DIODE

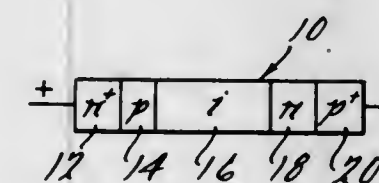
George I. Haddad, Ann Arbor, Mich., assignor to Omni Spectra, Inc., Farmington, Mich.

Filed Feb. 19, 1969, Ser. No. 800,532

Int. Cl. H03b 7/06

U.S. Cl. 331—107 R

4 Claims



An avalanche diode, of the IMPATT diode type, which may be used as an oscillator, amplifier, or frequency converter and having a construction utilizing both N⁺P and NP⁺ junctions whereby improved power output and other operating characteristics can be attained.

3,593,197

RELAXATION OSCILLATOR

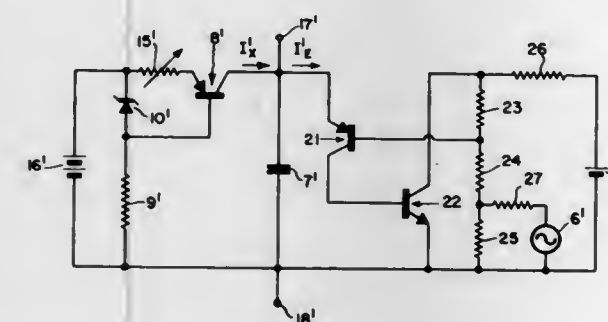
Ricardo A. Carreras, Plantation, Fla., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Apr. 14, 1969, Ser. No. 815,848

Int. Cl. H03k 3/26

U.S. Cl. 331—111

3 Claims



A relaxation oscillator is disclosed wherein a capacitor is periodically charged and discharged to generate an output signal across the capacitor. A three terminal semiconductor

means such as a unijunction transistor, is used to provide a discharge path for the capacitor, the unijunction transistor discharging the capacitor whenever a sufficient voltage is accumulated on the capacitor to forward bias the discharge path. An AC modulating the bias voltage applied to the unijunction transistor, thereby the magnitude of voltage necessary to forward bias the discharge path is also modulated.

3,593,198

SOLID-STATE FREE RUNNING TRIANGLE WAVEFORM GENERATOR

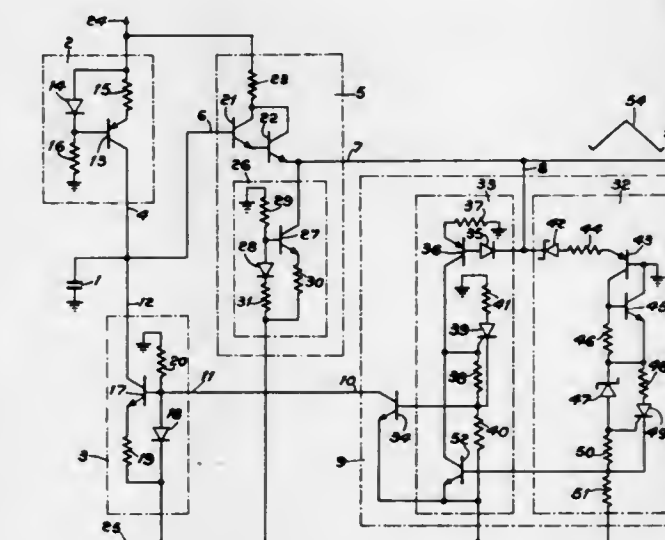
Edmund A. Karcher, and Jack G. Paschal, both of North Palm Beach, Fla., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Sept. 15, 1969, Ser. No. 858,018

Int. Cl. H03k 4/50, 4/06

U.S. Cl. 331—111

12 Claims



This is a free running triangular waveform generator circuit having a linear output. The circuit includes two constant current generators, one charging and the other discharging a capacitor, a buffer circuit which transmits a first and second voltage level across the capacitor without loading down the capacitor, and a switching circuit which is activated by the two transmitted voltage levels so as to switch one of the constant current generators on and off. The switching and buffering circuits have no capacitors and the charging capacitor is a very small value, thus making the circuit adaptable for integrated circuit fabrication.

3,593,199

VOLTAGE VARIABLE CLOCK OSCILLATOR

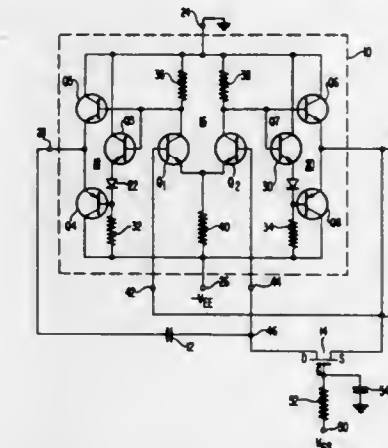
John C. Spann, Baltimore, and James R. Hudson, Poplar Point, both of, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 18, 1969, Ser. No. 877,650

Int. Cl. H03k 3/282

U.S. Cl. 331—111

10 Claims



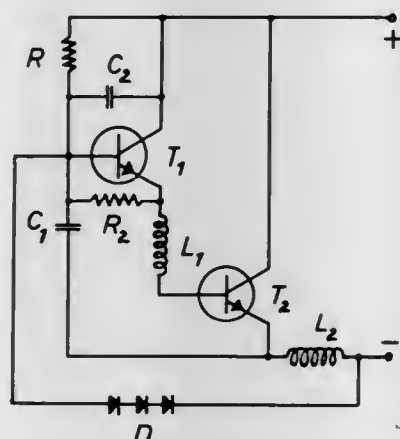
A clock oscillator which can be used as a master clock in a digital system comprising an emitter coupled logic gate

operated as a free running bistable device by means of a resistance-capacitance network coupled thereto and which is alternately charged and discharged at the desired output frequency and wherein the resistive element in the network is comprised of a metal oxide silicon field effect transistor (MOSFET) the drain-source resistance of which is selectively varied by means of a potential applied to the gate thereof from an externally controlled source for establishing a desired frequency of operation.

3,593,200
ELECTRONIC SWITCHING ARRANGEMENT FOR TIME KEEPING EQUIPMENT
Robert W. Reich, Via Nosedà 8, CH-6977 Ruvigliana, Switzerland

Filed Feb. 18, 1969, Ser. No. 800,146
Claims priority, application Switzerland, Oct. 20, 1968, 15737/68

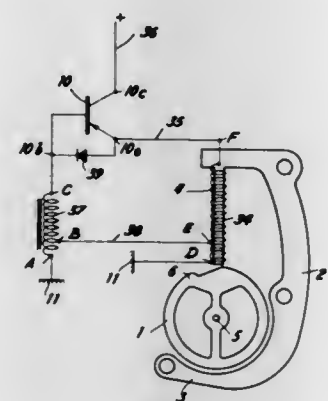
U.S. Cl. 331-116



A self-exciting electronic circuit for driving the mechanical rate element of a time-keeping device including means to vary the width of the drive pulse to compensate for amplitude differences caused by temperature or voltage changes.

3,593,201
DEVICE FOR KEEPING UP OSCILLATIONS OF ELECTROMAGNETIC OSCILLATORS
Michel Emil Leon Havot, and Guy Gustave Lucien Dubot, both of Dieppe, France, assignors to Societe Anonyme: Reveils Bayard, Saint Nicolas D'Almermont, Seine Maritime, France
Continuation of application Ser. No. 684,060, Nov. 17, 1967.
This application Apr. 21, 1969, Ser. No. 818,038

U.S. Cl. 331-116



An electrical device for sustaining the oscillations of an electromagnetic oscillator having an oscillating wheel-shaped element capable of reciprocal movement is disclosed. A fixed frame cooperating with the wheel-shaped element is positioned in the same plane as the element and has a pair of coils associated therewith for causing motion to be imparted

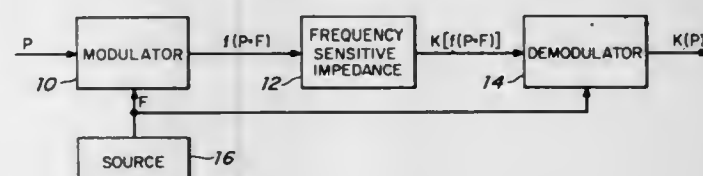
to the element. The coils are connected in an electrical circuit containing an electronic switch and an electrical source. The electronic switch includes a control transistor which avoids the need for frictional contacts. The function of said device depends on the magnetic remanence of a deformable magnetic circuit formed by the element and the frame to produce reading and driving signals.

3,593,202
AMPLITUDE CONTROL APPARATUS
Donald William Shute, Burlington, Mass., assignor to Space and Tactical Systems Corporation, Burlington, Mass.
Filed July 22, 1969, Ser. No. 843,422

U.S. Cl. 332

Int. Cl. H03c 3/12

2 Claims



Frequency responsive amplitude control apparatus is disclosed including means for combining a first parameter with a second parameter to produce a third parameter, and means for varying impedance to the third parameter in response to the frequency of the third parameter introduced by the second parameter to produce a fourth parameter whose amplitude is a function of the frequency of the second parameter.

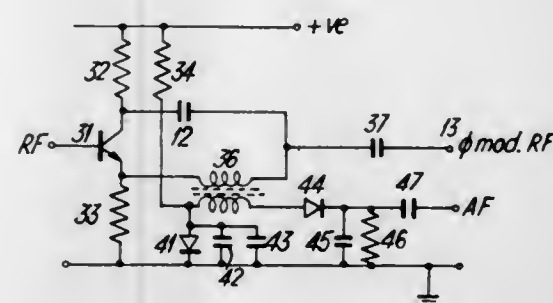
3,593,203
VARIABLE IMPEDANCE PHASE MODULATOR
Howard Gurnos King, and Graham Joseph Walker, both of London, England, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Aug. 11, 1969, Ser. No. 849,075

Claims priority, application Great Britain, Oct. 17, 1968, 49298/68

U.S. Cl. 332-29 R

Int. Cl. H03c 3/12

6 Claims



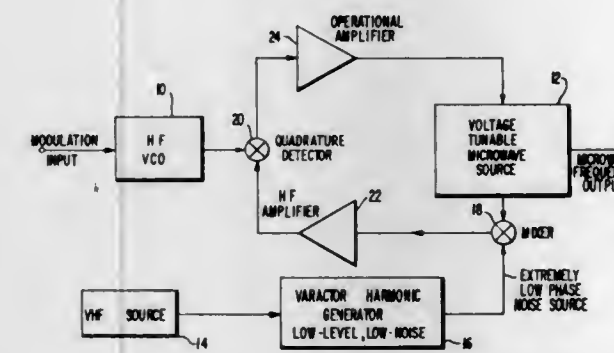
A wide deviation phase modulator in which a pure resistive variable element is used to phase modulate an RF carrier signal. In one embodiment the variable RF resistor is provided by the primary of a transformer. This resistor is provided by reflecting a resistance value whose value is varied by the modulating signal from the secondary to the primary of the transformer. The reflected resistance is provided by a diode coupled to one end of the secondary which rectifies the RF carrier and generates a unidirectional voltage in an RC circuit. The modulating AF signal is also supplied to the RC circuit. The combination of the unidirectional voltage and AF current produces a load impedance of varying value to the diode. This varying impedance is reflected through the transformer to the primary.

3,593,204
HIGH FREQUENCY VOLTAGE CONTROLLED OSCILLATOR
Daniel J. Healey, III, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 22, 1969, Ser. No. 826,979

U.S. Cl. 332-30 V

Int. Cl. H03c 3/22

10 Claims



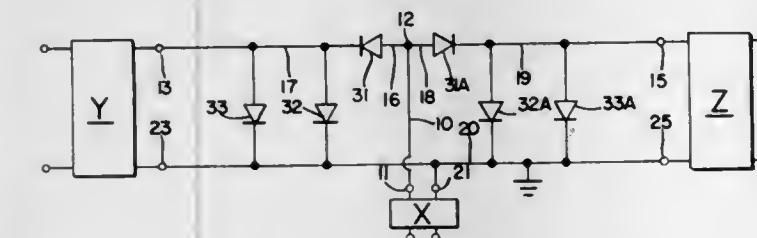
A high frequency voltage controlled oscillator incorporating a pair of varactor diodes in a bridge circuit forming the resonator section in a positive feedback circuit of a common base transistor oscillator.

3,593,205
SINGLE POLE N-THROW MICROWAVE SWITCH
Salvatore G. Coraccio, Carlisle, and Philip E. King, Acton, both of Mass., assignors to Alpha Industries, Inc., Newton Upper Falls, Mass.
Filed May 5, 1969, Ser. No. 821,656

U.S. Cl. 333-7

Int. Cl. H01p 1/10

3 Claims



A single pole multithrow microwave switch includes a number of terminal pairs, an outer conductor defining a cavity normally maintained at a reference potential intercoupling reference terminals in each terminal pair. Each terminal pair also has a signal terminal. An inner conductor within the cavity intercoupling one signal terminal with a common terminal within the cavity. The common terminal is connected to each signal terminal by a circuit containing serially connected and shunt-conductor diodes. The shunt-connected diode is coupled to the common terminal by a serially connected unilaterally conducting device in each circuit. The serially connected and shunt-connected diodes in each circuit are polarized so that mutually exclusive conduction occurs upon application of a bias signal. Portions of the inner conductor within the cavity coact with the outer conductor to define substantially inductive transmission line segments. These substantially inductive segments coact with the effective capacitance of the nonconducting diodes to comprise a substantially reflectionless filter circuit.

3,593,206
ANTENNA SWITCHING EXCHANGE
Helmut Schimann, Mount Pritchard, New South Wales, Australia, assignor to International Standard Electric Corporation, New York, N.Y.
Filed Sept. 5, 1969, Ser. No. 855,678
Claims priority, application Australia, Nov. 21, 1968, 46609

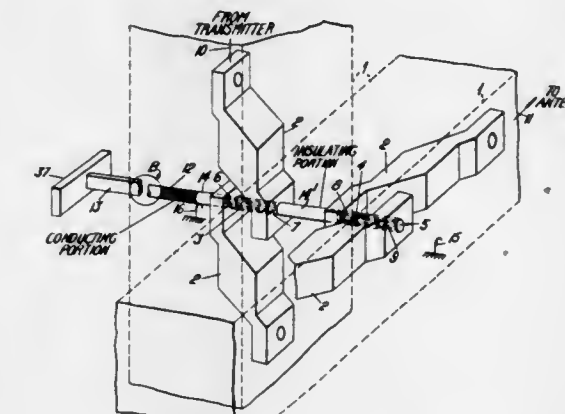
U.S. Cl. 333-7

Int. Cl. H01p 1/10; H01g 3/24

8 Claims

A switching matrix including an orthogonal array of $m \times n$ coaxial lines, where m equals the number of transmitters

which may be simultaneously connected to the matrix and n is the number of antennas to each of which any one of the m transmitters may be connected. Each of the n rows is made up of m separated sections of a coaxial line center conductor connected electrically by first conducting contacts at each cross-point of the matrix. Each of the m columns is made up of n separated sections of a coaxial line center conductor connected electrically by second conducting contacts at each cross-point of the matrix. The first and second conducting contacts for each cross-point are a part of a common rod separated by segments of insulating material. A cross-point

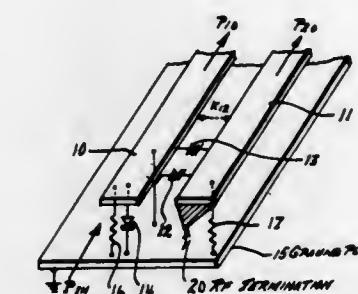


through connection is established by movement of the rod so as to connect the row to the column by relocation of the second conducting contact. Simultaneously the remaining length of the row and column are automatically grounded by the first conducting contact and a third conducting contact separated by insulating material from the second conducting contact to eliminate the presence of residual stubs in the matrix. A cam assembly to make and break the cross-point through connection is coupled to either all the rods of a column or all the rods of a row depending upon which has the lesser number of rods. A single motor drives the cam assembly.

3,593,207
MICROWAVE INTEGRATED POWER SENSITIVE COUPLER
James D. Woermbeke, Tampa, Fla., and Herbert Warren Cooper, Hyattsville, Md., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Apr. 27, 1970, Ser. No. 32,316

U.S. Cl. 333-10

6 Claims



A microwave power sensitive coupler utilizing planar or strip line techniques having a coefficient of coupling, K_{12} , between the input or main arm and the coupled power dependent arm. Thus, the coupled power would remain substantially constant over large dynamic ranges of input power level.

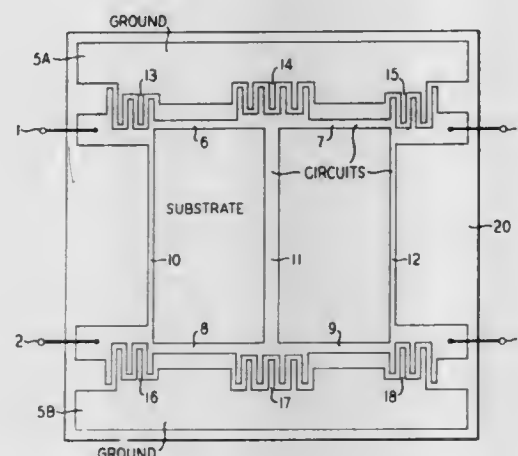
3,593,208

MICROWAVE QUADRATURE COUPLER HAVING LUMPED-ELEMENT CAPACITORS

John I. Smith, Morris Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Mar. 17, 1969, Ser. No. 807,827
Int. Cl. H01p 5/14

U.S. Cl. 333-10

5 Claims



A microwave quadrature coupler constructed of a plurality of thin conductive strips on a substrate, preferably formed by photolithographic means. Each of these strips comprises a section of transmission line having a physical length less than one-quarter wavelength at the midband frequency. The ends of these lines are coupled to other circuit elements through lumped capacitors also formed of thin layers coplanar with the conductive strips on the same substrate.

3,593,209

HYBRID FILTER FOR TWO-WAY TRANSMISSION OVER A SINGLE LINE

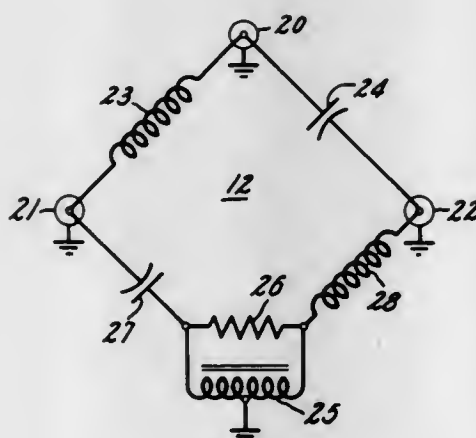
Norman C. Gittinger, Schenectady, N.Y., assignor to General Electric Co.

Filed Dec. 29, 1969, Ser. No. 888,799

Int. Cl. H01p 5/12; H03h 7/04

U.S. Cl. 333-11

7 Claims



A hybrid filter is disclosed wherein the characteristics of a hybrid coupler and high and low pass filters are combined. Each port of the hybrid filter exhibits a constant input impedance that is independent of frequency. The hybrid filter provides a common, low pass and a high pass port, thus providing both frequency and power isolation between branches.

WAVEGUIDE JUNCTION CIRCULATOR WHEREIN ALL MODES IN EACH BRANCH ARM ARE EVANESCENT

Richard Finnie Skedd, Bishop's Stortford, England, assignor to International Standard Electric Corporation, New York, N.Y.

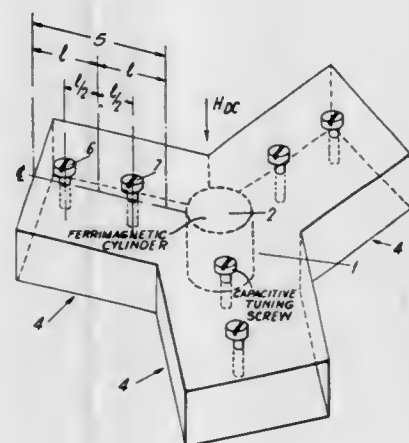
Filed Dec. 19, 1969, Ser. No. 886,639

Claims priority, application Great Britain, Mar. 5, 1969, 11783/69

U.S. Cl. 333-1.1

Int. Cl. H01p 1/32, 5/12

5 Claims



A waveguide junction circulator of the type having a resonant cavity loaded with ferrimagnetic material wherein the coupling ports consist of a length of waveguide having a cutoff frequency which is higher than the operating frequency and wherein said waveguide is tuned to the operating frequency by inserting therein, along the broad wall at predetermined lengths, screws whose capacitive reactance is equal to the conjugate of the imaginary characteristic impedance of the waveguide. In a preferred embodiment, the cutoff frequency of the rectangular waveguide is made tunable and the resulting passband variable by inserting in said waveguide, along the sidewalls, ferrimagnetic strips and subjecting said strips to a variable magnetic field.

3,593,211

ADJUSTABLE ATTENUATION EQUALIZER

Yasutoshi Ishizaki, and Nobuyoshi Yoshida, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

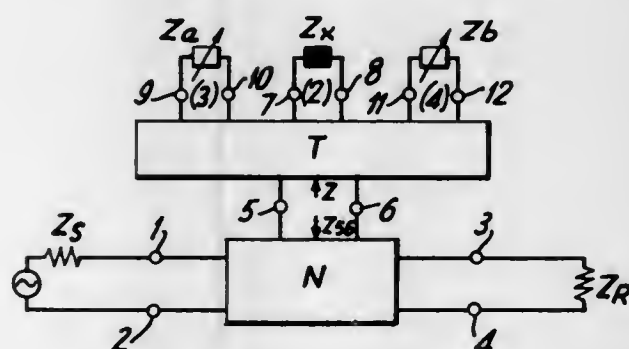
Filed July 15, 1968, Ser. No. 745,047

Claims priority, application Japan, July 17, 1967, 42/45954

Int. Cl. H03h 7/22

U.S. Cl. 333-28

5 Claims



An adjustable attenuation equalizer having multiple independently adjustable loss characteristics in either distinctly separated or overlapping frequency ranges comprises two or more adjustable impedance elements in a single equalizing network. The equalizer of the invention also includes fixed impedance elements, the number of which is equal to the number of transformer networks in the equalizing network.

3,593,212

TEMPERATURE-COMPENSATED DELAY LINE

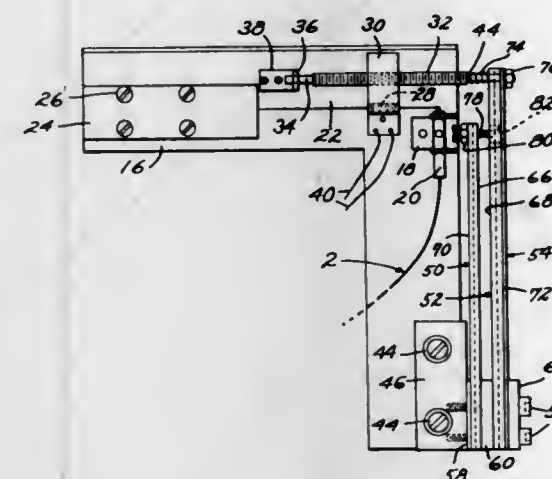
Robert E. Lindemann, St. James, N.Y., assignor to Digital Devices, Inc., Syosset, N.Y.

Filed Apr. 14, 1969, Ser. No. 815,741

Int. Cl. H03h 9/30

U.S. Cl. 333-30

9 Claims



A temperature-compensated delay line wherein one of the input and output transducers thereof is movable, and including means for moving the transducer according to changes in ambient temperature to maintain the time delay at a predetermined value.

3,593,213

ULTRASONIC DELAY LINE AND METHOD OF MANUFACTURING AN ULTRASONIC DELAY LINE

Cornelis Franx, and Manfred Franz Karl Gammel, both of Emmasingel, Eindhoven, Netherlands, assignors to U. S. Philips Corporation, New York, N.Y.

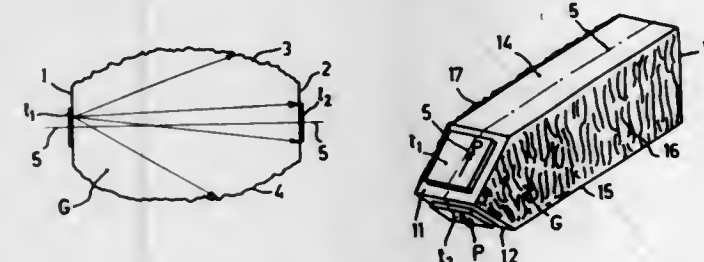
Filed Dec. 6, 1967, Ser. No. 688,482

Claims priority, application Netherlands, Dec. 28, 1966, 6618228

Int. Cl. H03h 9/30

U.S. Cl. 333-30

12 Claims



An ultrasonic delay line comprising a glass body having first and second surfaces on which an input transducer and an output transducer are mounted. A third surface of the body perpendicular to the first two reflects energy towards a fourth parallel surface opposite thereto and fluted to damp the energy received. The transducers are polarized parallel to their respective contact surfaces and parallel to the third surface. The main energy propagation path in the body is parallel to the third surface.

3,593,214

HIGH IMPEDANCE TRANSDUCER

Herbert Warren Cooper, Hyattsville, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 29, 1969, Ser. No. 820,111

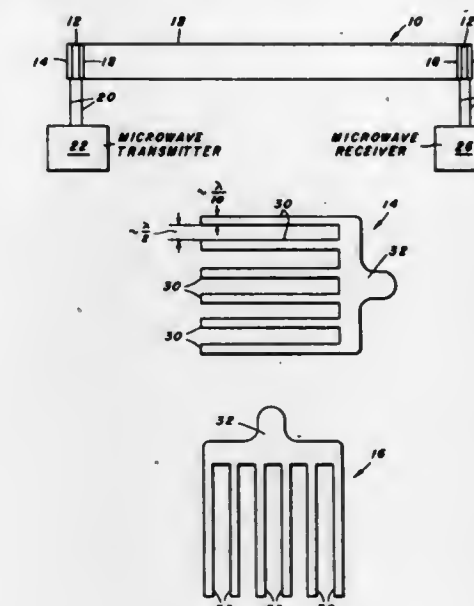
Int. Cl. H03h 9/30

U.S. Cl. 333-30

6 Claims

Various electrode structures are disclosed for reducing the capacitance between the electrodes of electromechanical

transducers of the piezoelectric type. The electrode structures used thereby increase the impedance of such transducers.



cers so that a low loss match can be effected between the transducers and associated electromagnetic circuitry.

3,593,215

FIELD SHAPING FOR MAGNETOELASTIC DELAY LINES

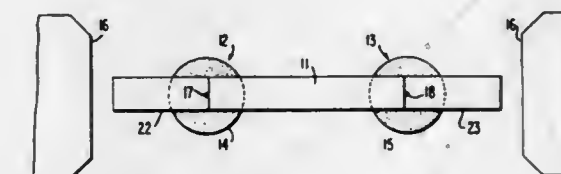
Robert A. Moore, Severna Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 1, 1969, Ser. No. 811,710

Int. Cl. H03h 9/30

U.S. Cl. 333-30

9 Claims



Desired magnetic field shaping in a delay line for controlling its dispersive characteristics is achieved by placement of a ferrite material in intimate contact with a high Q magnetic insulating (YIG) material. Low loss is achieved by maintaining the RF coupling circuit in intimate contact with the crystal end and having the dispersive characteristic of the line controlled by ferrite magnetic field shaping material and the RF circuit interpenetrate. Dispersive characteristics of magnetoelastic delay lines are thus controlled through field shaping.

3,593,216

RECIPROCAL FERRITE FILM PHASE SHIFTER HAVING DIGITALLY CONTROLLED RELATIVE PHASE SHIFT STEPS

Daniel C. Buck, Hanover, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 2, 1969, Ser. No. 821,422

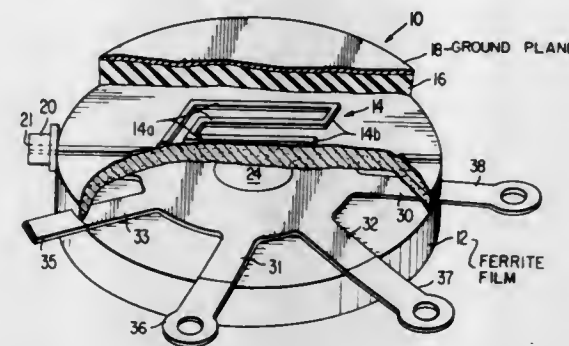
Int. Cl. H01p 1/18

U.S. Cl. 333-31 R

10 Claims

The phase shifter comprises a ferrite film structured to define a multiple toroid configuration and having deposited on one surface thereof a microwave transmission line defining the direction of propagation of microwave energy. Flux driving means are digitally controlled for selectively driving the film to remanent conditions of magnetization of predetermined orientations relative to the direction of microwave propagation. In a preferred embodiment, the flux driving means includes a conducting film deposited between two layers of the ferrite film, which layers are integrally formed about the boundaries of the conducting film to define the

multiple toroid configuration. Energization of selected latching current paths defined by the film provides for the selective flux driving of the film. Where β is the propagation constant of the microstrip, relative differential phase shift is



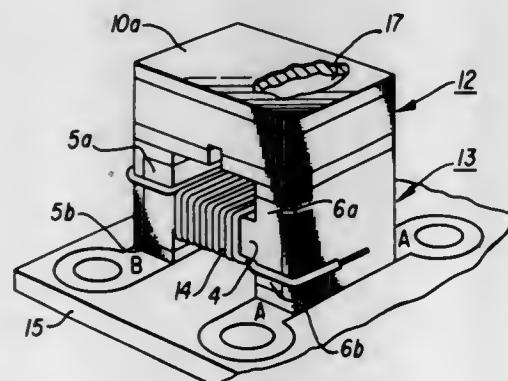
expressed as $(\Delta\beta/\beta)$, and is a function of the remanent field strength in the direction of propagation. Selective current pulsing of the conducting film to establish latching current in selected ones of the current paths permits rapid switching of each step of relative phase shift.

3,593,217

SUBMINIATURE TUNABLE CIRCUITS IN MODULAR FORM AND METHOD FOR MAKING SAME
Roger L. Weber, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 27, 1967, Ser. No. 678,619
Int. Cl. H03h 3/00, 5/06; H01j 15/02
U.S. Cl. 333-70

14 Claims



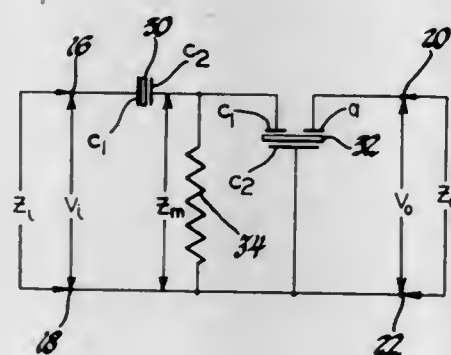
Disclosed is a subminiature tunable circuit in modular form and the method of making the modular circuit. A capacitor is mounted on an inductor to form a modular tunable circuit. By appropriate connections, either series or parallel reactive circuits are formed with intermediate tap connections, when desired. The circuit is tuned by changing the value of the capacitor by air abrasion techniques.

3,593,218

PIEZOELECTRIC FILTER NETWORK
Paul W. Wood, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 5, 1970, Ser. No. 16,821
Int. Cl. H03h 9/00, 9/18; H01v 7/00
U.S. Cl. 333-72

5 Claims



A plurality of piezoelectric disc resonators are connected to form various filter networks each exhibiting a composite

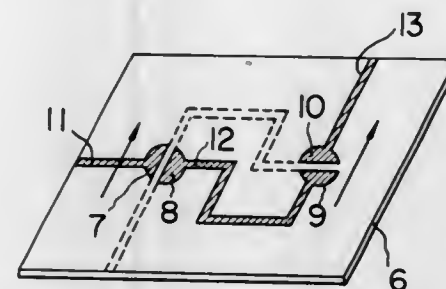
frequency response curve having the desirable selectivity characteristics of the individual frequency response curves of the several resonators. The selectivity of the composite frequency response curves is sufficient to permit the utilization of each of the filter networks as an IF filter in a conventional superheterodyne radio receiver.

3,593,219

CERAMIC FILTER FOR HIGH FREQUENCIES
Hidetoshi Tsuchiya, Suzaka-shi, Japan, assignor to Toko Kabushiki Kaisha, Tokyo-to, Japan

Filed July 15, 1968, Ser. No. 744,927
Claims priority, application Japan, July 24, 1967, 42/47532
Int. Cl. H03h 9/04; H01v 7/00
U.S. Cl. 333-72

8 Claims



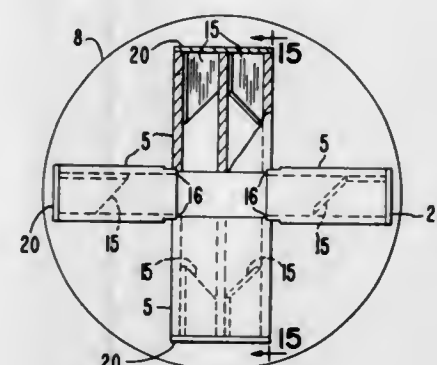
At least two filter elements one having a steeply peaked and narrow-band characteristic and one having a wide-band and gently sloping skirt characteristic are formed and electrically connected on a single piezoelectric ceramic plate to form a ceramic filter for high frequencies of 5 MHz. and higher in which thickness shear vibration is utilized, and which exhibits low spurious response of suitable bandwidth and a steep cutoff characteristic.

3,593,220

HIGH POWER MICROWAVE LOW-PASS FILTER OF THE LEAKY WALL TYPE
John P. Rooney, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed July 15, 1968, Ser. No. 744,806
Int. Cl. H01p 1/16, 1/22; H03b 7/10
U.S. Cl. 333-73

10 Claims



A high power microwave low-pass filter of the "leaky wall" type is disclosed. The filter employed in the output circuit of the high power microwave source such as a klystron, magnetron, or the like between the source and the load to suppress the harmonic output from the microwave source. The microwave filter comprises a section of main waveguide which is typically rectangular provided with flanges on its opposite ends for connection to the source and the load, respectively. An array of secondary waveguides, which are dimensioned to be below cutoff for the fundamental frequency of the microwave energy to be passed by the filter are coupled through the walls of the primary waveguide to the microwave energy in the primary guide. The secondary waveguides are provided with resistive card attenuators for absorbing the microwave harmonic energy coupled from the primary waveguide to the attenuators via the secondary

waveguides. The secondary waveguides are rectangular hollow waveguides having at least nearly equal height and width dimensions such that the secondary waveguides will support cross polarized microwave energy in the second harmonic range of the primary waveguide whereby attenuation of the harmonic content of the microwave energy in the primary waveguide is enhanced. The walls of the primary guide are defined by the inner ends of the secondary rectangular waveguides. The resistive card attenuators are disposed on a diagonal of the secondary waveguides for coupling to all the possible modes of the secondary waveguides. In one embodiment, the planes of the walls of the secondary waveguides are disposed at substantially 45° to the longitudinal axis of the primary guide to enhance coupling of the secondary waveguides to the fields in the primary waveguide.

3,593,221

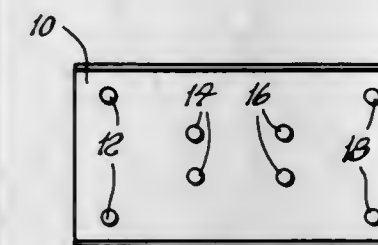
MEANS FOR DESIGNING A FIXED TUNED, DIRECT-COUPLED FILTER

John Reed, Belmont, Mass., assignor to The United States of America as represented by the Secretary of the Navy
Continuation-in-part of application Ser. No. 614,377, Feb. 2, 1967, now abandoned. This application Feb. 17, 1970, Ser. No. 12,003

Int. Cl. H03n 7/10

U.S. Cl. 333-73 W

1 Claim



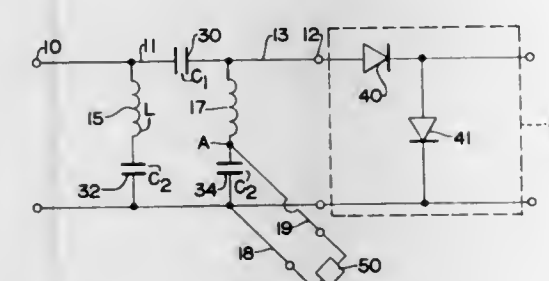
Means for precise design of a direct-coupled resonant filter without the use of adjustable tuning devices. The filter is of the type using a series of reactive obstacles within a waveguide (or transmission and, finally, each obstacle and its associated waveguide section forming a quarter-wave transformer stage. The overall design is approximately calculated on paper; each quarter-wave transformer stage is resonated by charting the effect of moving the positions of the obstacles and thus determining the precise positioning for the desired frequency and Q; and, finally the stages are fitted together by making the reference plane of each previous stage coincide with the reference plane of its succeeding stage so that reflections are minimized.

3,593,222

MICROWAVE SERIES SWITCH BIASING CIRCUIT
Peter A. Rizzi, Dedham, Mass., assignor to Alpha Industries Inc., Newton Upper Falls, Mass.

Filed May 21, 1969, Ser. No. 826,510
Int. Cl. H01p 1/20, 1/10
U.S. Cl. 333-73 R

9 Claims



A series biasing circuit includes a three terminal filter circuit within an outer conductor defining a cavity. The filter circuit has two signal terminals extending through and insulated from the wall of the cavity and common terminals connected to the cavity. A conducting wire extends through and

is insulated from the outer conductor and into the cavity and connects to the filter circuit at a point which is capacitively insulated from the outer conductor. Portions of the inner conductors coact with the outer conductor within the cavity to define substantially inductive transmission line segments. These substantially inductive segments coact with substantially capacitive elements to define a substantially reflectionless filter circuit.

3,593,223

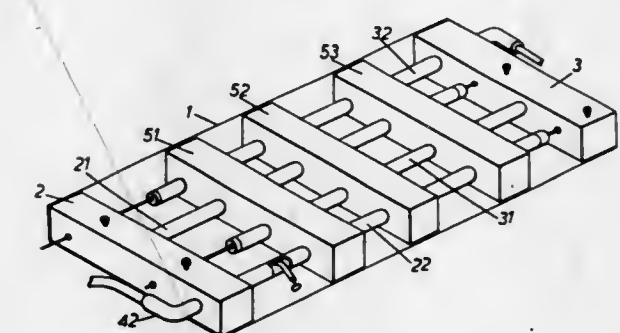
ELECTRIC WAVE FILTER EMPLOYING INTERDIGITAL LINE STRUCTURES

Howard Gurnos King, and Graham Pye, both of London, England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Aug. 6, 1969, Ser. No. 848,026
Claims priority, application Great Britain, Aug. 15, 1968, 39008/68

Int. Cl. H03h 13/00; H01p 7/00, 5/02
U.S. Cl. 333-73

10 Claims



Interdigital electric wave filters are proposed which use mechanical structures having dimensions of less than one-quarter wavelength making the filter electrically resonant at frequencies of interest. Rod elements forming the interdigital structures are connected at one end or the other to the ground plane. The input and output connections are made to points on the ground plane adjacent to the outermost rod elements to provide an impedance close to the value of the characteristic impedance of the coupling cable.

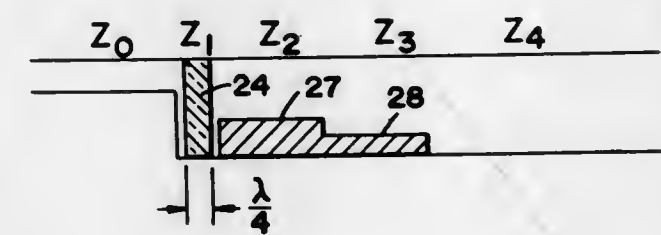
3,593,224

MICROWAVE TUBE TRANSFORMER-WINDOW ASSEMBLY HAVING A WINDOW THICKNESS EQUIVALENT TO ONE-QUARTER WAVELENGTH AND METALLIC STEP MEMBERS TO TRANSFORM IMPEDANCE

Robert E. Eggers, San Jose, and Karl J. Heintz, Palo Alto, both of, Calif., assignors to Teledyne, Inc., Los Angeles, Calif.

Filed Feb. 4, 1969, Ser. No. 796,463
Int. Cl. H01p 1/08, 5/08; H03m 13/00
U.S. Cl. 333-98

6 Claims



A microwave tube transformer-window is described utilizing a waveguide step transformer with a solid block window one-quarter wavelength long and producing the same impedance as the replaced step.

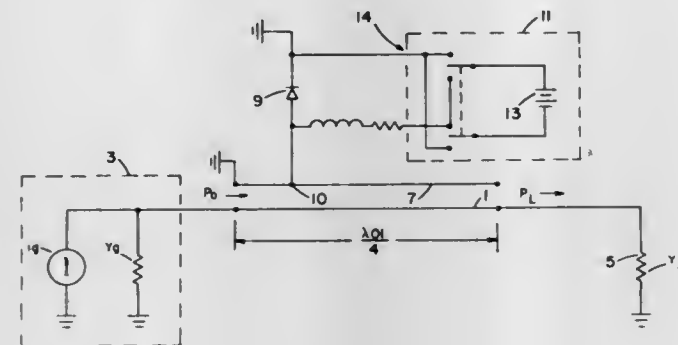
3,593,225

L-BAND SWITCHABLE NARROW BANDSTOP FILTER
 Reed E. Fisher, Parsippany, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed Sept. 29, 1969, Ser. No. 861,760
 Int. Cl. H03h 13/00; H01p 7/02, 3/08

U.S. Cl. 333-73 S

3 Claims



An air stripline filter has one or more loosely coupled parallel resonators. Each resonator has a shunt PIN diode tapped thereto. When the diode is forward biased by a reversible bias circuit the narrowband rejection notch of the filter is moved forward in frequency.

3,593,226

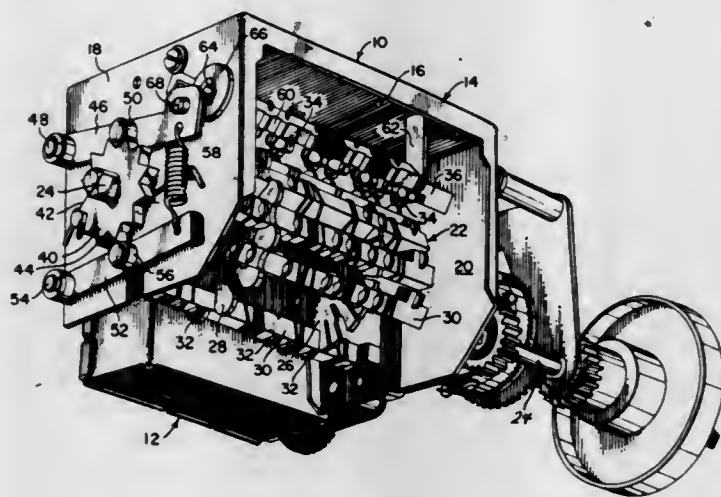
COMBINED VHF-UHF TUNER

Morton Weigel, Bloomington, Ind., assignor to Sarnes Tarzian, Inc., Bloomington, Ind.

Filed Apr. 14, 1969, Ser. No. 815,773
 Int. Cl. H03j 5/20

U.S. Cl. 334-50

8 Claims



A combination VHF-UHF tuner is provided in which the common VHF-UHF station selector shaft is detented in 24 positions. Alternate ones of these positions are employed in VHF reception and the other intermediate positions are employed for UHF reception of different UHF stations within predetermined groups of UHF stations. A 12-position detent wheel is employed in conjunction with a pair of follower arms arranged so that 24 detent positions are provided by alternate engagement of the arms in the notches of the detent wheel. Movement of one of the arms is used to actuate a 40 megacycle tuning stick so that it is operatively connected into the VHF portion of the tuner in each of the UHF positions.

AUTOMATIC ELECTRODYNAMIC BLOWOFF BREAKER WITH STATIONARY CONTACT FORM OF TWO SERIES WOUND U-SHAPED MEMBERS

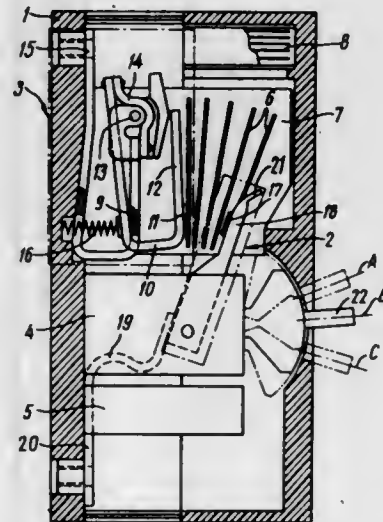
Gennady Fedosevich Milskevich, Moskovsky pr., 193, kv. 7.; Anatoly Mikhailovich Bela-Belov, ulitsa Krasnoi Zvezdy, 4, kv. 1; Vladislav Yakovlevich Guschin, Moskovsky pr., 96, kv. 31; Viktor Izrailevich Rakhlin, Moskovsky pr., 228, kv. 54.; Viktor Revoldovich Oktyabrev, Moskovsky pr., 96, kv. 143; Jury Nikolaevich Vorontsov, ulitsa Prospektynaya, 28; Oleg Ivanovich Artsybashev, Korsikovsky per., 73, and Fedor Andreevich Vakhomchik, ulitsa Motornaya, 5-b, kv. 3., all of Kharkov, U.S.S.R.

Filed Feb. 28, 1968, Ser. No. 709,100

Int. Cl. H01h 77/10

U.S. Cl. 335-16

9 Claims



An automatic breaker, each pole of which comprises a movable and stationary system of contacts, characterized in that the stationary contact system is constituted as a series-wound coil having at least one turn and serving as an electrodynamic current limiter. The coil is composed of a stationary and movable element, the movable element of the coil serving as a stationary contact.

3,593,228

DEVICE FOR SELECTING AND OPERATING CONTACT SCREENS IN A PHOTOMECHANICAL (PROCESS) CAMERA

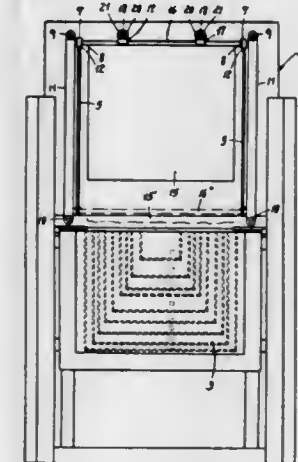
Yoshio Miyauchi, Hikone, Japan, assignor to Dainippon Screen Mfg., Ltd., Kyoto, Japan

Filed Nov. 18, 1968, Ser. No. 776,620

Claims priority, application Japan, Nov. 18, 1967, 42/74,060
 Int. Cl. G03b 27/00

U.S. Cl. 355-18

4 Claims



Device for Selecting and Positioning Contact Screens in a Photomechanical (Process) Camera wherein the screens are received in the upper section of the rear case of the camera

and selectively positioned along an axis vertically displaced from the optical axis.

3,593,229

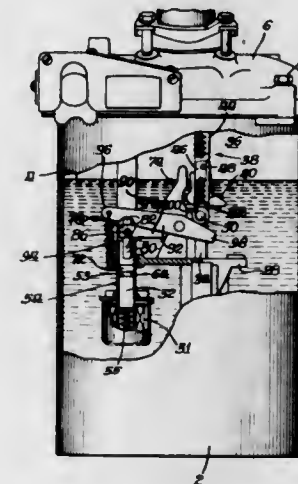
RESETTING MEANS FOR SECTIONALIZING SWITCH
 Kazuo Henry Date, S. Milwaukee, Wis., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Dec. 5, 1969, Ser. No. 882,499

Int. Cl. H01h 75/04

U.S. Cl. 335-29

14 Claims



A quick reset means is disclosed for a sectionalizing switch having a trip device which is advanced to a tripping position to cause the switch operating means to move to an open position and open the switch contacts. The reset means includes resilient means held loaded by the switch operating means when the latter is in its closed position. The reset means is movable into impacting engagement with the trip mechanism due to the force supplied by the resilient means. Thus, when the operating means is tripped and moved to its open position, the reset means is released and impacts the trip mechanism to quickly reset the trip mechanism.

3,593,230

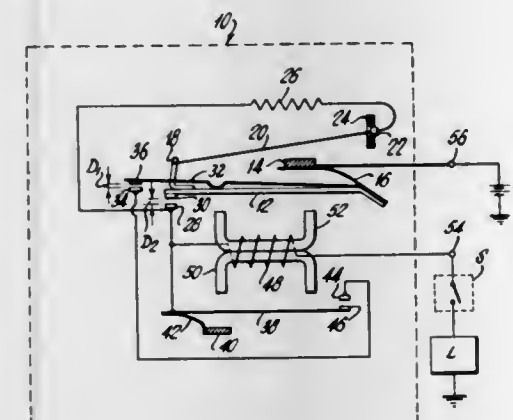
LOAD INDEPENDENT THERMO-MAGNETIC FLASHER
 Hemming G. Silberg, Summit, N.J., assignor to Wagner Electric Corporation

Filed Oct. 27, 1969, Ser. No. 869,551

Int. Cl. H01h 61/06

U.S. Cl. 335-141

9 Claims



A thermomagnetic flasher having a main pull-wire controlled armature to make and break a first contact pair, an auxiliary armature extending from the main armature to make and break a second contact pair, and an electromagnetically-controlled armature to make and break a third contact pair. During heating of the pull wire, the contact pairs close in second-first-third order, and during cooling of the pull wire, the contact pairs open in first-second-third order. The second and third contact pairs control a load current path paralleling the path controlled by the first contact pair. In the foregoing cycle, during heating of the pull wire, the path through the first contact pair closes first to energize the

load, and the path through the second and third contact pairs closes second. During cooling of the pull wire, the path through the first contact pair opens first, but the load is still energized by the path through the second and third contact pairs, which opens second.

3,593,231

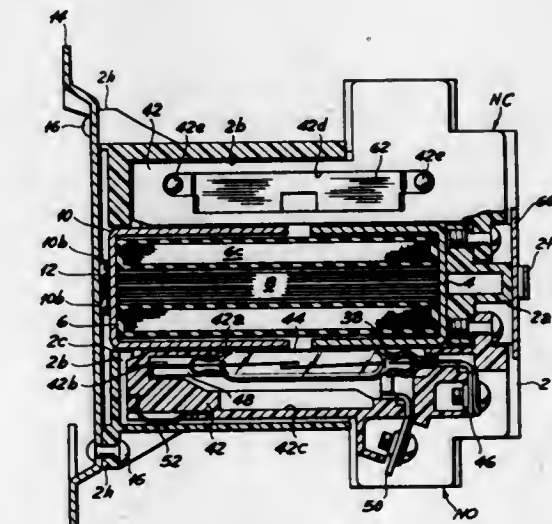
CONVERTIBLE SEALED REED SWITCH RELAY
 Lawrence E. Van Horn, Waukesha, and Edward Wayne Hart, Milwaukee, both of, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Dec. 14, 1966, Ser. No. 601,693

Int. Cl. H01h 1/66, 9/08

U.S. Cl. 335-152

15 Claims



1. A convertible electromagnetic switching device comprising, in combination; a hollow insulating enclosing case; an electromagnet mounted within said case, said electromagnet including a coil having an axial opening therethrough, a magnetizable core extending through said axial opening, and a pair of magnetizable pole pieces overlapping the respective ends of said coil and said core and extending toward each other along opposite external sides of said coil; at least one opening in said case adapted to receive at least one magnetically operable-sealed switch means therein; at least one of said switch means removably inserted into said opening in said case to extend alongside of said magnetizable pole pieces at the opposite external sides of said coil of said electromagnet within said case to be operated upon energization of said electromagnet; and wherein said switch means inserted into said opening in said case comprises a magnetically operable-sealed reed switch unit mounted within an insulating housing to form a switch module, said housing having an external shape to be received by said opening in said case, a pair of wiring terminals secured to said housing to be accessible to the exterior of said enclosing case when said switch module is inserted into said opening therein, and means connecting the current carrying members of said reed switch unit to said pair of wiring terminals.

3,593,232

AUXILIARY CONTACT INTERLOCKING DEVICE
 Eiji Shibuya, Iruma-gun; Takeshi Konomoto, Fukuoka-cho, and Akihiro Sawamura, Kita-Adachi-gun, all of, Japan, assignors to Sanken-Airpax Company Limited, Tokyo, Japan

Filed July 29, 1969, Ser. No. 845,840

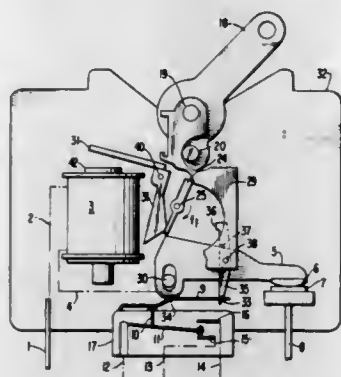
Int. Cl. H01h 9/24

U.S. Cl. 335-160

3 Claims

Disclosed is a circuit protector having an interlock arrangement for operating an auxiliary switch when the protector is tripped by an overcurrent but not when the main contacts are manually opened. An interlock plate receives the stepped end of a support arm and normally holds the auxilia-

ry switch in a first condition. Overcurrent tripping rotates the support arm to free the interlock plate, allowing the auxiliary



switch to operate. The auxiliary switch is reset through the interlock plate when the main contacts are manually closed.

3,593,233

ELECTROMAGNETIC STARTING SWITCH

Jakob Ellenberger, Altdorf, Germany, assignor to Ellenberger & Poensgen GmbH

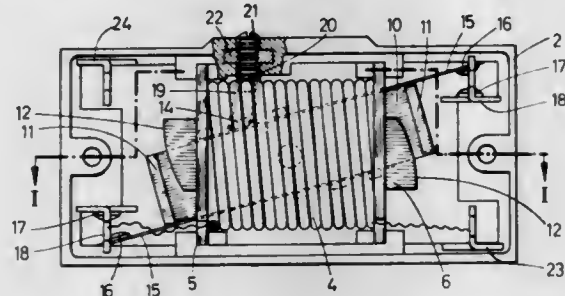
Filed July 22, 1969, Ser. No. 843,647

Claims priority, application Germany, Aug. 16, 1968, P 17 63 823

Int. Cl. H01h 51/06

U.S. Cl. 335—125

3 Claims



A starting switch for a single-phase induction motor has an armature rotatable by an electromagnet to close two pairs of electrical contacts connectable to the starting winding of the motor. The armature is balanced about its axis of rotation.

3,593,234

TRIP ADJUSTMENT MEANS FOR INSTANTANEOUS TRIP CIRCUIT BREAKER

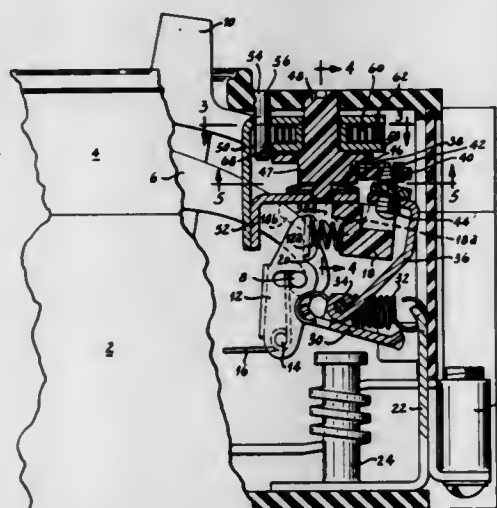
Allan P. Charbonneau, Wauwatosa, and Howard W. Thom, Elm Grove, both of, Wis., assignors to Cutter-Hammer, Inc., Milwaukee, Wis.

Filed Feb. 9, 1970, Ser. No. 9,565

Int. Cl. H01h 71/74

U.S. Cl. 335—176

7 Claims



An externally accessible adjustment cam for varying the armature gap of a magnetic trip circuit breaker is spring biased to the lowest setting through a lost motion connection

with a disc to which a torsion spring is operatively attached. The cam may be rotated to any one of a plurality of higher settings, driving with it the spring biased disc. A pin is inserted through an opening in the circuit breaker case to engage and rotatably fix the disc at the chosen position to set the upper limit for the cam while the latter may be rotated backward through the lost motion connection to a somewhat lower setting if desired.

3,593,235

LINEARLY OPERATED CIRCUIT BREAKER

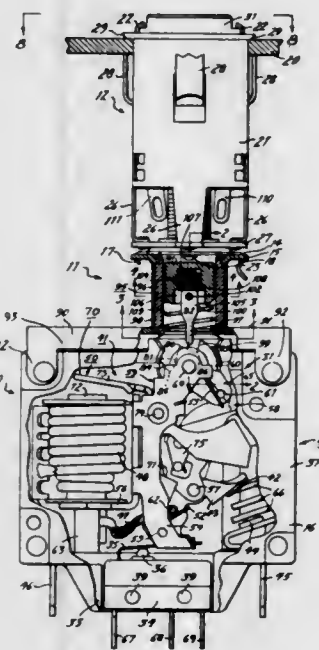
Ronald Nicol, Trenton, N.J., assignor to Heinemann Electric Company, Trenton, N.J.

Filed Dec. 2, 1969, Ser. No. 881,502

Int. Cl. H01h 3/54

U.S. Cl. 335—186

18 Claims



A circuit breaker including a case, a pair of contacts enclosed by the case and a collapsible linkage mechanism to move one of the contacts between contacts "closed" and "open" positions, the mechanism including a pivotal "handle" link. The circuit breaker also includes electrical means for sensing predetermined electrical conditions and collapsing said mechanism to electrically trip "open" said contacts at such time. A unitary adapter is secured to the case and includes an actuator movable generally linearly into engagement with the pivotal "handle" link and automatically retracted back to a neutral position out of engagement with the pivotal "handle" link to operate the mechanism for moving one of the contacts to the contacts "closed" or "open" positions while permitting the pivotal "handle" link to freely move when the mechanism is collapsed on predetermined electrical conditions. The circuit breaker also includes an auxiliary switch means responsive to whether said contacts are "closed" or "open." A pushbutton module is secured to the unitary adapter and has a plunger engageable with the unitary adapter for actuating the latter. The pushbutton includes electrical lamps alternately illuminated to indicate whether said contacts are "closed" or "open."

3,593,236

MAGNETIC SWITCH

Roland D. Beck, La Crescenta, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 617,191, Feb. 20, 1967, now abandoned. This application Mar. 23, 1970, Ser. No. 21,606

Int. Cl. H01h 1/66, 5/02, 9/00

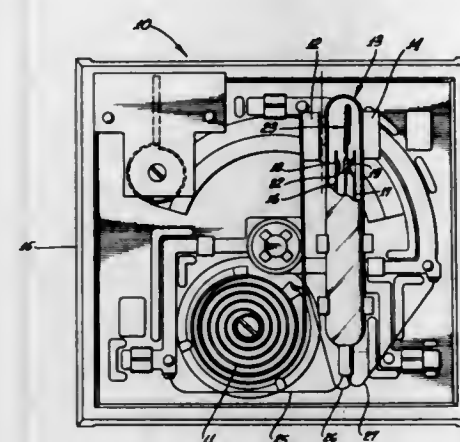
U.S. Cl. 335—205

19 Claims

A set of switch points are enclosed within a glass structure and include an armature that is magnetically movable to effect different connection arrangements of the switch points. A first magnet when acting alone attracts the armature to provide a first connective arrangement. A second magnet carried by a heat responsive bimetal is movable thereby to a

position where its attractive influence on the armature overcomes that of the first magnet and transfers the points to a different connective arrangement. An alternative embodi-

magnet disposed opposite to the permanent magnet and rotatably engaged with the shaft. This device serves to open



ment has the two magnets mounted for unitary movement, that is, as the one magnet is moved into attractive influence, the other magnet is moved away, and vice versa.

3,593,237

GALVANOMETRIC TRANSDUCER

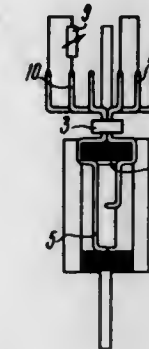
Moisel Abramovitch Lekhtman, ulitsa Pugacheva, 53, kv. 60; Azik Iosifovich Pereberg, ulitsa Pushkina, 16, kv. 12, and Tamara Yakovlevna Shraifeld, ulitsa Floritor, 8/4, kv. 40, all of Kishinev, U.S.S.R.

Filed Dec. 24, 1969, Ser. No. 888,007

Int. Cl. H01f 7/08

U.S. Cl. 335—222

1 Claim



A galvanometric transducer having a movable system and an element operatively connected to this movable system, this element being positioned in a magnetic field and adapted to respond to variations of this magnetic field; this element has at least two current supply leads and at least two other leads, positioned in the magnetic field; in accordance with the herein disclosed invention, these at least two other leads extend parallel to the vertical axis of the movable system and are fixedly attached to the movable system, at least two current supply leads of the element being positioned to one side of the horizontal central line of the movable system.

3,593,238

THROTTLE CONTROL UNIT FOR CONTROL SYSTEM OF AUTOMOTIVE AUTOMATIC TRANSMISSION

Yoichi Mori, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Oct. 29, 1969, Ser. No. 872,313

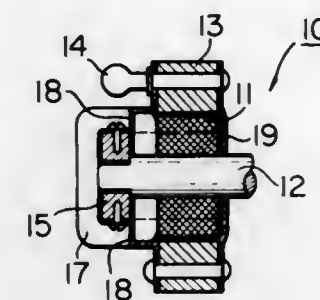
Claims priority, application Japan, Oct. 30, 1968, 43-78,833

Int. Cl. H01f 7/08

U.S. Cl. 335—229

3 Claims

A device for controlling the throttle valve in an automotive engine having a rotary permanent magnet carried on the shaft of the throttle valve, a stationary electric magnet producing a longitudinal magnetic field and connected by a pin with an accelerator pedal, an electromagnet having a coil for producing a lateral magnetic field, a support for connecting the permanent magnet with the electromagnet, another



and close the throttle valve in the engine in response to an electric signal.

3,593,239

MAGNETIC SYSTEM

Wytze Hofman, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

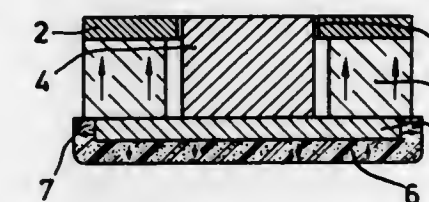
Filed Feb. 24, 1969, Ser. No. 801,375

Claims priority, application Netherlands, Mar. 1, 1968, Oct. 16, 1968, 6802907; 6814825

Int. Cl. H01f 7/00

U.S. Cl. 335—231

5 Claims



A magnetic system comprising an annular, axially magnetized, permanent main magnet, engaging on either end a soft iron plate; at the center of the main magnet and between the plates a soft iron core is arranged so as to be surrounded, with an airgap formed by one plate and said core, while on at least one of the plates an auxiliary magnet is provided which is magnetized mainly in the opposite direction of stray external magnetic flux.

3,593,240

SOLENOID STRUCTURE HAVING SINGLE SHEET METAL PLUNGER AND/OR YOKE

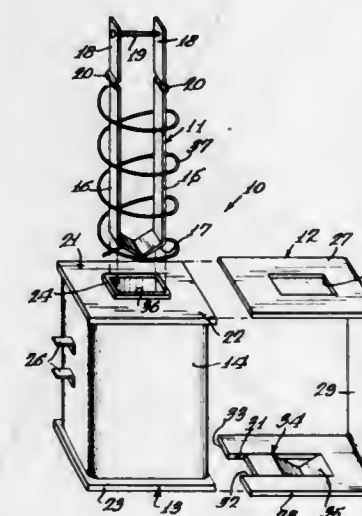
Frank S. Garczynski, St. Joseph, Mich., assignor to Whirlpool Corporation

Filed Mar. 10, 1969, Ser. No. 805,472

Int. Cl. H01f 7/12

U.S. Cl. 335—249

7 Claims



An electrical solenoid structure of extremely simple and economical construction. The plunger is stamped from sheet metal and includes an attaching portion unitary therewith.

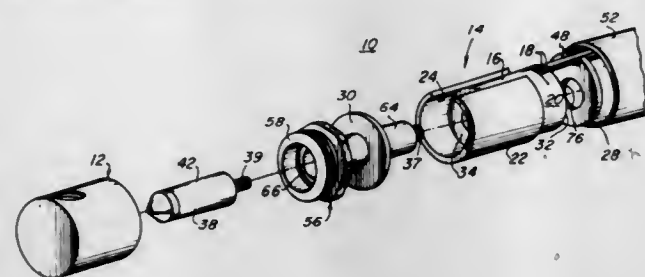
The inner end of the plunger defines a bight portion and the yoke includes a complementary formed portion to provide high magnetic pull as a result of the reduced magnetic gap. The plunger may have ribs arranged to reduce the airgap between the plunger and yoke.

3,593,241 SOLENOID VALVE HAVING A SLOTTED FLUX SLEEVE FOR NESTING THE WINDING LEADS

Alfred J. Ludwig, 61 B Linn Drive, Verona, N.J.
Filed July 18, 1969, Ser. No. 842,909
Int. Cl. H01f 7/08

U.S. Cl. 335—262

20 Claims



An electromagnetically operated device is disclosed, the purpose of which is to selectively displace an armature between first and second positions. The solenoid-type device includes a coil member having a pair of energizing leads extending therefrom, a magnetic flux path surrounding the coil member, and a cover member surrounding the magnetic flux path. A portion of the magnetic flux path is defined by a magnetizable sleeve surrounding the coil member and in direct contact therewith so as to concentrate the flux generated by the coil. The sleeve includes an elongated gap along its length to facilitate the passage of the pair of energizing leads from the coil to an external electrical source. The cover member is constructed of nonmagnetizable material such as nylon, whereby the cover remains relatively cool and at the same time does not attract extraneous metallic particles. Although the electromagnetically operated device of the instant invention was particularly designed for alternately opening and closing a valved fluid path, a special adapting member makes the electromagnetically operated unit applicable to a variety of other applications which might necessitate the utilization of a selectively displaceable member. A unique assembling procedure makes the entire unit easily removable from its functional environment.

3,593,242 LIQUID COOLED MAGNET COIL FOR PARTICLE ACCELERATION

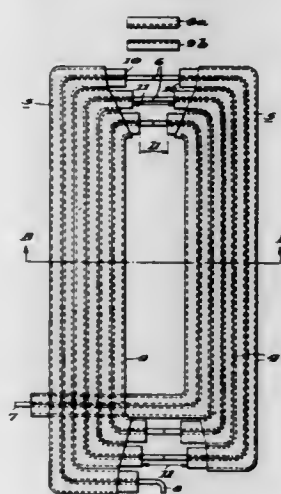
Arne Andersson, Vasteras; Hans Klein, Vasteras; Ove Tjernstrom, Irsta, and Carl Ronnevig, Vasteras, all of Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed July 11, 1968, Ser. No. 744,126

Claims priority, application Sweden, July 12, 1967,
Int. Cl. H01f 27/10, 27/28, 41/04

U.S. Cl. 336—62

3 Claims



A magnet coil for a particle accelerator is formed of a plurality of turns of a conductor each composed of two yoke-

shaped parts of conducting material containing a central metallic tube. The tube extends from each end of the parts. The parts are so positioned that the projecting tubes engage each other, where they are welded together. The inside tube is then tested. Conducting members are then placed around the tube in the gaps between the adjacent yoke-shaped parts and are welded to the conductor members. The whole unit is then embodied in insulation.

3,593,243 ELECTRICAL INDUCTION APPARATUS

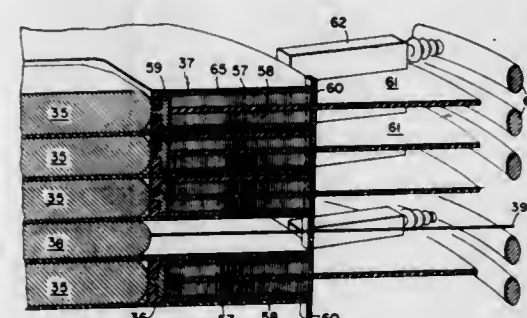
John George Trump, Winchester; Brian Skillicorn, Topsfield, and Bryon Lee Johnson, Chelmsford, all of, Mass., assignors to High Voltage Power Corporation, Burlington, Mass.

Continuation-in-part of application Ser. No. 567,641, July 25, 1966, now abandoned. This application June 2, 1969, Ser. No. 840,090

Int. Cl. H01f 15/04, 15/14

U.S. Cl. 336—70

12 Claims



An electrical induction apparatus, adaptable for use as a transformer or a reactor which contains a magnetic circuit and an electrical circuit. The active portions of the magnetic circuit are formed of electrically isolated segments, each segment being electrically connected to a distinct portion of the electrical circuit such that when a voltage is impressed on the electrical circuit a systematic and uniform progression of voltage is imposed on the magnetic circuit. The electrical isolation appearing between each segment of the magnetic circuit is coated with a material adapted to establish electric field boundaries between the segments and prevent the creation of high electrical stress points while also preventing excessive eddy current losses.

3,593,244 ADJUSTABLE POT CORE COIL FOR PRINTED CIRCUITS

Gerhard Melndl, and Gerhard Winter, both of Deutscher, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

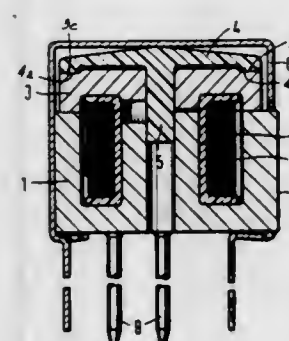
Filed Nov. 5, 1969, Ser. No. 874,291

Claims priority, application Germany, Nov. 26, 1968,
P 18 11 045.7

Int. Cl. H01f 21/06

U.S. Cl. 336—83

10 Claims



An adjustable two-part pot core coil, in which the inductance is adjustable by relative rotation of the two core halves about an axis of rotation with respect to which the pot components are concentric, the pot core halves being con-

structed to operatively receive the coil therein and having aligned central bores in which extends a centering pin carried by a centering disc disposed adjacent the upper core half, the bottom half of said core having an outwardly extending projection thereon adapted to extend into a recess in a resilient yoke arranged to retain said halves and said disc in operative positions, such yoke being constructed for noninterchangeable insertion into holes in a printed circuit plate, the coil being wound on a coil form which carries terminal pins for effecting electrical connection with such coil and a printed circuit plate.

3,593,245 DOUBLE-TUNED INTERMEDIATE-FREQUENCY TRANSFORMER

Kazutomo Iwata, Neyagawa-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

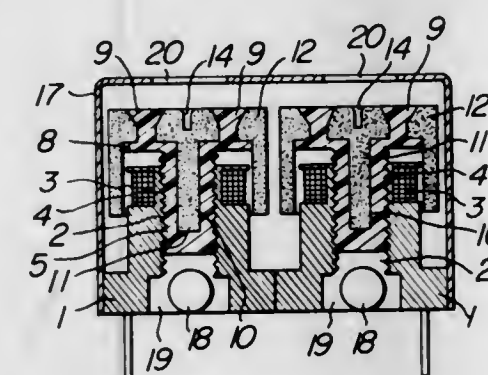
Filed Apr. 14, 1969, Ser. No. 815,915

Claims priority, application Japan, Apr. 18, 1968, 43/32631

Int. Cl. H01f 21/06

U.S. Cl. 336—83

1 Claim



A double-tuned intermediate-frequency transformer having a structure wherein two single-tuned intermediate-frequency transformers employing cap-type cores provided with center cores therein are arranged adjacent to each other being covered with one shielding case, and being adapted to a free choice of the degree of coupling between the respective coils of the two single-tuned intermediate-frequency transformers laid adjacent to each other through adoption of the cap-type cores each having a suitable sleeve length relative to the length of its center core.

3,593,246 FUSE CARTRIDGE DEVICES WITH AUXILIARY CONTACT

Lucien Ferraz, Lyon, France, assignor to Societe Lucien Ferraz & Cie, Lyon, France

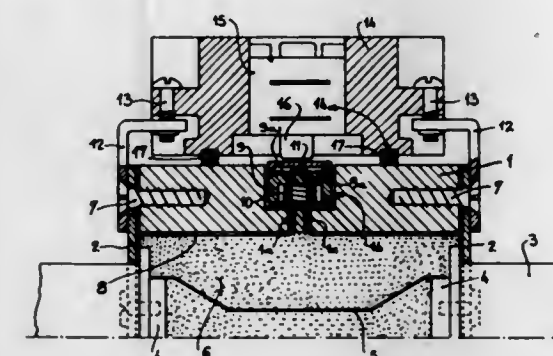
Filed Dec. 16, 1968, Ser. No. 784,021

Claims priority, application France, Dec. 26, 1967, 49,466

Int. Cl. H01h 85/30

U.S. Cl. 337—5

6 Claims



The cartridge fuse has a radially movable striker pin disposed in a peripheral chamber of the cartridge body, the cartridge being associated with an auxiliary contact mechanism disposed in front of the striker pin so as to be actuated thereby. In order to avoid, when the cartridge blows, the highly ionized hot gases which issue radially from the

space between the striker pin and the wall of its housing chamber from blowing laterally between the periphery of the cartridge body and the contact mechanism, upon contact with the contact mechanism and thereafter flowing laterally towards the cartridge heads, a seal is provided between the mechanism or its support and the cartridge body. The gases expand in the space delimited by the seal and they leak through the mechanism and/or the support to reach the ambient atmosphere in a cooled and disionized state.

3,593,247 TRIGGER FUSE SWITCH ASSEMBLY

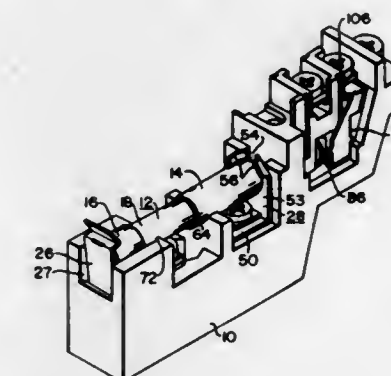
James D. Collins, and Ralph B. Immel, both of Buffalo, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 24, 1969, Ser. No. 819,020

Int. Cl. H01h 85/50

U.S. Cl. 337—5

1 Claim



A trigger fuse switch assembly wherein a trigger fuse may only be inserted into the assembly in its correct operative position being held in place by a spring terminal. When the fuse is tripped, the striker pin thereof engages a pushrod of the assembly to cause a movable contact to either make or break a circuit therebetween. The stationary contacts may be selectively placed to provide normally open or closed operation of the switch assembly.

3,593,248 THERMAL CONTROL MEANS

George Ronald Shepherd; Reginald Philip Burnham, and Donald Copage, all of Norwich, Norfolk, England, assignors to Diamond H. Controls Limited, Norwich, Norfolk, England

Filed Apr. 9, 1969, Ser. No. 814,542

Claims priority, application Great Britain, Apr. 10, 1968,
17416/68

Int. Cl. H01h 61/013

U.S. Cl. 337—107

9 Claims



A thermal actuating device including a bimetal element with an electrical heating member which is resiliently coupled thereto. The resilient coupling permits relative movement between the bimetal and the heater upon deflection by the former. The heater is preferably a substrator heater.

3,593,249

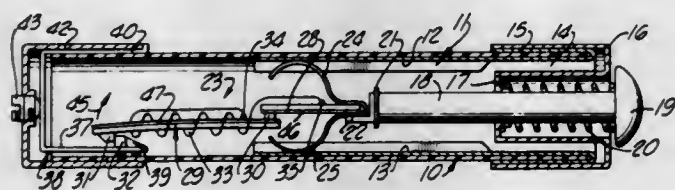
CIRCUIT BREAKER WITH BIMETALLIC ELEMENT
Allan R. Sedgwick, North Hollywood, Calif., assignor to Bel-Aire Sales Corporation, Los Angeles, Calif.

Filed May 22, 1969, Ser. No. 826,866

Int. Cl. H01h 71/08

U.S. Cl. 337-113

9 Claims



A circuit breaker device of relatively small, compact and simple construction and which may be used as a direct replacement for typical small cartridge fuses currently used in electronic and electrical equipment. The device includes a housing having metal end caps thereon. A spring-biased plunger is coupled with a bimetal strip assembly having a contact on an end thereof, the plunger being electrically coupled with one end cap. The contact normally is coupled with an other contact which is electrically connected with the second cap. Current flows through the device from one end cap to the other, and upon the occurrence of current above a predetermined value, at least a portion of the bimetal strip assembly flexes thereby releasing the top contacts. This allows the plunger to withdraw the strip assembly and break the electrical circuit. The bimetal strip assembly may include an ambient temperature compensating section.

3,593,250

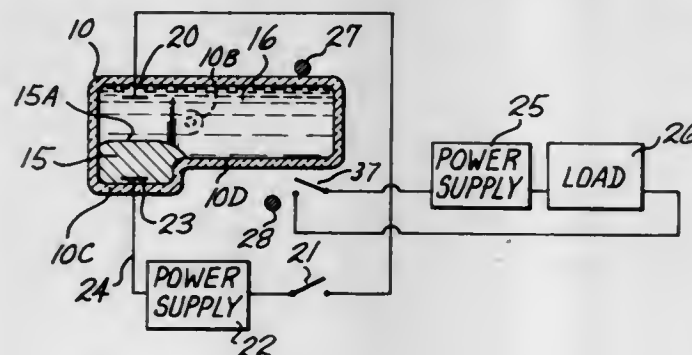
ELECTRICAL-TO-MECHANICAL CONVERTER AND SWITCH ASSEMBLY

Elwood G. Norris, 2505 20th East, Seattle, Wash.
Filed Aug. 18, 1969, Ser. No. 850,912

Int. Cl. H01h 29/04, 37/36, 61/01

U.S. Cl. 337-114

7 Claims



An electrical signal input device which is operated by a small AC or DC signal with mechanical movement being obtained as a result of the signal. A container having a puddle of mercury therein is supported so that in a first position the surface tension of the mercury causes the mercury to stand above an elongated portion of the container. A conductive fluid inside the container is in contact with the surface of the mercury. A starter electrode engaged with the conductive fluid when energized causes the surface tension of the mercury to be broken so that the mercury runs into the elongated portion of the container. The weight of the mercury causes the container to pivot and thereby close a main load switch.

3,593,251

FUSE DEVICE

James C. Wilson, Beaver, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 15, 1968, Ser. No. 752,848

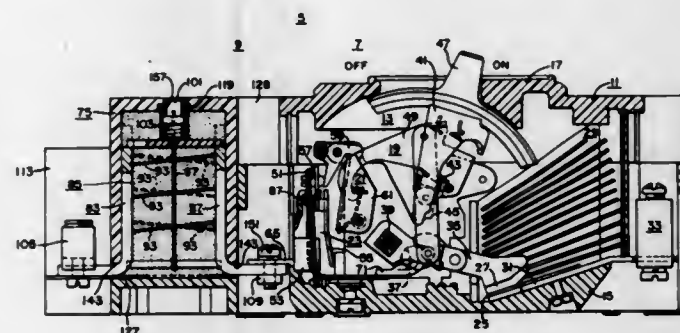
Int. Cl. H01h 85/20

U.S. Cl. 337-186

8 Claims

An improved fuse device comprises an insulating housing and fuse means supported in the housing with external terminals extending out through openings at opposite ends of the housing for enabling connection of the fuse means in an

electric circuit. The fuse device is a multipole fuse device, and terminal connectors, on the external terminals, are housed in cavities at one end of the housing.



3,593,252

POTENTIOMETER STRUCTURE

Morris A. Shiro, Mount Vernon, and Myron A. Coler, Scarsdale, both of N.Y., assignors to Markite Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 740,259, June 26, 1968. This application June 5, 1969, Ser. No. 830,833

Int. Cl. H01c 5/02, 9/02

U.S. Cl. 338-132

6 Claims



In a device such as a potentiometer or the like, means are provided for mounting and retaining the element so as to permit the elimination of coupling means such as conventional housings, tie rods, clamp rings, fasteners, or the like. The actuating shaft of the device is placed in tension thus permitting the use of a longer and more accurate track that also has greater power dissipation. Because of the absence of conventional coupling means, adjustment and compensation for errors may be made after assembly.

3,593,253

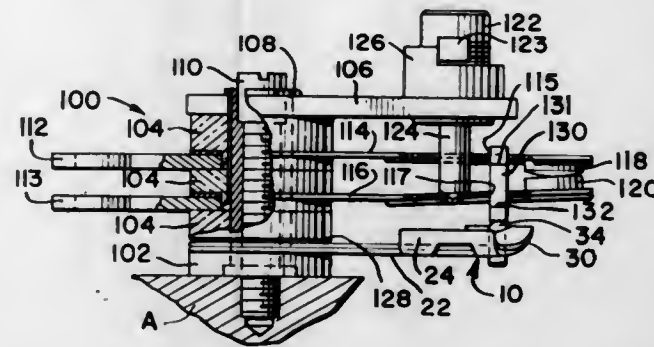
THERMOSTAT ACTUATOR BLADE ASSEMBLY
Ernest N. Taylor, 2231 E. 67th St., Chicago, Ill.

Filed July 28, 1969, Ser. No. 845,333

Int. Cl. H01h 37/52

U.S. Cl. 337-379

6 Claims



An actuator for use in a thermostat assembly comprising a blade formed from multilayered thermally responsive material. The blade includes spaced side legs joined at one end to define a blade area for connection to a heat source and further includes a compensating leg extending transversely between the spaced ends of said side legs and defining a point of actuation between the side legs. Each side leg defines an active leg portion adapted to quickly deform in response to heat to move the point of actuation a predeter-

mined distance from an initial position. The compensating leg is adapted to receive heat from the side legs and respond by deforming so as to return the actuating point a predetermined distance toward its initial position to thereby compensate for additional movement of the actuation point induced by heat saturation of the side legs.

3,593,254

SONOGRAPHY SYSTEM

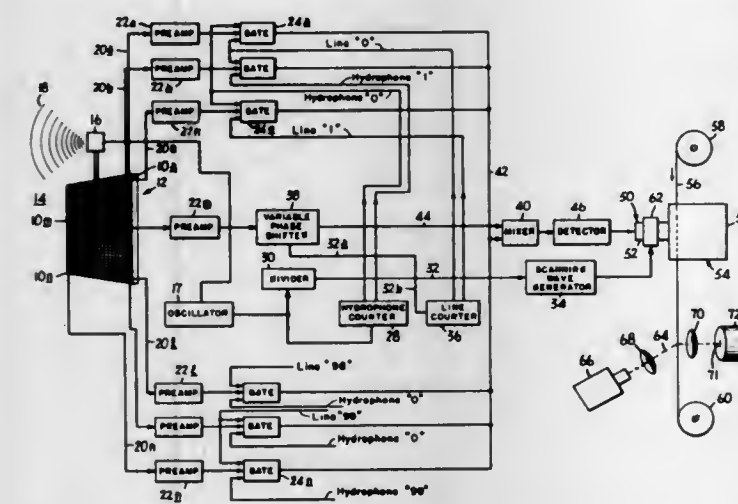
William E. Glenn, Jr., and Frank B. Gorman, both of Stamford, Conn., assignors to Columbia Broadcasting System, Inc., New York, N.Y.

Filed Jan. 28, 1969, Ser. No. 794,564

Int. Cl. G01s 9/66

U.S. Cl. 340-3

7 Claims



As described herein, the output signals generated by a plurality of hydrophones arranged in a generally rectangular array are scanned line-by-line by a signal having a selected frequency. The scanned signals are then combined with a reference signal which is generated by a centrally disposed hydrophone and which is selectively phased with respect to each of the scanned output signals. The selective phase relationship between the reference signal and each of the other scanned signals is maintained by appropriately shifting the phase of the reference signal at a frequency corresponding to the frequency of the line scanning frequency. The combined signals are thereafter recorded in a line-by-line pattern on thermoplastic film.

3,593,255

ACOUSTIC LOGGING TOOL HAVING OPPOSED TRANSDUCERS

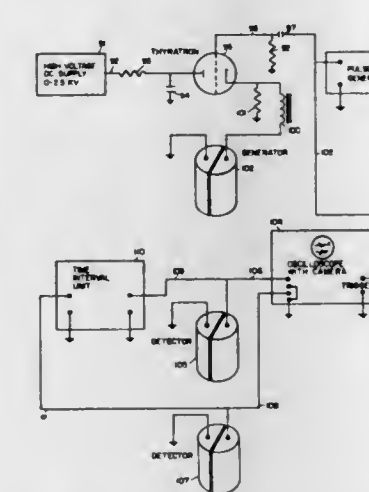
James E. White, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Filed May 29, 1969, Ser. No. 838,364

Int. Cl. G01v 1/00, 1/04

U.S. Cl. 340-15.5 SW

10 Claims



A logging tool having opposed paired transducers located on opposite sides of the borehole in both the source and the

detector and methods for its use. One source transducer expands while the opposed transducer contracts and one detector transducer emits a positive electrical signal in response to inward pressure, while the other emits a negative electrical signal in response to inward pressure. The tool thus exploits flexural waves along a borehole and minimizes interference by the faster-traveling compressional waves.

3,593,256

DOPPLER CORRECTION TECHNIQUE

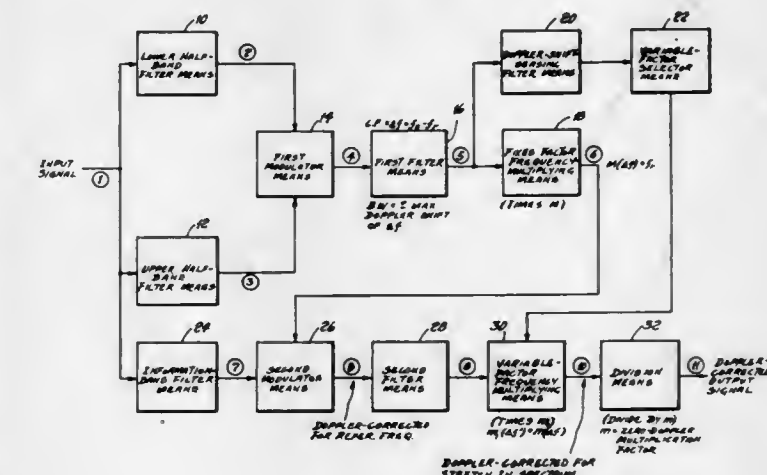
Edmund C. Gannon, Waterford, Conn., assignor to The United States of America as represented by the Secretary of the Navy

Filed Oct. 22, 1969, Ser. No. 868,369

Int. Cl. H04b 1/10

U.S. Cl. 340-5 R

8 Claims



Method and means for complete correction of Doppler shift in a transmitted spectrum of individual frequencies, or tones, constituting a multitone, coded pulse system in which the lowest (reference) and highest frequencies and the bandwidth are known and enclose an information band of frequencies. The upper and lower half-bands of the received signal are filtered out and mixed to provide the difference frequencies, one of which is a unique frequency corresponding to the spectrum bandwidth. This is filtered out and multiplied by a fixed factor to provide the zero-Doppler reference frequency. The latter is mixed with the information band, which has been filtered from the input signal, and the result is a signal which comprises the information band Doppler-corrected for the reference frequency. The signal corresponding to the spectrum bandwidth is also sent through means which senses the amount of Doppler-shift it has undergone, selects an inverse multiplying factor in accordance with this amount of shift and multiplies the reference-frequency-corrected information band, thereby correcting it for the Doppler-stretch the received information band has undergone. The information band is now completely Doppler-corrected and is divided by a zero-Doppler correction factor to correct the spectral spread introduced by the previous multiplication by said inverse multiplying factor.

3,593,257

ELECTROACOUSTIC TRANSDUCER

Frank Massa, Jr., Cohasset, Mass., assignor to Massa Division, Dynamics Corporation of America

Filed June 14, 1968, Ser. No. 737,198

Int. Cl. H04r 7/06

U.S. Cl. 340-9

20 Claims

The plate piston, vibratile diaphragm of an underwater transducer is divided by grooves to form a mosaic of piston element islands interconnected by a thin web. Each piston element is separately driven by an individually associated transducer element. The transducer elements may be coupled electrically to enable associated equipment to make a

phase comparison which gives directional information. The invention has particular utility when the diameter of the total

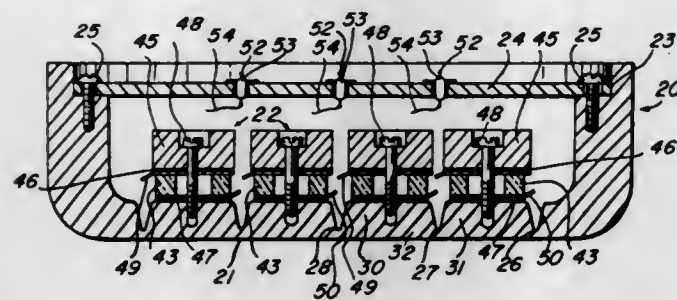


plate piston is greater than the wave length of the sound radiated into the water.

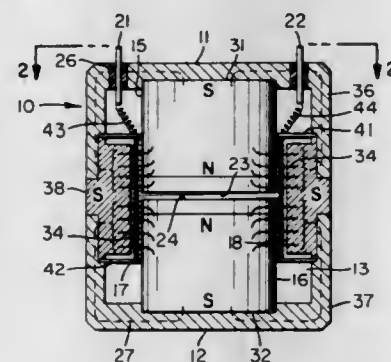
3,593,258 DUAL MAGNETIC CIRCUIT LOW LEAKAGE GEOPHONE

Clyde M. Slavens, Houston, Tex., assignor to Mandrel Industries, Inc., Houston, Tex.

Filed Aug. 15, 1969, Ser. No. 850,537
Int. Cl. G01v 1/16

U.S. Cl. 340-17

6 Claims



A geophone for detecting seismic energy wherein a pair of cylindrical magnets are coaxially mounted within a hollow cylindrical, magnetically permeable housing with a first set of like polarity pole faces of the magnets in spaced apart confronting relationship centrally of the housing and the remaining like poles in flux communication with opposite enclosed ends of the housing to form an air gap extending from the confronting poles to the surrounding interior housing wall. A sensing coil of hollow cylindrical shape is mounted for coaxial and resilient reciprocation in the air gap region, and the flux emanating from each of the confronting pole faces is forced by the mutual repulsion between such like poles to assume a radial path effectively traversing the coil, thereby minimizing undesirable flux leakage and consequently increasing the electrical output from the coil.

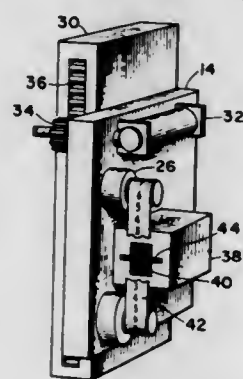
3,593,259 ALPHA-GAMMA FLIGHT PATH DISPLAY

Milo E. Stormo, Granada Hills, Calif., assignor to Singer General Precision, Inc.

Filed Nov. 25, 1968, Ser. No. 778,520
Int. Cl. B64d 45/08

U.S. Cl. 340-27 NA

1 Claim



An electrooptical aircraft flight instrument that accepts input signals representing angle of attack and pitch angle.

These signals are used to servo reticles that are projected at infinity upon a transparent screen in the pilot's normal line of sight and display the actual flight path of the aircraft and the angle, in degrees, between that flight path and the horizon.

3,593,260

FLIGHT PATH DISPLAY

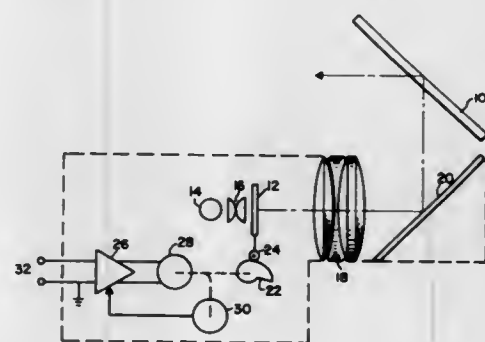
Milo E. Stormo, 16352 Barneston St., Granada Hills, Calif.

Filed July 12, 1968, Ser. No. 744,397

Int. Cl. G08g 5/02

U.S. Cl. 340-27 NA

3 Claims



An electrooptical aircraft flight instrument that accepts angle of attack input signals and displays upon a transparent screen in the pilot's normal line of sight and focused at infinity, the actual flight path of the aircraft through the air mass.

3,593,261

SYSTEMATIC TRAFFIC LANE CONTROL APPARATUS WITH LIGHTS

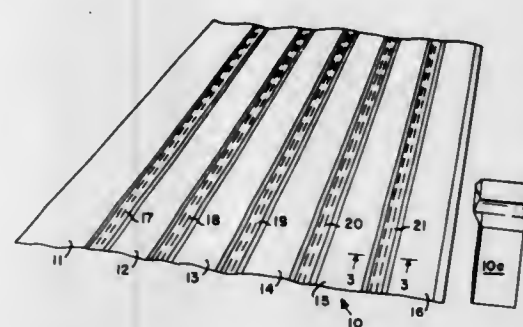
Edward J. Dominguez, 1095 Myrtle St., San Jose, Calif.

Filed Oct. 11, 1968, Ser. No. 766,801

Int. Cl. G08g 1/00

U.S. Cl. 340-36

6 Claims



A system for controlling the direction of traffic flow in different lanes of a multiple lane road. The lanes of the road are separated by strips selectively illuminated by one or two rows of tubular type light sources which provide either two substantially solid illuminated lines indicating that traffic from adjacent lanes should not cross the strip to an adjacent lane, or which provide a single broken illuminated line to indicate that traffic may cross such a divider strip to an adjacent lane.

3,593,262

TRAFFIC CONTROL SYSTEM FOR MERGE JUNCTIONS

Rolf Edmund Spencer, London, England, assignor to Electric & Musical Industries Limited, Middlesex, England

Filed Dec. 13, 1968, Ser. No. 783,598

Claims priority, application Great Britain, Dec. 15, 1967, 57014/67

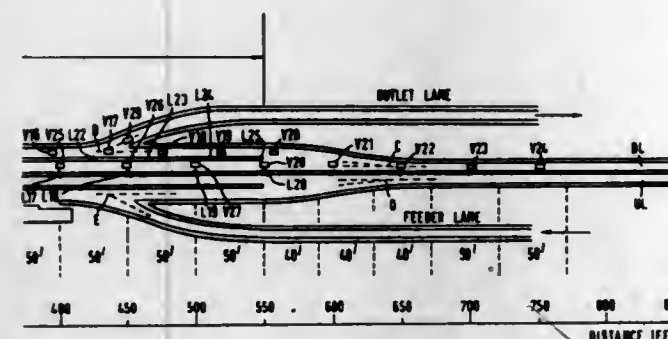
Int. Cl. G08g 1/08

U.S. Cl. 340-36

11 Claims

In a traffic control system for a merge junction between first and second vehicular paths there is provided means for detecting movement of a vehicle along the second path towards the junction. A first set of indicators are arranged in succession along a length of the first path and in advance of the junction; the indicators being so controlled by the detecting means as to direct the creation of a moving gap in the

traffic on the first path. The moving gap is arranged to arrive at the merge junction simultaneously with the merging vehicle



cle so that said vehicle can safely merge with the traffic on the first path.

3,593,263

APPARATUS FOR VEHICLE DIRECTION SENSING

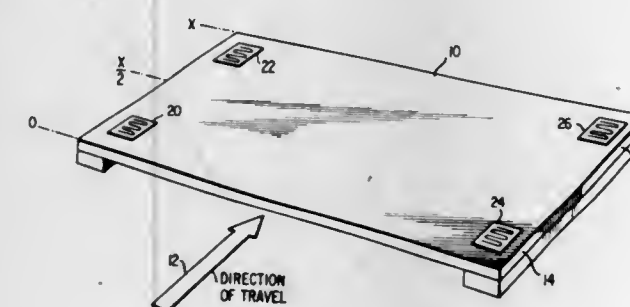
Oluf Olsen, Manchester, Mass., assignor to BLH Electronics, Inc., Waltham, Mass.

Filed Dec. 4, 1969, Ser. No. 881,999

Int. Cl. G08g 1/02

U.S. Cl. 340-39

9 Claims



The direction of travel of a vehicle is determined by mounting four electrical strain gage elements at the four corners of a rectangular shaped platform and by interconnecting the same in a bridge circuit arrangement such that an output of a given polarity will be developed as the vehicle traverses a leading portion of the platform and an output of a different polarity will be developed as the vehicle traverses the trailing portion of the platform.

3,593,264

VEHICLE WARNING CIRCUIT

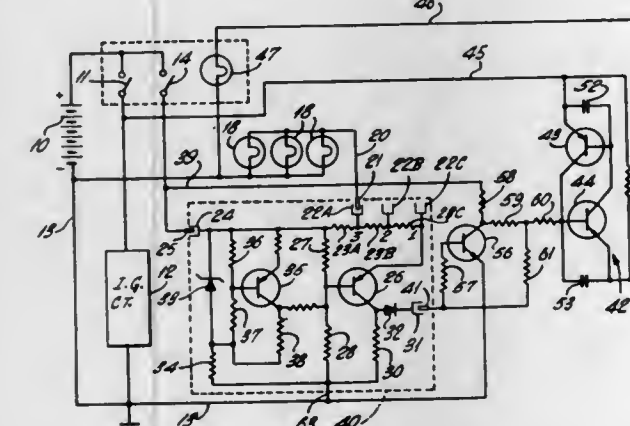
Carl E. Atkins, Montclair, N.J., assignor to Wagner Electric Corporation

Filed July 5, 1968, Ser. No. 742,559

Int. Cl. B60q 1/00

U.S. Cl. 340-52

7 Claims



A warning circuit is provided for informing the operator of a vehicle when a remotely positioned vehicle lamp fails to light. The circuit includes a sensing circuit having a plurality

of resistors connected in series with the lamps. A semiconductor circuit is coupled to the resistors and transmits an electrical signal to a warning means which may include a lamp or a buzzer. The circuit can be made to operate at any time the lamp switch is turned on. Operation of the circuit may be also limited to the condition when the ignition switch is turned on.

3,593,265

PRESSURE INDICATING SYSTEM

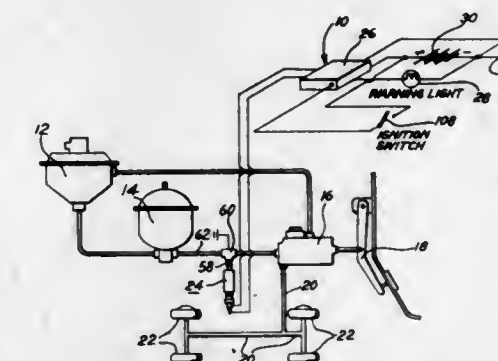
Donald W. Howard; Keith H. Fulmer, and Harold B. Schultz, all of South Bend, Ind., assignors to The Bendix Corporation

Filed Dec. 18, 1968, Ser. No. 784,775

Int. Cl. B60q 1/00

U.S. Cl. 340-52 C

19 Claims



A power brake system having a pressure responsive device with three modes of response corresponding to three levels of pressure and an electronic control responsive to the output of the pressure responsive device to control a lamp to distinguishably indicate which of the three pressure levels is present.

3,593,266

DISC BRAKE WEAR MONITOR SYSTEM

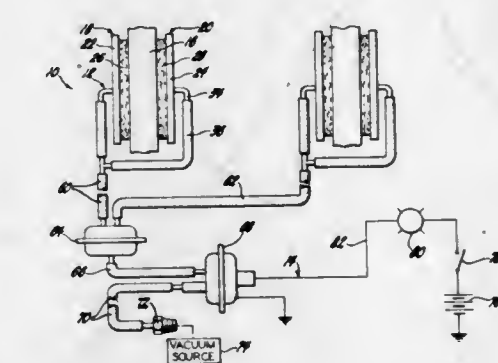
John R. Van Sickle, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 16, 1969, Ser. No. 866,998

Int. Cl. B60q 1/44

U.S. Cl. 340-52

8 Claims



A brake lining wear warning system in which passages are formed at a predetermined depth in the lining and connected to the engine intake manifold through a vacuum switch. The switch operates a warning indicator when there is insufficient vacuum in the passages. When the lining wears to open a passage to atmosphere, the vacuum switch is closed and the warning indicator is energized. By wiring the indicator and vacuum switch through the ignition switch, the system is self-

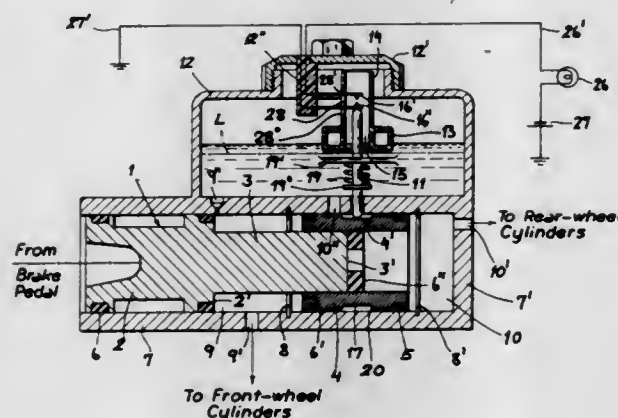
tested each time the ignition switch is turned on and before the engine is started and vacuum is generated in the vacuum circuit.

3,593,267

ELECTRICAL WARNING SYSTEM FOR VEHICULAR HYDRAULIC DUAL-BRAKE INSTALLATIONS

Hans-Christof Klein, Hattersheim, Germany, assignor to Teves Alfred GmbH, Frankfurt am Main, Germany
Filed Apr. 3, 1968, Ser. No. 718,630
Claims priority, application Germany, May 9, 1967, T 33 820
Int. Cl. G08b 21/00; H01h 29/30, 35/38
U.S. Cl. 340—52

10 Claims



An electrical warning system for a dual hydraulic-brake network in which a tandem dual master cylinder whose floating piston shifts upon failure of one of the networks. This piston operates a switch which also may be operated by the fluid level in the brake-fluid reservoir to signal either or both of a failure in a network and a drop in the brake-fluid level.

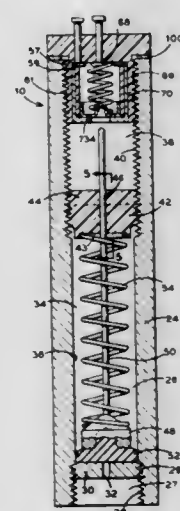
3,593,268

AUTOMATIC PRESSURE WARNING DEVICE FOR PNEUMATIC UNITS

John A. Arvan, 9 South Main St, Port Chester, N.Y.
Filed Dec. 17, 1968, Ser. No. 760,257
Int. Cl. B60c 23/00

U.S. Cl. 340—58

4 Claims



An improved automatic warning device for tires to identify pressures outside of predetermined ranges. The device is secured to a standard valve stem. An opening in a plug allows the interior tire pressure to bear against a spring biased plunger. The biasing force of the spring is varied by adjustment of a screw member. The plunger rod bears against a spring biased conductor and in the normal state, the rod maintains the conductor out of electrical contact. If the pressure falls below a certain level the plunger rod withdraws away from the conductor, and the conductor is moved by its

biasing means into electrical contact. If the pressure rises above a certain level, the plunger rod bears more strongly against the conductor, and the conductor is moved against its biasing means in the opposite direction and into electrical contact.

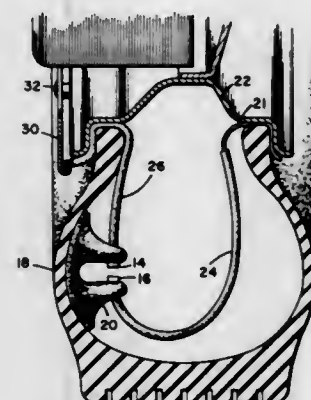
3,593,269

VEHICLE TIRE PRESSURE MONITORING SYSTEM

Olin N. Richardson, 5539 Adams, Ashtabula, Ohio
Filed July 31, 1969, Ser. No. 846,469
Int. Cl. B60c 23/00

U.S. Cl. 340—58

9 Claims



A system for detecting and warning of low air pressure in a vehicle tire which comprises an electrically responsive signaling device actuated by the closure of a pair of electrically conducting contact points secured to an inside surface of the sidewall portion of the tire. The contact points are vertically spaced from one another in a region of the tire wall which flexes in response to loss of air pressure within the tire. Electrical energy is supplied by the vehicle ignition system.

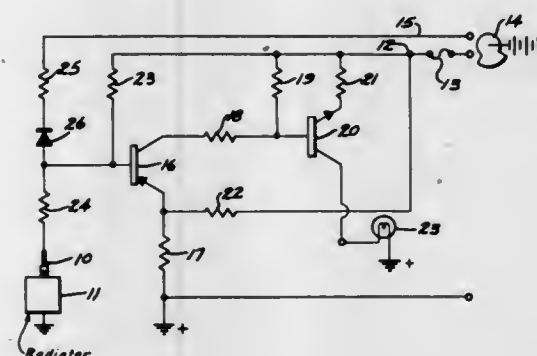
3,593,270

LIQUID LEVEL SENSING AND INDICATING SYSTEM

Richard E. Walker, 617 McCready Ave., Cadiz, Ohio, and James D. Heckelman, Rte. #1, Huron, Ohio
Filed July 10, 1967, Ser. No. 652,184
Int. Cl. B60q 1/00; H01h 29/00

U.S. Cl. 340—59

13 Claims



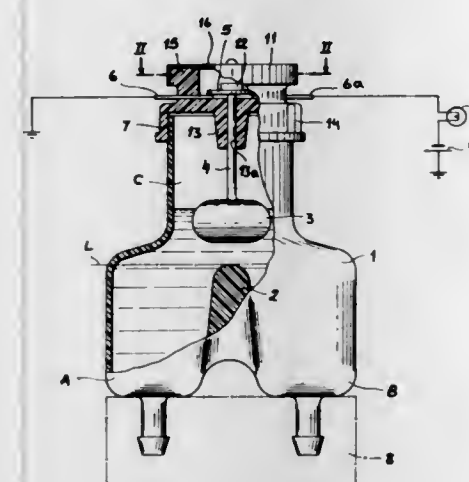
A system for preventing overheating of liquid cooled internal combustion engines comprising an improved radiator probe which cannot short out to produce a malfunction, an electronic warning circuit and an electronic test circuit so constructed that the test circuit can be relied upon to sense a failure in the alarm circuit without being masked by a compensating failure in the probe circuit.

3,593,271

BRAKE-FLUID-LEVEL ALARM FOR A TWO-COMPARTMENT MASTER-CYLINDER RESERVOIR

Gert Schrader, Walldorf Hesse, Germany, assignor to Alfred Teves, GmbH, Frankfurt am Main, Germany
Filed Sept. 17, 1968, Ser. No. 760,314
Claims priority, application Germany, Sept. 20, 1967, T 34 831
Int. Cl. B60t 17/22; G01f 23/10
U.S. Cl. 340—59

6 Claims



A brake-fluid reservoir for a two-compartment master cylinder has an upper and a lower portion. The lower portion is divided by an upright partition wall. A float is movable in the upper portion to close a switch when the brake fluid in the reservoir drops below a predetermined lower limit. The upper portion is of restricted diameter in comparison to the lower portion and the float is only movable in the upper portion directly above the wall which terminates short of the top of the reservoir.

3,593,272

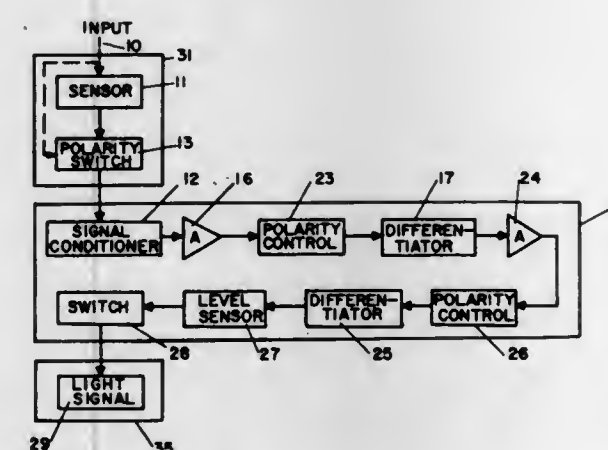
SYSTEM FOR AUTOMATICALLY SENSING AND INDICATING A DECREASE IN THE ACCELERATION OF A VEHICLE

Robert W. Blomkamp, Palo Alto, Calif., and Enrique J. Klein, 947 Alice Lane, Menlo Park, Calif., assignors to Enrique J. Klein, Menlo Park, Calif., by said Robert W. Blomkamp

Filed Sept. 30, 1968, Ser. No. 763,672
Int. Cl. B60q 1/50; G01p 15/08

U.S. Cl. 340—62

7 Claims



Apparatus for the determination of a reduction in acceleration of a vehicle in which an electromechanical sensing device generates an output signal in response to the rotation of a shaft turning at a fixed ratio to the vehicle drive shaft. Electronic circuitry processes the signal of the sensing device for controlling the operation of a light signal when a given level of reduction in acceleration is exceeded. The indicating

system is integrated with the conventional vehicle light signals.

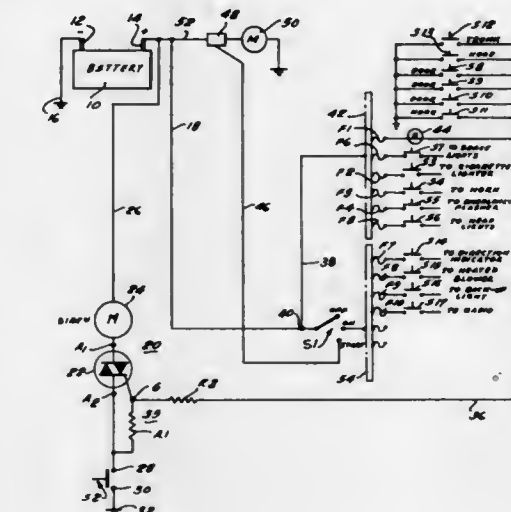
3,593,273

AUTOMOBILE THEFT ALARM

Rudor M. Teich, Union City, N.J., assignor to Babaco Research, Inc., North Arlington, N.J.
Filed Jan. 14, 1969, Ser. No. 790,968
Int. Cl. B60r 25/10

U.S. Cl. 340—63

14 Claims



An automobile theft alarm comprises a semiconductor switch in operative circuit arrangement with the battery of a vehicle and a warning device. When current is drawn from the battery due, for example, to the unauthorized opening of a car door, and the resulting energization of the courtesy light, a voltage signal is applied to the control terminal of the switch to actuate that switch, thereby to energize the warning device.

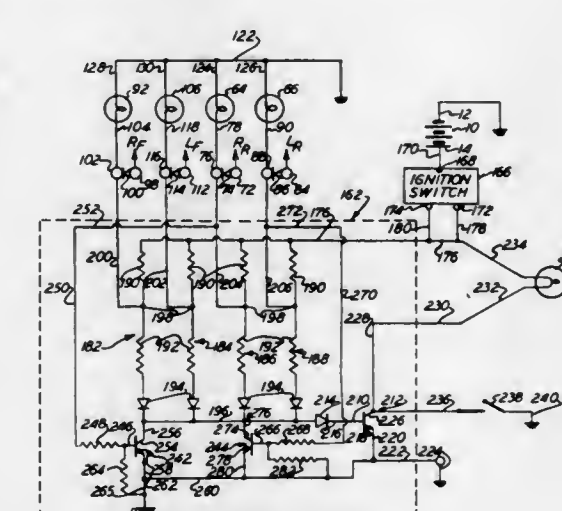
3,593,274

LAMP FAILURE WARNING SYSTEM

Allen Dwane Krugler, Jr., Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed June 13, 1968, Ser. No. 736,742
Int. Cl. B60q 1/38; H05b 37/03

U.S. Cl. 340—67

6 Claims



A lamp-out warning system for lamps that are intermittently operated, particularly turn signal and brake lamps on an automotive vehicle, in which a warning means is provided for checking the lamps during the time that the lamps are not energized from their normal source of electric power. In an automotive vehicle the turn signal lamps or brake lamps are energized intermittently through either a flasher switch or a brake lamp switch, respectively. A warning is given when any

one of the lamps is burned out or otherwise inoperative but only when the lamps are burned out or otherwise inoperative but only when the lamps are not in their intermittently energized condition. This may be accomplished by the use of a disabling means which disables the warning means during the time of this intermittent operation.

3,593,275

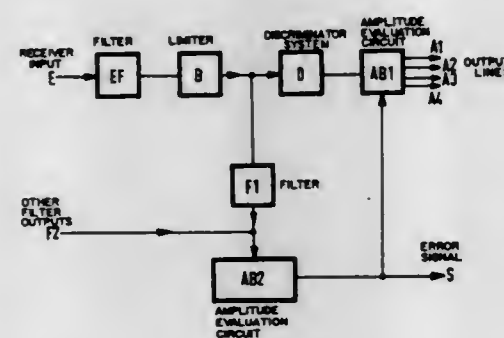
METHOD AND APPARATUS FOR THE RECOGNITION OF ERRORS AT THE RECEIVER IN A DATA TRANSMISSION SYSTEM

Gerhard Pumpe, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed July 9, 1968, Ser. No. 743,392
Claims priority, application Germany, July 21, 1967, P 15 37 338.3

Int. Cl. H04l 1/04, 1/10; G08c 25/00

U.S. Cl. 340—146.1

7 Claims U.S. Cl. 340—72



An error recognition process for a system in which data is transmitted in a one out of m different modulation characteristics (e.g. frequencies) code and wherein errors at the transmitter, or in the transmission system can cause a plurality of modulation characteristics to exist simultaneously at the receiver. The method of the invention takes advantage of the fact that modulation products outside of the assigned frequency band result when two different modulation characteristics are combined in a nonlinear device. Frequencies outside of the assigned band are detected to furnish an error voltage which blocks the decoded output at the receiver to prevent errors.

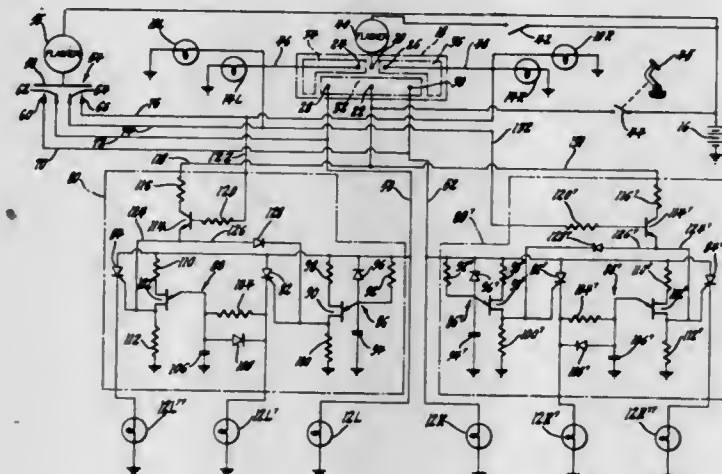
3,593,276

SEQUENTIAL DIRECTION SIGNALING SYSTEM

Robert K. Schuler, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed July 18, 1968, Ser. No. 745,867
Int. Cl. B60q 1/38

U.S. Cl. 340—67

3 Claims



A direction signal circuit including a pair of electronic timers comprising a plurality of silicon controlled rectifiers and unijunction transistor relaxation oscillators interconnected with a direction signal switch to sequentially energize

a plurality of left or right signal lamps to indicate a change of direction. The timers further include a transistor responsive to concurrent actuation of the direction signal switch and a brake pedal switch for simultaneously energizing all lamps on the side of the vehicle opposite the intended turn to indicate an impending deceleration of the vehicle in contemplation of the turn. The timers are also interconnected with a hazard warning switch to simultaneously flash all of the vehicle signal lamps to indicate an emergency or hazardous condition of the vehicle.

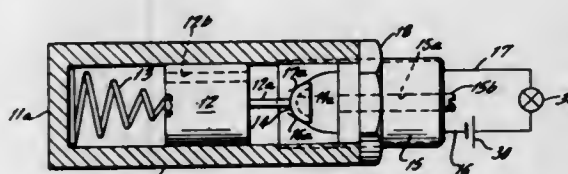
3,593,277

MAXIMUM DECELERATION INDICATOR

Rudolf Faude, 182 Eaton, Crest Drive, Eatontown, N.J.
Filed Apr. 12, 1968, Ser. No. 721,016

Int. Cl. B60q 1/26

11 Claims



A device for providing an illuminated indication of rapid deceleration of a vehicle. A biased momentum sensor moves against the biasing force when an appropriate magnitude of deceleration is experienced to establish a closed circuit and thereby illuminate a lamp. The biasing force imposed upon the momentum sensor is adjustable over a broad range while at the same time maintaining the gap distance between the cooperating contacts of the device constant. The contacts are so arranged as to provide for locking of the device in the illuminated condition in situations involving extremely abrupt deceleration. Sensing means may also be provided for providing an illuminated indication of an attempt to bring the vehicle carrying the sensor to an abrupt halt.

3,593,278

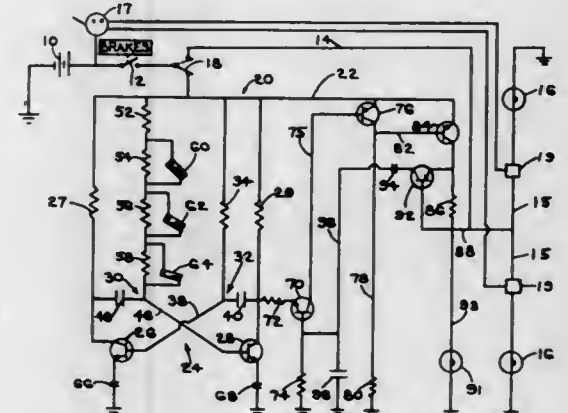
VEHICLE BRAKE LIGHT SYSTEM

Frank D. Bower, 1042 Springhouse Road, Allentown, Pa., and Gordon B. Baumeister, 417 Margo Lane, Berwyn, Pa.
Filed May 29, 1968, Ser. No. 733,101

Int. Cl. B60q 1/44

U.S. Cl. 340—72

6 Claims



A vehicle brake light system is disclosed wherein a flashing signal of variable frequency indicates the rate of deceleration of a vehicle. The system includes a series of inertia switches and resistors forming a decelerometer, a multivibrator and a transistorized gate circuit which flashes the brake lights at a frequency proportional to the detected rate of deceleration.

3,593,279

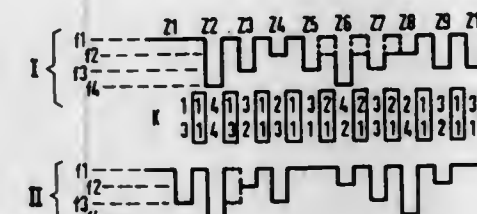
METHOD AND CIRCUIT THEREFOR FOR EVALUATION OF RECEIVED CODED MESSAGES

Gerhard Pumpe, Neuried, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Sept. 28, 1967, Ser. No. 671,264
Claims priority, application Germany, Sept. 30, 1966, S 106 281

Int. Cl. H04b 1/66; H04l 1/04

U.S. Cl. 340—146.1

17 Claims



A method and circuit therefor to evaluate successive received individual coded information signals identified by predetermined combinations of signals selected from a plurality of fixed frequency signals. Hold signals are transmitted between successive individual coded information signals and are evaluated at the receiver which, in the absence thereof, produces a corresponding error indication signal that may be applied to the transmitter. The hold signals comprise a particular combination of signals selected from said plurality of fixed frequency signals, and individual signals comprising said particular combination also comprise some of the predetermined combinations of signals corresponding to the individual coded information signals.

3,593,280

REGULATOR DEVICE BASED ON INSPECTION OF THE THICKNESS OF A THREE DIMENSIONAL CAM IN THE FORM OF A PLATE PARTICULARLY FOR FUEL FEED ADJUSTMENT IN INTERNAL COMBUSTION ENGINES

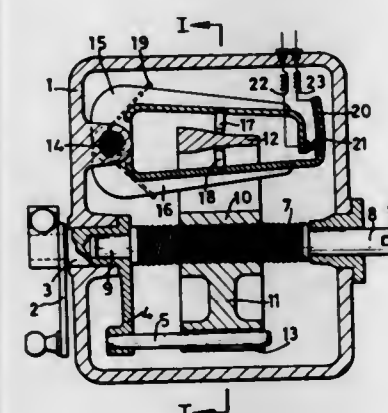
Giampaolo Garcea, Milan, Italy, assignor to Alfa Romeo S.p.A., Via Gattamelata, Milan, Italy

Filed May 21, 1969, Ser. No. 826,492

Claims priority, application Italy, July 3, 1968, 18548 A/68
Int. Cl. H01c 15/00

U.S. Cl. 338—150

4 Claims



A regulator device in which two arms are resiliently urged on two opposite faces of a cam body, rotatable around its axis, and having variable thickness, whereby a rotation of said cam body causes a relative movement of said two arms and then a regulating effect acting on a control member.

3,593,281

COMPENSATED AUTOMATIC ERROR CORRECTION TELECOMMUNICATION SYSTEM

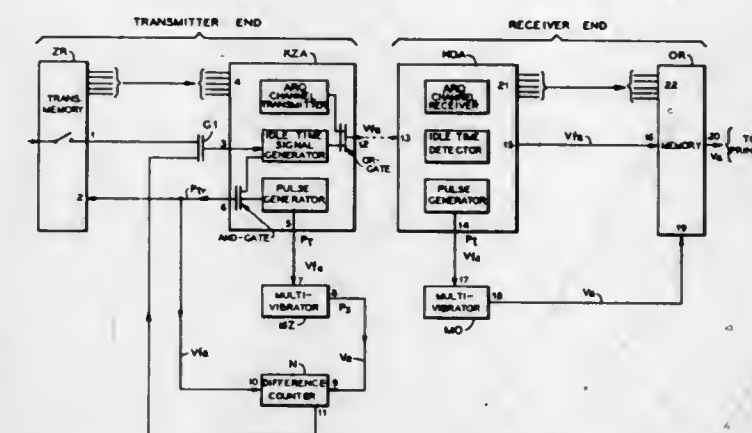
Hendrik Cornelis Anthony VanDuuren, Wassenaar, and Herman Da Silva, Voorburg, both of, Netherlands, assignors to De Staat Der Nederlanden, Ten Deze Vertegenwoordigd Door de Directeur-Generaal der Posterijen, Telegrafie en Telefonie, The Hague, Netherlands

Filed May 6, 1969, Ser. No. 822,189

Claims priority, application Netherlands, May 10, 1968, 6806678
Int. Cl. H04l 1/18

U.S. Cl. 340—146.1

6 Claims



A telecommunication system between two stations involving automatic requests for repetition of received disturbed signals having means for speeding up the normal transmission rate between said stations and providing a storage device of a given capacity at the receiver to store the excess signals until they can be printed. A multivibrator controls the rate at which the signals are taken out of this storing device at the normal rate even when a delay occurs in the faster rate due to requests for repetition. Furthermore, a different counter is provided at the transmitter for determining the number of signals stored in the receiver which counter is controlled by opposing pulse series of the normal and speeded up rates from another multivibrator. Then when the counter determines the storage device is filled, it will stop the transmission of traffic signals and cause the transmitter to transmit an idle time signal until a space is provided in the storage device for more traffic signals.

3,593,282

CHARACTER-ERROR AND BURST-ERROR CORRECTING SYSTEMS UTILIZING SELF-ORTHOGONAL CONVOLUTION CODES

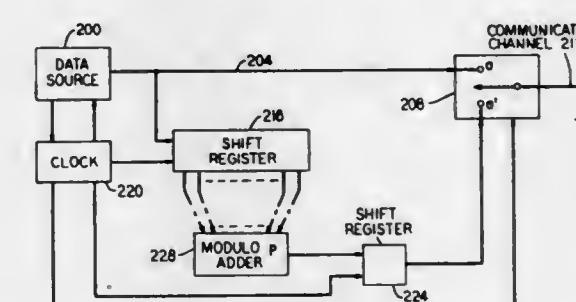
Shih Y. Tong, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 4, 1969, Ser. No. 873,796

Int. Cl. G06f 11/12; G08c 25/00

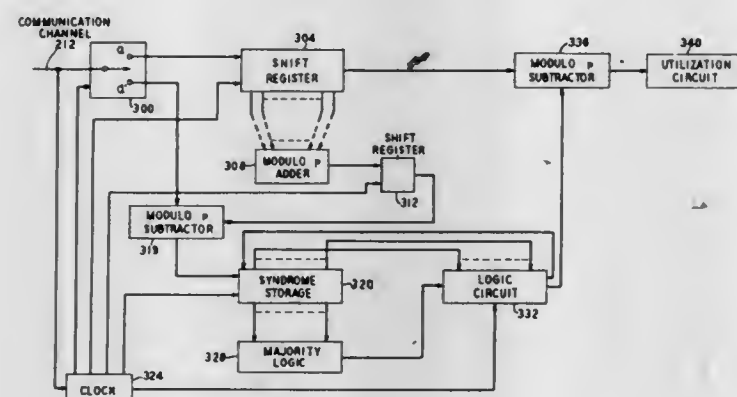
U.S. Cl. 340—146.1

9 Claims



Systems are disclosed for utilizing self-orthogonal convolution codes for correcting character errors and certain

burst errors. The elements or characters of the code words of the particular code utilized are elements of a finite field $GF(p)$. Information characters are encoded into the code and transmitted along with parity characters to a receiving terminal where they are there decoded to obtain the syndrome thereof. The number of nonzero elements in a portion $\{S_0, S_1, \dots, S_{2t-1}\}$ of the syndrome is then counted and if this number exceeds a threshold value t , it is assumed that errors have occurred in the block of characters being checked. The simultaneous equations $S_i = \alpha^{ri} e_1 + \dots$



$+ \alpha^{ri} e_{t'}$ are then solved for $r_1, \dots, r_{t'}$, and for $e_1, \dots, e_{t'}$, where t' is the number of errors in the block ranging from 1 to t , $i=0, \dots, 2t-1$, and α is the primitive root of $GF(p)$. The number of errors t' is determined as that t' which satisfies $t+1$ or more of the equations S_i . The values of r obtained from solving these equations identify the error positions in the received block of characters and each e_i gives the value of the error in the corresponding error position r_i . Each e_i is then added to the character in position r_i to thereby correct the erroneous characters.

3,593,283

FEATURE-EXTRACTING SYSTEM FOR PATTERN-RECOGNITION APPARATUS AND THE LIKE

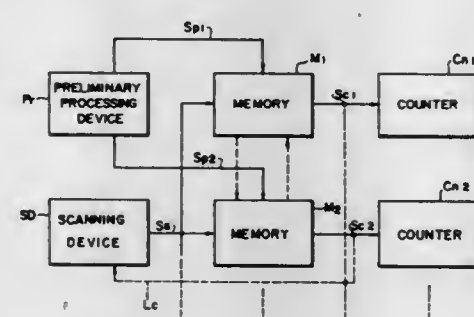
Yoshikazu Miyamoto, Hachioji-shi, and Masao Hibi, Kodaira-shi, both of Japan, assignors to Hitachi, Ltd., Tokyo-to, Japan

Filed Sept. 19, 1967, Ser. No. 668,798

Claims priority, application Japan, Sept. 19, 1966, 41/61388
Int. Cl. G06k 9/06

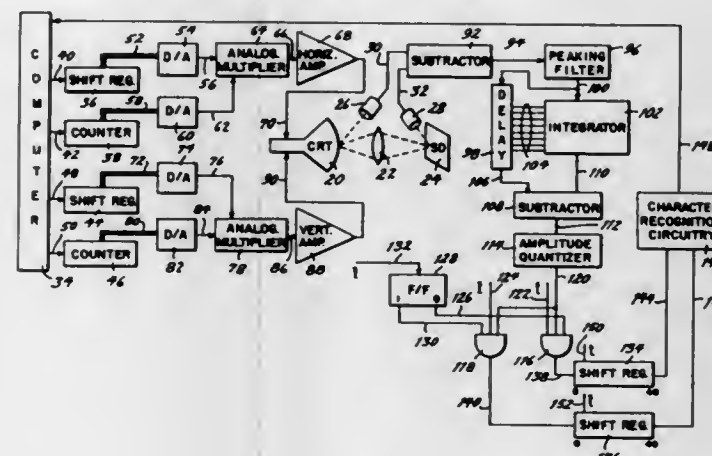
U.S. Cl. 340-146.3

14 Claims



This specification discloses a feature-extracting system for the use in so-called pattern-recognizing apparatus and the like. The system is provided with a memory composed of a number of memorizing circuits arranged in matrix form, each of which is selectively electrically coupled with the adjoining memorizing circuits. When a pattern to be recognized is memorized in the memory by means of partial features thereof and the memorizing circuits are scanned sequentially, all of the circuits which memorize a partial figure of the pattern are caused to invert in chain reaction. By counting a counting signal produced only when an initial one of the memorizing circuits which have memorized the quantized partial features of the partial figures of the pattern is scanned, it is possible to determine the number of partial figures forming the pattern to be recognized.

3,593,284
RETROGRESSIVE SCANNING PATTERN
Alan I. Frank, Philadelphia; John A. Angeloni, Sr., Norristown; John J. McIntyre, Ardley, and Ronald L. Baracka, Ambler, all of Pa., assignors to Scan-Data Corporation, Norristown, Pa.
Filed Oct. 13, 1967, Ser. No. 675,236
Int. Cl. G06k 9/12
U.S. Cl. 340-146.3 F 4 Claims



A retrogressive scanning pattern for use in a character recognition system having means for scanning a field and means responsive to the field for producing signals in accordance with the lightness or darkness of the area of the field at which the means for scanning is disposed. Control means are also provided for establishing the position on the field where the means for scanning is disposed. The control means also causes the scanning means to move in a retrogressive pattern across said field in both a horizontal and a vertical direction.

3,593,285

MAXIMUM SIGNAL DETERMINING CIRCUIT

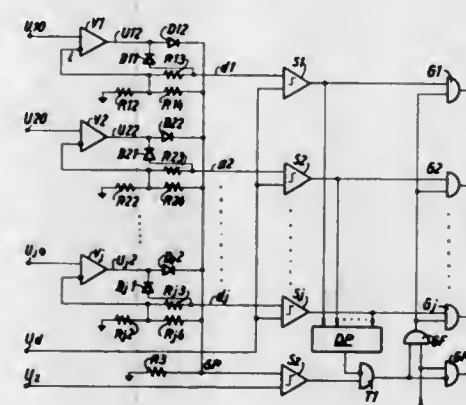
Hanno Gillmann, Konstanz, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm Danbue, Germany

Filed July 31, 1968, Ser. No. 749,048

Claims priority, application Germany, Aug. 1, 1967, P 16 23 855.4
Int. Cl. G06k 9/02; H03k 5/20

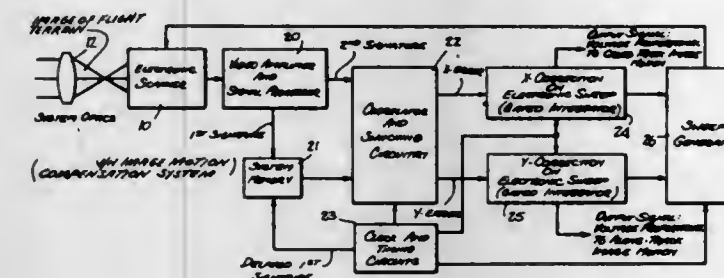
U.S. Cl. 340-146.3

11 Claims



A circuit arrangement for determining which of a plurality of signal-carrying conductors contains the highest-amplitude signal, the circuit including a plurality of amplifiers each having an input connected to a respective line and feedback circuitry connected between the amplifier outputs and their inputs for producing, at a common point, a signal representing the output of that amplifier connected to the line containing the highest-amplitude signal and for causing each of the remaining amplifiers to produce an output which is approximately equal to the difference between its associated input signal and the highest input signal.

3,593,286
PATTERN RECOGNITION SYSTEM HAVING ELECTRONICALLY CONTROLLABLE APERTURE SHAPE, SCAN SHAPE, AND SCAN POSITION
Norman G. Altman, 32 Sammis Lane, White Plains, N.Y.
Filed Nov. 27, 1968, Ser. No. 779,442
Int. Cl. G06k 9/04; H04n 3/00
U.S. Cl. 340-146.3 12 Claims



A pattern recognition system wherein an image dissector tube is used to provide a scan of an optical image, which scan, when used to establish the degree of similarity of two patterns or changes occurring in a single pattern, is capable of being modified to produce the maximum information image of the deflectable photomultiplier such that the size, shape, and position of the scanned area and the size of the effective aperture used to generate the scan is modified by appropriate control circuits (normally used in a feedback mode) to insure that the said modification increases the quantity, accuracy, and processability of the said information, full use being made of all a priori knowledge available to constrain scan size, shape, and position, and effective aperture size to further insure optimum scan parameters to provide the required information in the required form.

3,593,287

OPTICAL CHARACTER READER EMBODYING DETECTED VERTICAL STROKE RELOCATION

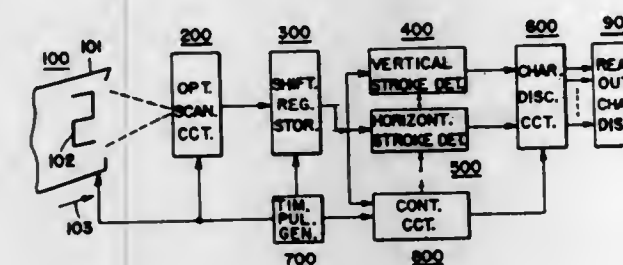
Hiroo Kobayashi; Kazuo Kiji, and Yoshiyasu Kikuchi, all of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Apr. 8, 1969, Ser. No. 814,408

Claims priority, application Japan, Apr. 18, 1968, 43/26463
Int. Cl. G06k 9/12

U.S. Cl. 340-146.3 J

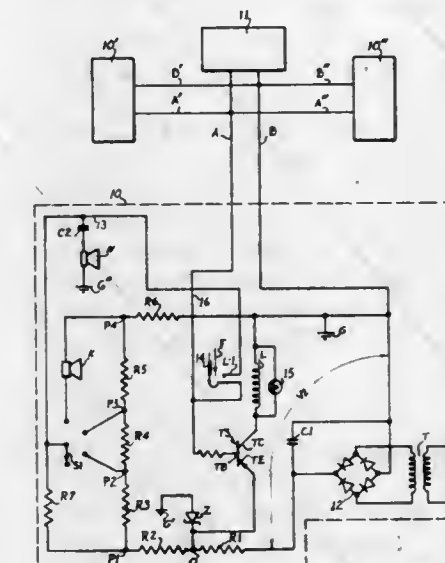
26 Claims



Apparatus for optically scanning a character having vertical and horizontal strokes formed as a dark area superposed on a white area in one plane for providing "1" and "0" signals to represent dark and white segments, respectively; shift registers activated by the "1" and "0" signals for storing signals representing the vertical strokes; flip-flops activated by the "1" and "0" signals for storing signals representing the horizontal strokes; control circuits synchronized with the character scanning and responsive to certain "1" signals for providing signals to control the activation of the shift registers and flip-flops; signal discriminating circuits activated by the vertical and horizontal stroke stored signals for providing output signals indicating a recognition of the scanned character; and equipment activated by the discriminating circuits output signals for reading out the scanned character. The control circuits include a further circuit for rearranging the vertical stroke signals in the shift register to identify a "1" character, for example.

888 O.G.-24

3,593,288
VOICE DICTATION-TRANSCRIPTION STATION
Fred C. Bolick, Jr., and James B. Godwin, III, both of Atlanta, Ga., assignors to Lanier Electronic Laboratory, Inc., Atlanta, Ga.
Filed Aug. 2, 1968, Ser. No. 749,665
Int. Cl. H04q 3/00, 5/00 10 Claims



A voice dictation-transcription system in which a plurality of voice transmitting stations are located in positions relatively remote from the position of a central unit to which all of the plurality of transmitting stations are operatively connected so that the mode of operation of the central unit may be controlled from any transmitting station for the recording of information on a recording medium at the central unit. Each transmitting station provides a control voltage by which a disabling means and an indicating means are operated when the central unit is being operated from another transmitting station. In addition, each transmitting station provides a plurality of operating voltages from the control voltage for controlling the mode of operation of the central unit, preventing the operation of the central unit by another transmitting station, and indicating at other transmitting stations that the central unit is in operation.

3,593,289

ELECTRONIC PROGRAMMER FOR MACHINE-CONTROL SYSTEMS HAVING SIMULTANEOUS PLURAL INPUTS

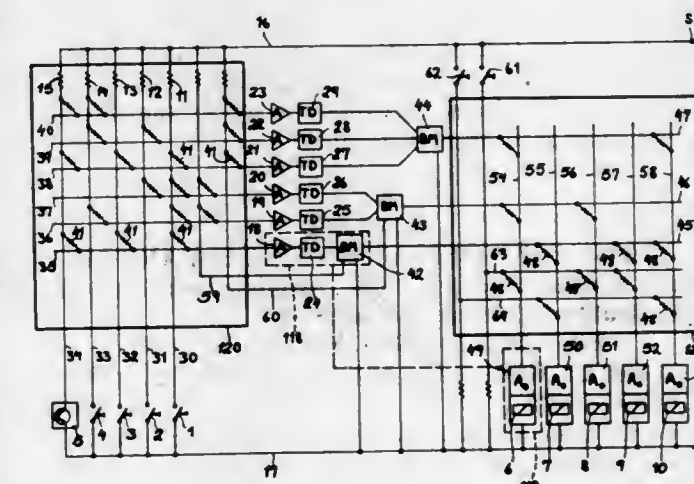
Gerhard Lerch, Weilheim, and Egon Penzkofer, Munich, both of Germany, assignors to Krauss-Maffel Aktiengesellschaft, Munich-Allach, Germany

Filed Oct. 1, 1968, Ser. No. 764,153

Claims priority, application Germany, Oct. 3, 1967, P 15 88 374.6
Int. Cl. H04q 1/00

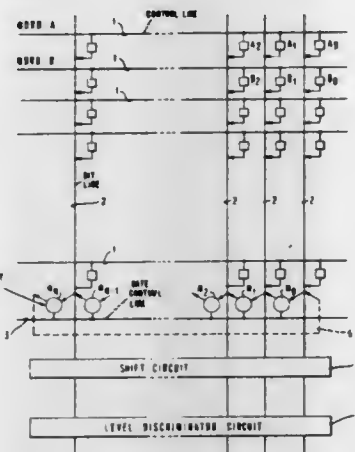
U.S. Cl. 340-147

16 Claims



An electronic programming arrangement for machine operation in a system in which a switch arrangement has a

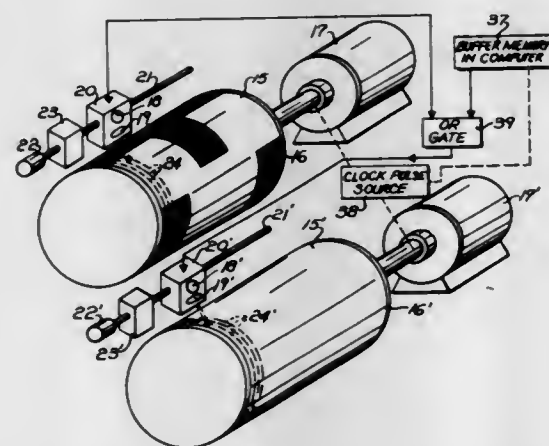
that the data signals combine in ways that have logical significance. Threshold logic circuits are connected with the



memory signal wires to propagate carries for addition or subtraction.

3,593,305
SYSTEM AND METHOD FOR MAKING UP A
NEWSPAPER PAGE

**William A. Hadley, Tappan, N.Y., assignor to Harris-Inter-
type Corporation, Cleveland, Ohio**
Filed Aug. 19, 1968, Ser. No. 753,680
U.S. Cl. 340—172.5 **1 Claim**



In the present system and method a photographic scanning recorder is controlled alternately by a scanning transmitter and a digital computer. The scanning transmitter scans a master page displaying material such as large headlines, pictures and advertisements. The digital computer processes story texts allocated to the remaining column spaces on the page. The computer provides column justification of its "raw" story text input, storing in its memory the coded identity and page location of each typographic character in the story text. Also stored in the computer memory are character-generating data for every typographic character that may appear in the text. The computer scans its memory electronically in accordance with the scanning operation of the photographic recorder to provide binary output signals to the recorder which cause the latter to record narrow segments of the typographic characters at the proper locations on the page. During one complete scanning of the record page in the photographic scanning recorder, both the material read from the master page in the scanning transmitter and the story texts are recorded on the record page in the recorder.

3,593,306
APPARATUS FOR REDUCING MEMORY FETCHES IN
PROGRAM LOOPS

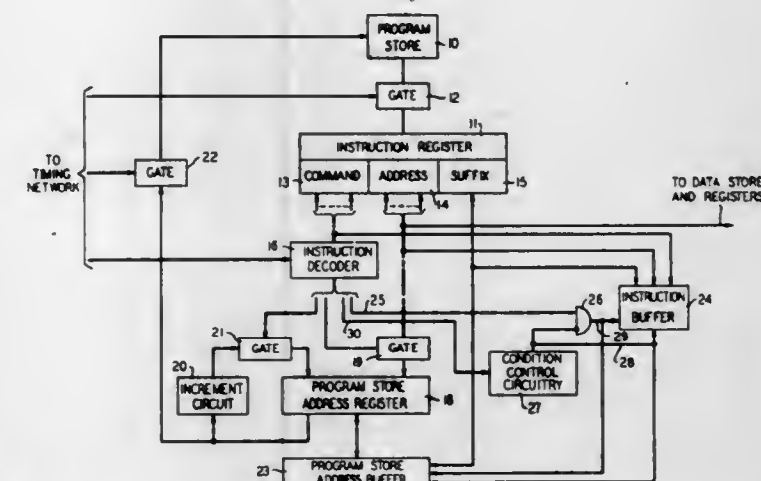
Wing N. Toy, Glen Ellyn, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed July 25, 1969, Ser. No. 844,914

Int. Cl. G06f 9/12

U.S. Cl. 340-172.5

8 Claims



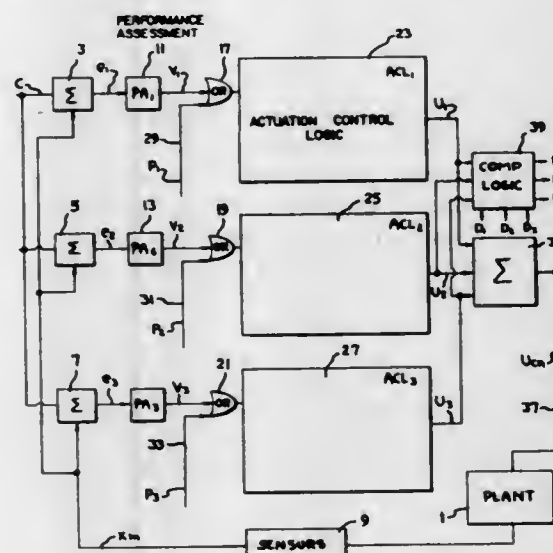
The first instruction in a program loop and the address of the second instruction in the loop are temporarily stored in a small, fast, secondary memory. These temporarily stored values are then used each time the last instruction in the loop transfers to the first instruction, thereby saving $n-1$ primary memory fetches in a loop executed n times.

3,593,307
REDUNDANT, SELF-CHECKING, SELF-ORGANIZING
CONTROL SYSTEM

**James Reid Gouge, Jr., Vienna, and Robert L. Barron, Burke,
both of, Va., assignors to Adaptronics, Inc., McLean, Va.
Filed Sept. 20, 1968, Ser. No. 761,162
Int. Cl. G06f 11/00**

U.S. Cl. 340-172.5

18 Claims



A self-organizing control system having a plurality of self-organizing controllers acting in parallel to provide actuation signals for plant control. The controllers are constantly monitored to locate faulty controllers. When one controller does not compare with the others, it is initially coerced to operate correctly and, after a predetermined period, if correct operation is not provided, the faulty controller is removed from the system. In one embodiment, an odd number of controllers is always in the system to provide control on a majority basis. Therefore, the removal of a faulty controller will require the removal of an operating controller as well.

3,593,308
PAINT SPRAY CONTROL SYSTEM

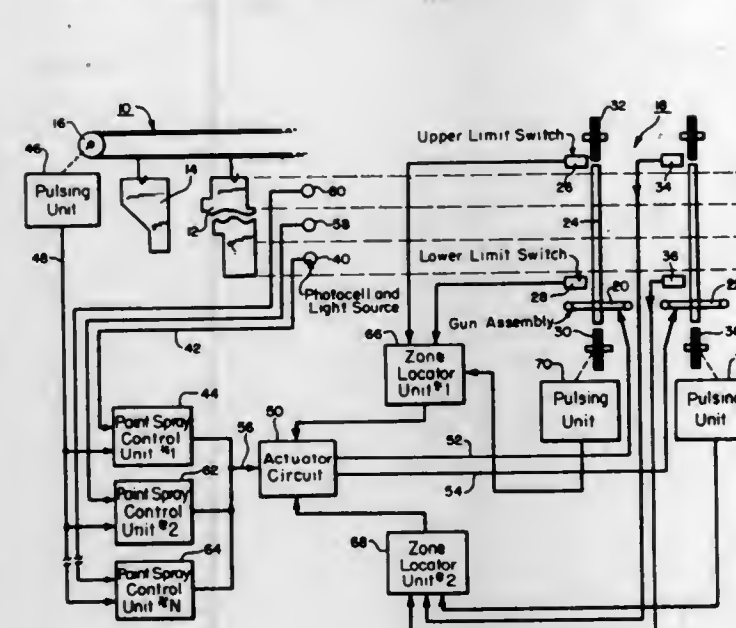
John C. Fagan, Oak Lawn, Ill., assignor to Amtron, Inc.,
Middleton, Ill.

Filed Oct. 30, 1968, Ser. No. 771,865
Int. Cl. G04b 3/06; G11c 19/00

U.S. Cl. 340—172.5

7 Claims

with each uncompressed key is associated with a related compressed key. A count field is generated with each com-



An electronic control circuit is disclosed for regulating operation of a paint spray system of the type having a spray station with at least one spray gun assembly and a conveyor for transporting objects of diverse geometry past the spray station. A sensor is positioned in advance of the spray station to develop signal information related to the dimensions of each object. A plural stage shift register is coupled between the sensor and an actuator for the spray gun assembly. A measuring unit provides a reference pulse for each incremental unit of travel of the conveyor to periodically gate the shift register stages to the end that a unit storage signal is entered in the first stage on each coincidence of the reference and sensor signals and is advanced one stage on every successive reference pulse. The number of shift register stages is selected so that the pulse reaches the actuator coincidentally with the sensed object reaching the spray station. Other features are disclosed.

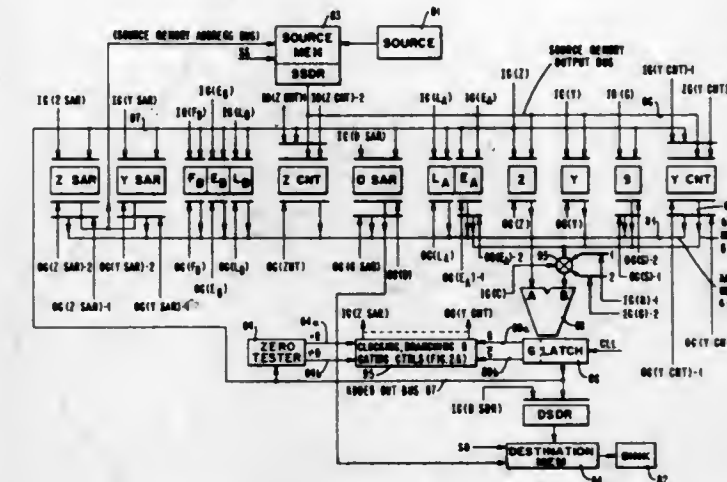
3,593,309
METHOD AND MEANS FOR GENERATING
COMPRESSED KEYS

William A. Clark, IV, Poughkeepsie, N.Y.; Kent A. Salmon, Los Gatos, Calif., and Thomas S. Stafford, Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 3, 1969, Ser. No. 788,807
Int. Cl. G11b 13/00

U.S. CL 340-172.5

120 Claims

Electronically compressing a sorted sequence of uncompressed keys, each having an associated pointer address for accessing the information represented by the key. Compression is by electronic transfer of the remaining part of any key after removing some or all of (1) high-order "factored" bytes, and (2) low-order "noise" bytes. The transferred parts of a key are delineated using an electronic device for comparing like-ordered bytes in their sorting order in adjacent uncompressed keys. The comparing device determines a difference-byte position as the highest-ordered unequal byte position in every pair of adjacent keys. The "noise" bytes are electronically sensed as the bytes having a lower-order than the difference byte. The "factored" bytes are electronically sensed at higher-order positions than the difference-byte; and they are vicariously represented in prior compressed keys due to the sorted nature of the key sequence. In some cases, the "factored" bytes include the difference byte; and in other cases the "factored" bytes do not include all bytes having a higher-order than the difference-byte position. The pointer



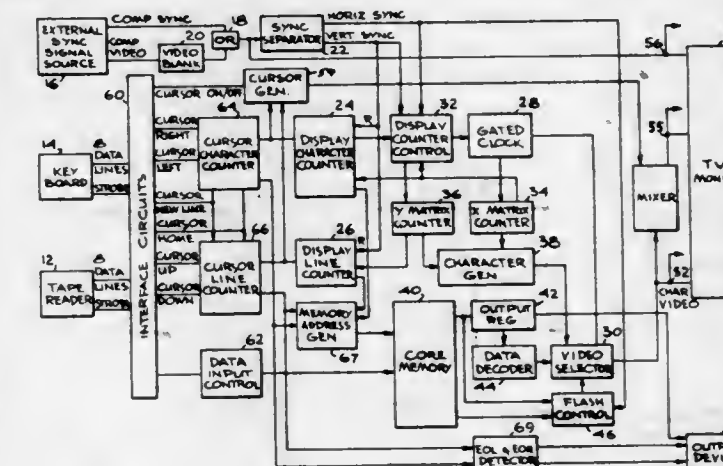
pressed key to indicate the size of the factor field and number of transferred key bytes.

3,593,310
DISPLAY SYSTEM

James M. Kievit, Des Plaines, Ill., assignor to A.B. Dick Company, Chicago, Ill.
Filed May 14, 1969, Ser. No. 824,653
Int. Cl. G06f 3/14
U.S. Cl. 340-172.5 **12 Claims**

U.S. CL. 340-172.5

12 Claims



A system is provided for enabling the information being displayed on a cathode-ray tube of a display system to appear to move upward or downward vertically across the face of the tube.

3,593,311
**DATA RECORDER WITH SINGLE OPERATOR ENTRY-
VERIFY CONTROL**

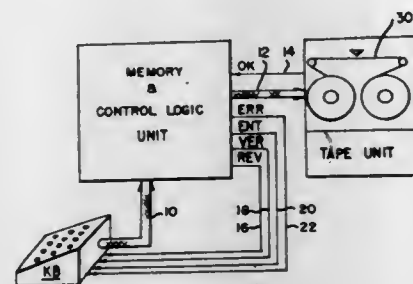
Earl W. Caldwell, Mohawk, N.Y., assignor to Mohawk Data
Sciences Corporation, Herkimer, N.Y.
Filed June 18, 1969, Ser. No. 834,422
Int. Cl. G06f 11/00

U.S. Cl. 340-172,503

20 Claims

A key-to-magnetic tape data recorder is provided with control logic which requires the operator to key-verify each block of data immediately after it has been key-entered into a buffer memory and prior to its recordation on tape. During

an entry cycle each character that is entered into the buffer memory is compared with the character it is replacing and a set error control (EC) bit is loaded into a control memory for each unequal comparison. EC bit data is inspected during the following verify cycle and if a set EC bit is encountered during a duplication operation it triggers an error alarm. The



control logic further operates to require reverification of any data entered during a verify cycle. EC bits are forced set for any such verify-entered data and are employed at the culmination of the verify cycle to automatically restore the buffer memory accessing circuits to the first verify-entered data character, enabling rapid and simple reverification.

3,593,312

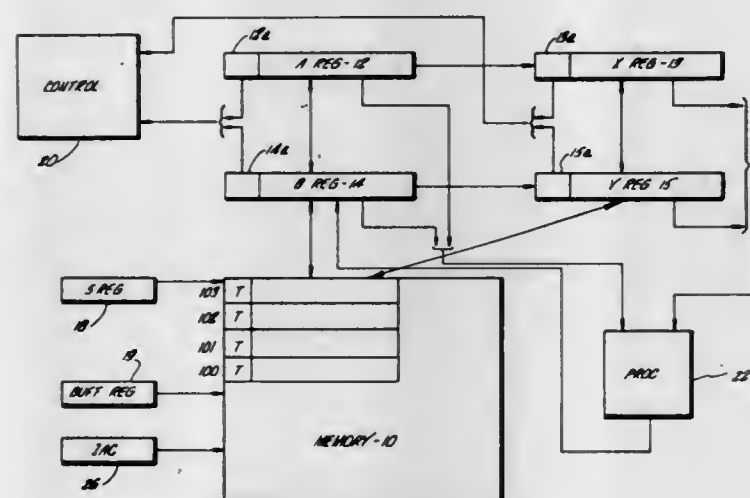
DATA PROCESSOR HAVING OPERAND TAGS TO IDENTIFY AS SINGLE OR DOUBLE PRECISION

Robert S. Barton, Salt Lake City, Utah; Carl B. Carlson, Arcadia; Bobby A. Creech, Glendora; Benjamin A. Dent, Arcadia, and Erwin A. Hauck, Arcadia, Calif., assignors to Burroughs Corporation, Detroit, Mich.
Continuation of application Ser. No. 668,460, Sept. 18, 1967, now abandoned. This application Nov. 14, 1969, Ser. No. 871,621

Int. Cl. G06f 7/00, 9/00

U.S. Cl. 340—172.5

25 Claims



A data processor having a memory in which stacks of information are stored. The top two words of an information stack, currently being operated on, are stored in two registers external to memory. An extension register is provided for each of the aforementioned registers to allow the handling of double length information units. The operand words stored in the registers have tag bits as a part thereof which identify the operands as single or double word length information units. Control circuitry is responsive to the tag bits for causing the words to be automatically manipulated or handled as single or double word length information units. A processing unit processes the data stored in the registers.

3,593,313

CALCULATOR APPARATUS

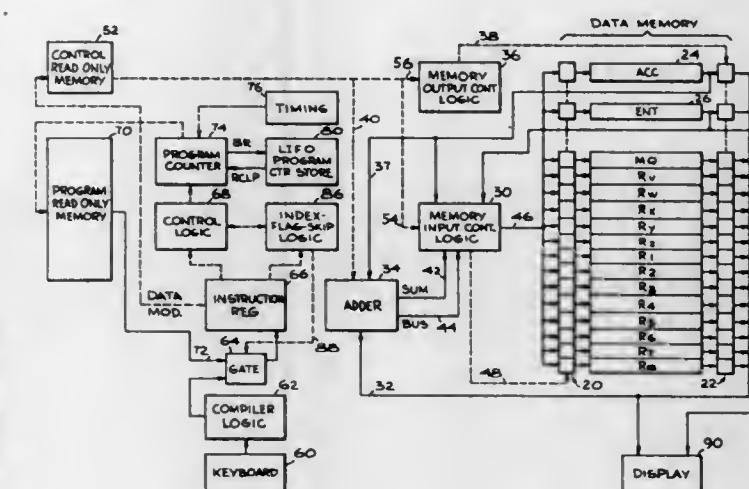
Carlos A. Tomaszewski, Canoga Park; Timothy A. R. Goodliffe, Woodland Hills; Norman J. Grannis, Los Angeles; Irving Sperling, Van Nuys, and Connable F. Wills, Venice, all of Calif., assignors to Computer Design Corporation, Santa Monica, Calif.

Filed Dec. 15, 1969, Ser. No. 885,020

Int. Cl. G06f 9/06, 15/02

U.S. Cl. 340—172.5

27 Claims



An electronic calculator apparatus capable of storing a plurality of multidigit numbers and of performing operations with respect to those numbers. Operations are defined by two levels of instructions; i.e., (1) a user level specified by keyboard actuations, and (2) an internal or microprogrammed level comprised of instructions primarily extracted from a program read-only memory. In operation, user or keyboard instructions initiate subroutines which are read from the program read-only memory and which may be comprised of a sequence of up to several thousand internal instructions. The calculator apparatus includes an alterable data memory comprised of a plurality of shift registers. Input and output control logic respectively control the flow of data to and from the data memory. The control logic is responsive to control information, read from a control read-only memory, specified by data modifying internal instructions delivered to an instruction register from the program read-only memory. Instruction codes can also be delivered to the instruction register from compiler logic responsive to keyboard actuations. The instruction sequence read from the program memory is defined by a program counter which is normally successively incremented by one. However, certain instructions can cause the program counter to skip, jump, or branch. When the program counter is caused to branch, the prior program count plus one is stored in a "last-in first-out" memory for later recall. The compiler logic functions to convert keyboard actuations presenting a problem in algebraic notation to a "Polish" notation required for calculator operation. A learn mode programmer can optionally be included for storing programs comprised of keyboard level or internal level instructions. The learn mode programmer can be loaded either from the keyboard or from some storage medium such as punched cards. Once the programmer has been loaded it is treated by the calculator just as if it constituted a portion of the program read-only memory.

3,593,314

MULTISTAGE QUEUER SYSTEM

Edward W. Moll, King of Prussia, Pa., assignor to Burroughs Corporation, Detroit, Mich.

Filed June 30, 1969, Ser. No. 837,607

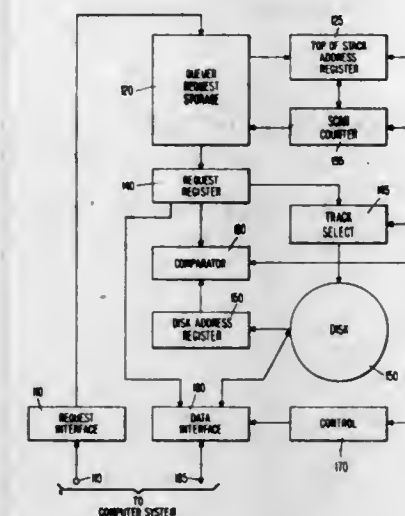
Int. Cl. G11b 13/00; G06f 7/00

U.S. Cl. 340—172.5

9 Claims

Queuing systems for storing access request words for a rotating disc file or other sequential access device and implementing them individually as the device becomes ready to effect the corresponding data transfers. The access request words are stored initially in a large capacity cyclically

scanned memory unit and are then transferred to a smaller capacity, more rapidly scanned memory unit as the corresponding file locations in the storage device are upcoming. The request words in the first memory are systematically compared for transfer to the secondary memory, where each



is again systematically compared with the state of the sequential data file for access to it. If access for a request word in the second memory is not established when the corresponding data file address is reached, (device becomes ready for it) the request is transferred back to the first memory unit.

3,593,315

METHOD AND APPARATUS FOR DEALLOCATING SMALL MEMORY SPACES ASSIGNED TO A COMPUTER PROGRAM

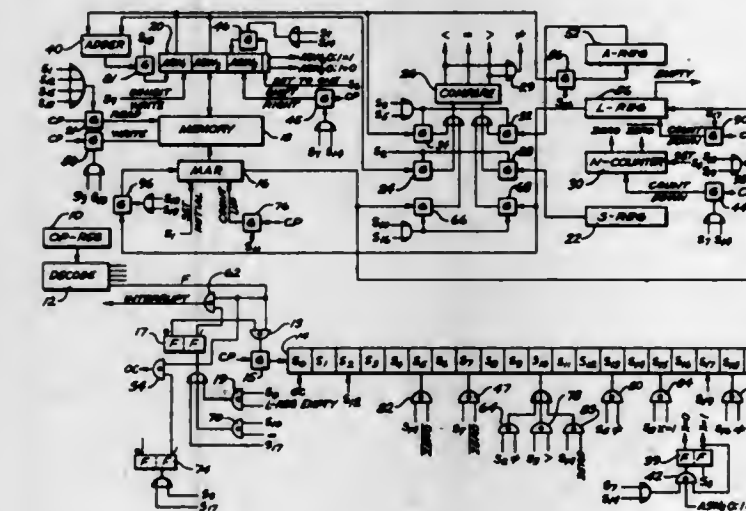
Rajani M. Patel, Arcadia, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Sept. 17, 1969, Ser. No. 858,574

Int. Cl. G06f 9/00

U.S. Cl. 340—172.5

10 Claims



An arrangement for deallocation of small spaces in an addressable memory no longer needed for use by a computer program. Blocks of memory are each subdivided into a predetermined number of equal areas. The base address of a block, the size of the subdivided areas in the block, and the availability status of each area in the block are specified in a status word stored as one of a list of such status words in memory. Whenever a particular size area is no longer needed in memory, the status words are examined to locate a block having an area of the required size. The addresses of each area in the block are then examined to find an area having a specified address. If the specified area address is found, the associated status bit in the status word in memory is reset to indicate the area is again available for use by the computer program. If all other areas in the same block are also available, the status word for that block is eliminated from the list.

3,593,316

DATA TERMINAL PROCESSOR

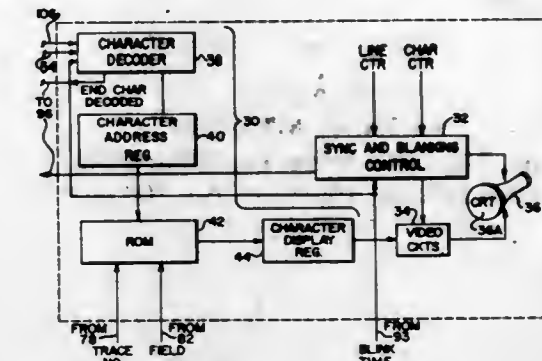
Neil G. Friebrand, Framingham; Douglas D. Kendrick, Northborough, and James F. Upton, Sudbury, all of Mass., assignors to Incoterm Corporation, Weston, Mass.

Filed Nov. 3, 1969, Ser. No. 873,356

Int. Cl. G06f 3/14, 15/16

U.S. Cl. 340—172.5

20 Claims



A data terminal processor has a combined arrangement of computational logic components and display-refreshing logic components which enables it to perform both computational and display-refreshing operations with many of the same components, particularly the arithmetic and memory components. The processor monitors the projection of display lines and the sweep of the traces forming display lines to change between the compute mode of operation and the refresh mode during the sweep of interline spaces and the sweep of lines outside the display lines that are to be used. Further, the processor operates in the refresh mode without recourse to the program counter or accumulator, and hence compute-mode information stored therein is ready for immediate use upon the resumption of computational operations.

3,593,317

PARTITIONING LOGIC OPERATIONS IN A GENERALIZED MATRIX SYSTEM

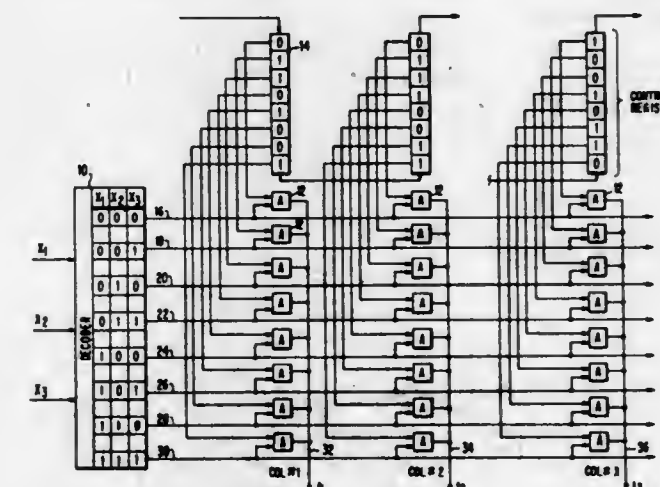
Harold Fleisher, Poughkeepsie; Arnold Weinberger, Newburgh, and Vaughn D. Winkler, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 30, 1969, Ser. No. 889,024

Int. Cl. G06c 15/00

U.S. Cl. 340—172.5

4 Claims



An improved method and means to implement a logic function F of N variables by partitioning the logic operation in a plurality of generalized logic matrices. It is first mathematically demonstrated that a function F of N variables may be expanded into subfunctions of a lesser number of variables. These subfunctions may be logically implemented individually and then logically combined so as to produce the desired function of N variables with a concomitant savings in logic circuitry over that required if the functions were

directly implemented. The means used to implement the logic function F are a plurality of generalized logic matrices, each of which comprises a plurality of logic gates arranged in columns and rows, an input decoder for accepting the input variables, and a storage register for varying the functions generated at the output of the matrix. These matrices are arranged in cascade so that, as the function F is constructed from the several subfunctions, additional variables are inserted at each matrix stage until the function F of N variables is fully generated.

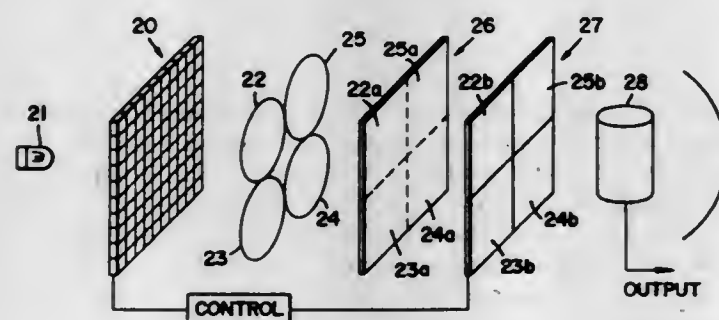
3,593,318

OPTICAL MEMORY

Iben Browning, 745 Distel Drive, Las Altas, Calif.
Filed Feb. 26, 1968, Ser. No. 708,061
Int. Cl. G11c 11/22, 11/42

U.S. Cl. 340-173

2 Claims



An optically interrogated information storage and retrieval device is disclosed wherein light is modulated by a light shutter array comprising a polycrystalline ferroelectric ceramic lattice and focused on a photographic film to produce an image corresponding to the configuration of light-transmitting portions of the ceramic lattice. A lens mosaic may be used to focus light transmitted by the ferroelectric ceramic lattice to a plurality of nonoverlapping regions of the photographic film to produce in combination extremely high information bit density. A laser beam may be used for the light source and an energy-absorbing coating for the information storage medium to provide a high density mass memory.

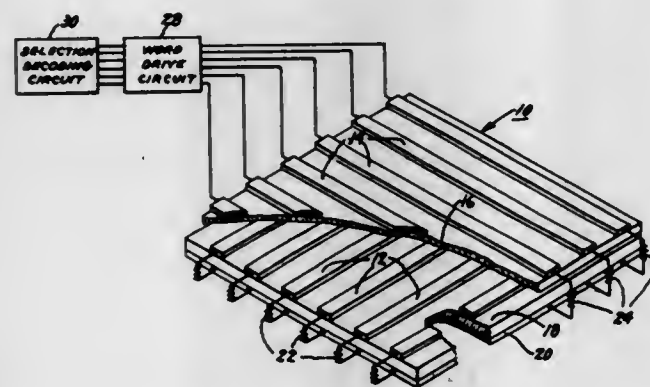
3,593,319

CARD-CHANGEABLE CAPACITOR READ-ONLY MEMORY

William D. Barber, Schenectady, N.Y., assignor to General Electric Company
Filed Dec. 23, 1968, Ser. No. 786,269
Int. Cl. G11c 17/00

U.S. Cl. 340-173 SP

6 Claims



A low cost read-only capacitive storage memory is described wherein the word lines and bit lines of the read matrix are formed as a plurality of straight conductors orthogonally disposed on opposite sides of an insulating layer. To encode the read matrix, a printed circuit card having conductive platelets selectively positioned thereon is

disposed conductor-side downward atop the matrix with the platelets in registration with selective crossover areas of the word and bit lines and readout is effected by a measurement of the electrical signal capacitively coupled from a driven word line to the bit lines. Preferably the platelets are formed as orthogonal crosses vacuum deposited atop a flexible substrate to permit contouring of the platelets for maximum capacitive coupling between the word and bit lines.

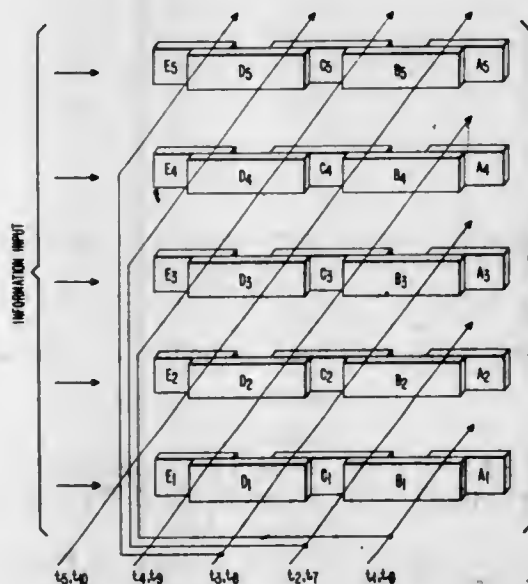
3,593,320

FIRST-IN, FIRST-OUT DATA BUFFER MEMORY

John D. Blades, Wayne, Pa., assignor to Burroughs Corporation, Detroit, Mich.
Filed Feb. 14, 1968, Ser. No. 705,480
Int. Cl. G11c 5/08, 11/14, 19/00

U.S. Cl. 340-174 TF

9 Claims



The present application discloses a data buffer memory system which receives information into one end and immediately propagates the information through the memory to its farthest coupled element. It thus provides the information at its output end in the same sequence as it was received. The key to the proposed memory system is a coupling/no coupling condition that can exist between two diplanar ferromagnetic thin films separated by a nonmagnetic conductive material. It is possible to fabricate the proposed memory matrix systems by multiple deposition techniques. High bit density may be achieved by standard or improved etching procedures.

3,593,321

MATRIX STORAGE

Wolfgang Kraft, Bad Hersfeld, Germany, assignor to Zuse K.G., Bad Hersfeld, Germany
Filed Apr. 29, 1968, Ser. No. 725,235
Claims priority, application Germany, Apr. 29, 1967, June 23, 1967, Z 12823; Z 12913
Int. Cl. G11c 7/02, 11/06

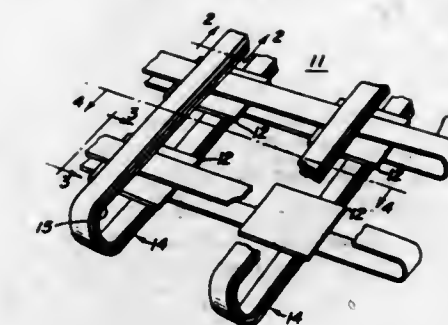
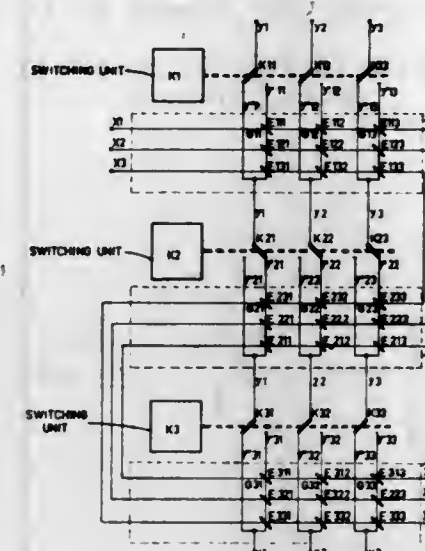
U.S. Cl. 340-174

12 Claims

A group of rows repeatedly intersects a group of columns. Switchable elements are placed at each intersection of a row and a column which are switched from a first state to a second state if a signal is present in both the intersecting row and column. All elements at intersection points created by the first intersection of the group of rows with the group of columns belong to a first information plane, all elements at intersections corresponding to the second intersection of said group of rows with the columns correspond to a second information plane, etc. A shunt wire is provided for each group of elements in any one column in any information plane, and switching elements select either the shunt wire or the corresponding group of elements. Individual driving circuits may be provided for each row and each column, or a number of columns may be connected together to form a column group

connected to a single column driving circuit. Switching units are provided for jointly operating all switching elements in

disposed over the memory element rows for selectively actuating the memory elements in memory information operations, information and readout lines disposed over the



any one information plane, which belong to different column groups.

3,593,322

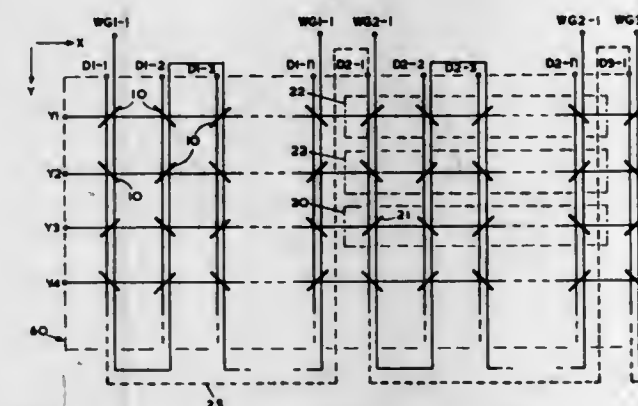
A SEQUENTIAL ADDRESS MAGNETIC MEMORY SYSTEM

David Joseph Morris, Holon, Israel, assignor to English Electric Computers Limited, London, England
Filed Apr. 23, 1968, Ser. No. 728,380
Claims priority, application Great Britain, May 2, 1967, 20182/67

Int. Cl. G11c 5/08, 7/02, 5/02

U.S. Cl. 340-174 M

4 Claims



This invention relates to a magnetic core store with coincident current selection. In such a store, the readout of successive words in sequential addresses involves the selection of each word in turn. By the present invention, such successive reading out of words in a block is achieved by energizing that selection line which is common to the block continuously, and pulse energizing the other selection lines in succession. Thus, for the first word, noise is produced on the sense lines by both selection lines, but for the remaining words the only noise is that due to the selection lines individual to the successive words being read out. Preferably, the store is arranged so that this latter noise is small compared with the noise produced on normal full selection of a word. A more rapid readout of the block is thereby achieved.

3,593,323

MAGNETIC MEMORY MATRIX WITH KEEPERS

Shunichi Suzuki, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Nov. 13, 1968, Ser. No. 775,331
Claims priority, application Japan, Nov. 17, 1967, 42/74021
Int. Cl. G11c 5/02, 11/14

U.S. Cl. 340-174 BC

2 Claims

A magnetic memory matrix including magnetic memory elements spaced in parallel rows and columns, drive lines

memory element columns and intersecting the drive lines at right angles, and magnetic keepers disposed over the information and readout lines to overlie crossovers of the drive lines and the information and readout lines.

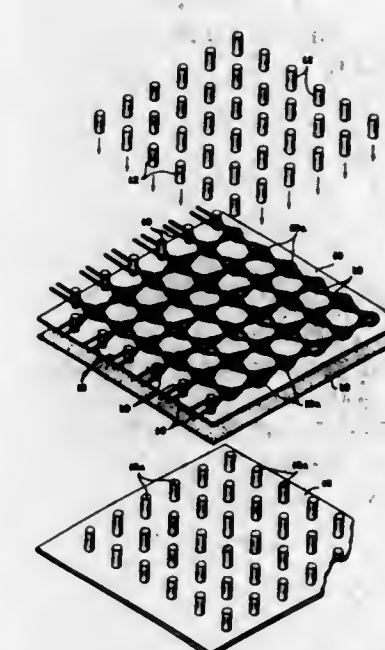
3,593,324

ROD MEMORY SOLENOID WEAVING CONSTRUCTION

Donal A. Meier, Inglewood, Calif., assignor to The National Cash Register Company, Dayton, Ohio
Division of Ser. No. 477,794, Aug. 6, 1965, Pat. No. 3,440,719
This application Dec. 23, 1968, Ser. No. 786,224
Int. Cl. G11c 11/04, 11/14, 5/02

U.S. Cl. 340-174 WC

9 Claims

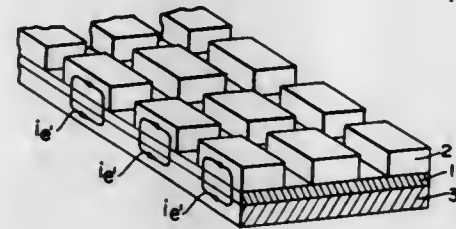


A memory array comprised of a plurality of parallel bistable magnetic rods, arranged upright in rows and columns of a plane, and a solenoid weaving pattern of insulated conductive wires woven perpendicular to the rods and from rod to rod of each column and of each row. A solenoid is formed about the magnetic rods by a first wire passing adjacent rods on opposite sides and a second wire woven in the same manner as the first, except that it passes by each rod on the opposite side of the first. A plurality of first coordinate drives are formed by the solenoid wires woven about the rows of rods and a plurality of second coordinate drives are formed by the solenoid wires woven about the columns of rods, so that a different combination of first and second coordinate drives is formed by the solenoid weaving pattern for each rod.

3,593,325

MAGNETIC THIN FILM STORAGE DEVICE FOR NONDESTRUCTIVE READOUT THEREOF
Gunter Salzmann, Dresden, Germany, assignor to Institut Fur Elektronik Dresden, Dresden, Germany
Filed Jan. 15, 1969, Ser. No. 791,466
Int. Cl. G11c 11/14

U.S. Cl. 340—174 TF



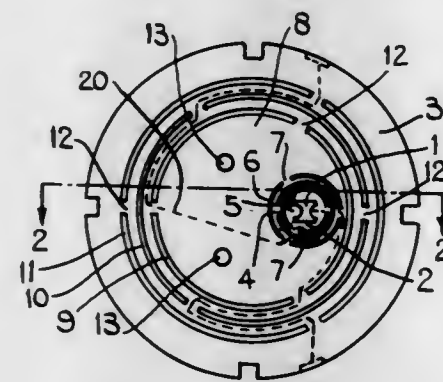
A magnetic thin film device susceptible to the influence of an external magnetic pulse field comprises an anisotropic magnetic storage film having a pair of spaced surfaces and a pair of electrical conductors each in electrical contact with and next adjacent a corresponding one of the surfaces of the film.

3,593,326

MAGNETIC HEAD MOUNTING WITH PLURAL GIMBALS

Ian Turner, Martins Wood, Stevenage, Hertfordshire, and Peter George Jackaman, Trots Hill, Stevenage, Hertfordshire, both of, England, assignors to International Computers Limited, London, England
Filed July 7, 1969, Ser. No. 839,150
Claims priority, application Great Britain, July 9, 1968, 32714/68
Int. Cl. G11b 5/60

U.S. Cl. 340—174.1 E

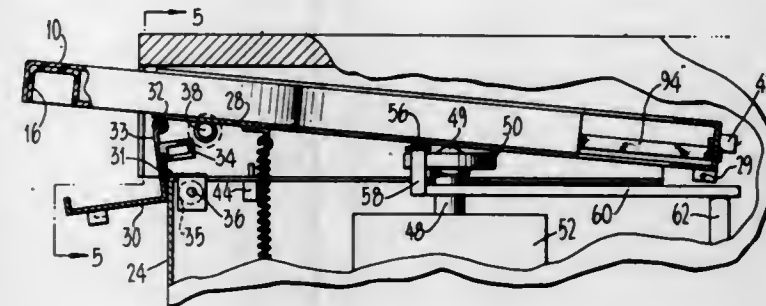


A gimbal mounting for a magnetic head is disclosed which is constructed of a sheet of resilient material which has apertures therein defining a first gimbal supporting an intermediate area within an outer area of the sheet and further apertures defining a second gimbal supporting an inner area of the sheet within the intermediate area. The outer area is secured to a support member and a magnetic head is secured to the inner area. The intermediate area also carries a pair of skids, or alternatively a pair of further gimbaled inner areas to which magnetic heads are secured. The skids and head, or the three heads form, in cooperation with a record surface form, a three-point suspension for the intermediate area. The first gimbal ensures that the three-point suspension is able to follow relatively slow surface changes of the record whilst the second gimbal supporting the inner area permits the head to be closely in contact with the record surface in spite of relatively rapid surface changes.

3,593,327
MEMORY-DISC CARTRIDGE WITH LOADING MECHANISM

Karl E. Shill, Fremont, Calif., assignor to The Singer Company
Filed Oct. 24, 1968, Ser. No. 770,231
Int. Cl. G11b 23/04

10 Claims U.S. Cl. 340—174.1 C



A magnetic disc cartridge is insertable through a slot into a drive housing. Such insertion opens a shutter in the cartridge and unlocks a lowering mechanism. Closing of a door to the slot lowers the cartridge to set the memory disc onto a drive spindle where it is held magnetically. Operation of the drive mechanism then locks the door closed and locks the cartridge down.

3,593,328

MULTICOMPONENT PLATED GLASS FIBER MAGNETIC MEMORY

William C. Trethewey, Newark, Ohio, assignor to Owens-Corning Fibreglas Corporation
Continuation of application Ser. No. 589,410, Oct. 25, 1966, now abandoned. This application Oct. 20, 1969, Ser. No. 867,961
Int. Cl. G11c 5/02, 11/04, 11/14
U.S. Cl. 340—174 PW

6 Claims



Magnetic memory units utilizing multicomponent glass fibers having continuous glass and electrically conductive and/or magnetic components in the fibers, for arrangement in a memory unit array. Novel multicomponent glass fibers and strands are also disclosed.

3,593,329

SEMPERMANENT MAGNETIC STORAGE EMBODYING GROUPS OF MAGNETIC PARTICLES COLLECTABLE AS DISCRETE UNITS IN SEPARATE AREAS AT WORD AND OUTPUT LINE INTERSECTIONS TO STORE BINARY SIGNALS

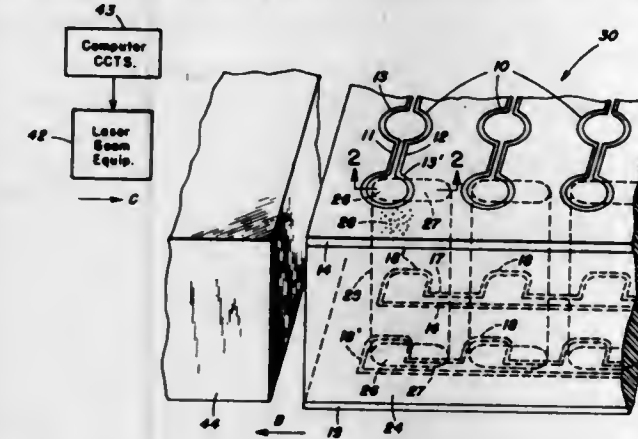
Shunichi Suzuki, Tokyo-to, Japan, assignor to Nippon Electric Company, Limited, Tokyo-to, Japan
Filed Oct. 29, 1969, Ser. No. 872,268
Int. Cl. G11b 5/14

U.S. Cl. 340—174 M

18 Claims

A semipermanent magnetic matrix comprising intersecting word and output lines, a dielectric interposed between the lines and formed with openings, each having a first segment disposed between the lines at each line intersection and a second segment laterally disposed from each line intersecting and a magnetic mixture including groups of magnetic particles and an inert substance placed in each opening, whereby its respective particle groups are activated into unitary structures in preselected first and second opening segments at given times to store "0" and "1" binary signals. The inert

substance may comprise commercial paraffin changeable into liquid and solid states, or ambient air or silicone oil.



Also, magnetic keepers located at the first and second opening segments are used to set the magnetic particle structures.

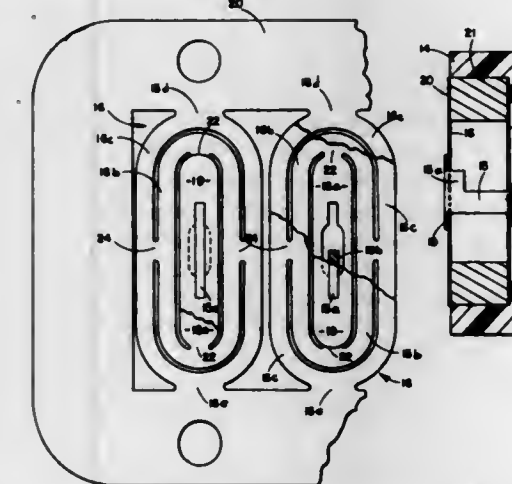
3,593,330

WEB-LIKE SPRING SUPPORT FOR MAGNETIC TRANSDUCER

Donald M. Ackley, Torrance, Calif., assignor to Computer Communications, Inc.
Filed Jan. 27, 1969, Ser. No. 794,144
Int. Cl. G11b 5/60

U.S. Cl. 340—174.1

8 Claims



A magnetic transducer which operates in conjunction with a magnetic memory disc is resiliently supported in a pair of weblike springs. The transducer is attached to the springs at the opposite ends thereof for motion along an axis perpendicular to the surface of the magnetic memory disc.

3,593,331

MAGNETIC DISC CALIBRATION TRACK WITH DIMINISHING APERTURES

Kenneth P. Connell, Los Angeles, and Joseph J. Bourdon, Inglewood, both of, Calif., assignors to The National Cash Register Company, Dayton, Ohio
Filed Jan. 31, 1969, Ser. No. 795,416
Int. Cl. G11b 5/56

U.S. Cl. 340—174.1 C

13 Claims



Apparatus used to align a multiple head unit mounted in a disc file of a magnetic disc memory system. The multiple

head unit supports a plurality of magnetic read/write heads in close proximity to a surface of an interchangeable record disc having a magnetic recording surface on a nonmagnetic substrate. A calibration track pattern is formed on the record disc for each read-head by exposing defined areas of the nonmagnetic substrate through the magnetic recording surface. The track patterns are rotated on the record disc surface past their respective read-heads. The accurately positioned calibration track patterns are disposed on the record disc to provide signals from the read-heads indicative of the amount and direction of displacement of each read-head relative to its respective rotating calibration track pattern. An adjustment is provided for the multiple head unit to reduce the maximum displacement between the read/write heads and their respective calibration track patterns.

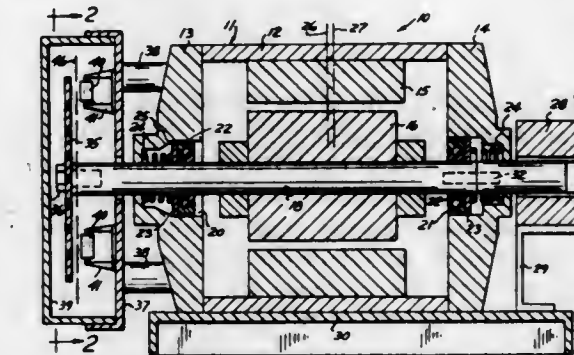
3,593,332

MAGNETIC DISC MEMORY STORAGE UNIT

Gerald K. Strehl, Pontiac, and Walter J. Fitzgibbons, Southfield, both of, Mich., assignors to Information Data Systems, Incorporated, Detroit, Mich.
Filed May 13, 1969, Ser. No. 824,117
Int. Cl. G11b 5/10, 5/60

U.S. Cl. 340—174.1

6 Claims



A memory storage unit having a magnetic-type memory disc mounted upon a rotatable shaft, a recording-receiving head mounted near a face of the disc, with the shaft being axially shiftable during rotation to move and hold the disc to a predetermined position extremely close to the head.

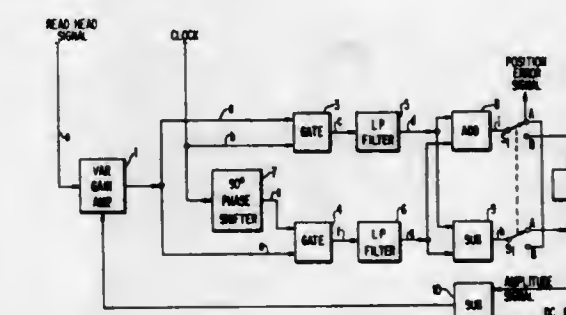
3,593,333

POSITION DETECTION FOR A TRACK FOLLOWING SERVO SYSTEM

Richard K. Oswald, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 26, 1969, Ser. No. 880,274
Int. Cl. G11b 21/10

U.S. Cl. 340—174.1 B

3 Claims



The invention relates to the positioning of a transducer relative to a desired information track on a magnetic disc. Alternate reference tracks on the disc are 90° out of phase with each other. Position error detection circuitry derives an error position signal and an automatic gain signal simultaneously from the signal induced in the transducer as a function of its position relative to the reference tracks on the disc. The automatic gain signal is provided even when the transducer is properly placed and allows for more accurate error position signals to be generated by the position error detection circuitry.

3,593,334

PULSE DISCRIMINATION SYSTEM

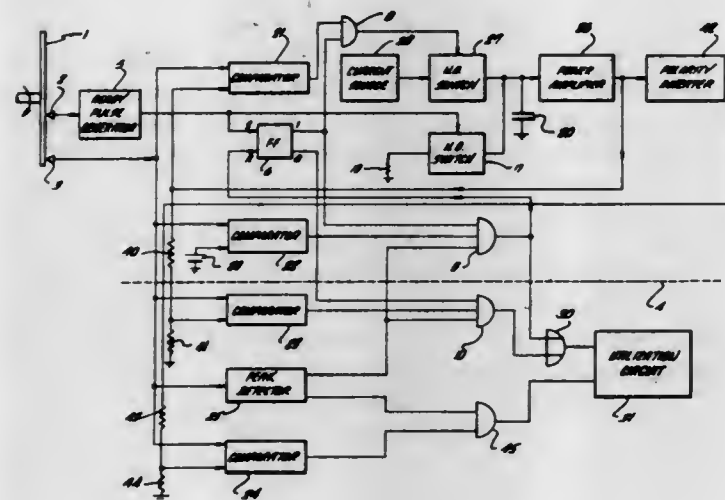
Charles E. Bickel, Thousand Oaks, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Nov. 29, 1968, Ser. No. 779,802

Int. Cl. G11b 5/44; H03k 5/20

U.S. Cl. 340-174.1 H

20 Claims



Data pulses are discriminated from noise on an amplitude basis at an adjustable threshold level. The data pulses occur in groups separated from each other by intervals of time. The groups have different signal levels. The adjustable threshold level is set responsive to the peak amplitude of the first pulse of each group so as to select for each group the appropriate threshold level to discriminate the data pulses from noise. Preferably, the first pulse of each group is a control pulse separated from the remaining pulses of the group by several bit cells.

3,593,335

PARTIAL-RANGE TRACKING INDICATOR

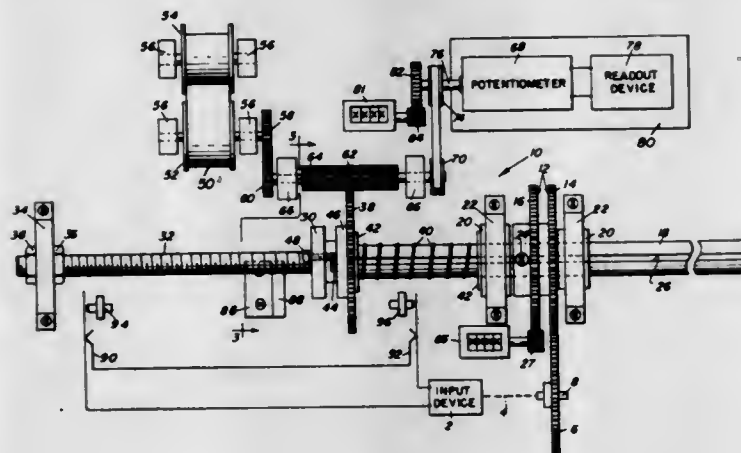
Harold O. Wires, and Samuel E. Rickly, both of Columbus, Ohio, assignors to The United States of America as represented by the Secretary of the Interior

Filed May 16, 1969, Ser. No. 825,349

Int. Cl. G01d 5/04

U.S. Cl. 340-177

7 Claims



A first mechanical system monitors the total displacement of an element within an input device. A second mechanical system monitors only a critical increment of that displacement. The first system activates and deactivates the second system at the boundary of the critical increment. The second system operates an electromechanical readout transducer. In this way the readout resolution of the transducer is increased for the displacement increment of critical concern.

3,593,336

TANDEM CONTROL OF PROCESS CONTROLS SYSTEM HAVING TWO OR MORE CONTROL STATIONS

Peter J. A. Turner, Glasgow, Scotland, assignor to Honeywell Inc., Minneapolis, Minn.

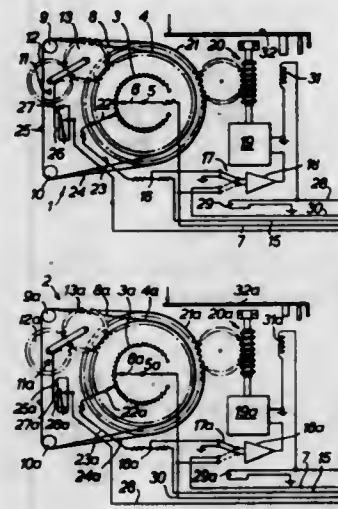
Filed Aug. 22, 1968, Ser. No. 754,655

Claims priority, application Great Britain, Sept. 8, 1967, 41128/67

Int. Cl. G08c 21/00

U.S. Cl. 340-187

13 Claims



A process control system having two or more control stations is shown wherein each control station generates a set point signal which is applied to a control device. The control device also receives a process variable signal that is compared to the set point signal for generating a characterized system output signal which automatically controls a load. Each control station includes an indicator to indicate the set point signal and a manual adjustment device to adjust the set point signal. Each control station connects to a servosystem within the other stations wherein adjustment of one control station set point signal adjusts the set point signal at each of the other control stations. Manual control of the load is achieved by a switch in each control station for removing the system output signal from the load and applying instead a manual control signal. Each control station is connected to a further servosystem within the other stations such that adjustment of manual control at one control station adjusts the manual control at each of the other control stations.

3,593,337

ELECTROMECHANICAL TRANSDUCER

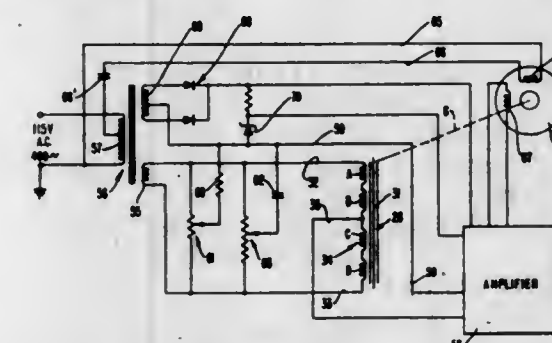
Victor D. Ellison, Waverly, Pa., assignor to The Bendix Corporation

Filed Aug. 23, 1968, Ser. No. 754,896

Int. Cl. G08c 19/08

U.S. Cl. 340-187

13 Claims



A motion detecting device for sensing the direction and magnitude of such motion in the form of a sealed electromechanical transducer including a highly sensitive synchro having a rotor comprising magnetic flux conducting material and a rotatably stator with a plurality of series connected primary windings energized by an AC source of electrical energy and servoed in response to the electrical output thereof, as determined by the rotor position, to follow movements of the rotor relative to the stator and thereby reestablish a null or zero output relationship of the stator and the rotor, said output being a result of variations in the impedance of the windings when the rotor is displaced from a predetermined null or zero output position relative to the stator.

DESIGNS

JULY 13, 1971

221,122

HEEL PLATE

Otho Davis, 214 Landsburg Drive, Durham, N.C. 27707

Continuation-in-part of abandoned design application Ser. No. 16,524, Apr. 1, 1969. This application Apr. 21, 1970, Ser. No. 22,548

Term of patent 14 years

Int. Cl. D2-04

U.S. Cl. D2-317



221,123

BELT ATTACHED TOOL HOLDER

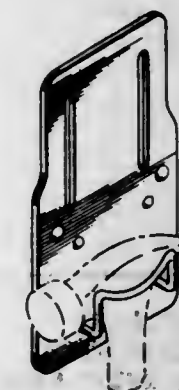
William H. Nicholas, 5225 W. 2nd St., Los Angeles, Calif. 90004

Filed Feb. 2, 1970, Ser. No. 21,182

Term of patent 14 years

Int. Cl. D2-08

U.S. Cl. D2-400



221,124

COMBINED BEDSTEAD AND CABINET OR SIMILAR ARTICLE

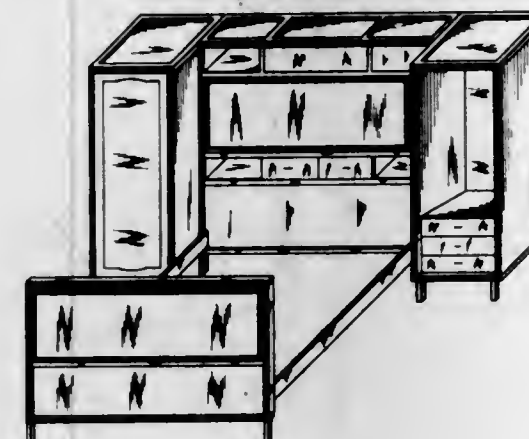
Giuseppe Coluccio, 2610 Ave. U. New York, N.Y. 11229

Filed July 30, 1969, Ser. No. 18,471

Term of patent 3 1/2 years

Int. Cl. D6-01

U.S. Cl. D5-4



221,125

COMBINED CAN OPENER AND CLOSURE

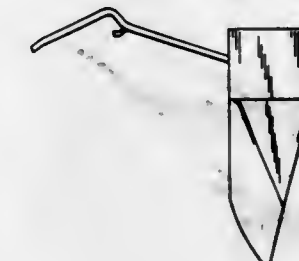
Loran L. Laughlin, 2541 Maywood Drive, Salt Lake City, Utah 84109

Filed June 11, 1970, Ser. No. 23,440

Term of patent 14 years

Int. Cl. D8-02

U.S. Cl. D8-34



221,126

GROMMET SETTER

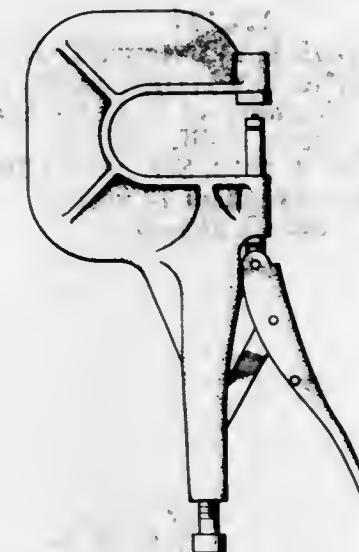
Charles L. Hoover, 98 N. Sunset Ave., Banning, Calif. 92220

Filed May 1, 1970, Ser. No. 22,751

Term of patent 14 years

Int. Cl. D8-05

U.S. Cl. D8-51



221,127

ELECTRIC SCISSORS

Wayne A. Current, Cranford, N.J., assignor to The Singer Company, New York, N.Y.

Filed June 30, 1970, Ser. No. 23,770

Term of patent 14 years

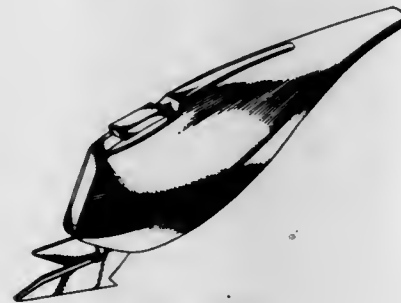
Int. Cl. D8-02

U.S. Cl. D8-61



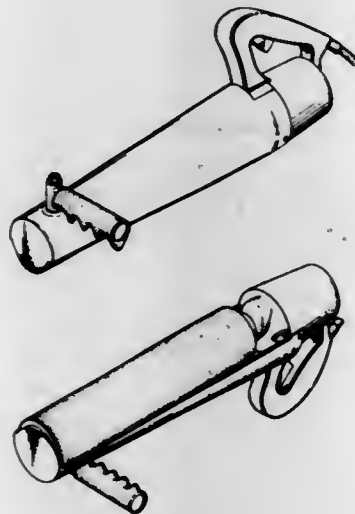
221,128
ELECTRIC SCISSORS
 Wayne A. Current, Cranford, N.J., assignor to The
 Singer Company, New York, N.Y.
 Filed June 30, 1970, Ser. No. 23,771
 Term of patent 14 years
 Int. Cl. D8—02

U.S. Cl. D8—61



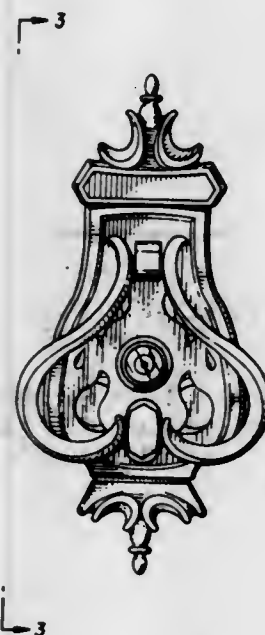
221,129
**PORTABLE TOOL HAVING ROTARY DRUM
 FOR ACTING ON WORK SURFACE**
 Alma A. Hutchins, 49 N. Lotus Ave.,
 Pasadena, Calif. 91107
 Filed Mar. 9, 1970, Ser. No. 21,792
 Term of patent 14 years
 Int. Cl. D8—02

U.S. Cl. D8—62



221,130
DOOR MOUNTED PROTECTION UNIT
 Harry R. Gewertz, Whittier, and Henry R. Escalette,
 Villa Park, Calif., assignors to Ajax Hardware Manu-
 facturing Corporation, City of Industry, Calif.
 Filed Apr. 1, 1970, Ser. No. 22,193
 Term of patent 14 years
 Int. Cl. D8—03

U.S. Cl. D8—177



221,131
DOOR STOP
 John Germock, Jr., 20270 Lake Shore Blvd.,
 Euclid, Ohio 44123
 Filed Nov. 19, 1969, Ser. No. 20,170
 Term of patent 14 years
 Int. Cl. D8—03

U.S. Cl. D8—204



221,132
SQUEEZE BOTTLE
 Sebastian J. Schiavone, 24 Merritt Ave.,
 East Chester, N.Y. 10709
 Filed Apr. 14, 1970, Ser. No. 22,499
 Term of patent 14 years
 Int. Cl. D9—01

U.S. Cl. D9—2



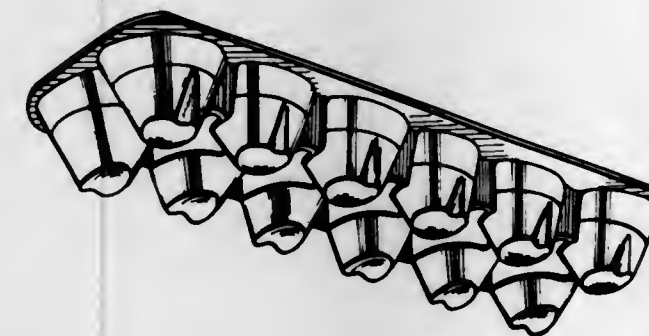
221,133
BOTTLE OR SIMILAR ARTICLE
 Bendt Wikke, deceased, late of Copenhagen, Denmark,
 by Skifteretten I. Lyngby (the Probate Court) Lyngby,
 Denmark, assignor to Colgate-Palmolive Company,
 New York, N.Y.
 Filed Jan. 8, 1970, Ser. No. 20,829
 Claims priority, application Denmark July 9, 1969
 Term of patent 14 years
 Int. Cl. D9—01

U.S. Cl. D9—45



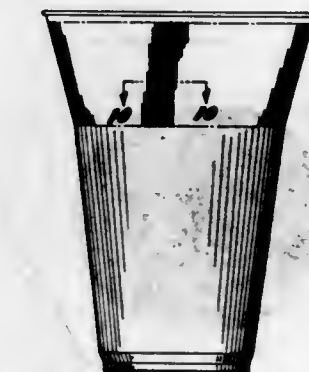
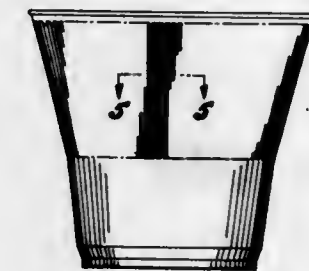
221,134
EGG TRAY
 Clifford H. Bessett, South Holland, Ill., assignor to
 Packaging Corporation of America, Evanston, Ill.
 Filed Jan. 17, 1969, Ser. No. 15,391
 Term of patent 14 years
 Int. Cl. D9—04

U.S. Cl. D9—190



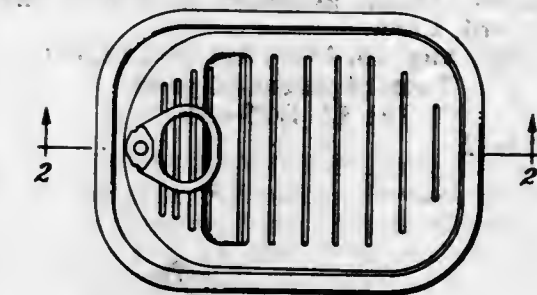
221,135
TUMBLER
 Roland Thomas Schorer, Palos Verdes, Calif., and Mori-
 son S. Cousins, Plainview, N.Y., assignors to Dart
 Industries Inc., Los Angeles, Calif.
 Filed Apr. 23, 1970, Ser. No. 22,608
 Term of patent 14 years
 Int. Cl. D7—01

U.S. Cl. D9—220



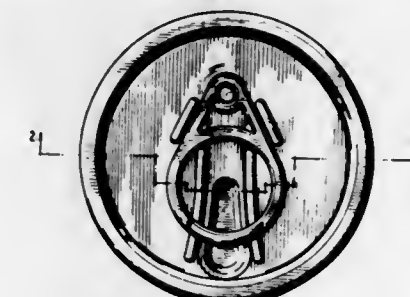
221,136
CONTAINER END
 Raymond Luscombe Batchelar, Westwood, Carl William
 Heinle, Short Hills, and Leonard Thomas Lacroce,
 Paramus, N.J., assignors to American Can Company,
 New York, N.Y.
 Filed Jan. 16, 1970, Ser. No. 20,947
 Term of patent 14 years
 Int. Cl. D9—02

U.S. Cl. D9—255



221,137
END CLOSURE FOR A CONTAINER
 William T. Saunders, Weirton, W. Va., assignor to
 National Steel Corporation
 Filed June 1, 1970, Ser. No. 23,238
 Term of patent 14 years
 Int. Cl. D9—02

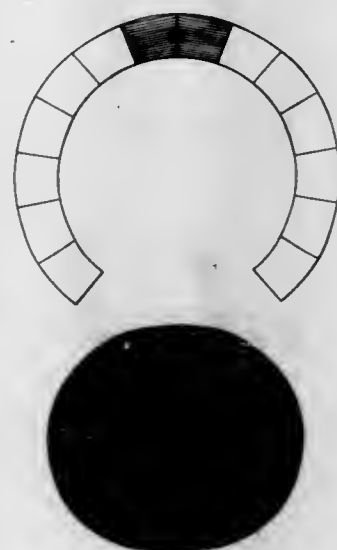
U.S. Cl. D9—255



221,138

ORNAMENTAL AIRPORT FLOORING
Lawrence G. Barrett, Lynchburg, Va., assignor to The American Novawood Corporation, Lynchburg, Va.
Filed Nov. 15, 1968, Ser. No. 14,489
Term of patent 14 years
Int. Cl. D25—01

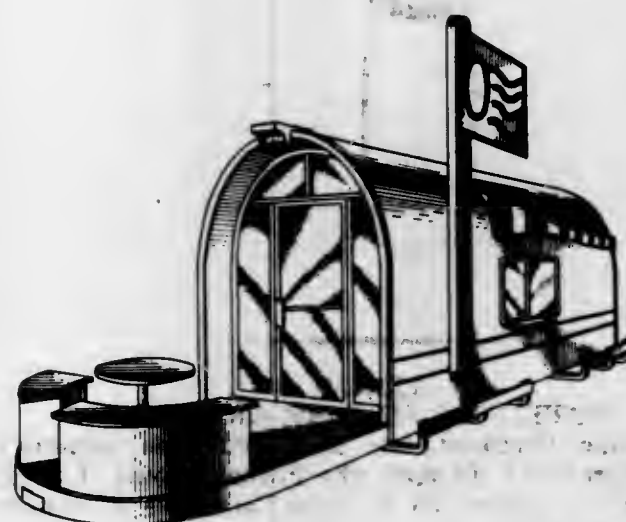
U.S. Cl. D13—1



221,140

BUILDING
Mark A. Wood, 1913 E. 116th St.,
Carmel, Ind. 46032
Filed Nov. 12, 1969, Ser. No. 20,041
Term of patent 14 years
Int. Cl. D25—04

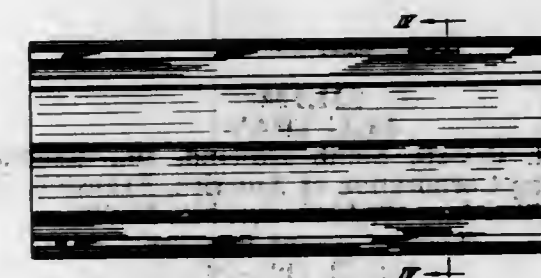
U.S. Cl. D13—1



221,141

MOBILE HOME DECORATIVE MOLDING
Robert S. Wormser, Hillsdale, Mich., assignor to
Game Time, Inc., Litchfield, Mich.
Filed Mar. 19, 1970, Ser. No. 21,982
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D13—6

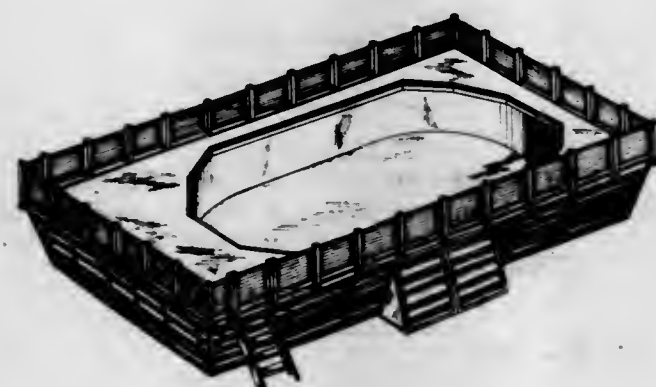


221,139

COMBINED SWIMMING POOL AND ENCLOSURE
Joseph Diamond, Simsbury, and Melvin Y. Gershman,
West Hartford, Conn., and Norbert A. Vangness,
Longmeadow, Mass., assignors to Coleco Industries,
Inc., Hartford, Conn.

Filed Aug. 25, 1969, Ser. No. 18,829
Term of patent 14 years
Int. Cl. D25—99

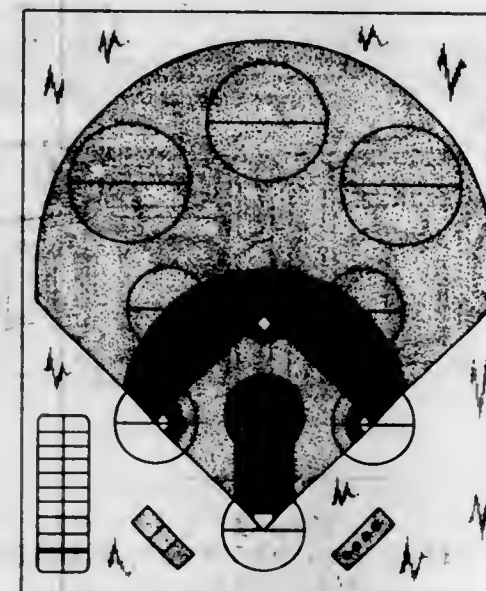
U.S. Cl. D13—1



221,142

BASEBALL GAME BOARD
Paul Ponsick, 330 E. 79th St.,
New York, N.Y. 10021
Filed Jan. 19, 1970, Ser. No. 20,991
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—5



221,145

BRAKE SHOE
Hugh G. Margetta, Leamington Spa, and Gordon A.
Hagood, Shipston-on-Stour, England, assignors to
Girling Limited, Tynley, England
Filed Aug. 11, 1969, Ser. No. 18,613
Claims priority, application Great Britain Feb. 27, 1969
Term of patent 14 years
Int. Cl. D12—14

U.S. Cl. D14—30



221,146

FOLDABLE LAWN CHAIR
Charles W. McComas, 116 S. Delaware St.,
Hobart, Ind. 46342
Filed Feb. 2, 1970, Ser. No. 21,180
Term of patent 14 years
Int. Cl. D6—01

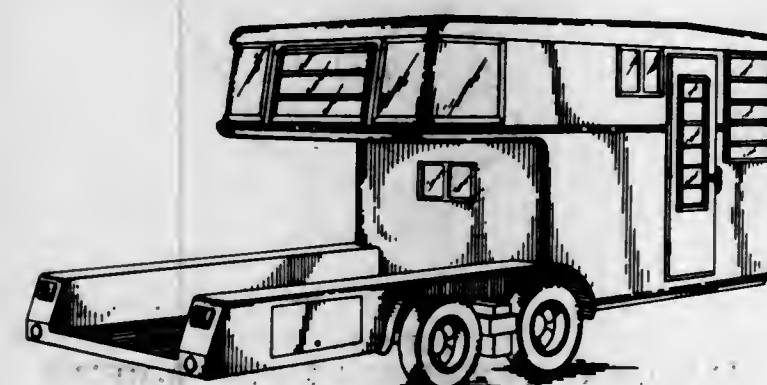
U.S. Cl. D15—1



221,143

COMBINED CAMPING AND HAULING VEHICLE
George Gordon Davis, Elkhart, Ind., assignor to
Trans-Por-Teer Corporation
Filed Feb. 17, 1970, Ser. No. 21,472
Term of patent 14 years
Int. Cl. D12—10

U.S. Cl. D14—3



221,147

HANDLE FOR FISHING ROD
Robert Minaire, Sallanches, France, assignor to
Carpano et Pons, Cluses, France
Filed Oct. 15, 1969, Ser. No. 19,566
Claims priority, application France Apr. 17, 1969
Term of patent 14 years
Int. Cl. D22—05

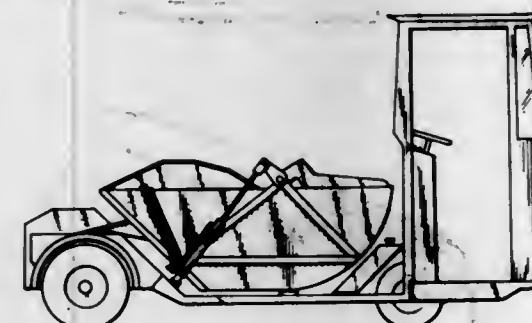
U.S. Cl. D22—23



221,144

REFUSE COLLECTION VEHICLE
John W. Knight, Sr., New Hampton, Iowa, assignor to
Sani-Systems, Inc., New Hampton, Iowa
Filed Mar. 30, 1970, Ser. No. 22,103
Term of patent 14 years
Int. Cl. D12—09

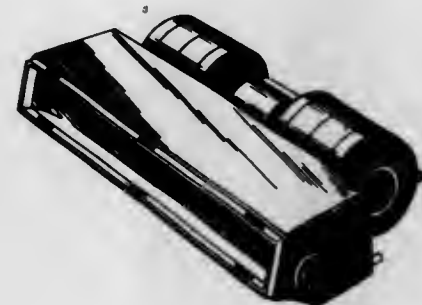
U.S. Cl. D14—3



221,148

AIR CONDITIONER CASING
Arthur P. Cary, Dallas, Tex., assignor to The Cary Products Co. Inc., Hutchins, Tex.
Filed Nov. 19, 1969, Ser. No. 20,172
Term of patent 14 years
Int. Cl. D23-04

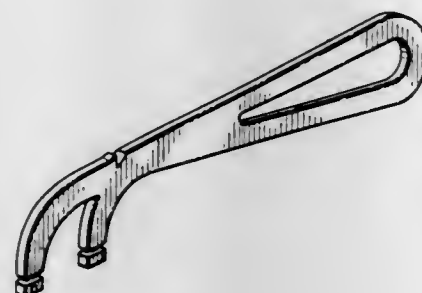
U.S. Cl. D23-142



221,149

DENTAL FLOSS HOLDER
Hal E. Davis, R.R. 1, Fairfax, Mo. 64446
Filed Jan. 12, 1970, Ser. No. 20,892
Term of patent 14 years
Int. Cl. D24-99; D28-01

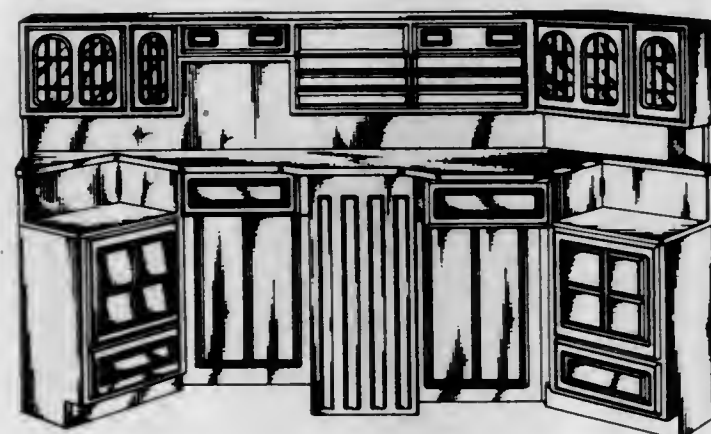
U.S. Cl. D24-1



221,150

DENTAL CABINET OR THE LIKE
Kenneth R. Ferguson, Jr., Charlotte, N.C., assignor to Pelton & Crane Company, Charlotte, N.C.
Filed June 12, 1970, Ser. No. 23,448
Term of patent 14 years
Int. Cl. D24-03; D6-01

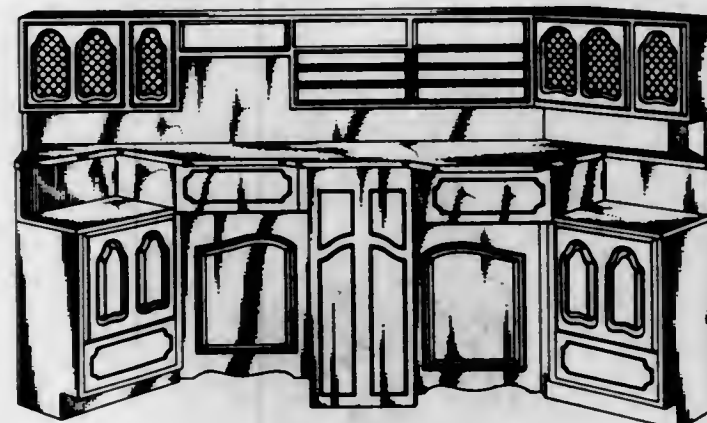
U.S. Cl. D24-1



221,151

DENTAL CABINET OR THE LIKE
Kenneth R. Ferguson, Jr., Charlotte, N.C., assignor to Pelton & Crane Company, Charlotte, N.C.
Filed June 12, 1970, Ser. No. 23,450
Term of patent 14 years
Int. Cl. D24-02; D6-01

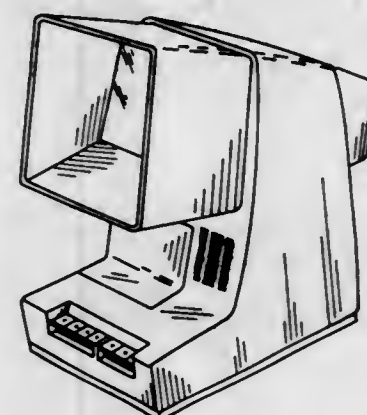
U.S. Cl. D24-1



221,152

COMBINATION AUDIO-VIDEO TEACHING MACHINE
Rebertus van de Poel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation
Filed July 1, 1969, Ser. No. 18,011
Claims priority, application Switzerland Jan. 7, 1969
Term of patent 14 years
Int. Cl. D19-08

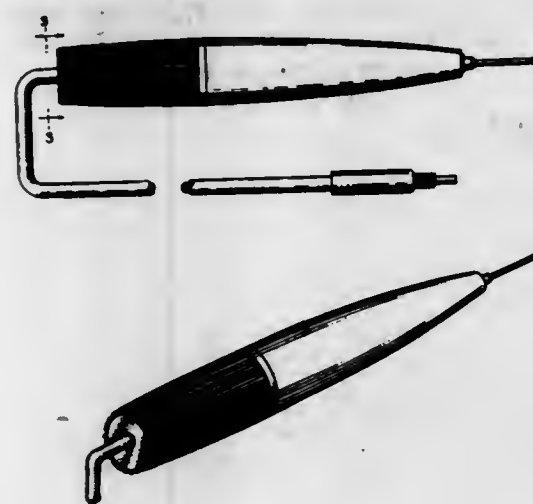
U.S. Cl. D25-1



221,153

ELECTRICAL PROBE FOR A RESISTOR-METER
Yoshiharu Alan Shimasaki, 5-12, 3-chome, Minami-Azabu, Minato-ku, Tokyo, Japan
Filed Feb. 28, 1968, Ser. No. 10,765
Claims priority, application Japan Aug. 31, 1967
Term of patent 14 years
Int. Cl. D10-10

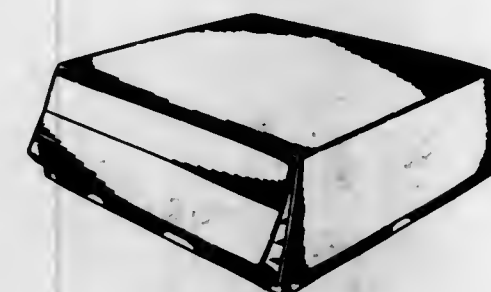
U.S. Cl. D26-1



221,154

DATA SET
George M. Janda, Westchester, Ill., assignor to GTE Automatic Electric Laboratories Incorporated
Filed Jan. 9, 1970, Ser. No. 20,848
Term of patent 14 years
Int. Cl. D14-02

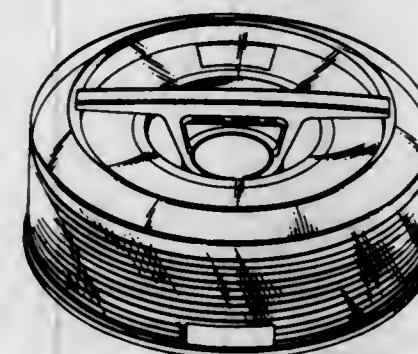
U.S. Cl. D26-5



221,155

DISK PACK ASSEMBLY
Edward D. Lucey, Los Gatos, and Noel S. Ferguson, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 31, 1970, Ser. No. 22,142
Term of patent 14 years
Int. Cl. D14-02; D9-04

U.S. Cl. D26-5



221,156

STREET LIGHTING ELECTRIC LIGHT BULB
William H. Dorman, Corning, N.Y., and Norman A. Moreau, Lincoln, R.I., assignors to Corning Glass Works, Corning, N.Y.
Filed Mar. 11, 1970, Ser. No. 21,857
Term of patent 14 years
Int. Cl. D26-01

U.S. Cl. D26-8



221,157

STREET LIGHTING ELECTRIC LIGHT BULB
William H. Dorman, Corning, N.Y., and Norman A. Moreau, Lincoln, R.I., assignors to Corning Glass Works, Corning, N.Y.
Filed Mar. 11, 1970, Ser. No. 21,858
Term of patent 14 years
Int. Cl. D26-01

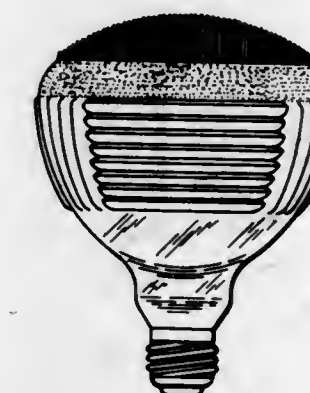
U.S. Cl. D26-8



221,158

STREET LIGHTING ELECTRIC LIGHT BULB
William H. Dorman, Corning, N.Y., and Norman A. Moreau, Lincoln, R.I., assignors to Corning Glass Works, Corning, N.Y.
Filed Mar. 11, 1970, Ser. No. 21,859
Term of patent 14 years
Int. Cl. D26-01

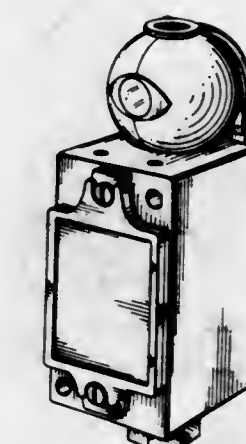
U.S. Cl. D26-8



221,159

LIGHT-OPERATED SWITCH HOUSING
Clifford E. Myers, Forest Grove, Oreg., assignor to The Welsh Corporation, Longview, Wash.
Filed Apr. 20, 1970, Ser. No. 22,506
Term of patent 14 years
Int. Cl. D13-03

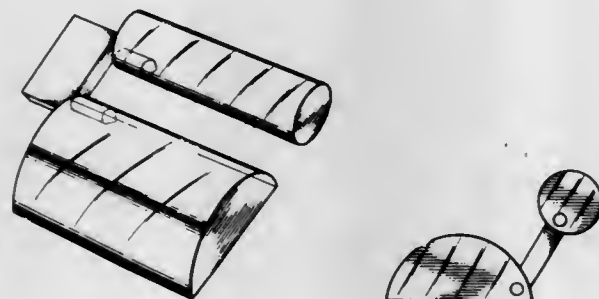
U.S. Cl. D26-13



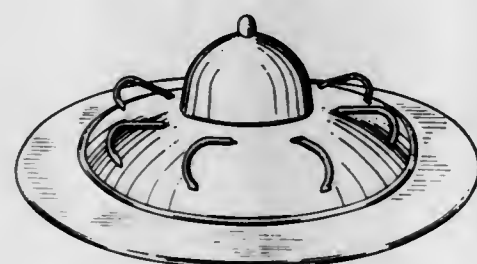
221,160
CABINET DOOR
 Nicholas A. Ungaro, Louisville, Ky., assignor to H. J. Scheirich Company
 Filed June 19, 1969, Ser. No. 17,785
 Term of patent 14 years
 Int. Cl. D6—01
 U.S. Cl. D33—1



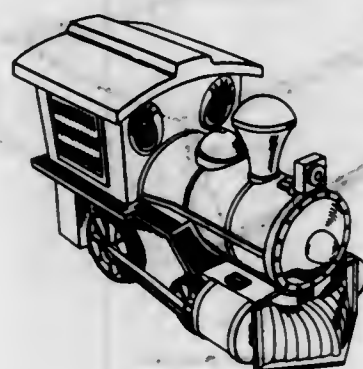
221,161
MAGNIFYING DEVICE
 Robert Dwight Lynch, 3520 5th Ave., Los Angeles, Calif. 90018
 Filed Dec. 29, 1969, Ser. No. 20,681
 Term of patent 14 years
 Int. Cl. D16—08
 U.S. Cl. D57—1



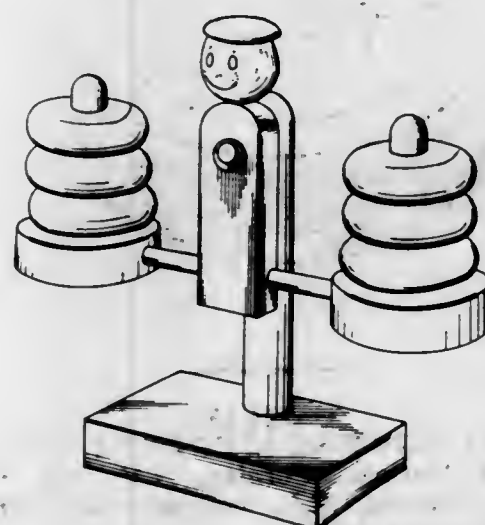
221,162
PLAYGROUND ROUNDABOUT
 Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.
 Filed Mar. 19, 1970, Ser. No. 21,981
 Term of patent 14 years
 Int. Cl. D21—03
 U.S. Cl. D34—5



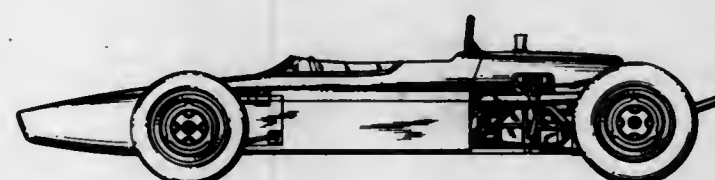
221,163
TOY RAILWAY ENGINE
 Duncan Tong, 423 Central Building, 3 Pedder St., Hong Kong
 Filed Nov. 14, 1969, Ser. No. 20,063
 Claims priority, application Great Britain Aug. 28, 1969
 Term of patent 3 1/2 years
 Int. Cl. D21—02
 U.S. Cl. D34—15



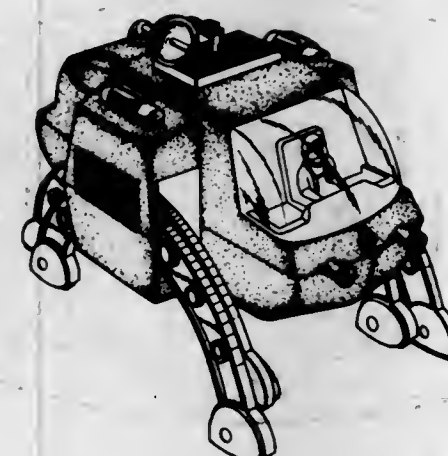
221,164
EDUCATIONAL TOY SCALE
 John Joslyn, Sag Harbor, N.Y., assignor to Playskool, Inc., Chicago, Ill.
 Filed Nov. 24, 1969, Ser. No. 20,251
 Term of patent 14 years
 Int. Cl. D21—01
 U.S. Cl. D34—15



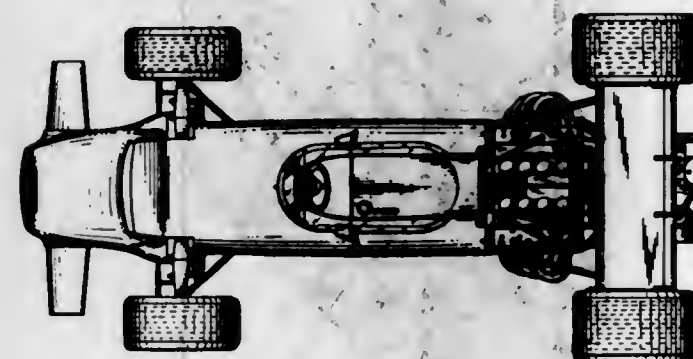
221,165
MODEL RACING CAR
 Eric Harrison Broadley, Pangborne, near Reading, England, assignor to Lola Cars Limited, Trading Estate, Slough, Buckinghamshire, England
 Filed Mar. 31, 1970, Ser. No. 22,140
 Claims priority, application Great Britain Oct. 2, 1969
 Term of patent 7 years
 Int. Cl. D21—02
 U.S. Cl. D34—15



221,166
WALKING SPACE VEHICLE TOY
 Arthur R. Gorfala, Fair Lawn, N.J., assignor to Cragstan Industries, Inc., New York, N.Y.
 Filed Apr. 15, 1970, Ser. No. 22,432
 Term of patent 14 years
 Int. Cl. D21—02
 U.S. Cl. D34—15



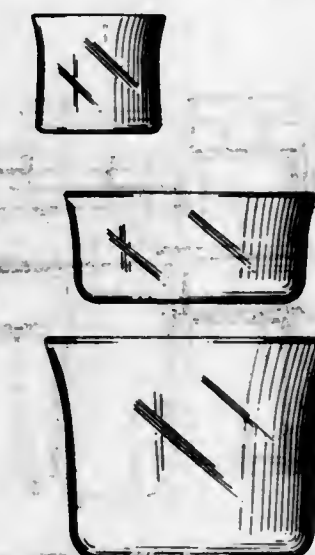
221,167
MODEL RACING CAR
 Ronald Sidney Tauranac, Weybridge, England, assignor to Motor Racing Developments Limited, Weybridge, England
 Filed June 10, 1970, Ser. No. 23,415
 Claims priority, application Great Britain Dec. 10, 1969
 Term of patent 7 years
 Int. Cl. D21—02
 U.S. Cl. D34—15



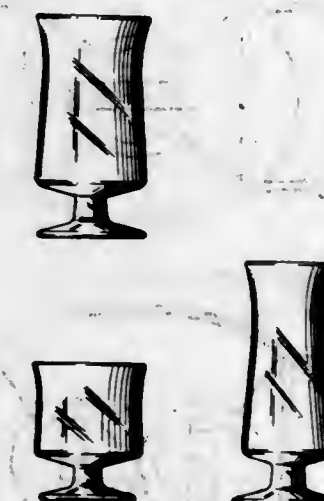
221,168
PITCHER OR SIMILAR ARTICLE
 Frank J. Benes, Lancaster, Ohio, assignor to Ravenscroft Ltd., Lancaster, Ohio
 Filed May 6, 1970, Ser. No. 22,834
 Term of patent 14 years
 Int. Cl. D7—01
 U.S. Cl. D36—2



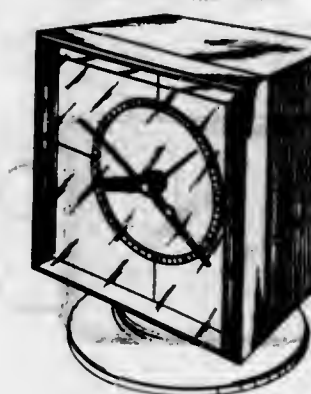
221,169
BOWL OR SIMILAR ARTICLE
 Frank J. Benes, Lancaster, Ohio, assignor to Ravenscroft Ltd., Lancaster, Ohio
 Filed May 6, 1970, Ser. No. 22,836
 Term of patent 14 years
 Int. Cl. D7—01
 U.S. Cl. D36—2



221,170
GOBLET OR SIMILAR ARTICLE
 Frank J. Benes, Lancaster, Ohio, assignor to Ravenscroft Ltd., Lancaster, Ohio
 Term of patent 14 years
 Filed May 6, 1970, Ser. No. 22,835
 Int. Cl. D7—01
 U.S. Cl. D36—8

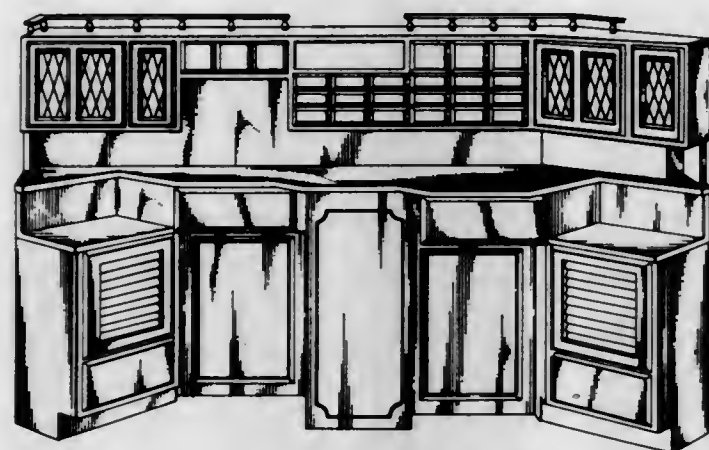


221,171
CLOCK OR SIMILAR ARTICLE
 Walter C. Anderson, Redding, Conn., assignor to General Electric Company
 Filed June 12, 1970, Ser. No. 23,457
 Term of patent 7 years
 Int. Cl. D10—01
 U.S. Cl. D42—7



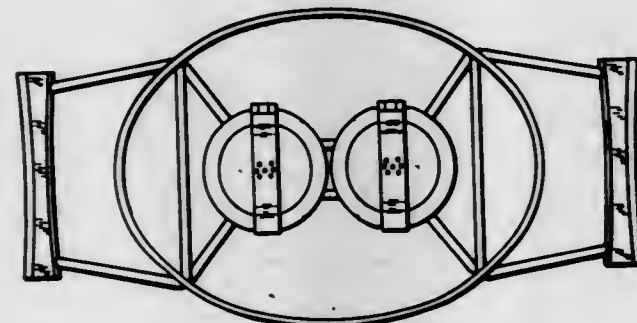
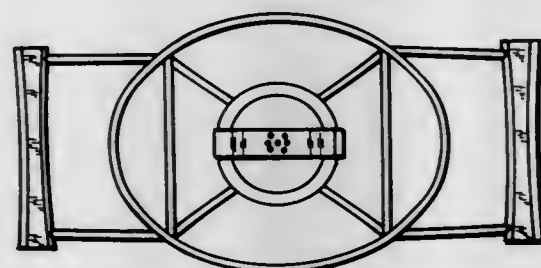
221,172

DENTAL CABINET OR THE LIKE
Kenneth R. Ferguson, Jr., Charlotte, N.C., assignor to
Pelton & Crane Company, Charlotte, N.C.
Filed June 12, 1970, Ser. No. 23,451
Term of patent 14 years
Int. Cl. D24-03; D6-01
U.S. Cl. D24-1



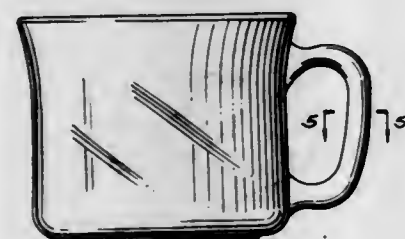
221,173

DISH WARMING STAND OR SIMILAR ARTICLE
Glenn B. Beckman, Corning, N.Y., assignor to Corning
Glass Works, Corning, N.Y.
Filed Apr. 27, 1970, Ser. No. 22,667
Term of patent 14 years
Int. Cl. D7-04
U.S. Cl. D44-10



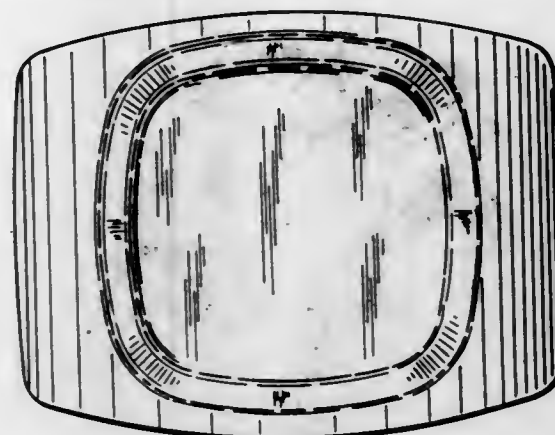
221,174

CUP OR SIMILAR ARTICLE
Frank J. Benes, Lancaster, Ohio, assignor to Ravenscroft
Ltd., Lancaster, Ohio
Filed May 6, 1970, Ser. No. 22,832
Term of patent 14 years
Int. Cl. D7-01
U.S. Cl. D44-9



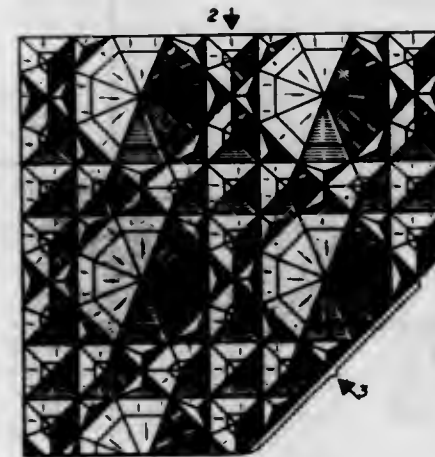
221,175

**SUPPORTING CRADLE FOR A SERVING
DISH OR THE LIKE**
Glenn B. Beckman, Corning, N.Y., assignor to
Corning Glass Works, Corning, N.Y.
Filed Apr. 27, 1970, Ser. No. 22,674
Term of patent 14 years
Int. Cl. D7-01
U.S. Cl. D44-10



221,176

**TRANSPARENT COVERING PANEL FOR
LIGHT FITTINGS**
Friedrich Clostermann, Hagen, Germany, assignor to
Trilux-Lenze KG, Neheim-Husten, Germany
Filed July 11, 1969, Ser. No. 18,174
Claims priority, application Germany Jan. 15, 1969
Term of patent 14 years
Int. Cl. D26-06
U.S. Cl. D48-16



221,177

BOWL
George C. Wong, 1061 Caldwell Ave.,
Port Credit, Ontario, Canada
Filed Mar. 26, 1970, Ser. No. 22,067
Claims priority, application Canada Oct. 2, 1969
Term of patent 14 years
Int. Cl. D7-01
U.S. Cl. D44-15



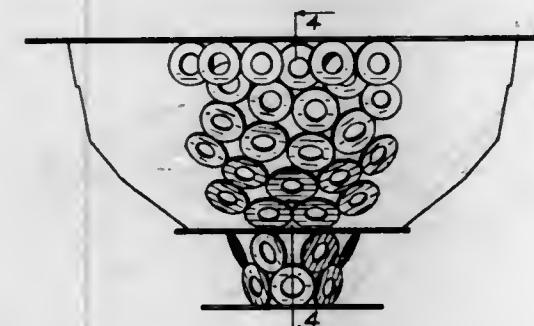
221,178

PLATE OR THE LIKE
Cynthia S. Gerow, Syracuse, N.Y., assignor to Corning
Glass Works, Corning, N.Y.
Filed May 12, 1970, Ser. No. 22,938
Term of patent 14 years
Int. Cl. D7-01
U.S. Cl. D44-15



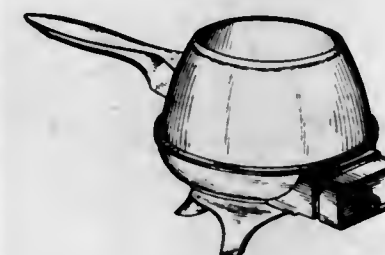
221,179

BOWL
Marcel Paquette, 393 Crestwood Drive,
Cheshire, Conn. 06410
Filed May 27, 1970, Ser. No. 23,165
Term of patent 14 years
Int. Cl. D7-01
U.S. Cl. D44-15



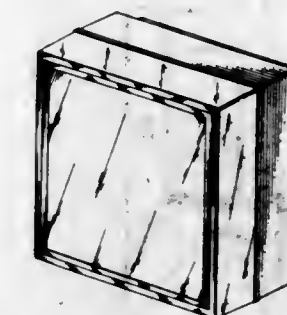
221,180

ELECTRIC FONDUE POT OR THE LIKE
Alfred W. Madl, Glendale, Wis., assignor to John Oster
Manufacturing Co., Milwaukee, Wis.
Filed May 28, 1970, Ser. No. 23,186
Term of patent 14 years
Int. Cl. D7-02
U.S. Cl. D44-15



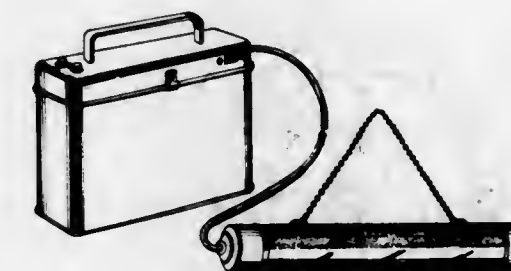
221,181

LUMINAIRE
Mitchell Bobrick, Culver City, Calif., assignor to
Holophane Company, Inc., New York, N.Y.
Filed Oct. 24, 1969, Ser. No. 19,707
Term of patent 14 years
Int. Cl. D26-02
U.S. Cl. D48-4



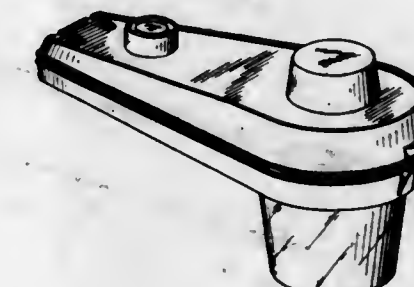
221,182

**COMBINED PORTABLE LIGHT OR SIMILAR
ARTICLE AND POWER PACK THEREFOR**
Walter P. Hilgendorf, El Paso County, Colo.
(529 S. 31st St., Colorado Springs, Colo. 80904)
Filed Nov. 21, 1969, Ser. No. 20,213
Term of patent 14 years
Int. Cl. D26-04
U.S. Cl. D48-24



221,183

LUMINAIRE
Mitchell Bobrick, Culver City, Calif., assignor to
Holophane Company, Inc., New York, N.Y.
Filed Oct. 23, 1969, Ser. No. 19,690
Term of patent 14 years
Int. Cl. D26-03
U.S. Cl. D48-31



221,184 VENDING MACHINE

Wayne C. Cathey, Dallas, Tex., assignor to Burger Chef Systems, Inc., Indianapolis, Ind.
Filed Apr. 7, 1970, Ser. No. 22,310
Term of patent 14 years
Int. Cl. D20-01

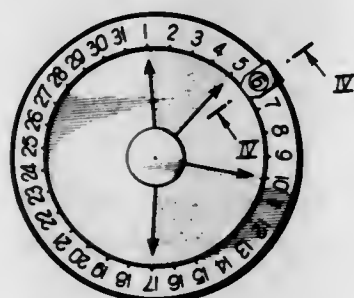
U.S. Cl. D52-3



221,185 MENSUAL CALCULATOR

Suzy T. Gluck, 1114 Pine Drive, Beverly Hills, Calif. 90210, and Jack K. Beck, 19145 Schoenbron St., Northridge, Calif. 91324
Filed May 15, 1970, Ser. No. 23,002
Term of patent 14 years
Int. Cl. D10-99

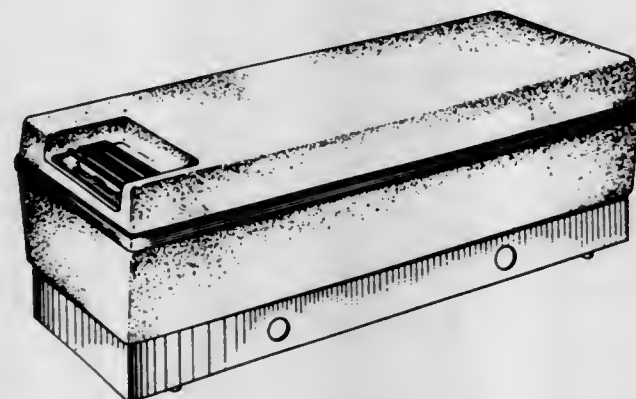
U.S. Cl. D52-6



221,186 PHOTOGRAPHIC FILM PROCESSOR OR SIMILAR ARTICLE

Henry F. Hope and Stephen F. Hope, both of 195 Welsh Road, Huntingdon Valley, Pa. 19006
Filed Mar. 18, 1970, Ser. No. 21,962
Term of patent 14 years
Int. Cl. D16-06

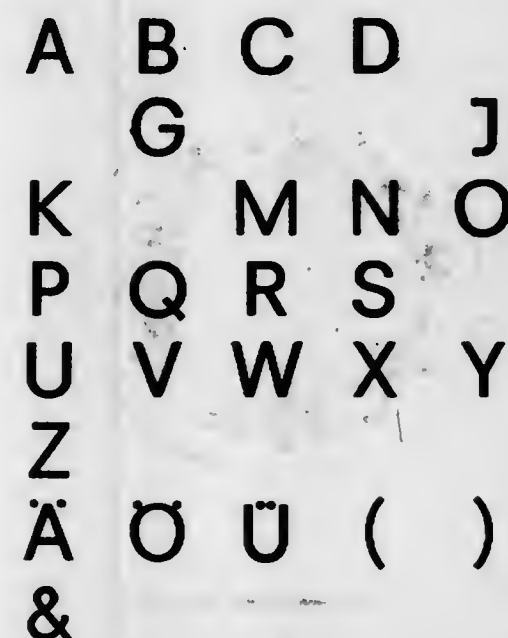
U.S. Cl. D61-1



221,187 FONT OF PRINTING TYPE

Ingrid Munzberg, Kiel, Germany, assignor to Dr. Ing. Rudolf Hell Kommanditgesellschaft, Kiel Germany
Filed Nov. 18, 1969, Ser. No. 20,027
Term of patent 14 years
Int. Cl. D18-04

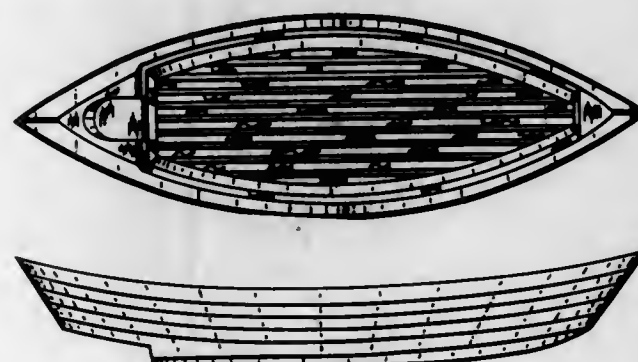
U.S. Cl. D64-12



221,188 BOAT HULL

Thomas P. Daniels, Royal Oak, Mich., assignor to Seasafe Corporation, Birmingham, Mich.
Filed Jan. 13, 1970, Ser. No. 20,904
Term of patent 14 years
Int. Cl. D12-06

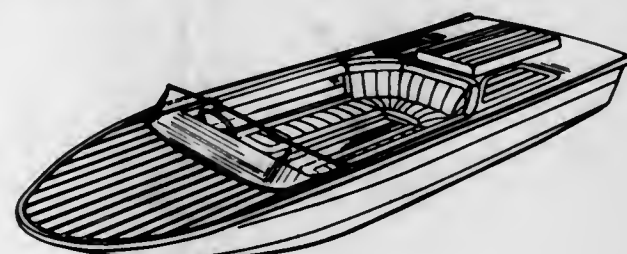
U.S. Cl. D71-1



221,189 BOAT

Claudius E. Engh, 900 Donner Way, Salt Lake City, Utah 84102
Filed Jan. 29, 1970, Ser. No. 21,143
Term of patent 14 years
Int. Cl. D12-06

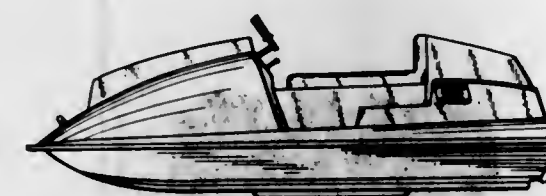
U.S. Cl. D71-1



221,190 BOAT

Gerald G. Bonneson, 418 Main St., and James L. Juhl, 108 Countryview Drive, both of Hudson, Iowa 50643
Filed Feb. 16, 1970, Ser. No. 21,458
Term of patent 14 years
Int. Cl. D12-06

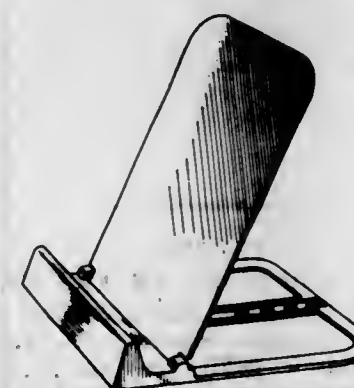
U.S. Cl. D71-1



221,191 COPY HOLDER OR SIMILAR ARTICLE

Bonnie B. Nutt, 255 University Blvd., College Station, Berrien Springs, Mich. 49104
Filed Jan. 15, 1970, Ser. No. 20,941
Term of patent 14 years
Int. Cl. D19-02

U.S. Cl. D74-1



221,192 DISPLAY STAND FOR SUPPORTING STACKED CANDY BOXES

Amilcare Dogliotti, Neive, Italy, assignor to P. Ferrero & C. S.p.A., Piazza Pietro Ferrero, Alba (Cuneo), Italy
Filed Oct. 7, 1969, Ser. No. 19,446
Term of patent 14 years
Int. Cl. D6-01

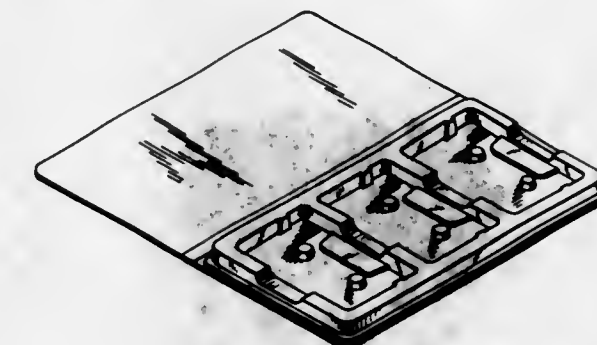
U.S. Cl. D80-9



221,193 CASSETTE ALBUM

Oscar Goren, 2701 Grand Concourse, Bronx, N.Y. 10468
Filed Apr. 8, 1970, Ser. No. 22,313
Term of patent 14 years
Int. Cl. D3-99

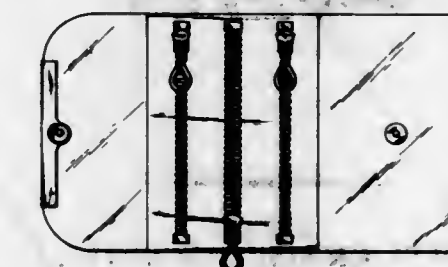
U.S. Cl. D87-1



221,194 KEY HOLDER

Charles Arthur Lee, Essex County, N.J. (187 Seymour Ave., Newark, N.J. 07108)
Filed Apr. 16, 1970, Ser. No. 22,473
Term of patent 14 years
Int. Cl. D3-99

U.S. Cl. D87-8



221,195 TOWEL OR SIMILAR ARTICLE

Keenar A. Neel, Concord, N.C., assignor to Cannon Mills Company, Kannapolis, N.C.
Filed June 9, 1970, Ser. No. 23,399
Term of patent 14 years
Int. Cl. D6-09

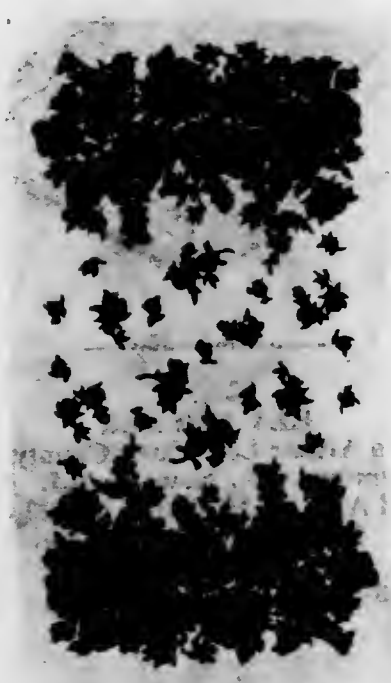
U.S. Cl. D92-26



221,196
TOWEL OR SIMILAR ARTICLE

Leonard C. Clementi, Huntington, N.Y., assignor to
Cannon Mills Company, Kannapolis, N.C.
Filed June 9, 1970, Ser. No. 23,400
Term of patent 14 years
Int. Cl. D6—09

U.S. Cl. D92—26



221,198
TOWEL OR SIMILAR ARTICLE

Leonard C. Clementi, Huntington, N.Y., assignor to
Cannon Mills Company, Kannapolis, N.C.
Filed June 9, 1970, Ser. No. 23,401
Term of patent 14 years
Int. Cl. D6—09

U.S. Cl. D92—26



221,197
TOWEL OR SIMILAR ARTICLE

Leonard C. Clementi, Huntington, N.Y., assignor to
Cannon Mills Company, Kannapolis, N.C.
Filed June 9, 1970, Ser. No. 23,396
Term of patent 14 years
Int. Cl. D6—09

U.S. Cl. D92—26



221,199
TOWEL OR SIMILAR ARTICLE

Keenar A. Neel, Concord, N.C., assignor to Cannon
Mills Company, Kannapolis, N.C.
Filed June 9, 1970, Ser. No. 23,402
Term of patent 14 years
Int. Cl. D6—09

U.S. Cl. D92—26



221,200
TOWEL OR SIMILAR ARTICLE

Leonard C. Clementi, Huntington, N.Y., assignor to
Cannon Mills Company, Kannapolis, N.C.
Filed June 9, 1970, Ser. No. 23,403
Term of patent 14 years
Int. Cl. D6—09

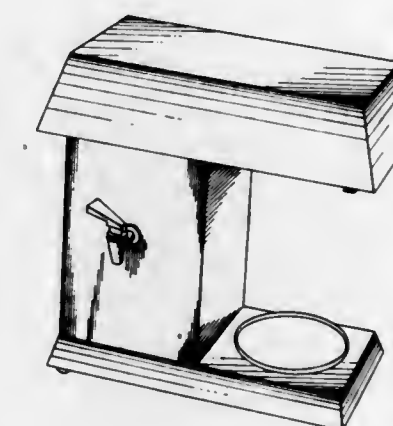
U.S. Cl. D92—26



221,202
COFFEE MAKER

Walter R. Lorang, 2239 W. Maple Road,
Walled Lake, Mich. 48088
Filed Mar. 16, 1970, Ser. No. 21,913
Term of patent 14 years
Int. Cl. D15—12

U.S. Cl. D94—3



221,203
SAFETY RAZOR

Norman D. Poisson, Marblehead, Mass., assignor to The
Gillette Company, Boston, Mass.
Filed Dec. 24, 1969, Ser. No. 20,638
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D95—3



221,201
COMBINED DRINK MUDDLER AND SIPPER

Ralph S. Gordon, 150 Beach 127th St.,
Belle Harbor, N.Y. 11694
Filed Mar. 2, 1970, Ser. No. 21,672
Term of patent 3½ years
Int. Cl. D7—99

U.S. Cl. D94—3



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 13TH DAY OF JULY, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Abbott Laboratories: See—
Therault, Robert John; and Longfield, Thomas Howard, 3,592,735.
- Abe, Shigeo; Furiya, Akira; and Okachi, Ryo, to Kyowa Hakko Kogyo Co., Ltd. Process for producing 5-guanylic acid nucleotides. 3,592,733, Cl. 195-28.
- Abegg and Reinhold Co.: See—
Bartos, Josef, 3,592,570.
- ACF Industries, Incorporated: See—
Nelson, Norman A., 3,592,263.
- Randolph, Robert W.; Hammonds, James C.; and Dugge, Richard H., 3,592,425.
- Acker Drill Company, Inc.: See—
Fletcher, Ernest P.; and Acker, William L., 3,592,275.
- Acker, William L.: See—
Fletcher, Ernest P.; and Acker, William L., 3,592,275.
- Ackeret, Peter. Weighing scale with container storage means. 3,592,277, Cl. 177-126.
- Ackley, Donald M., to Computer Communications, Inc. Web-like spring support for magnetic transducer. 3,593,330, Cl. 340-174.1
- Adamec, Alfred; Leder, Roland; and Fiedler, Walter, to Wiener Schwachstromwerke Gesellschaft m.b.H. Cooling means for a continuous casting mold assembly. 3,592,259, Cl. 164-283.
- Adaptronics, Inc.: See—
Gouge, James Reid, Jr.; and Barron, Roger L., 3,593,307.
- Adler, Cyrus, to Offshore/Sea Development Corporation. Hinged pipe structure. 3,592,239, Cl. 138-155.
- Adler Process Corporation: See—
Adler, Ralph M., 3,592,374.
- Adler, Ralph M., to Adler Process Corporation. Apparatus for producing a pile fabric. 3,592,374, Cl. 226-104.
- Adnemat-Geraldebaugesellschaft m.b.H. & Co.: See—
Geltermair, Hans, 3,592,135.
- Aerojet-General Corporation: See—
Brereton, George V.; Kuntz, Robert J.; O'Brien, Charles J.; and Sjogren, Roy G., 3,591,969.
- Aeropro Enterprises, Inc.: See—
Richardson, Benjamin F., 3,592,182.
- Aerospace Industrial Associates, Inc.: See—
Heitfield, Vernon D., 3,592,510.
- AGA Aktiebolag: See—
Westberg, Johan Eric Hayden, 3,592,402.
- Agfa-Gevaert AG: See—
Kaufer, Helmut; Burger, Erich; and Huber, Hans-Peter, 3,592,542.
- Agfa-Gevaert Aktiengesellschaft: See—
Bickl, Horst; and Pfeifer, Josef, 3,592,543.
- Kampfer, Helmut, 3,592,657.
- von Wasielewski, Erwin, 3,592,113.
- Ahlenius, Gosta, to Broderna Lundbergs Mekaniska Verkstad AB. Hydraulic control system. 3,592,107, Cl. 91-170.
- Aichenegg, Paul C.; and Emerson, Carl D., to Chemagro Corporation. Sulfoxide containing pesticides. 3,592,896, Cl. 424-337.
- Aihara, Kosaku. Apparatus for the anodic oxidation of a plurality of aluminum workpieces. 3,592,754, Cl. 204-297.
- Ainsworth Industries Corporation: See—
Buhl, Walter T., 3,592,485.
- Air Reduction Company, Incorporated: See—
Hanks, Charles W., 3,592,955.
- Shepherd, Thomas L., 3,592,622.
- Shepherd, Thomas L., 3,592,623.
- Wirtz, Gerald P.; and King, Robert M., 3,592,781.
- Akbar, Samy. Electric motor. 3,593,051, Cl. 310-166.
- Akiyama, Hideaki: See—
Kakiuchi, Tokusaburo; and Akiyama, Hideaki, 3,592,537.
- Aktiebolaget Astra: See—
Lindvall, Sven; and Hogberg, Gustav, 3,592,889.
- Aktiebolaget Bahco: See—
Granlie, Jorgen, 3,591,989.
- Aktiebolaget Bofors: See—
Theander, Olof, 3,592,808.
- Aktiebolaget Svenska Kullagerfabriken: See—
Nilsson, Sven Walter, 3,592,072.
- Aktiengesellschaft Brown, Boveri & Cie: See—
Stark, Richard, 3,592,078.
- Alamprese, Leo, to Honeywell Inc. Pneumatic step controller with reciprocal cam means. 3,592,980, Cl. 200-81.4
- Albrecht, John R.: See—
Stout, Ronald W.; and Albrecht, John R., 3,592,363.
- Alburn, Harvey E.; and Dvonch, William, to American Home Products Corporation. 7-(1-Aminocycloalkylcarboxamido)cephalosporanic acids and related compounds. 3,592,812, Cl. 260-243.
- Alden, Gardner E., to Avco Corporation. Abrasive article having a metal filler and an active filler. 3,592,618, Cl. 51-298.
- Alduk, Frank P. Drop-through case packer. 3,592,002, Cl. 53-159.
- Aleck, Benjamin J., to Arde, Inc. Cylindrical fluid storage and expulsion tank. 3,592,360, Cl. 222-95.
- Alfa Romeo S.P.A.: See—
Garcea, Giampaolo, 3,593,280.
- Allamatic Corporation: See—
Ottavan, Gerald J., 3,592,091.
- Allen, Marion F. Elevator. 3,592,294, Cl. 187-12.
- Alliance Machine Company, The: See—
Kotzbacher, Robert E., 3,592,432.
- Allied Chemical Corporation: See—
Gilbert, Everett E.; and Rumanowski, Edmund J., 3,592,822.
- Allied Chemical Corporation: See—
Flanner, Lloyd T.; and Dernier, Paul D., 3,592,790.
- Gallivan, Robert M., Jr.; Bonfield, John H.; and De Long, Richard C., 3,592,847.
- Lohr, Thomas E., 3,591,902.
- Pierce, Arleen C., 3,592,924.
- Stewart, George; Winstrom, Leon O.; and Frankel, Irwin, 3,592,848.
- Allied Thermal Corporation: See—
Hendrick, Warren R.; and Meurer, Henry J., 3,592,240.
- Allinquant, Fernand Stanislas. Telescopic shock absorbers. 3,592,302, Cl. 188-281.
- Allis, Louis Company, The: See—
Brohaugh, Paul D., 3,593,105.
- Allis-Chalmers Manufacturing Company: See—
Hamilton, William I., 3,592,175.
- Allmanna Svenska Elektriska Aktiebolaget: See—
Anderson, Arne; Klein, Hans; Tjernstrom, Ove; and Ronnevig, Car, 3,593,242.
- Boksjo, Carl Ingvar; and Svedberg, Per Gustav Johannes, 3,593,039.
- Hylten-Cavallius, Nils; Boksjo, Carl Ingvar; and Lindblad, Sven Erland, 3,593,038.
- Koranyi, Robert, 3,592,480.
- Pucher, Walter; and Bachler, Sven, 3,592,988.
- Pucher, Walter; Gard, Inge; and Persson, Karl Gote, 3,592,989.
- Stromblad, Ingemar, 3,592,032.
- Allsop, Jon Ivor. Non-fog goggles. 3,591,864, Cl. 2-14.
- Almanna Svenska Elektriska Aktiebolaget: See—
Fryklund, Per, 3,592,105.
- Alpan, Sadrettin; and Jappelt, Karl Alfred. Producing smokeless-briquettes from bituminous coal, sub-bituminous coal, or lignite. 3,592,617, Cl. 44-10.
- Alpha Industries, Inc.: See—
Coraccio, Salvatore G.; and King, Philip E., 3,593,205.
- Rizzi, Peter A., 3,593,222.
- Alps Electric Company, Limited: See—
Aoki, Masatsugu, 3,593,152.
- Alt, Gerhard H.; and Darlington, Walter A., to Monsanto Company. Gastropodocidal N,N'-diaralkyl dithiooxamides. 3,592,914, Cl. 424-320.
- Altenschopfer, Theodor, to Henkel & Cie., GmbH. Novel rinsing agents. 3,592,774, Cl. 252-89.
- Altman, Norman G. Pattern recognition system having electronically controllable aperture shape, scan shape, and scan position. 3,593,286, Cl. 340-146.3
- Aluminium Systems Limited: See—
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- American Aero Industries, Inc.: See—
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- American Air Filter Company, Inc.: See—
Sexton, Robert W., 3,591,947.
- American Can Company: See—
Klemm, Carl John; and Tietz, Richard August, 3,592,651.
- American Cyanamid Company: See—
Bauer, Victor John; and Saffir, Sidney Robert, 3,592,899.
- Evans, Ralph Henry, Jr.; and Thomas, Samuel Owen, 3,592,925.
- Los, Marinus, 3,592,855.
- Shu, Ping; and Barbatechi, Ferdinando, 3,592,926.
- American Foods Machinery Corporation: See—
Pontecorvo, Nicholas E.; and Shaffer, Wilfred A., 3,592,124.

- American Gas Association, Inc.: See—
Shultz, Eugene B., Jr.; and Marianowski, Leonard G., 3,592,941.
- American Home Products Corporation: See—
Alburn, Harvey E.; and Dvovich, William, 3,592,812.
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- American Hospital Supply Corporation: See—
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- American Koyo Corporation: See—
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- American Manufacturing Company, Inc.: See—
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- American Standard Inc.: See—
Manning, Franklin Keith, 3,591,869.
- AMF Incorporated: See—
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- AMP Incorporated: See—
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- Amtron, Inc.: See—
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- Anacosta Wire and Cable Company: See—
Wade, Robert M.; Hazelett, Robert M.; and Ring, Walter R., 3,593,129.
- Andersen, Carl W., to Raven Industries, Inc. Temperature compensated unijunction transistor relaxation oscillator with switched reference voltage. 3,593,185, Cl. 331-46.
- Anderson, Richard G.: See—
Keay, Leonard; and Anderson, Richard G., 3,592,737.
- Anderson, Arne; Klein, Hans; Tjernstrom, Ove; and Ronnevig, Car, to Allmanna Svenska Elektriska Aktiebolaget. Liquid cooled magnet coil for particle acceleration. 3,593,242, Cl. 336-62.
- Ando, Ryo; Fukushima, Tutomu; Hiraguchi, Eiichi; and Hagiwara, Kokichi, to Nippon Kogan Kabushiki Kaisha. Method for refining molten metal. 3,592,629, Cl. 75-58.
- Ando, Sadanao, to Kabushiki Kaisha Ricoh. Electronic photographic camera. 3,592,115, Cl. 95-13.
- Andreasen, Mogens Thyrop: See—
Boe, Christian Thorkild; Andreasen, Mogens Myrup; and Dawids, Steen Gamwell, 3,592,057.
- Andresen, Raymond H., to Gits Bros. Mfg., Co. Shaft seal. 3,592,479, Cl. 277-40.
- Andrews, Edwin R.: See—
Fleming, Robert W.; Wenstrup, David L.; and Andrews, Edwin R., 3,592,819.
- Angeloni, John A., Sr.: See—
Frank, Alan I.; Angeloni, John A., Sr.; McIntyre, John J.; and Baracka, Ronald L., 3,593,284.
- Angstrom, Inc.: See—
Varnela, Veijo V., 3,593,098.
- Antonissen, Petrus J.: See—
Glijnis, Teunis; Antonissen, Petrus J.; and Kamp, Cornelis J., 3,592,009.
- Aoki, Masatsugu, to Alps Electric Company, Limited. Pushbutton tuner and indicating device therefor. 3,593,152, Cl. 325-352.
- Appelo, Hendrik C., to Westinghouse Electric Corporation. System for blending dynamic and regenerative braking. 3,593,089, Cl. 318-370.
- Appelt, Walter: See—
Golser, Leopold; Weitz, Hans-Martin; and Appelt, Walter, 3,592,601.
- A. Q. S., Inc.: See—
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- Arbeitsstelle für Molekularelektronik Konigsbrucker Landstrasse: See—
Trautmann, Helmut, 3,593,130.
- Archer, Robert A.; and Spry, Douglas O., to Lilly, Eli, and Company. Penicillin sulfoxide conversion process. 3,592,751, Cl. 204-158.
- Arde, Inc.: See—
Aleck, Benjamin J., 3,592,360.
- Argus Engineering Company: See—
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- Armco Steel Corporation: See—
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- Armour Industrial Chemical Company: See—
Havers, Wayne W.; and de la Torre, Jack, 3,592,918.
Potts, Ralph H.; and Stalioraitis, Joseph S., 3,592,854.
- Armstrong, James C. Speaker cabinet enclosure and method of making same. 3,592,290, Cl. 181-31.
- Armstrong, Richard D., to Burroughs Corporation. Digital storage system having a dual-function segmented register. 3,593,298, Cl. 340-172.5.
- Armstrong, William H.; and Ponkey, Jack L., to Yard-Man Incorporated. Two-stage lawn sweeper. 3,591,883, Cl. 15-79.
- Arneberg, Don J.; and Gribble, Joseph J., to Square D Company. Mechanical interlock for two switches that are mounted on a common support. 3,592,985, Cl. 200-50.
- Arneson, Floyd D. Saw chain grinding device. 3,592,085, Cl. 76-25.
- Arnett, Samuel E., to Bendix Corporation. The. After burner fuel manifold quick fill and flow distribution apparatus. 3,591,968, Cl. 60-243.
- Aroplate Corporation: See—
Cheng-Tung-Nan, 3,592,675.
- Arthur, James T., to General Motors Corporation. Low energy forming of metals. 3,591,916, Cl. 29-420.5.
- Artybashev, Oleg Ivanovich: See—
Mitskevich, Gennady Fedosievich; Bela-Belov, Anatoly Mikhailovich; Guschin, Vladislav Yakovlevich; Rakhis, Viktor Izrailevich; Oktyabrev, Viktor Revoldovich; Vorontsov, Yuri Nikolaevich; Artybashev, Oleg Ivanovich; and Vakhomchik, Fedor Andreevich, 3,593,227.
- Arvan, John A. Automatic pressure warning device for pneumatic units. 3,593,268, Cl. 340-58.
- Arvanitakis, Kostas Savas, 1/2 to Goutos, George. Mixing apparatus. 3,592,444, Cl. 259-4.
- Asahi Kasei Kogyo Kabushiki Kaisha: See—
Ishida, Shinichi; Sato, Kunio; Komoto, Hiroshi; Fukuda, Hiromichi; and Ishigami, Masaki, 3,592,873.
- Asanari, Shigeyuki: See—
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- Kryder, Roger L., to General Manufacturing, Inc. Fluorescent lamp apparatus including inverter circuit and reflector. 3,593,060, Cl. 315-219.
- Kubis, Heribert, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Engine exhaust gas braking. 3,591,959, Cl. 60-13.
- Kubo, Moritada; and Asano, Kuniji, to Tokyo Shibaura Electric Co., Ltd. Apparatus for determining the degree of elongation of metal strips. 3,592,051, Cl. 73-67.
- Kudiaty, Walter J., to Marvel Engineering Company. Separable filter element assembly. 3,592,766, Cl. 210-232.
- Kuhl, Henry Y.: See—
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- Kuhle, Engelbert: See—
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- Kuhn, Hans, to International Standard Electric Corporation. Oscillator system. 3,593,181, Cl. 331-12.
- Kuhn, Max, to Klockner-Werke AG. Conveyor device for mining operations and associated casing support system. 3,592,332, Cl. 198-126.
- Kukuminato, Tetsuo; and Ohashi, Akira. Magnet valve. 3,592,228, Cl. 137-598.
- Kullenberg, Frederick W. Treatment of infections in animals with chloramphenicol solution. 3,592,933, Cl. 424-324.
- Kullman, Russell M. H.; Reinhardt, Robert M.; and Frick, John G., Jr., to United States of America, Agriculture. Process for production of cellulosic materials with increased oxidizing capacity. 3,592,582, Cl. 8-115.6
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- Lamb, Ted L., to Parker-Hennifin Corporation. Quick connect couplings with selective connection means. 3,592,231, Cl. 137-614.04
- Lambiris, John, to Colonial Sugar Refining Limited, memco. Process for recovering compositions containing calcium sugar phosphates and inorganic phosphate. 3,592,770, Cl. 252-1.
- La Monica, Joseph B., to Posey, John T. d/b/a Posey, J. T., Company. Restraining belt buckle with lock. 3,592,028, Cl. 70-57.
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- Lempert, Joseph; and Kotler, Gerald R., to Westinghouse Electric Corporation. Gettering arrangements for vacuum-type circuit interrup-

ters comprising fibers of gettering material embedded in a matrix of material of good conductivity. 3,592,987, Cl. 200-144.

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18 : 3,592,968	302 : 3,592,952	36 : 3,593,027	268 : 3,592,814	135 : 3,592,471	308 : 3,593,086
90 : 3,592,969	302 : 3,592,953	46.3 : 3,593,028	272 : 3,592,815	138 : 3,592,472	345 : 3,593,087
3,592,970	302 : 3,592,954	55.16 : 3,593,029	272 : 3,592,816	157 : 3,592,473	3,593,088
100.2 : 3,592,971	302 : 3,592,955	56 : 3,593,030	272 : 3,592,817	200 : 3,592,474	370 : 3,593,089
22 : 3,592,972	302 : 3,592,956	56 : 3,593,031	272 : 3,592,818	274-4 : 3,592,475	391 : 3,593,090
114 : 3,592,973	302 : 3,592,957	72 : 3,593,032	272 : 3,592,819	3,592,476	444 : 3,593,091
182 : 3,592,974	302 : 3,592,958	77.3 : 3,593,033	272 : 3,592,820	9 : 3,592,477	572 : 3,593,092
190.2 : 3,592,975	302 : 3,592,959	118.3 : 3,593,034	308 : 3,592,821	277-40 : 3,592,478	588 : 3,593,093
981 : 3,592,976	302 : 3,592,960	130 : 3,593,035	309.2 : 3,592,822	147 : 3,592,479	608 : 3,593,094
180-5 : 3,592,977	302 : 3,592,961	156.2 : 3,593,036	309.2 : 3,592,823	207 : 3,592,480	692 : 3,593,095
6.2 : 3,592,978	302 : 3,592,962	192 : 3,593,037	315 : 3,592,824	279-4 : 3,592,481	696 : 3,593,096
48 : 3,592,979	302 : 3,592,963	206 : 3,593,038	340.6 : 3,592,825	280-11.35 : 3,592,482	3,593,097
8 : 3,592,980	302 : 3,592,964	7 : 3,593,039	343.5 : 3,592,826	124 : 3,592,483	3,593,098
9.44 : 3,592,981	302 : 3,592,965	12 : 3,593,040	346.3 : 3,592,827	209 : 3,592,484	13 : 3,593,099
33 : 3,592,982	302 : 3,592,966	54 : 3,593,041	397.5 : 3,592,828	261 : 3,592,485	22 : 3,593,100
124 : 3,592,983	302 : 3,592,967	55 : 3,593,042	403 : 3,592,829	432 : 3,592,486	25 : 3,593,101
181-5 : 3,592,984	302 : 3,592,968	77 : 3,593,043	439 : 3,592,830	285-18 : 3,592,487	64 : 3,593,102
30 : 3,592,985	302 : 3,592,969	85 : 3,593,044	448.2 : 3,592,831	90 : 3,592,488	321-2 : 3,593,103
30 : 3,592,986	302 : 3,592,970	122 : 3,593,045	3,592,832	230 : 3,592,489	5 : 3,593,104
30 : 3,592,987	302 : 3,592,971	245-9 : 3,593,046	3,592,833	287-189.35 : 3,592,490	7 : 3,593,105
31 : 3,592,988	302 : 3,592,972	246-34 : 3,593,047	3,592,834	289-1.5 : 3,592,491	8 : 3,593,106
33 : 3,592,989	302 : 3,592,973	248-5 : 3,593,048	3,592,835	292-76 : 3,592,492	18 : 3,593,107
51 : 3,592,990	302 : 3,592,974	18 : 3,593,049	3,592,836	216 : 3,592,493	45 : 3,593,108
184-6 : 3,592,991	302 : 3,592,975	24 : 3,593,050	3,592,837	259 : 3,592,494	2 : 3,593,109
187-12 : 3,592,992	302 : 3,592,976	27.8 : 3,593,051	3,592,838	346 : 3,592,495	28 : 3,593,110
29 : 3,592,993	302 : 3,592,977	53 : 3,593,052	468.5 : 3,592,839	347 : 3,592,496	73 : 3,593,111
188-1 : 3,592,994	302 : 3,592,978	67.5 : 3,593,053	470 : 3,592,840	294-27 : 3,592,497	24 : 3,593,112
71.6 : 3,592,995	302 : 3,592,979	68 : 3,593,054	479 : 3,592,841	32 : 3,592,498	44 : 3,593,113
9 : 3,592,996	302 : 3,592,980	74 : 3,593,055	515 : 3,592,842	74 : 3,592,499	93 : 3,593,114
72.2 : 3,592,997	302 : 3,592,981	117 : 3,593,056	3,592,843	86 : 3,592,500	324-5 : 3,593,116
73.6 : 3,592,998	302 : 3,592,982	119 : 3,593,057	3,592,844	296-50 : 3,592,501	30 : 3,593,117
264 : 3,592,999	302 : 3,592,983	121 : 3,593,058	3,592,845	297-68 : 3,592,502	34 : 3,593,118
190-49 : 3,592,999	302 : 3,592,984	137 : 3,593,059	3,592,846	193 : 3,592,503	37 : 3,593,119
192-3 : 3,592,999	302 : 3,592,985	146 : 3,593,060	3,592,847	388 : 3,592,504	37 : 3,593,120
12 : 3,592,999	302 : 3,592,986	249-1 : 3,593,061	3,592,848	410 : 3,592,505	52 : 3,593,121
18 : 3,592,999	302 : 3,592,987	94 : 3,593,062	3,592,849	299-36 : 3,592,506	56 : 3,593,122
194-2 : 3,592,999	302 : 3,592,988	175 : 3,593,063	3,592,850	301-5.7 : 3,592,507	57 : 3,593,123
61 : 3,592,999	302 : 3,592,989	220-27 : 3,593,064	3,592,851	63 : 3,592,508	57 : 3,593,124
97 : 3,592,999	302 : 3,592,990	31 : 3,593,065	3,592,852	302-14 : 3,592,509	61 : 3,593,125
102 : 3,592,999	302 : 3,592,991	55.7 : 3,593,066	3,592,853	53 : 3,592,510	67 : 3,593,126
195-28 : 3,592,999	302 : 3,592,992	66 : 3,593,067	3,592,854	303-21 : 3,592,511	67 : 3,593,127
31 : 3,592,999	302 : 3,592,993	83.3 : 3,593,068	3,592,855	307-214 : 3,593,012	62 : 3,593,128
51 : 3,592,999	302 : 3,592,994	201 : 3,593,069	3,592,856	221 : 3,593,013	73 : 3,593,129
63 : 3,592,999	302 : 3,592,995	219 : 3,593,070	3,592,857	223 : 3,593,014	83 : 3,593,130
66 : 3,592,999	302 : 3,592,996	586 : 3,593,071	3,592,858	235 : 3,593,015	102 : 3,593,131
96 : 3,592,999	302 : 3,592,997	590 : 3,593,072	3,592,859	238 : 3,593,016	103 : 3,593,132
103.5 : 3,592,999	302 : 3,592,998	610 : 3,593,073	3,592,860	247 : 3,593,017	115 : 3,593,133
197-1 : 3,592,999	302 : 3,592,999	611.5 : 3,593,074	3,592,861	252 : 3,593,018	151 : 3,593,134
14 : 3,592,999	302 : 3,593,000	613 : 3,593,075	3,592,862	261 : 3,593,019	157 : 3,593,135
16 : 3,592,999	302 : 3,593,001	624 : 3,593,076	3,592,863	262 : 3,593,020	175 : 3,593,136
	302 : 3,593,002	631 : 3,593,077	3,592,864	263 : 3,593,021	4 : 3,593,137
	302 : 3,593,003	645 : 3,593,078	3,592,865	264 : 3,593,022	9 : 3,593,138
	302 : 3,593,004	646 : 3,593,079	3,592,866	265 : 3,593,023	13 : 3,593,139
	302 : 3,593,005	666 : 3,593,080	3,592,867	266 : 3,593,024	38 : 3,593,140
	302 : 3,593,006	667 : 3,593,081	3,592,868	267 : 3,593,025	42 : 3,593,141
	302 : 3,593,007	677 : 3,593,082	3,592,869	268 : 3,593,026	51 : 3,593,142
	302 : 3,593,008		3,592,870	269 : 3,593,027	52 : 3,593,143
	302 : 3,593,009		3,592,871	299 : 3,593,028	67 : 3,593,144

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1 : 3,591,971	6 : 3,592,204	6 : 3,592,788	6 : 3,593,315	10 : 3,592,784	17 : 3,591,886
3,592,481	3,592,205	3,592,817	3,593,318	3,592,811	3,591,925
3,592,616	3,592,207	3,592,849	3,593,324	3,592,832	3,591,977
3,592,628	3,592,212	3,592,866	3,593,327	3,592,846	3,592,001
3,592,891	3,592,223	3,592,869	3,593,330	3,592,919	3,592,004
3,593,001	3,592,225	3,592,920	3,593,331	3,592,934	3,592,022
3,593,024	3,592,231	3,592,930	3,593,333	3,592,964	3,592,050
3,593,066	3,592,249	3,592,949	3,593,334	3,593,074	3,592,060
4 : 3,591,863	3,592,250	3,592,955	8 : 3,591,935	11 : 3,591,960	3,592,073
3,592,161	3,592,253	3,592,959	3,591,945	3,592,197	3,592,086
3,592,195	3,592,269	3,592,961	3,592,054	3,592,422	3,592,131
3,592,487	3,592,272	3,592,977	3,592,463	3,592,505	3,592,159
5 : 3,591,970	3,592,286	3,593,003	3,593,108	3,592,545	3,592,175
3,592,424	3,592,287	3,593,006	3,593,255	3,592,860	3,592,180
3,591,877	3,592,291	3,593,007	3,593,291	3,593,175	3,592,189
3,591,885	3,592,292	3,593,013	9 : 3,591,919	3,593,180	3,592,199
3,591,905	3,592,311	3,593,023	3,591,923	3,593,194	3,592,214
3,591,907	3,592,323	3,593,032	3,591,956	12 : 3,591,868	3,592,273
3,591,911	3,592,330	3,593,036	3,592,021	3,591,900	3,592,305
3,591,917	3,592,342	3,593,037	3,592,098	3,591,949	3,592,306
3,591,932	3,592,354	3,593,048	3,592,100	3,591,975	3,592,340
3,591,939	3,592,395	3,593,052	3,592,101	3,592,318	3,592,341
3,591,940	3,592,418	3,593,053	3,592,125	3,592,359	3,592,349
3,591,944	3,592,419	3,593,058	3,592,126	3,592,486	3,592,347
3,591,946	3,592,427	3,593,069	3,592,163	3,592,520	3,592,351
3,591,962	3,592,437	3,593,078	3,592,168	3,592,664	3,592,355
3,591,967	3,592,454	3,593,081	3,592,230	3,592,684	3,592,368
3,591,969	3,592,474	3,593,097	3,592,336	3,592,715	3,592,373
3,591,972	3,592,476	3,593,098	3,592,339	3,592,838	3,592,393
3,592,005	3,592,509	3,593,099	3,592,356	3,592,967	3,592,394
3,592,014	3,592,515	3,593,118	3,592,377	3,593,018	3,592,428
3,592,028	3,592,521	3,593,135	3,592,413	3,593,042	3,592,440
3,592,033	3,592,532	3,593,159	3,592,426	3,593,075	3,592,444
3,592,034	3,592,534	3,593,168	3,592,441	3,593,087	3,592,451
3,592,043	3,592,535	3,593,184	3,592,500	3,593,088	3,592,452
3,592,044	3,592,551	3,593,187	3,592,519	3,593,132	3,592,469
3,592,046	3,592,552	3,593,188	3,592,581	3,593,153	3,592,470
3,592,049	3,592,570	3,593,188	3,592,608	3,593,156	3,592,479
3,592,066	3,592,612	3,593,220	3,592,610	3,593,197	3,592,482
3,592,069	3,592,665	3,593,224	3,592,624	3,593,198	3,592,495
3,592,075	3,592,700	3,593,236	3,592,630	3,593,207	3,592,496
3,592,099	3,592,708	3,593,249	3,592,638	3,593,259	3,592,506
3,592,124	3,592,741	3,593,259	3,592,720	3,593,260	3,592,529
3,592,127	3,592,745	3,593,260	3,592,744	3,593,261	3,592,536
3,592,147	3,592,757	3,593,272	3,593,091	3,593,272	3,592,555
3,592,155	3,592,758	3,593,272	3,593,254	3,593,272	3,592,555
3,592,156	3,592,760	3,593,298	3,593,256	3,593,272	3,592,555
3,592,172	3,592,769	3,593,299	3,593,299	3,593,272	3,592,555
3,592,181	3,592,772	3,593,312	3,592,666	3,593,272	3,592,555
3,592,192	3,592,786	3,593,313	3,592,729	3,593,272	3,592,555

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3,592,759	3,592,639	3,592,943	3,592,706	3,592,423	3,592,219
3,592,766	3,592,669	3,592,950	3,592,719	3,592,442	3,592,226
3,592,778	3,592,694	3,592,951	3,592,747	3,592,461	3,592,229
3,592,781	3,592,763	3,593,015	3,592,748	3,592,471	3,592,233
3,592,793	3,592,946	3,593,047	3,592,762	3,592,473	3,592,262
3,592,839	3,593,021	3,593,084	3,592,780	3,592,517	3,592,290
3,592,841	3,593,125	3,593,090	3,592,790	3,592,527	3,592,296
3,592,854	3,593,165	3,593,133	3,592,796	3,592,531	3,592,326
3,592,864	3,593,174	3,593,136	3,592,798	3,592,533	3,592,348
3,592,867	3,593,199	3,593,195	3,592,810	3,592,539	3,592,357
3,592,871	3,593,204	3,593,196	3,592,813	3,592,547	3,592,390
3,592,872	3,593,214	3,593,218	3,592,822	3,592,549	3,592,396
3,592,940	3,593,215	3,593,240	3,592,827	3,592,619	3,592,432
3,592,957	3,593,216	3,593,266	3,592,831	3,592,620	3,592,448
3,592,960	3,591,882	3,593,274	3,592,835	3,592,637	3,592,458
3,592,980	3,591,897	3,593,332	3,592,842	3,592,642	3,592,508
3,592,991	3,591,915	3,591,890	3,592,843	3,592,643	3,592,511
3,593,004	3,591,934	3,591,898	3,592,844	3,592,645	3,592,514
3,593,010	3,591,986	3,591,990	3,592,852	3,592,650	3,592,523
3,593,014	3,592,026	3,592,055	3,592,855	3,592,652	3,592,526
3,593,068	3,592,119	3,592,217	3,592,856	3,592,653	3,592,564
3,593,085	3,592,151	3,592,288	3,592,859	3,592,655	3,592,566
3,593,110	3,592,191	3,592,289	3,592,865	3,592,656	3,592,585
3,593,111	3,592,270	3,592,436	3,592,899	3,592,659	3,592,614
3,593,148	3,592,338	3,592,439	3,592,905	3,592,670	3,592,649
3,593,154	3,592,344	3,592,578	3,592,906	3,592,672	3,592,661
3,593,182	3,592,399	3,592,680	3,592,910	3,592,692	3,592,663
3,593,253	3,592,492	3,592,775	3,592,924	3,592,693	3,592,701
3,593,306	3,592,546	3,592,787	3,592,925	3,592,695	3,592,710
3,593,308	3,592,618	3,592,797	3,592,935	3,592,696	3,592,722
18 : 3,593,310	3,592,648	3,593,158	3,592,936	3,592,712	3,592,777
3,591,931	3,592,658	3,592,903	3,592,938	3,592,714	3,592,779
3,591,966	3,592,679	3,593,050	3,592,947	3,592,726	3,592,819
3,591,968	3,592,683	3,592,094	3,592,974	3,592,730	3,592,887
3,592,035	3,592,728	3,592,097	3,592,992	3,592,731	3,593,040
3,592,061	3,592,753	3,592,353	3,593,020	3,592,746	3,593,071
3,592,077	3,592,830	3,592,376	3,593,045	3,592,761	3,593,077
3,592,090	3,592,942	3,592,385	3,593,054	3,592,765	3,593,080
3,592,216	3,592,958	3,592,425	3,593,055	3,592,767	3,593,119
3,592,232	3,592,981	3,592,468	3,593,057	3,592,770	3,593,120
3,592,255	3,592,993	3,592,553	3,593,073	3,592,771	3,593,127
3,592,281	3,593,002	3,592,668	3,593,107	3,592,795	3,593,145
3,592,300	3,593,067	3,592,713	3,593,138	3,592,805	3,593,269
3,592,303	3,593,121	3,592,736	3,593,139	3,592,847	3,593,270
3,592,304	3,593,167	3,592,737	3,593,141	3,592,848	3,593,311
3,592,363	3,593,169	3,592,738	3,593,142	3,592,853	3,593,328
3,592,382	3,593,186	3,592,897	3,593,147	3,592,881	3,593,335
3,592,389	3,593,202	3,592,911	3,593,157	3,592,888	40 : 3,592,006
3,592,456	3,593,205	3,592,914	3,593,162	3,592,894	3,592,008
3,592,586	3,593,221	3,592,916	3,593,166	3,592,921	3,592,266
3,592,603	3,593,222	3,592,917	3,593,193	3,592,926	3,592,560
3,592,604	3,593,243	3,592,941	3,593,208	3,592,948	3,592,567
3,592,621	3,593,257	3,593,016	3,593,225	3,592,953	3,592,590
3,592,739	3,593,263	3,593,137	3,593,230	3,592,962	3,592,602
3,592,751	3,593,292	3,592,220	3,593,235	3,592,963	3,592,607
3,592,789	3,593,294	3,592,933	3,593,241	3,592,966	3,592,783
3,592,907	3,593,316	3,593,072	3,593,264	3,592,979	3,592,794
3,593,060	3,591,876	3,592,671	3,593,273	3,592,999	3,592,802
3,593,129	3,591,883	3,592,039	3,593,277	3,593,005	3,592,803
3,593,226	3,591,902	3,592,430	3,593,282	3,593,008	3,592,862
3,593,265	3,591,916	3,593,096	3,593,295	3,593,012	3,592,868
19 : 3,593,276	3,591,924	3,591,875	3,593,299	3,593,019	3,592,870
3,591,912	3,591,961	3,591,895	3,593,305	3,593,029	3,592,885
3,591,994	3,591,964	3,591,896	3,593,317	3,593,043	3,592,885
3,592,169	3,591,981	3,591,976	3,593,319	3,593,062	41 : 3,591,904
3,592,183	3,591,982	3,592,024	3,593,325	3,593,065	3,592,927
3,592,184	3,591,983	3,592,042	3,593,333	3,593,065	3,592,927
3,592,279	3,591,987	3,592,059	3,593,335	3,593,065	3,592,927
3,592,319	3,592,037	3,592,070	3,593,340	3,593,065	3,592,927
3,592,447	3,592,074	3,592,087	3,593,347	3,593,115	3,592,142
20 : 3,592,109	3,592,089	3,592,091	3,593,349	3,593,149	3,591,871
3,592,349	3,592,108	3,592,148	3,593,374	3,593,173	3,593,173
3,592,386	3,592,118	3,592,150	3,593,391	3,593,189	3,591,894
3,592,435	3,592,121	3,592,162	3,593,396	3,593,209	3,591,901
3,592,558	3,592,174	3,592,178	3,593,412	3,593,212	3,591,903
3,592,589	3,592,186	3,592,221	3,593,427	3,593,247	3,591,913
3,592,886	3,592,236	3,592,254	3,593,442	3,593,252	3,591,988
3,592,896	3,592,240	3,592,256	3,593,457	3,593,268	3,592,002
3,593,025	3,592,242	3,592,261	3,593,472	3,593,286	3,592,030
21 : 3,591,872	3,592,257	3,592,317	3,593,487	3,593,292	3,592,045
3,591,947	3,592,293	3,592,360	3,593,502	3,593,300	3,592,088
3,592,182	3,592,297	3,592,367	3,593,517	3,593,301	3,593,301
3,592,218	3,592,298	3,592,380	3,593,532	3,593,305	3,592,136
3,592,308	3,592,325	3,592,381	3,593,547	3,593,309	3,592,215
3,592,309	3,592,333	3,592,384	3,593,562	3,593,317	3,592,243
3,592,310	3,592,335	3,592,405	3,593,577	3,593,319	3,592,278
3,592,313	3,592,387	3,592,407	3,593,592	3,593,321	3,592,321
3,592,328	3,592,443	3,592,417	3,593,607	3,593,334	3,592,329
3,592,462	3,592,465	3,592,431	3,593,622	3,593,341	3,592,334
22 : 3,592,571	3,592,484	3,592,445	3,593,637	3,593,349	3,592,337
3,591,869	3,592,485	3,592,460	3,593,652	3,593,357	3,592,366
3,592,012	3,592,488	3,592,498	3,593,667	3,593,366	3,592,686
3,592,096	3,592,504	3,592,528	3,593,682	3,593,374	3,592,699
3,592,122	3,592,507	3,592,541	3,593,697	3,593,382	3,592,718
3,592,282	3,592,548	3,592,573	3,593,712	3,593,390	3,592,733
3,592,641	3,592,550	3,592,582	3,593,727	3,593,398	3,592,748
3,592,978	3,592,569	3,592,595	3,593,742	3,593,406	3,592,763
24 : 3,591,870	3,592,667	3,592,622	3,593,757	3,593,414	3,592,145
3,591,889	3,592,674	3,592,623	3,593,772	3,593,422	3,592,160
3,592,103	3,592,724	3,592,632	3,593,787	3,593,430	3,592,168
3,592,203	3,592,727	3,592,647	3,593,802	3,593,438	3,592,179
3,592,208	3,592,755	3,592,662	3,593,817	3,593,446	3,592,187
3,592,478	3,592,782	3,592,675	3,593,832	3,593,454	3,592,195
3,592,497	3,592,824	3,592,689	3,593,847	3,593,462	3,592,203
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3,592,987	3,593,185	3,592,268	3,593,116	3,593,307	3,592,651
3,593,022	3,591,866	3,592,294	3,593,122	53 : 3,592,188	3,592,716
3,593,076	3,591,997	3,592,315	3,593,131	3,592,200	3,592,732
3,593,089	3,592,660	3,592,434	3,593,146	3,592,717	3,592,735
3,593,103	3,592,742	3,592,472	3,593,190	3,593,093	3,592,740
3,593,155	3,592,792	3,592,489	3,593,217	3,593,128	3,592,749
3,593,164	3,592,834	3,592,512	3,593,258	3,593,176	3,592,898
3,593,251	3,592,858	3,592,561	49 : 3,591,993	3,593,234	3,592,985
3,593,278	3,592,909	3,592,575	3,592,198	3,593,250	3,592,995
3,593,284	48 : 3,591,864	3,592,596	3,592,369	54 : 3,592,276	3,593,063
3,593,314	3,591,921	3,592,597	3,592,556	3,592,397	3,593,105
3,593,320	3,592,007	3,592,598	50 : 3,592,615	3,592,490	3,593,229
3,593,337	3,592,013	3,592,599	51 : 3,591,908	3,592,826	3,593,231
43 : 3,592,965	3,592,104	3,592,743	3,591,926	3,592,877	

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

July 20, 1971

Volume 888

Number 3

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PATENT OFFICE NOTICES

Certificates of Correction for the Week of July 20, 1971

D. 219,874	3,539,938	3,557,853	3,565,883
D. 219,978	3,542,030	3,558,392	3,566,017
3,171,159	3,542,305	3,558,435	3,567,008
3,452,225	3,542,382	3,558,845	3,567,409
3,458,018	3,545,941	3,558,979	3,567,643
3,460,316	3,546,098	3,559,269	3,567,682
3,469,119	3,547,761	3,559,401	3,567,905
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3,533,081	3,557,066	3,565,586	3,573,011
3,534,905	3,557,105	3,565,748	3,574,685
3,535,270	3,557,244	3,565,749	

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PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JUNE 15, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-22-70
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-01-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	2-17-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	4-09-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-12-70
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INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	5-01-70
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 240—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	3-02-70
PHYSICS, GROUP 280—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	2-17-70
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	6-23-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	5-01-70
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	3-02-70
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	3-03-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	7-09-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	3-03-70

Expiration of patents: The patents within the range of numbers indicated below expire during July 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 660, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,682,658 to 2,685,064, inclusive
Plant Patents..... Numbers 1,288 to 1,293, inclusive

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DEFENSIVE PUBLICATIONS

JULY 20, 1971

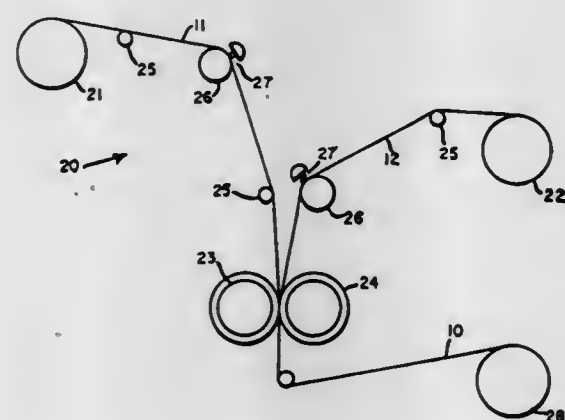
Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T888,001 COMPOSITE FILM STRUCTURE AND METHOD OF MAKING IT

George Marshall Drake, Jr., Richmond, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 6, 1970, Ser. No. 17,243
Int. Cl. C09j 5/02
U.S. Cl. 156-306
1 Sheet Drawing, 13 Pages Specification



A method of laminating two or more uncoated thermoplastic films, each selected from the group consisting of polyethylene, polypropylene, an ionic hydrocarbon polymer, polyethylene terephthalate and nylon, comprising: treating at least one of the film surfaces by flame, electrical discharge or chlorination to promote adhesion; compacting the treated surface together under moderate pressure (at least 25 pounds per square inch) and moderate heat (60° C.-90° C.) to form a composite film structure; and winding the composite film structure onto a core while under tension.

This composite film structure formed by this method has a bond strength of at least 25 grams per inch.

T888,002 PROCESS FOR DYEING AROMATIC POLYAMIDE FIBERS FROM A PHOSPHATE SURFACTANT BENZALDEHYDE CONTAINING DYE BATH AND COMPOSITION THEREFOR

Charles Thomas Hughes, Naperville, Ill., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 11, 1970, Ser. No. 18,695
Int. Cl. D06p 5/04
U.S. Cl. 8-171

No Drawing, 12 Pages Specification

Benzaldehyde and a non-ionic surface active agent selected from the group consisting of (1) a substantially neutral reaction product of an alkyl acid phosphate and ethylene or propylene oxide and (2) a block polymer consisting of the reaction product of a polyoxypropylene having a molecular weight of from about 1700 to about 2100 and ethylene oxide produces a stable mixture that when mixed into water results in a stable highly dispersed emulsion of benzaldehyde in the water and yet has extremely

low foaming characteristics upon agitation. The benzaldehyde-water emulsion is useful as a dye bath medium in high agitation dyeing techniques such as a jet-dyeing technique.

T888,003 SEALING JAWS FOR PACKAGING MACHINES

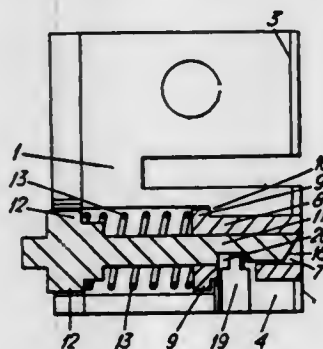
Michael John Herbert Haley and Barry James Oakley, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Aug. 17, 1970, Ser. No. 64,318

Int. Cl. B22b 31/18, 31/20

U.S. Cl. 156-515

1 Sheet Drawing, 2 Pages Specification



A hole surrounded by a plane ring is formed in a crimped web-like seal of one end of a form and fill package by the disclosed sealing jaws. The sealing jaws contain heating elements and have intermeshing saw-toothed surfaces and are movable towards and away from each other. One of the jaws carries a movable punch member which is retained within the jaw, the other jaw is formed with a cavity to receive the punch. After the surfaces of the two movable sealing jaws are together and the jaws are closed, the punch member is instantaneously activated thereby forming an opening in that portion of the material held between the jaws. Slideable bushings having substantially flat surfaces are provided about the punch member and the cavity to form the plane ring produced in the seal, the balance of the seal being a web-like crimped material. In cooperation with the movable jaws carrying the punch member there may also be provided an additional set of jaws spaced from and carried with the jaws carrying the punch member. In this manner the packaging material, such as polypropylene which is coated with a heat sealable material, is continuously placed between the sets of jaws and sealed, the jaws carrying the punch member forming the top seal of the package while the other set of jaws forming the bottom seal of the next package. The space between the two seals thus produced is next cut, thereby separating the bags.

The resulting crimped seal having an opening surrounded by a plane ring is useful for hanging or display bags such as those containing candy that are suspended from a wire passing through the hole formed in the top of the bag.

JULY 20, 1971

U. S. PATENT OFFICE

705

T888,004 MINIMIZING DIFFERENTIAL SHRINKAGE OF MULTILAYER CERAMIC CIRCUIT BOARDS

William R. Keller, 3211 Kamerer Drive, Wilmington, Del. 19803

Filed Sept. 1, 1970, Ser. No. 68,757

Int. Cl. B32b 31/26; C04b 39/00

U.S. Cl. 156-89

No Drawing, 11 Pages Specification

In the process for producing multilayer ceramic circuit boards comprising laminating by firing two or more layers of green ceramic tape, wherein one or more surfaces of the layers of tape have electrical components printed thereon and wherein the green ceramic tape shrinks differentially in its width or x-axis direction as compared to its length or y-axis direction when fired, the improvement which comprises minimizing differential shrinkage of the circuit boards upon firing by stacking the layers of green tape alternately so that each successive layer has its x-axis direction aligned with the y-axis direction of the preceding layer. The green ceramic tape comprises finely divided ceramic particles and an organic binder therefor and is prepared by doctor blading an aqueous or organic dispersion of the ceramic particles and the binder, followed by eliminating the solvent, e.g., by drying. After stacking the layers of green tape in the above-described orientation, the layers are laminated, e.g., by heat or pressure, and then fired to sinter the ceramic layers and to remove the binder.

T888,005 PHOTOGRAPHIC SILVER HALIDE EMULSIONS HAVING INCREASED COVERING POWER

Glen M. Dappen and Thomas E. Whiteley, both of 1669 Lake Ave., Rochester, N.Y. 14615

Filed Sept. 4, 1970, Ser. No. 69,978

Int. Cl. G03c 1/02

U.S. Cl. 96-94

No Drawing, 17 Pages Specification

The covering power of developed silver of photographic gelatino silver halide coatings is increased by the addition of inorganic ammonium salt covering power agents such as ammonium sulfate or ammonium nitrate. These agents may be combined with a polyacrylamide to provide even greater increases in covering power. For example, a fine grained chlorobromide emulsion containing 60 g./mole Ag of (NH₄)₂SO₄ is coated on a cellulose acetate support at 168 mg./ft.² Ag and 600 mg./ft.² gelatin. Upon exposure and development it is found that the incorporation of the ammonium sulfate in the emulsion markedly increases the maximum density and the covering power of the developed silver, as compared with emulsions containing polymeric covering power agents.

T888,006 TOBACCO SMOKE FILTER

Gerald P. Morie, 2317 Briarcliff Road, Kingsport, Tenn. 37660

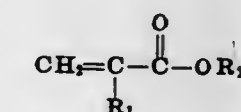
Filed Sept. 21, 1970, Ser. No. 74,238

Int. Cl. A24d 1/06

U.S. Cl. 131-266

No Drawing, 8 Pages Specification

Tobacco smoke filter comprising cross-linked homopolymers and copolymers prepared from monomers having the formula



wherein R₁ is hydrogen or methyl and R₂ is an alkyl group containing 1-8 carbon atoms or a hydroxyl group attached to an alkyl group having 1-8 carbon atoms. The polymers are characterized by a macroreticular structure, a size of

about 20 to about 200 mesh, surface area of about 100 to about 500 m.²/g., and pore diameters of about 10 Å. to about 300 Å. The filters may be three component filters in which the polymeric material is packed between two plugs of filter material or the polymeric material may be added to tow which is then formed into filter rods.

T888,007 PHOTO-SENSITIVE POLYMERS

Richard C. Tuites, Thomas M. Laakso, Jack L. R. Williams, and Louis M. Minsk, all of Kodak Park, Rochester, N.Y. 14650

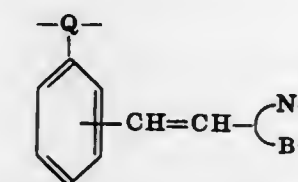
Filed Sept. 29, 1970, Ser. No. 76,630

Int. Cl. G03c 1/68

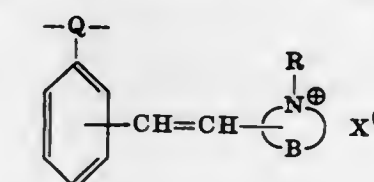
U.S. Cl. 96-115

No Drawing, 18 Pages Specification

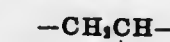
There are disclosed light-sensitive polymers containing recurring groups having the formula



and quaternary salts thereof having the formula



wherein Q is a unit in the parent polymer chain e.g.,



R is a lower alkyl group, X[⊖] is an anion, and B represents the atoms necessary to complete a pyridine or quinine moiety, the group {CH=CH} being attached to a ring carbon atom in the nitrogen-containing ring. A method is disclosed for preparing the quaternary salts which comprises reacting a polymer of vinyltoluene with N-bromosuccinimide in the presence of benzoyl peroxide to brominate the methyl group on the toluene ring, reacting the resultant product with dimethyl sulfoxide in the presence of sodium bicarbonate to convert the bromomethyl groups to aldehyde groups and thereafter condensing the aldehyde groups on the polymer with an aromatic, quaternized compound such as the methyl p-toluene sulfonate quaternary salt of 2-picoline. The light-sensitive polymers are useful in photomechanical reproduction processes such as for lithographic purposes or as photoresists.

T888,008 POSITIONING MECHANISM

William A. MacDonald, Jr., 901 Elm Grove Road, Rochester, N.Y. 14650

Filed Nov. 9, 1970, Ser. No. 88,032

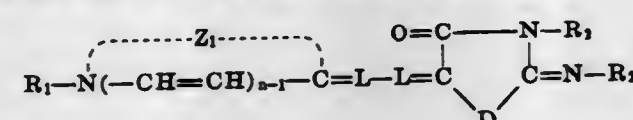
Int. Cl. G03b 27/70

U.S. Cl. 355-45

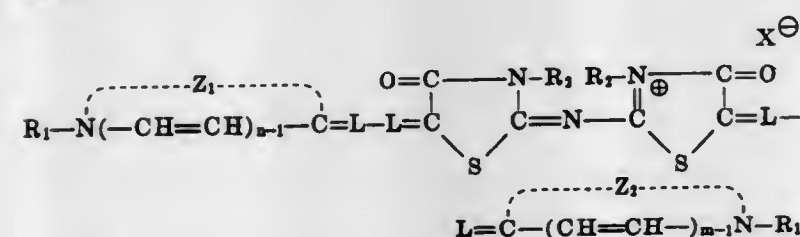
3 Sheets Drawing, 10 Pages Specification

A latch mechanism is provided for supporting a pivotal mirror in a raised position in the optical path of a reader-printer to deflect a projected image from a primary path to a secondary path. The latch mechanism includes a latch lever adjacent a switch lever which is operated by movement of the mirror through suitable drive means so that the mirror is moved past the latch lever before it engages the switch lever to shut off power to the motor. After power is shut off the mirror moves in the reverse direc-

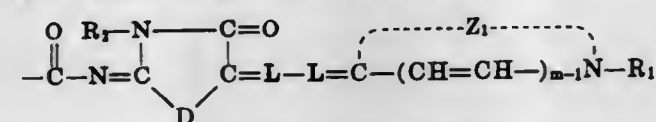
dine and/or a quinoline base. The preferred merocyanine dyes have one of the following formulas:



and



wherein n and m each represents a positive integer of from 1 to 2; L represents a methine linkage; D represents an oxygen atom, a sulfur atom, a selenium atom or the group $=N-R$; R , R_1 , R_2 and R_4 each represents an alkyl group or an aryl group; R_3 represents an amino group, an alkyl group, an aryl group, an acyl group, an arylsulfonyl group, an alkoxy-carbonyl group, a carboxy-alkylcarbonyl group, a 5- to 6-membered nitrogen containing heterocyclic group, and the group



wherein Z_1 , m , D , R_1 and R_2 are as above defined; X represents an acid anion; and Z_1 and Z_2 each represents the

non-metallic atoms necessary to complete a nitrogen containing heterocyclic nucleus containing from 5 to 6 atoms in the heterocyclic ring. A preferred combination comprises 3-ethyl-5-[(3-ethyl-2-benzothiazolinyldene)ethylidene]-2-p-carboxyphenylimino-4-thiazolidinone and pyridine.

T888,017
COATING OF SILVER HALIDE DOTWISE
 Edward C. Yackel and Donald P. Foster, both of
 1669 Lake Ave., Rochester, N.Y. 14615
 Filed Dec. 10, 1970, Ser. No. 97,020
 Int. Cl. G03c 1/02
 U.S. Cl. 96-94

No Drawing. 18 Pages Specification

The coating of a silver halide emulsion dotwise is accomplished by gravure or letterpress printing procedures by using a novel emulsion composition comprising certain gelatin "anti-bonding" agents such as, for example, ethyl carbamate, acetamide, urea, ethyl carbonate, sulfamide, methyl sulfamide, formamide or semicarbazide. Also useful, but somewhat less effective, are *n*-butyl carbamate, dimethyl sulfone and succinimide. The most suitable compositions for dotwise printing are silver halide emulsions of low gelatin content to which an anti-bonding agent is added, containing, for example, at least 1 weight percent silver halide, at least 25 weight percent water, 1 to 10 weight percent gelatin and at least 3 weight percent of an antibonding agent of the type indicated. The viscosity range for the emulsions should be from $\frac{1}{16}$ to 3 poise for gravure printing and from 5 to 500 poise for letterpress printing.

REISSUES

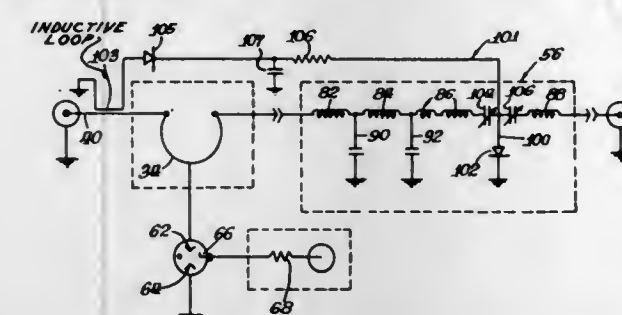
JULY 20, 1971

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,154
GASEOUS-SOLID STATE POWER LIMITER HAVING A SELF-BIASING CIRCUIT FOR THE SOLID STATE DEVICE
 David C. Broderick, Beverly, Mass., assignor to Metcom, Inc., Salem, Mass.
 Original No. 3,364,445, dated Jan. 16, 1968, Ser. No. 527,396, Feb. 4, 1966, which is a continuation-in-part of Ser. No. 214,546, Aug. 3, 1962. Application for reissue Jan. 14, 1969, Ser. No. 802,296
 Int. Cl. H01p 1/04

U.S. Cl. 333-13

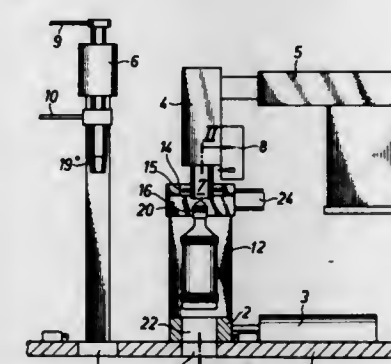
8 Claims



A power limiter device having solid state means with self-biasing means for limiting and attenuating the propagation of destructively high powered signals within a wide band of radio frequency signals.

27,155
MOULDING AND SEALING MACHINES
 Gerhard Hansen, Hofener Strasse 47, Oeffingen, Kreis, Waiblingen, Germany
 Original No. 3,325,860, dated June 20, 1967, Ser. No. 404,600, Oct. 19, 1964. Application for reissue Apr. 9, 1969, Ser. No. 824,005
 Claims priority, application Germany, Oct. 30, 1963, H 50,689
 Int. Cl. B29d 23/03
 U.S. Cl. 18-5BF

17 Claims



A machine for molding, filling and sealing containers in one operation from a tube of thermoplastic material and having relatively movable mold parts.

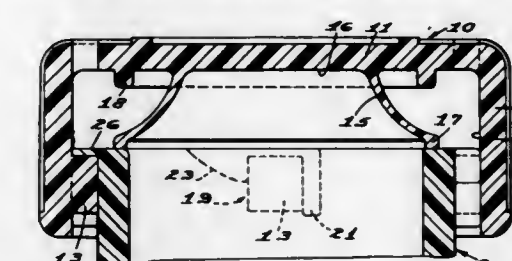
27,156
SAFETY CAP AND CONTAINER
 Peter Hedgewick, Windsor, Ontario, Canada, assignor to Reflex Corporation of Canada Limited, Windsor, Ontario, Canada
 Original No. 3,344,942, dated Oct. 3, 1967, Ser. No. 540,338, Apr. 5, 1966. Application for reissue Apr. 19, 1968, Ser. No. 734,502
 Int. Cl. B65d 55/02

U.S. Cl. 215-9

25 Claims

The container disclosed herein comprises a cylindrical plastic body which is molded in one piece and has cir-

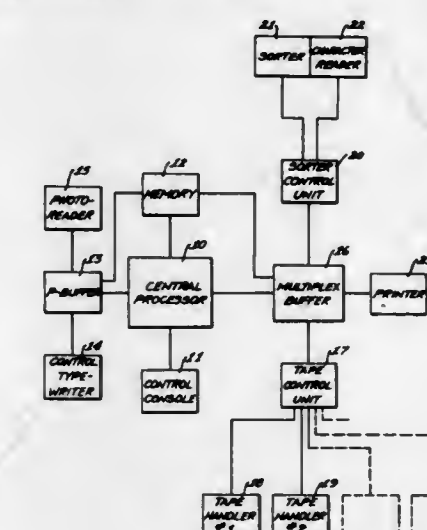
cumferentially spaced radially extending projections on the upper end thereof that have notches therein. The cap embodying the invention comprises a one-piece plastic body having a base and peripheral flange with circumferentially spaced lugs extending radially inwardly for engagement with the notches. An annular integral flexible web is provided on the inner surface of the base and extends downwardly and outwardly for engagement with the upper end of the container. An annular integral rib



on the inner surface of the base overlies the annular flexible web and serves as a stop to prevent overflexing of the web. The base of the cap includes circumferential openings which facilitate its manufacture as a one-piece plastic cap but do not interfere with the sealing action of the annular web. The cap is applied to the container by a rotating movement. The cap can only be removed from the container by applying an axial force on the periphery of the cap and thereafter rotating the cap.

27,157
APPARATUS IN DATA PROCESSING SYSTEM FOR COORDINATING MEMORY COMMUNICATION AMONG PROCESSORS AND PERIPHERAL DEVICES
 Henry L. Herold, Los Angeles, Calif., and Joseph Weizenbaum, Concord, Mass., assignors to Honeywell Information Systems Inc.
 Original No. 3,354,466, dated Nov. 21, 1967, Ser. No. 8,394, Feb. 12, 1960. Application for reissue Jan. 13, 1969, Ser. No. 801,872
 Int. Cl. G06f 3/00
 U.S. Cl. 340-172.5

39 Claims



A data processing system wherein a peripheral unit communicates with a memory store while the central processing unit continues to execute its normal sequence

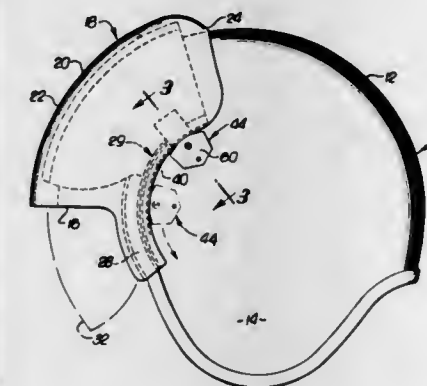
of operations. The central data processing unit responds only to the appropriate signal to provide the necessary data item transfer and to halt the transfer thereof. A buffer register transmits or receives data words to or from the peripheral device in succession. When the buffer register is filled with the information from the peripheral unit or has transferred the information to the peripheral unit, a signal is transmitted to the central data processing unit which provides the communication between the buffer register and the memory store.

PATENTS

GRANTED JULY 20, 1971

GENERAL AND MECHANICAL

3,593,338
VISOR-LATCHING CONSTRUCTION IN SAFETY
HELMET
William H. Penny, Arcadia, Calif., assignor to Sierra Engineering Co., Sierra Madre, Calif.
Filed Mar. 24, 1969, Ser. No. 809,864
Int. Cl. A42b 3/00
U.S. Cl. 2-6



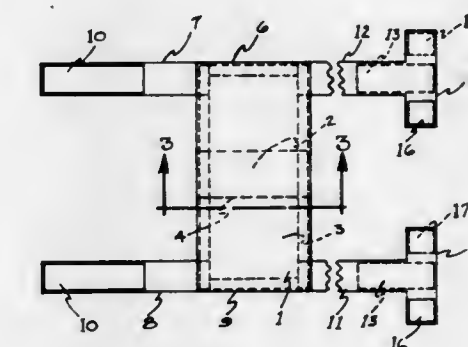
A device which is particularly adapted for holding a moveable visor on a headgear in a predetermined position which includes a tooth rack mounted on the headgear and a tooth clutch or latch jaw mounted on and movable with the visor, the clutch jaw being moveable between an engaged position where the teeth on the jaw intermesh with the teeth on the rack to a disengaged position where the teeth do not intermesh, the clutch jaw being moveable between these positions responsive to the movement of a lever which is readily accessible to the wearer of the headgear.

3,593,339
DRAFTSMAN'S GLOVE
Charles W. Maln, 3015 E. 5th St., and Robert L. Austin, 1800 W. 10th St., both of Anderson, Ind.
Filed June 8, 1970, Ser. No. 44,291
Int. Cl. A41d 19/00
U.S. Cl. 2-161



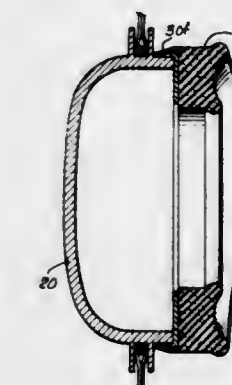
Disclosed is a draftsman's glove, useful to protect from soiling the paper or surface on which a draftsman, illustrator, artist or the like is working. The glove is formed as a tapered tube having a wrist band portion at its larger end and tapered, along one side margin, to its smaller end, a portion of the tapered side margin of the tube is open and the remaining portion, nearest the smaller end has a closed seam. This closed seam portion accommodates the little finger of the wearer and the remainder of the wearer's hand extends through the open portion of the tapered side margin of the tube, whereby only the little finger and heel of the wearer's hand is covered by the glove.

3,593,340
PROTECTION PADS
Gerald Lee Powell, 8301 Cincinnati-Dayton Road, West Chester, Ohio
Filed Aug. 29, 1969, Ser. No. 854,235
Int. Cl. A41d 13/06
U.S. Cl. 2-24



My invention provides a reusable cushioned pad with extending tapes for securing the pads to a person. The extending tape means are provided with self securing holding means when the tapes are overlapped and pressed together. The tapes are released from holding condition by separating the tapes and may be repeatedly used to secure the pads to a person without deterioration of the holding quality of the holding means. Secured at the ends of the tapes are tabs that are adapted to repeated use to overlap the tapes when they are in holding position, and lock the tapes together to prevent the tapes from separating during the time that a pad is secured to a person.

3,593,341
SOUND-ATTENUATING EARCUPS
Jackson A. Aileo, Carbondale, Pa., assignor to Gentex Corporation, Carbondale, Pa.
Continuation-in-part of application Ser. No. 730,264, May 20, 1968, now abandoned. This application Jan. 2, 1970, Ser. No. 219
Int. Cl. A42b 1/06
U.S. Cl. 2-209



A sound-attenuating earcup device adapted for use either with or without a safety helmet, comprising a rigid cup with a resilient seal attached to the rim of the cup. The seal has an annular surface for engaging the wearer's head, and has a dimension between the cup rim and the outermost head-engaging portion of this surface that varies around the periphery of the cup in accordance with the contours of a human head. In one form, the surface of the seal which comes into contact with the wearer's head includes inner and outer flanges defining a channel having diverging side

flanges. When the seal is pressed into engagement with the side of the wearer's head, the flanges spread apart and the material between the flanges is stressed in tension, thereby improving the effectiveness of the seal at the flanges and, hence, the sound-attenuating properties. The outer flange is contoured to follow the contours of a human head. A tortuous, pressure-equalizing, sound-attenuating fluid path is provided through the wall of the earcup, for use in situations where the ambient pressure is subject to variation. In another form, the seal has a wide contact surface arranged to engage the wearer's head essentially continuously between its outer and inner annular edges; the contact surface, which may be smooth or corrugated, slopes inwardly toward the center of the earcup with a pitch that varies around the cup to follow the head contours.

3,593,342

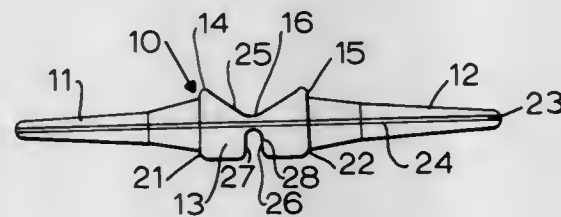
PROSTHETIC JOINT

John J. Niebauer, and Paul Kahn, both of San Francisco, Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Jan. 27, 1969, Ser. No. 793,994
Int. Cl. A61F 1/24

U.S. Cl. 3-1

18 Claims



A prosthetic joint made of a fabric-reinforced unitary elastomeric member providing two tapering stems connected to opposite ends of a central portion having thick ends and a thin web and arranged to provide relative movement of one stem to the other in at least one direction while preventing movement in undesired directions. The stems are used for insertion into the interiors of each of two bones to be joined by the joint. The stems are overlaid with cloth fabric of a kind enabling better fixation of the prosthetic joint to the tissue in the bones.

3,593,343

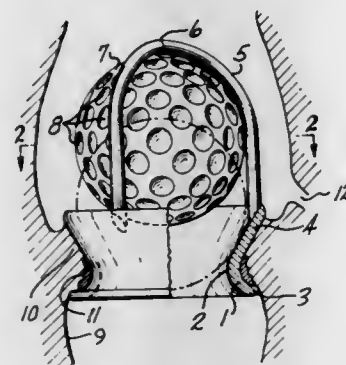
PROSTHETIC BALL-CHECK HEART VALVE

Robert F. Viggers, 7306 57th Ave. N.E., Seattle, Wash.
Filed July 19, 1968, Ser. No. 738,143

Int. Cl. A61F 1/22

U.S. Cl. 3-1

7 Claims

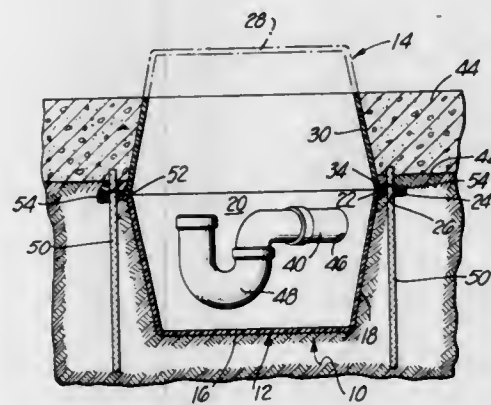


A valve ball having a relieved surface forming dimples is confined by a cage mounted on a venturi seat. The seat is secured by sewing to fibrous body membrane a cloth sewing ring received in an external groove of the seat ring. Axially extending frame rods may be joined by a flow-directing or flow-straightening ring to reduce turbulence.

3,593,344
TUB BOX STRUCTURE
Duane D. Logsdon, 1719 Canyon Road, Fullerton, Calif.
Filed May 9, 1969, Ser. No. 823,346
Int. Cl. A47K 17/00

U.S. Cl. 4-1

2 Claims



A tub box structure is disclosed for use in enclosing a drain trap and a connected part of a sewerline in a concrete slab floor. In use container and closure portions of this box structure are assembled so as to enclose such a line and trap, and then the concrete to form such a slab floor is cast around the structure so that the upper part of the structure is exposed above the concrete. After the concrete has set the portion of the structure exposed above the concrete is severed and connection is made to the drain trap.

3,593,345

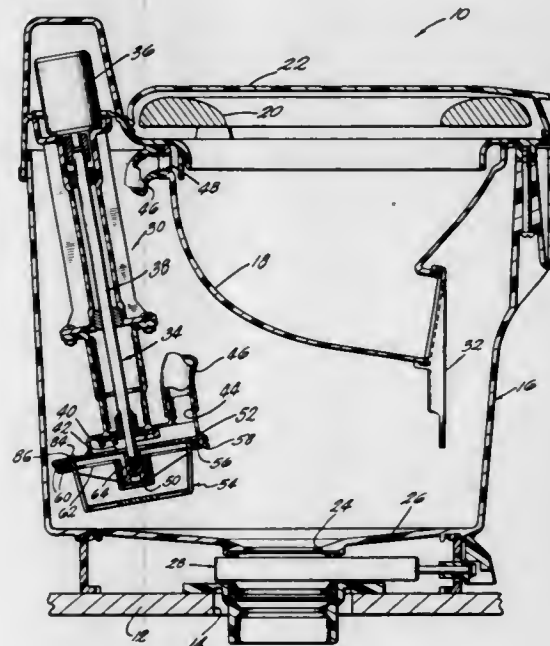
RECIRCULATING TOILET

Charles B. Wells, Feasterville, Pa., assignor to Thetford Corporation, Ann Arbor, Mich.

Filed Jan. 9, 1970, Ser. No. 1,692
Int. Cl. E03 1/00, 3/00, 5/00

U.S. Cl. 4-10

19 Claims

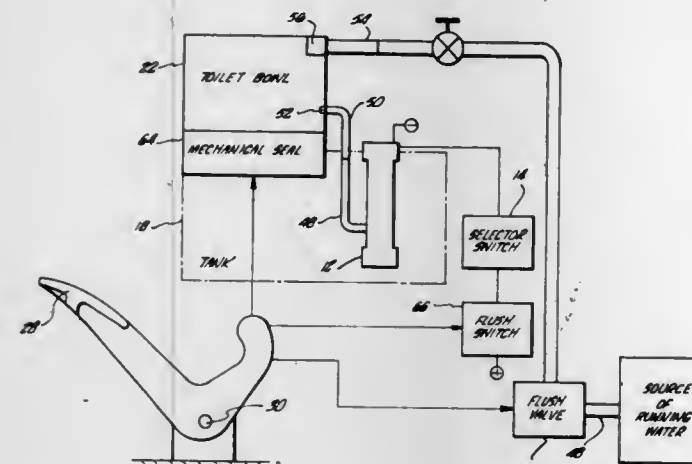
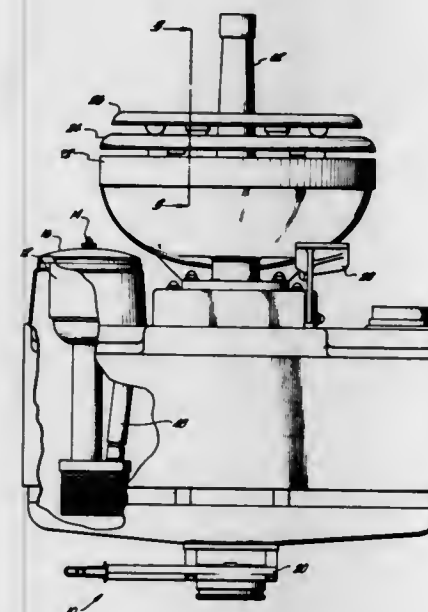


A self-contained recirculating toilet system requiring no pressure water connection or holding tank installation. The system includes a toilet bowl, a tank for holding the liquid of the system and a self-cleaning pump-and-filter apparatus for circulating a quantity of relatively clear liquid to the bowl for return to the tank. The pump is adapted to be operated by a 12-volt DC electrical circuit. The filtering system includes a strainer basket which is vibrated during operation of the pump in order to remain clog free.

3,593,346
DUAL MODE RECIRCULATING TOILET SYSTEM
William F. Katona, Los Angeles, Calif., assignor to Monogram Industries, Inc., Los Angeles, Calif.
Filed June 4, 1970, Ser. No. 43,450
Int. Cl. E03d 1/00, 3/00, 5/00

U.S. Cl. 4-10

8 Claims



A novel toilet system is disclosed which is alternatively operable on a recirculating fluid supply or an external water supply. A foot-operated pedal, in combination with a switch selector, opens a mechanical seal to a holding tank and energizes the flushing operation. A novel, slide valve directs the flushing fluid from the selected source.

In a specific embodiment, the toilet retracts into a wall fixture and combines a movable bowl member with a fixed receiver member. Separate flush lines clean the bowl and the receiver when in the retracted configuration.

3,593,347

BATHTUB RENOVATING ADAPTOR APPARATUS AND METHOD

Alfred Nemiroff, New York, N.Y., assignor to The P. I. Nemiroff Corporation, New York, N.Y.

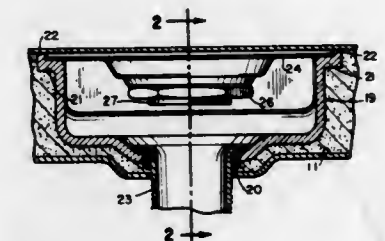
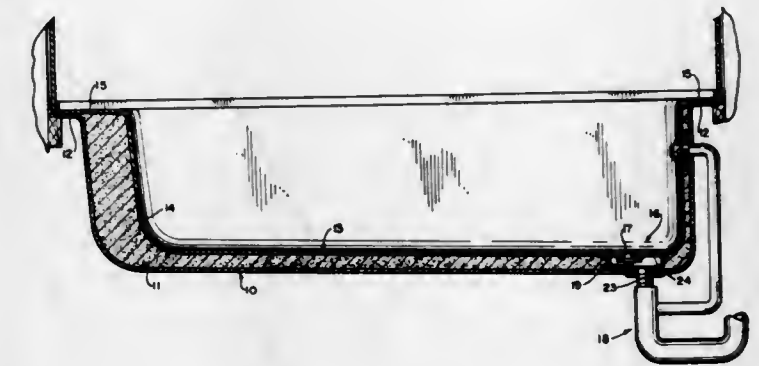
Filed Aug. 25, 1969, Ser. No. 852,742
Int. Cl. E03c 1/22, 1/28

U.S. Cl. 4-197

7 Claims

The present invention includes a renovating method and apparatus for accommodating the waste and overflow connections of an inserted bathtub liner assembly and an existing plumbing system to which an existing bathtub was previously connected. A hollow container formed with an outlet port is secured to said plumbing system. A cover member slidable against the hollow container and formed with an inlet port is moved until the distance between said ports corresponds to

the distance between said connections and the system. The cover member is then bonded to the hollow container and



the waste connection is fitted to said inlet port such that an adapting plumbing trap exists between the liner and said system.

3,593,348

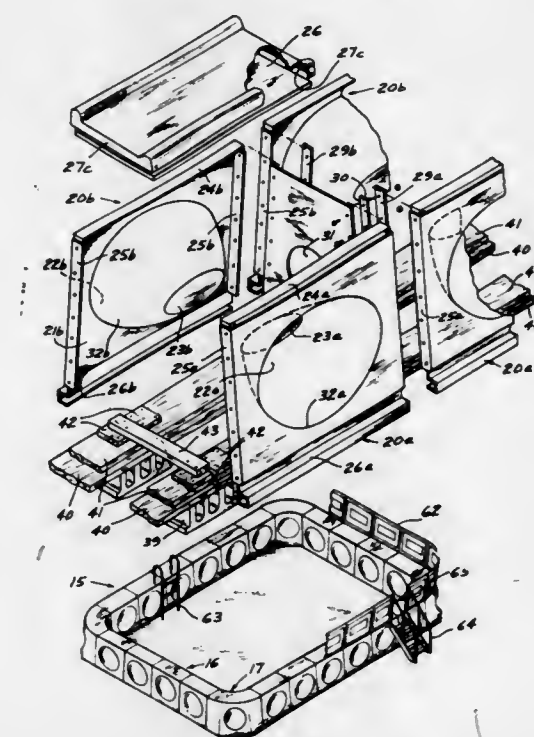
MODULAR SWIMMING POOL CONSTRUCTION

Fred Toerge, Stamford, Conn., assignor to International Swimming Pool Corporation, Deer Park, N.Y.

Filed Dec. 22, 1969, Ser. No. 886,876
Int. Cl. E04h 3/18, 3/16

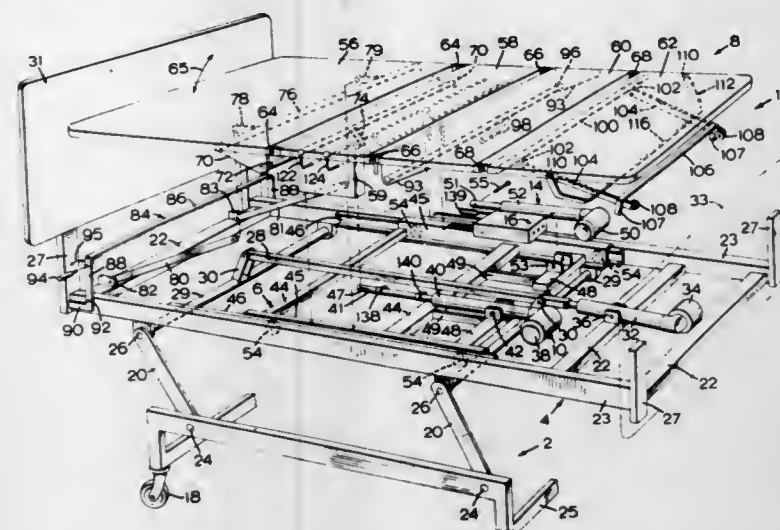
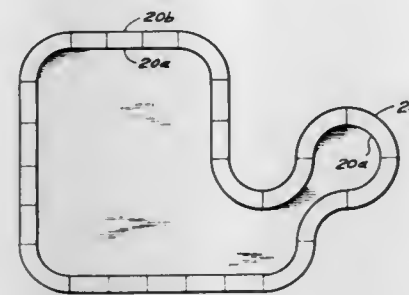
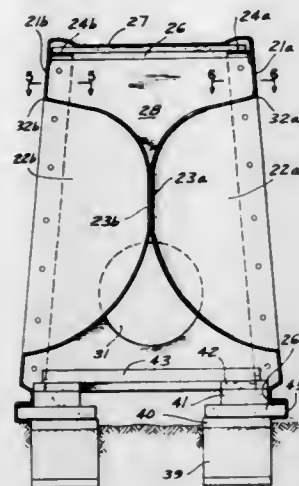
U.S. Cl. 4-172.19

15 Claims



A swimming pool, the sidewalls of which are constructed by selectively joining a plurality of modules having straight or curved sidewalls. By selectively joining such modules a great variety of different geometrical outlines of the pool area is obtainable. Each module includes in its inner and outer wall an archlike structure which transmits hydrostatic pressure

upon the inside wall of the module to the outside wall thereof in a manner such that the forces of pressure are substantially the second frame and the mattress frame towards or away from the headboard of the bed, to thereby keep the patient's



head and shoulders at substantially the same horizontal distance from the end of the bed.

3,593,351

PATIENT TRANSFER DEVICE

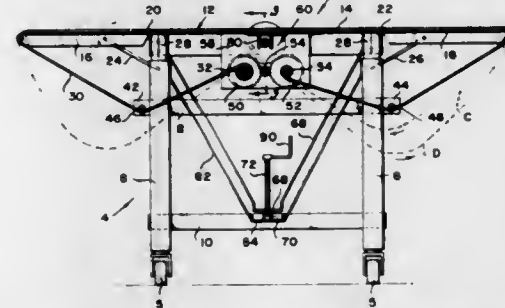
Benjamin A. Dove, 7521 McWhorter Place, Apt. 203, Annandale, Va.

Filed Aug. 14, 1969, Ser. No. 850,061

Int. Cl. A61g 7/08

U.S. Cl. 5-81

5 Claims



A patient transfer device comprising a frame and a substantially planar table surface for the frame; a movable web supported on the table surface substantially flush therewith and extending from one side of the table surface to the other side of the table surface and a device for moving the web across the table surface from one side to the other.

3,593,352

COLLAPSIBLE SELF-SUPPORTING HAMMOCK

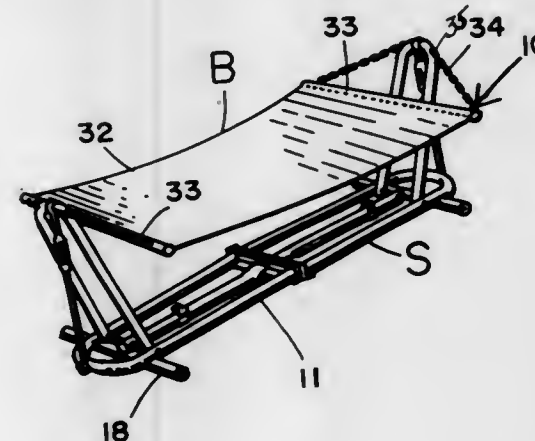
Harry J. Britt, 157 N. E. 68th Terrace, Miami, Fla.

Filed Jan. 30, 1969, Ser. No. 795,178

Int. Cl. A45f 3/24

U.S. Cl. 5-127

1 Claim



The hammock frame is comprised of bent stock tubular members and angle iron members welded together to provide

3,593,350

RETRACTABLE BED

Robert Knight, Etobicoke, Ontario, and Stanley Rachlinski, Oakville, Ontario, both of Canada, assignors to The Dominion Metalware Industries Limited, Port Credit, Ontario, Canada

Filed Mar. 13, 1969, Ser. No. 806,880

Int. Cl. A61g 7/10, 7/00

U.S. Cl. 5-66

45 Claims

A retractable bed having a first frame supported off the floor by a high-low mechanism and a second frame slidably mounted on the first frame. A mattress frame, having a head section, seat section, and leg section which includes thigh and foot sections, is supported on the second frame with the seat section rigidly attached to the second frame. An actuating mechanism is provided for pivoting the head section to permit the patient to be moved from a prone position to a sitting position and vice versa, while at the same time moving

a base structure comprising end-to-end hinged base members to the outer ends of which are swingably journaled hammock support members. The hammock support members are foldable against their respective base members and the base members are foldable against themselves to provide a doubly folded compact unit. When erected, the central part of the base structure is somewhat elevated above the support floor to allow for flexing and resultant resilient inward yielding of the hammock support members.

3,593,353

WASHING OF A CONTAMINATED GUIDEROLL AND PREVENTION THEREFROM IN CLOTH TREATMENTS

Yoshikazu Sando, and Hiroshi Ishidoshiro, both of Wakayama-ken, Japan, assignors to Sando Iron Works Company Limited, Wakayama-ken, Japan

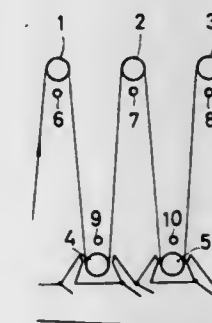
Filed May 16, 1967, Ser. No. 638,795

Claims priority, application Japan, May 23, 1966, Nov. 22, 1966, Nov. 7, 1966, 41/32873; 41/76606; 41/102720

Int. Cl. F26b 13/08

U.S. Cl. 8-147

5 Claims



A method of cleaning the surfaces of guide rolls used in treating and processing cloth comprised of the step of passing a strip of material soaked in a cleaning fluid, such as water, in a continuous path over and in contact with the guide rolls. The method is preferably performed by attaching the strip of material to the cloth being processed and continuously passing it through the guide rolls following the cloth to remove any contamination that might have been accumulated on the rolls during processing. In the passage over the rolls, which are preferably reversed during the cleaning operation, the strip of material is squeezed against the rolls and the cleaning fluid assists in the removal of contaminants as the cloth wipes the roll clean.

3,593,354

BOAT HULL CONSTRUCTION

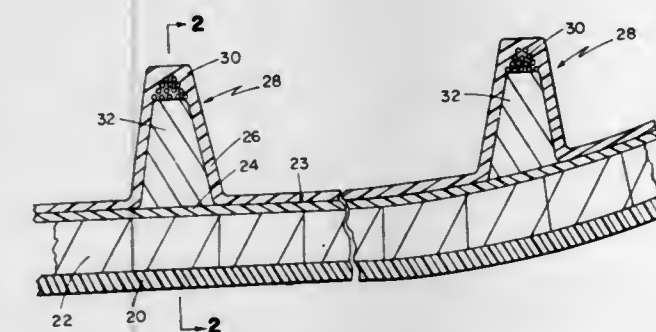
John Henry Carter, Weston, Mass., assignor to Aeromarine Corporation, Weston, Mass.

Filed Aug. 4, 1969, Ser. No. 847,031

Int. Cl. B63b 5/02

U.S. Cl. 9-6

4 Claims



A sandwich construction for a boat hull incorporating integrally molded ribs having high strength at points remote from the outer hull surface and thereby providing a large structural moment resistant to distortion and failure under load or impact, lightweight for a given strength, and economy of fabrication.

3,593,355

CRADLE DEVICE FOR A LIFE RAFT OR LIKE DINGHY

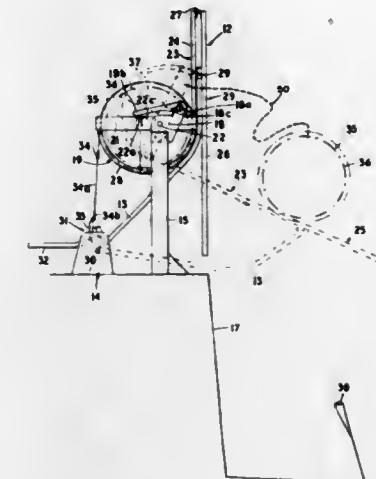
Richard Edward Husband, Hadrian Way, Southampton, England, assignor to Husband's Shipyards Limited, Marchwood, Southampton, England

Filed May 1, 1969, Ser. No. 820,819

Int. Cl. B63b 23/28

U.S. Cl. 9-31

8 Claims



A device for storing and launching a life raft or similar device, the device having supporting means in which a raft-supporting cradle is rotatively mounted, a chute down which the raft moves when discharged by the tilting movement of the cradle, the chute including an inboard portion rigidly secured to the cradle, and an outboard portion dependent from hinge means located at the upper end of the inboard portion. A rigid link member has one end pivotally connected to the supporting means and its opposite end connected to the outboard portion, the arrangement of the inboard and outboard portions and the link member being such that when the cradle is moved from a storage position to a discharge position, the outboard portion is pivoted outwardly until the discharge position is reached at which time the inboard and outboard portions are longitudinally aligned and form the chute down which the life raft, removed from the cradle, freely descends.

3,593,356

SURFBOARD CONTROL DEVICE

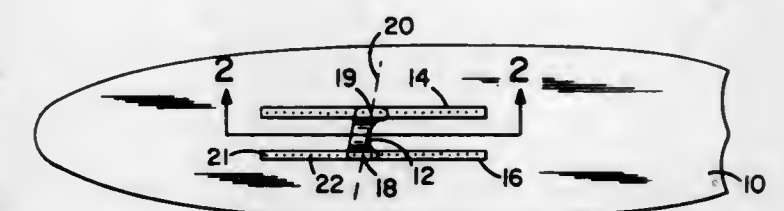
Gene N. Schmalfeldt, 3509 Riviera Drive, San Diego, Calif.

Filed Mar. 12, 1969, Ser. No. 806,365

Int. Cl. A63c 15/06

U.S. Cl. 9-310 E

7 Claims



A surfboard control device comprising a foot stirrup that is secured to the upper surface of a surfboard along its longitudinal axis, which stirrup holds the foot of the surfer to the surfboard during surfing and aids in turning the surfboard by allowing the surfer to exert upward force on the board through cooperation with the surfer's other foot, and aids both experienced surfers and beginning surfers in accurately positioning their feet on the surfboard, which position is established by trial and error and identified on a scale.

3,593,357

SEPARATELY DRIVEN WINDOW AND SIDE BRUSHES ON COMMON FRAME

Dale R. Oldham, Phoenix, Ariz., assignor to Earl Dallas Smith, Phoenix, Ariz.

Filed Feb. 6, 1968, Ser. No. 703,405

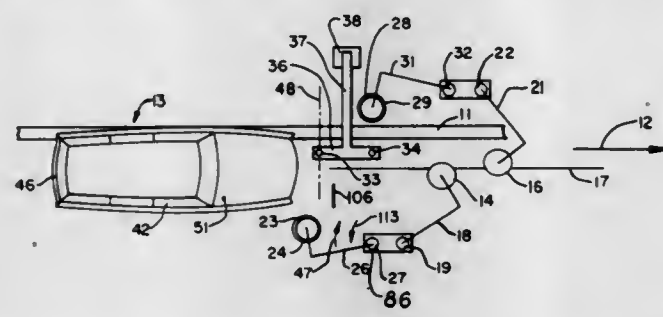
Int. Cl. B60s 3/06

U.S. Cl. 15-21

8 Claims

Vehicle-cleaning brush arrangement of a body and fender side brush rotatable by one hydraulic motor on a first axis on

a brush frame, and a window brush rotatable on a second axis by a second motor on the brush frame. A vertical pivot for the brush frame enabling swinging thereof in a horizontal arc for body brush action on portions below the vehicle "belt line," and independent window brush action on portions above the belt line, the window brush being above the body



brush and the axis therefore being inclined from vertical. A windshield sensing wand operable to start rotation of the window brush and terminate rotation thereof. Window brush load sensing means enable brushing the back window of station wagons regardless of termination of sensing wand actuation.

3,593,358

SWITCH CONTROL MECHANISM FOR A CARWASH INSTALLATION

Josef Hofmann, Oberschurer Str. 5, 8752 Krombach, Germany

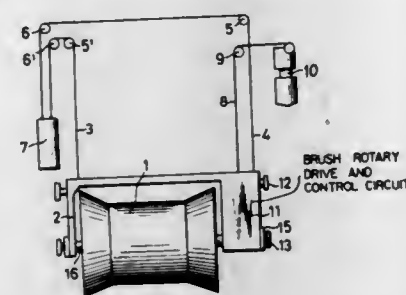
Filed Feb. 28, 1969, Ser. No. 803,364

Claims priority, application Germany, Feb. 29, 1968, P 16 80 307.9

Int. Cl. B60s 3/06

U.S. Cl. 15-21

6 Claims



In a carwash installation, a roof brush is suspended on a rope for vertical movement in relation to a vehicle, and the brush and vehicle are movable in a horizontal direction in relation to each other. An actuating lever responsive to the movements of the brush and the rope actuates a switch into a first position wherein the relative horizontal movement of the brush and the vehicle is effectuated and a second position wherein the vertical movement of the brush is effectuated.

3,593,359

DISPOSABLE HEAD FOR A SWEEPING MOP

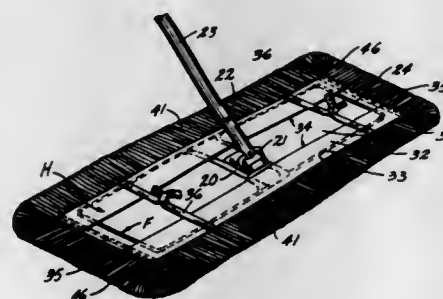
Don S. Strauss, Denver, Colo., assignor to Majestic Wax Company, Denver, Colo.

Filed May 29, 1969, Ser. No. 829,029

Int. Cl. A47I 13/20

U.S. Cl. 15-229

7 Claims

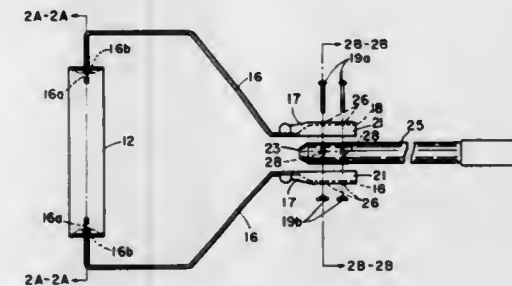


A disposable mophead for a sweeping mop having a paper-plastic backing to which the strands are sewn as a fringe on each side of the backing, at the flat undersurface of the backing, to lie flatly upon a floor when the mop is in use.

3,593,360
PAINT APPLICATOR
George P. Coughlin, 201 N.E. Alki Road, Vancouver, Wash.
Filed June 18, 1969, Ser. No. 834,362
Int. Cl. B44d 3/28

U.S. Cl. 15-230.11

1 Claim



A paint roller, with drip guard for painting ceilings, which includes a two-piece split handle design for the roller secured together by removable fasteners. The drip guard is attached to the respective arms of the roller by slotted lugs and is free turning so as to hang directly beneath the roller when in use. The roller handle is recessed at its lower end to receive an extension handle.

3,593,361

ADJUSTABLE PAINT-ROLLER HOLDER

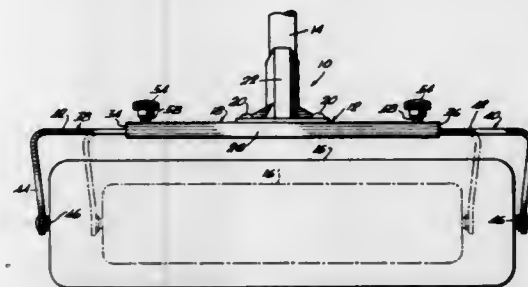
David I. Welt, 7480 S.W. 128th St., Miami, Fla.

Filed June 9, 1969, Ser. No. 831,503

Int. Cl. B44d 3/28

U.S. Cl. 15-230.11

6 Claims



An adjustable paint roller holder for removably supporting relatively large rollers, i.e., 2 feet long and 3 to 4 inches in diameter, which includes a cross frame having a hollow of rectangular cross section defining elongated rectangular trackways for receiving extendable support arms having opposed coaxial trunnions extending from the ends and between which an enlarged paint roller is journaled, this construction being adapted for use in painting floors, walls and ceiling where a two-handed manipulation is feasible and large areas are to be painted, and more particularly where different sized rollers are necessary and can be readily interchanged for different uses.

3,593,362
CONNECTING MEANS FOR WINDSHIELD WIPER
BLADE

Dario Arman, Strada Comunale Druento-Venaria, Druento, Torino, Italy

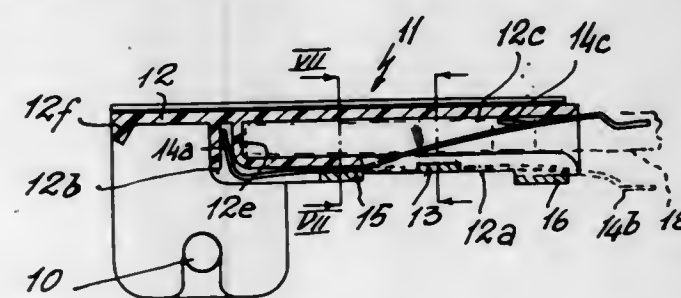
Filed Dec. 5, 1968, Ser. No. 781,544

Claims priority, application Italy, July 30, 1968, 526 38-A/68

Int. Cl. B60s 1/04; A47I 1/02

U.S. Cl. 15-250.32

1 Claim



A plastic, box-shaped element, attached to an oscillating, U-shaped support, releasably holds an automotive wiper

blade by means of a spring that has a first portion captured within the box-shaped element and a second or toothed portion that is in engagement with the wiper blade.

3,593,363

VACUUM CLEANING SYSTEM WITH HOSE PLUG-IN AND HOSE RETRACTING OUTLETS

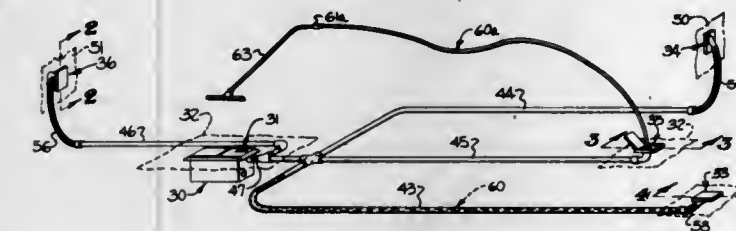
James C. Hamrick, Matthews, N.C., assignor to J. L. Products Incorporated, Matthews, N.C.

Filed Jan. 2, 1969, Ser. No. 788,376

Int. Cl. A47I 5/38

U.S. Cl. 15-315

11 Claims



A self-contained vacuum cleaner unit, having its own plug-in suction outlet receptacle, is installed in a building and has a plurality of auxiliary suction outlet receptacles connected thereto by suction conduit means. At least one of the auxiliary outlet receptacles is of the hose-retracting type, and a specially designed flexible suction hose is adapted for selective connection to the plug-in and auxiliary outlet receptacles as well as being adapted to be stored within the retracting-type auxiliary outlet receptacle and a corresponding suction conduit extending from the latter receptacle. Various forms of foot-end adapters are provided to facilitate such selective connection of the flexible hose to the plug-in and retracting types of suction outlet receptacles.

3,593,364

SPECTACLE HINGE PIN

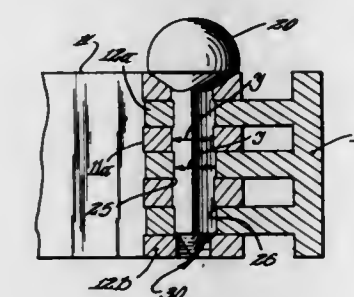
Philip J. Liautaud, Hoffman Estates, Ill., assignor to Fendall Company, Chicago, Ill.

Filed June 3, 1969, Ser. No. 829,866

Int. Cl. E05d 5/10

U.S. Cl. 16-168

4 Claims



A hinge pin constructed of solid molded plastic for assembly with conventional spectacle temple-to-frame hinges. A plastic hinge pin is provided having a peripheral interference fit with respect to the hinge plate pivot apertures and integral yieldable means to retain it in position therein. One form of the invention provides a pin having a varying peripheral diameter with a maximum diameter in excess of and in interference fit with the inner surface of the hinge barrel.

3,593,365

SPECTACLE HINGE

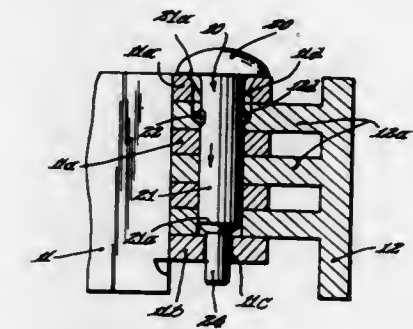
Paul D. Amundsen, Wonder Lake, Ill., assignor to Fendall Company, Chicago, Ill.

Filed June 3, 1969, Ser. No. 830,060

Int. Cl. E05d 5/10

U.S. Cl. 16-169

2 Claims



A spectacle hinge constructed of metallic components and incorporating interleaved hinge members of a relatively soft material and a hinge pin passing pivotally therebetween wherein the hinge pin is provided with means providing an interference relationship with one of the hinge members in a manner preventing inadvertent hinge disassembly following a forced insertion of the pin.

3,593,366

MULTIPLE PUNCH TOOL SET FOR POWDER COMPACTING PRESS

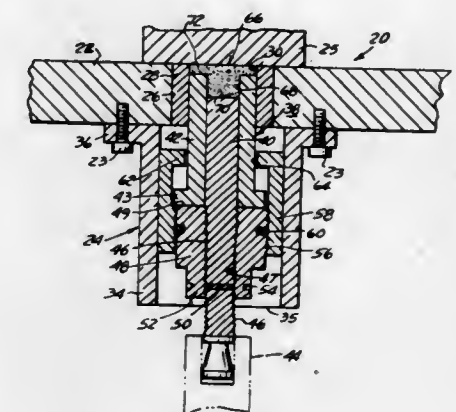
Joseph E. Smith, Birmingham, Mich., assignor to Wolverine-Pentronix, Inc., Lincoln Park, Mich.

Filed Dec. 11, 1968, Ser. No. 782,918

Int. Cl. B29c 3/00

U.S. Cl. 18-16.7

22 Claims



A tool and die set for a powder-compacting press comprising a tool capsule and a die plate having punch apertures and discharge apertures, punches for said punch apertures which may contain core rods held immovable in relation to said punches and which are lockable in position so as to be flush with the surface of said die plate and in which said punches are telescopically arranged dual punches for movement relative to each other to form shaped articles.

3,593,367

PNEUMATIC DOOR CLOSER

Russell W. Waldo, St. Paul, Minn., assignor to Ideal Security Hardware Corporation, St. Paul, Minn.

Filed Aug. 15, 1969, Ser. No. 850,578

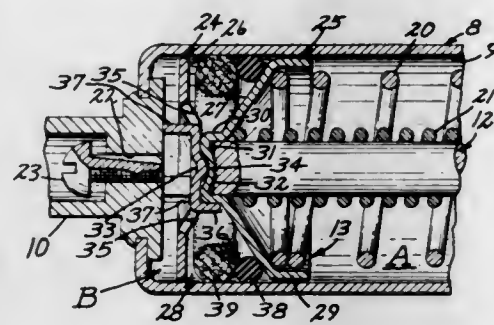
Int. Cl. E05f 3/00

U.S. Cl. 16-66

7 Claims

Piston means in a pneumatic door closer and including a body structure defining a radially outwardly opening annular channel having axially spaced sidewalls, a sealing ring movable axially toward and away from one of the sidewalls, and a porous lubricating ring disposed between the other of the sidewalls and the sealing ring. Both rings frictionally engage the cylindrical surface of an elongated casing in which the

piston means is axially movable. The piston means includes a pair of cooperating elements welded together and to the



inner end of a plunger rod which extends axially outwardly of one end of the casing.

3,593,368

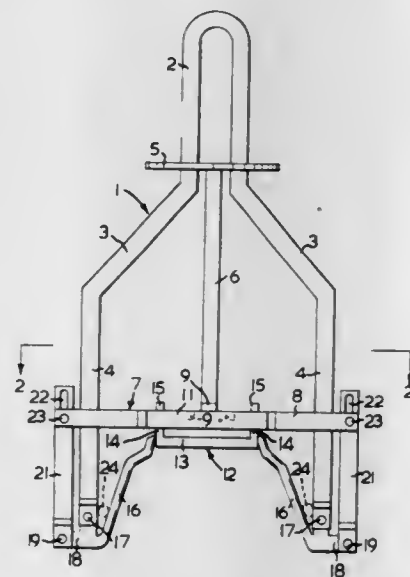
AUTOMATIC POULTRY SHACKLE

John Henry Cox, R. R. #3, Lambeth, Ontario, Canada
Filed Oct. 27, 1969, Ser. No. 869,458

Claims priority, application Canada, Oct. 28, 1968, 033,711
Int. Cl. A22c 21/00

U.S. Cl. 17-44.1

5 Claims



A poultry shackle includes a body having a pair of downwardly extending spaced legs and a pair of locking arms. Each locking arm is pivotally connected to the body. A crossmember slidably mounted on the body is connected to each locking arm by a lost-motion connection. The crossmember has a latch operable to maintain the locking arms in an upwardly extending closed position. Poultry legs can be wedged between the locking arms and the legs of the shackle. The crossmember is upwardly movable relative to the body to move the latch clear of the locking arms and, after taking up the lost motion, to cause angular movement of the locking arms away from the associated legs to an open position such that poultry is released from the shackle.

3,593,369

METHOD OF BREAKING ANIMAL CARCASSES AND HANDLING MEAT PRODUCTS

A. D. Anderson, Sioux City; Walter E. Lauridsen, South Sioux City, and Charles L. Overstreet, Sioux City, all of, Iowa, assignors to Iowa Beef Processors, Inc.

Filed Feb. 19, 1968, Ser. No. 706,557

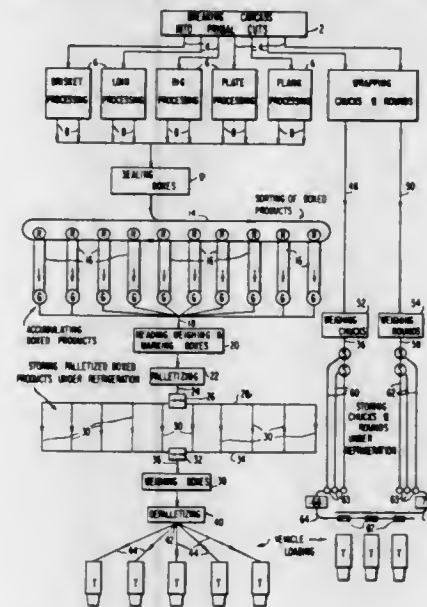
Int. Cl. A22c 17/00

U.S. Cl. 17-46

44 Claims

An integrated facility for breaking dressed animal carcasses includes a continuous flow of the carcasses and their subdivisions through a series of processing areas where the carcasses are broken into primal cuts, the primal cuts are further divided, boned and trimmed along processing lines designated for particular cuts, the secondary cuts thus produced are then trimmed and boned as necessary,

packaged and sorted according to their weight. Groups of the secondary cuts are placed in boxes which carry machine-readable markings which indicate the box contents. The filled receptacles are carried by a common conveyor to an area where they are sorted into groups according to the machine-readable markings, palletized by groups and placed on unidirectional refrigerated storage conveyors. Orders for products are filled by discharging the pallets from their respective storage conveyors, depalletizing the goods and routing the boxes to designated transport vehicles. A constant inventory of boxed products is maintained by automatically reading the markings on the boxes and weighing the boxes both before and after they pass through the storage conveyors. Large bodies of meat are advanced through a series of stations where subportions thereof are removed and deposited on conveyORIZED lines which are provided with work stations and tables specially arranged for processing the particular subportion, for example a primal cut.



Suspended carcasses are broken into primal cuts by moving them through a series of stations where portions are removed. Large portions such as forequarters of beef are transferred to a conveyor which suspends them from a pair of tongs. Beef chucks may be supported on a looped cord which passes therethrough as they are severed from the carcass. Other portions may be removed by cutting them from the carcass and permitting them to fall at the head of a conveyor which has stations therealong for cutting, trimming, packaging and weighing meat.

Tongs for suspending the meat have a pair of opposed relatively movable plates which engage opposite sides of the meat.

A method and apparatus for releasing portions of meat suspended from cords which are engaged on hooks involves movement of a pair of members toward and beyond each other, whereby one member acts as an abutment to hold the hook in a desired orientation and the other member pushes the cord and the meat from the hook.

3,593,370

METHOD OF BUTCHERING TUNA

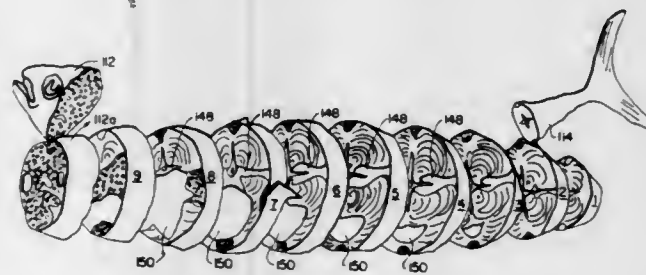
James M. Lapeyre, 13 Richmond Place, New Orleans, La.

Filed Sept. 19, 1969, Ser. No. 859,408

Int. Cl. A22c 25/14, 25/18

U.S. Cl. 17-52

10 Claims



Method of butchering frozen whole fish including the subdivision of the whole fish into a plurality of cross sections

thereof and subsequently subdividing the cross sections into frozen segments the junctures between which are along lines which are general parallel to the longitudinal axis of the fish and to the skeletal structure thereof.

3,593,371

APPARATUS FOR PRODUCING IMPROVED PELLETS OF A POWDER

Richard E. Driscoll, Monroe, La., assignor to Cities Service Company

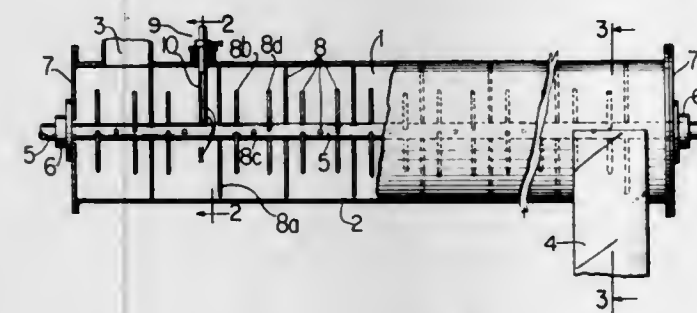
Division of Ser. No. 705,811, Feb. 15, 1968, Pat. No. 3,535,412.

Filed Nov. 28, 1968, Ser. No. 880,444

Int. Cl. B29c 23/00; B29b 1/02; R01j 2/10

U.S. Cl. 18-1 B

15 Claims



A powdered material is transformed into generally spherical pellets so that the bulk density of the material is increased while making it nicer to handle and cheaper to transport. Generally a liquid pelletizing medium is uniformly distributed throughout the cross section of a mass of the powder as it is subjected to vigorous mechanical agitation while advancing through an elongated zone of agitation.

When pelletizing carbon blacks, pellets may be produced which have novel physical characteristics as regards the mass strength to crushing strength ratio of the pellets.

3,593,372

WET-PELLETIZING APPARATUS

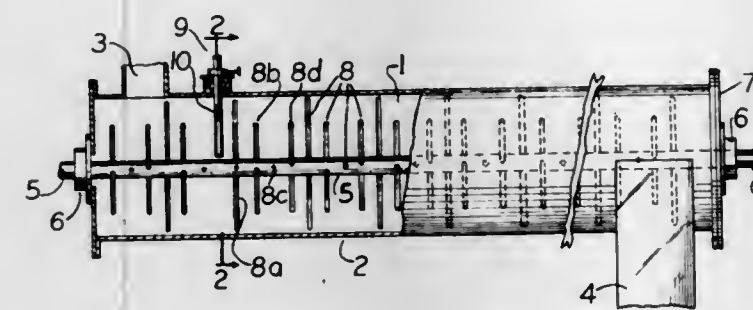
Richard E. Driscoll, Monroe, La., assignor to Cities Service Company, New York, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,031

Int. Cl. B29b 1/02

U.S. Cl. 18-1 B

5 Claims

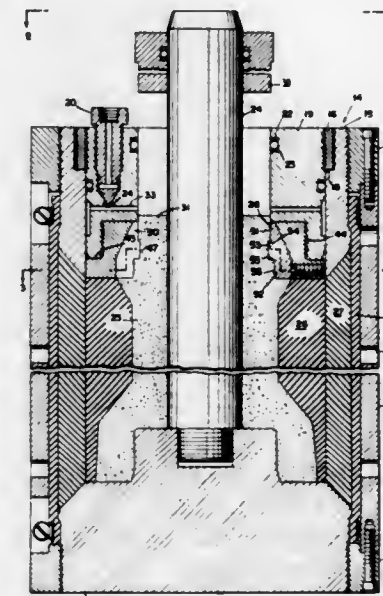


Improved wet-pelletizing apparatus having an elongated conduit wherein a bed of wetted powder particles is agitated and tumbled to form pellets. The agitation is accomplished by rotating a coaxially extending shaft which carries a multiplicity of elongated members arranged in longitudinally spaced rows along the shaft and which extend outwardly therefrom toward the wall of the conduit. A stream of liquid-pelletizing medium is injected longitudinally into the conduit from an injector oriented to provide impact with a primary row of the members in which the number of members exceeds that in subsequent rows. Better atomization, and more quick and uniform distribution of the liquid throughout the powder bed, is thereby accomplished.

3,593,373
MOLDING APPARATUS
David G. Loomis, 217 Gypsy Lane, Wynnewood, Pa.
Continuation-in-part of application Ser. No. 513,440, Dec. 13, 1965, now abandoned. This application Sept. 26, 1968, Ser. No. 776,844
Int. Cl. B30b 5/02, 11/00

U.S. Cl. 18-5 HA

3 Claims



Apparatus for dry pressing and isostatic pressing of ceramic powder to form pipe wherein a groove is provided near a pipe end by means of arcuate, metallic segments which are hydraulically pressed into the powder by flexible tooling. The adjacent portion of the pipe is formed by a punch.

3,593,374

DEVICE FOR BOTTOM-FINISHING BLOW MOLDED HOLLOW PLASTIC ARTICLES

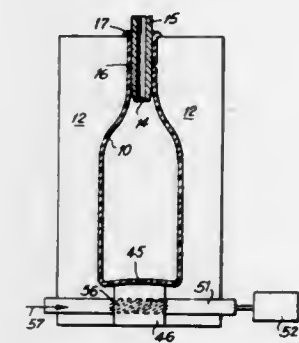
Michel Siard, Saint Adresse, and Daniel Pellerin, le Havre, both of, France, assignors to Compagnie Francaise De Rafinage, Paris, France

Continuation-in-part of application Ser. No. 614,356, Feb. 6, 1967, now Patent No. 3,487,501. This application Sept. 12, 1969, Ser. No. 857,500

Int. Cl. B29c 23/00

U.S. Cl. 18-5 BS

3 Claims



When hollow plastic articles such as bottles are blow molded in molds having a plurality of separable parts, an excess "tail" or "flash" is produced, particularly at the bottom of the bottle, by plastic materials beyond the extent of the mold cavity, which excess must be cut off or removed in finishing the articles. Here such flash removal at the bottom of the article is accomplished without hand work and while the article is still in the mold, by pinching the "flash" between a reciprocally movable and a stationary serrated surface and shearing or tearing the excess material away from the article upon movement of one serrated surface with respect to the other.

3,593,375

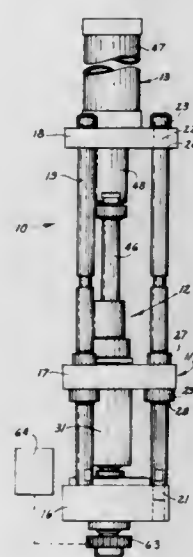
PLASTICIZING AND WORKING MACHINE

James W. Hendry, Helena, Ohio, assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Oct. 11, 1968, Ser. No. 766,926

Int. Cl. B29f 3/00

U.S. Cl. 18-12



A plasticizing machine including therein a rotatable plasticizing spinner. The spinner includes a tapered portion against which plastic material is urged under a positive pressure to effect an initial heating thereof. The base of the tapered portion is connected to a working portion which comprises an elongated cylindrical member having a plurality of axially spaced, annular ridges thereon. The working portion is surrounded by a substantially cylindrical housing so as to define a passage therebetween having a plurality of axially spaced gaps of small radial extent whereby the material passing through the gaps is folded and mixed.

3,593,376

APPARATUS FOR MAKING MULTIPLE-IMAGE ELECTROTYPE MOLDS

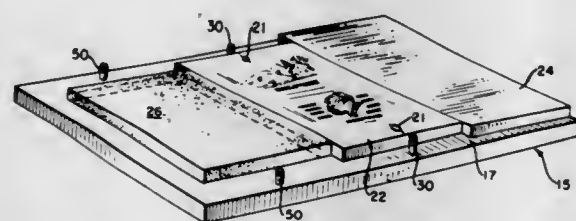
Laurence J. Kisker, Lancaster, and William G. Mathewson, Tonawanda, both of, N.Y., assignors to J.W. Clement Company, Depew, N.Y.

Filed Apr. 4, 1968, Ser. No. 718,712

Int. Cl. B29c 3/00

U.S. Cl. 18-16 R

3 Claims



A method and apparatus for preparing multi-image matrices for printing plates from photoengravings or the like in the black-white and multicolor printing industries; featuring use of a thermoplastic mold sheet impressed successively at adjacent areas thereof against a single engraving, to produce a multi-image mold. The apparatus includes mold register guide-forming means functioning automatically to precisely register the mold sheet as it is shifted from one impression operation to another. Also, the apparatus features means for insulating each previously made image impression against resoftening and/or deformation incidental to subsequent processing of the mold sheet in the mold press.

3,593,377

CONTAINER REMOVAL APPARATUS

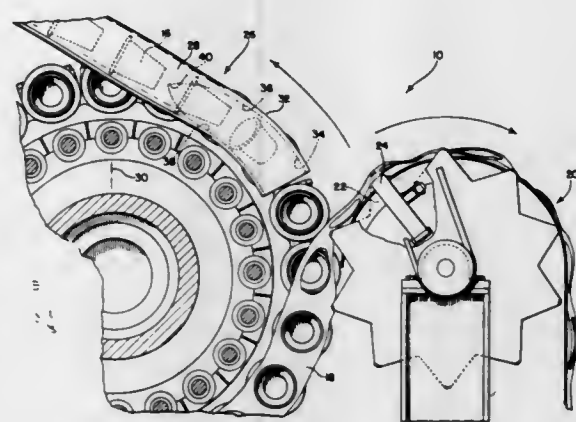
Bryant Edwards, Clarendon Hills, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed Nov. 12, 1969, Ser. No. 875,881

Int. Cl. B29c 17/00

U.S. Cl. 18-20 RR

5 Claims



In a continuous-motion container-molding machine including a plurality of continuously rotating male and female mold elements which form disposable plastic containers from a heated web of thermoplastic material, there is provided a hollow container ejector tube which is configured and designed relative to the female mold elements to permit the rapid entry of containers from the female mold elements and transfer of the containers to a collecting station.

3,593,378

BRIQUETTING PRESS

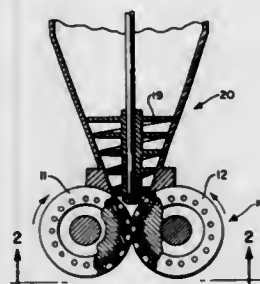
William J. Mettraller, Baton Rouge, La., assignor to Esso Research and Engineering Company

Filed Sept. 3, 1968, Ser. No. 756,868

Int. Cl. B29c 3/02

U.S. Cl. 18-21

4 Claims



A roll-type press for compressing particulate metal powders, especially ferrous metal powders such as produced in direct iron ore reduction processes, to provide series, or strings, of readily separable briquettes as articles of manufacture. The mold pockets in the faces of the two cooperating rolls are so arranged that they partially overlap as the pockets of one roll come into contact with the pockets of the other. The overlapping section, or junctures, of the compacted briquettes are less densely compacted than those conventionally produced so that the individual briquettes of the issuing series can be readily broken apart. Moreover, forces are generated which aid in the release of the briquettes from the mold pockets.

3,593,379

PLASTICIZING AND WORKING MACHINE

James W. Hendry, Helena, Ohio, assignor to Borg-Warner Corporation, Chicago, Ill.

Continuation-in-part of application Ser. No. 766,926, Oct. 11, 1968. This application Apr. 10, 1969, Ser. No. 814,898

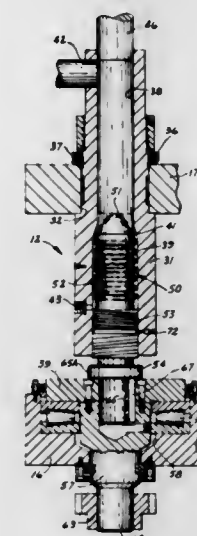
Int. Cl. B29f 1/00

U.S. Cl. 18-30 SR

17 Claims

A plasticizing machine including therein a rotatable plasticizing spinner. The plasticizing spinner includes a working portion which comprises an elongated cylindrical

member having a plurality of axially spaced, annular ridges thereon. The working portion is surrounded by a substantially cylindrical housing to define a passage therebetween



having a plurality of axially spaced gaps of small radial extent whereby plastic material passing through the gaps is folded and mixed.

3,593,380

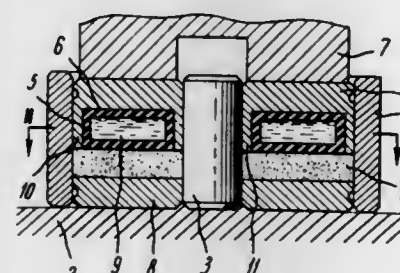
MOLDING PLATE OF A PRESS MOLD FOR MAKING ARTICLES OF BLANKS OF LOOSE MATERIALS
Sergel Georgievich Voronov, Vyborgskaya naberezhnaya, 13, kv. 13, Leningrad, and Vladimir Dmitrievich Yashin, Leningradskoi oblasti, ulitsa, Narvskaya 14, Luga, both of, U.S.S.R.

Filed Dec. 12, 1968, Ser. No. 783,225

Int. Cl. B26b 19/38

U.S. Cl. 18-34 R

4 Claims



A mold plate for a press mold utilized to form articles, such as grinding wheels or the like, from loose material, including a mold plate having a recess portion adapted to receive a resilient fluid-filled receptacle. The fluid-filled receptacle facilitates the application of uniform pressure across the material it contacts during the compression of the latter.

3,593,381

MULTIPLE-CAVITY MOLD FOR PRODUCING FLASH-FREE PARTS

Robert W. Ogle, Newport Beach, Calif., assignor to IMS Ltd., Wilmington, Del.

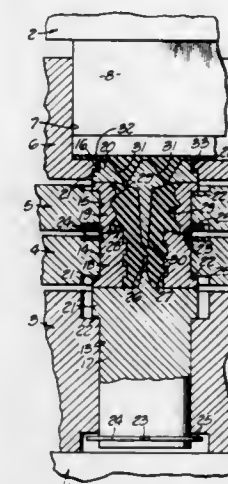
Filed Apr. 10, 1968, Ser. No. 720,186

Int. Cl. B29c 3/04

U.S. Cl. 18-36

3 Claims

A means wherein a plurality of mold units, each comprising two or more stacked mold bodies, each of which is held and positioned by a carrier plate in coaxial relation to the other mold bodies. The carrier plates permitting limited axial movement of the mold bodies, thereby to permit stacking of the mold bodies in abutting relation irrespective of difference



material so that the force thereof presses all of the mold bodies of each mold unit into flash free relations.

3,593,382

APPARATUS FOR MAKING PERIPHERAL GRINDING WHEEL

Harold C. Miller, Chicago, Ill., assignor to Super-Cut, Inc., Chicago, Ill.

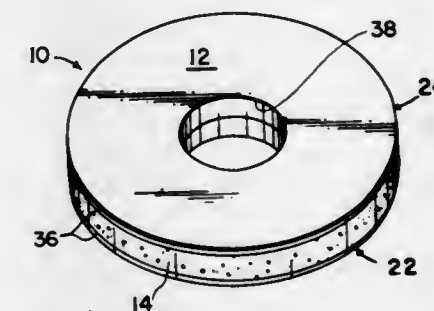
Division of Ser. No. 690,201, Dec. 13, 1967, Pat. No. 3,522,676

Filed Sept. 16, 1969, Ser. No. 858,473

Int. Cl. B29c 3/00

U.S. Cl. 18-42R

5 Claims



Apparatus for making an internally reinforced peripheral grinding wheel and by means of which radial pressure is applied outwardly to a mold mixture confined within an annular ring in the presence of heat.

3,593,383

HEAT-SHRINKABLE CABLE TIE

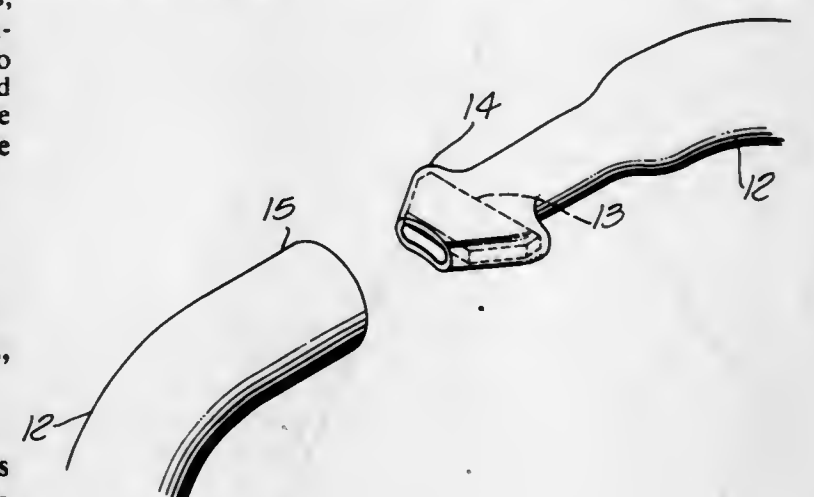
Roger H. Ellis, Atherton, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed Nov. 13, 1968, Ser. No. 775,296

Int. Cl. B65d 63/00

U.S. Cl. 24-16 PB

5 Claims



A tie for use with cables, wire bundles, or the like the differing sizes fabricated from heat-recoverable tubing which is

expanded in both the diametrical and longitudinal directions. An insert is positioned in one end of the tubing and this end of the tubing is telescoped within the other end. Upon recovery, the shrinkage of the material causes both the two ends of the tubing to be held together and the wire bundle to be secured.

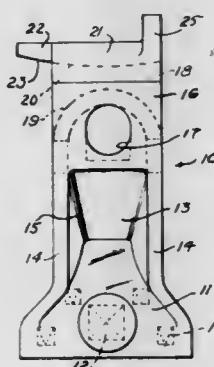
3,593,384

GUY HOOK FOR UTILITY LINE POLES

Owen R. Huggins, 136 West Ave., Darien, Colo.
Filed Apr. 7, 1969, Ser. No. 813,931
Int. Cl. F16g 11/00

U.S. Cl. 24-115

7 Claims



A guy and strand hook for mounting on utility poles including a hub portion having an asymmetrical guy wire loop-retaining portion such as a rearwardly facing groove channel or seat, and a laterally extending lug overlying one end of the channel and a vertical lug overlying the other end of the channel.

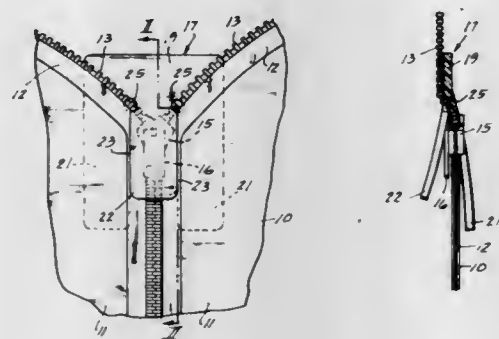
3,593,385

SLIDE FASTENER TAB PROTECTOR

Harry S. Shubart, 319 Kedzie, Evanston, Ill.
Filed Jan. 21, 1970, Ser. No. 4,694
Int. Cl. A44b 19/26

U.S. Cl. 24-205.15

10 Claims



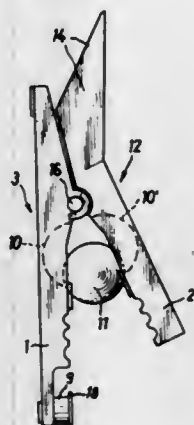
Protector for the tabs of slide fasteners during cleaning of garments having slide fastener closures. The protector is in the form of a sheet of relatively thick resilient plastic material having parallel slits open to one end of the sheet and extending for a part of the length of the sheet and forming parallel outer legs and an inner tab protector. The slits are pulled along the stringers and teeth of the fastener by grasping the inner tab protector, until the ends of the slits are in engagement with the teeth of the fastener, with the legs on the inner side of the garment and fastener and the inner tab protector extending over and protecting the tab of the fastener.

3,593,386

CLAMP

August Hug, 29 Zurcherstrasse, St. Gallen, Switzerland
Filed Dec. 1, 1969, Ser. No. 881,138
Claims priority, application Switzerland, Dec. 5, 1968, 18,326
Int. Cl. A44b 21/00; D06f 55/02
U.S. Cl. 24-137

6 Claims



A clamp having two hingedly connected clamp portions each provided with a clamp jaw urged into clamping position by spring means is particularly used as a clothes hanger. The two clamp portions are provided with oppositely arranged hemispherical recesses adapted to contain a spherical locking body when the clamp is in closed position. When the clamp is opened by hand the spherical locking body moves out of said hemispherical recesses, preferably by gravity, into two opposite recesses of smaller depth to hold the clamp jaws in open position. When introducing a piece of clothing or other article between the open clamp jaws, this article is pushed against the locking sphere and moves this latter back to inactive position, while said spring means close the jaws upon the article.

3,593,387

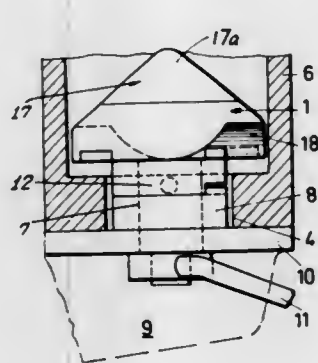
ARTICLE-SECURING DEVICE

Theodor Georgi, Appenzell-St. Gallen, Switzerland, assignor to Firma Jost-Werke G.m.b.H., Frankfurt/Main, Germany
Filed Mar. 25, 1969, Ser. No. 810,117
Claims priority, application Germany, Apr. 2, 1968, P 17 55 130.3

U.S. Cl. 24-221

Int. Cl. A44b 17/00

6 Claims



A device for holding a container or the like to a mounting base of a supporting base, located within another container, for example, includes a bolt member which is mounted for rotation on the base plate and which may be operated by a hand lever extending outwardly therefrom. The upper end of the bolt is provided with a widened head portion of oblong configuration having a long end which is normally oriented so that it will align with a long end of a socket or receiving member which is defined at the lower end of the container or article to be anchored. The head portion advantageously comprises two parts including an upper head and a lower disc shaped part having end faces which are congruent to the underside of the upper part. The lower part is advantageously

rotatably mounted on the pin but includes a surface which frictionally engages the pin. Rotation of the hand lever after the oblong outline of the head portion is aligned with the receiving slot of the socket of the article to be fixed will pivot the bolt with the oblong head within the socket receiving portion so that the oblong portion extends across the receiving slot and anchors the article to the supporting base. The lower part of the head will pivot with the bolt only if the wall bordering the socket slot is thin enough so that it will not block its pivoting. If the wall is thicker it will block the lower part so that only the upper part will move with the bolt.

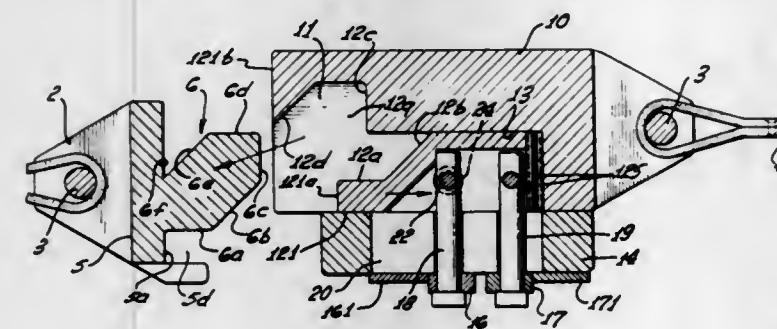
3,593,388

CANOPY BUCKLE

Jan R. Coyle, P.O. Box 297, Milford, Utah
Filed Apr. 22, 1968, Ser. No. 722,969
Int. Cl. A44b 11/25

U.S. Cl. 24-230

18 Claims



A failure safe buckle in which a lug of a male buckle part is captured in a recess of a female buckle part by a latch slide, the latch slide being releasably locked in a position overlying the recess and engaged with the lug. Such a buckle in which the lock mechanism includes relatively movable parts biased to locking positions to lock the latch slide against movement, the relatively movable parts requiring simultaneous opposite movement to permit shifting of the latch slide to a position releasing the lug.

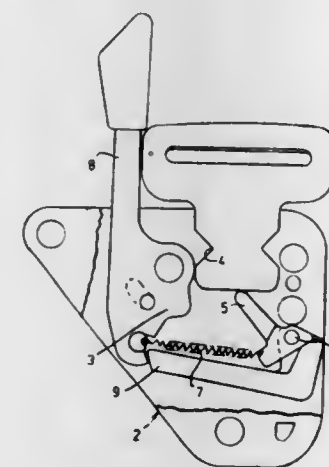
3,593,389

BUCKLES FOR SAFETY SEAT BELTS

Harry M. Nygren, Monstera, Sweden, assignor to AB Industrijadarr, Monstera, Sweden
Filed June 24, 1968, Ser. No. 739,468
Claims priority, application Sweden, June 28, 1967, 9378/67
Int. Cl. A44b 11/25

U.S. Cl. 24-230

2 Claims



A buckle for safety seat belts in vehicles comprises a locking tongue and a locking housing. The housing has a spring-loaded operating arm with a locking member which is arranged to engage the locking tongue in the position thereof when inserted in the locking housing. Further, the locking housing has a spring-loaded cam which tends to push the locking tongue out of the housing from the position therein.

The cam coacts with a latch which blocks the operating arm in the open position of the buckle. The cam, however, is adapted to release the latch when the locking tongue occupies its position in the locking housing.

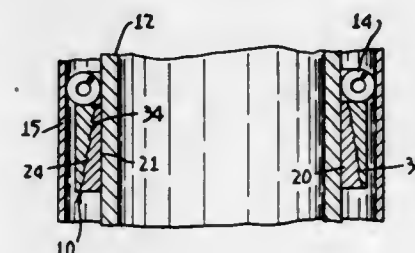
3,593,390

SELF-LOCKING WEDGE RING SUPPORT

Michel Pettigrew, Forest Hall, Deep River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed June 3, 1968, Ser. No. 734,034
Int. Cl. F16d 1/06

U.S. Cl. 24-263

2 Claims



A self-locking wedge ring assembly supporting a spacer element on a tube or on an inner one of a pair of concentric tubes such as the pressure tube of a nuclear reactor. The wedge ring assembly includes inner and outer rings having mating tapered surfaces, the inner ring being split to allow for diametrical variations of the pressure tube.

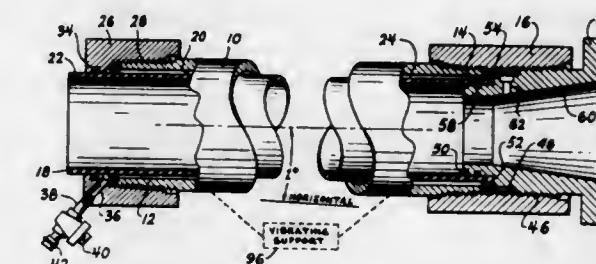
3,593,391

APPARATUS FOR LINING A PIPE

Benjamin I. Routh, Great Bend, Kans., assignor to Rice Engineering & Operating, Inc., Great Bend, Kans.
Division of Ser. No. 544,623, Apr. 22, 1966, Pat. No. 3,482,007
Filed July 17, 1969, Ser. No. 857,256
Int. Cl. B28b 21/42

U.S. Cl. 25-38

5 Claims



Apparatus for lining a pipe section with a plastic tube mounted within the pipe in concentric relation therewith, said plastic tube being longer than said pipe section and having an outer diameter less than the bore of said pipe section so as to form an annular space therewith for substantially the full length of said pipe section, a first head engaging one end of said pipe section and said tube, a second head engaging the other end of said pipe section and said tube, said first and second heads supporting said tube in concentric relation with respect to said pipe section, said heads also constituting sealing means for closing the ends of said annular space adjacent the ends of said pipe section, said first head being provided with a first port communicating with said annular space and with the atmosphere, said second head having a second port communicating with said annular space and the atmosphere, and means for introducing a cement slurry under pressure into said annular space through one of said ports so as to fill said annular space.

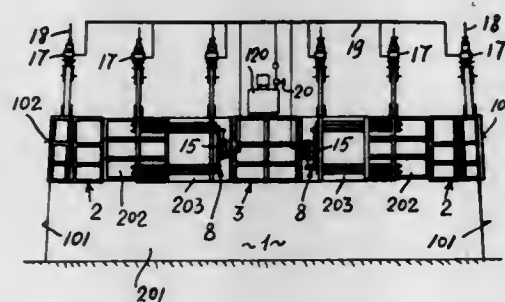
3,593,392

CONCRETE CASTING SHUTTERING

Guido Lambertini, 112, Via Saragozza, Bologna, Italy
Filed Oct. 7, 1968, Ser. No. 765,492Claims priority, application Italy, Oct. 10, 1967, July 31,
1968, 814223; 7210 A/68
Int. Cl. B28b 7/02

U.S. Cl. 25-131

8 Claims



Successively raisable shuttering for the casting of upwardly or downwardly tapering concrete structures, comprising two mutually opposed and horizontally displaceable form portions for forming the tapering surfaces of the structure, which are interconnected by a mechanism coupled to a raising system for the shuttering so that the form portions are displaced inwardly or outwardly by a predetermined amount during each raising step of the raising system.

3,593,393

METHOD OF TREATING WASTE MATERIAL

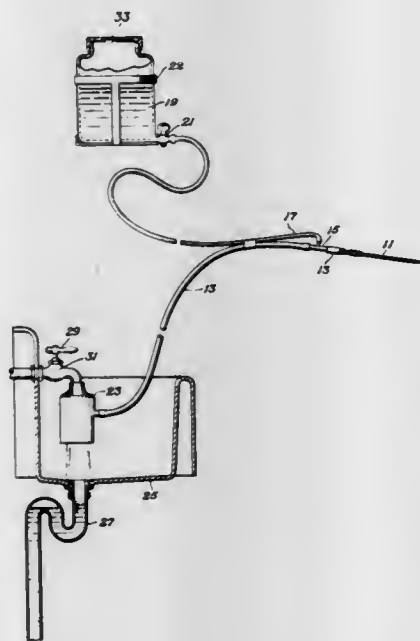
George G. Ware, 609 S. Lake St., Forth Worth, Tex.

Filed Jan. 15, 1969, Ser. No. 791,264

Int. Cl. A01n 1/00

U.S. Cl. 27-24 R

4 Claims



This specification discloses method and apparatus for treating waste material; such as, that from a dead body containing living organisms that are likely to be dangerous; characterized by injecting a substance into a closed conduit near the point where the waste material is removed from the body and circulating the admixture of the toxic substance and the waste material through a closed conduit for a sufficient period for the toxic substance to kill the living organisms. Thereafter, the admixture is discharged into a waste disposal means; such as, a sink and its drain line.

3,593,394

APPARATUS HAVING IMPROVED CONTROL MEANS FOR PRODUCING NONWOVEN FABRICS

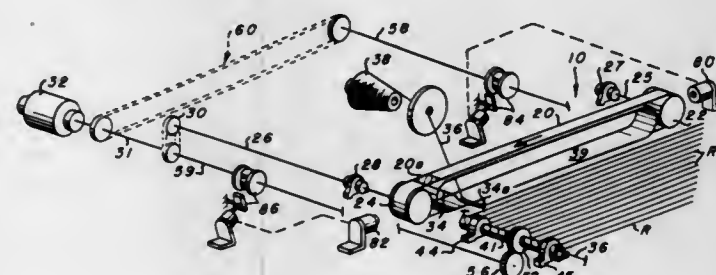
Milton M. Bolles, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Nov. 5, 1969, Ser. No. 874,121

Int. Cl. D02g 3/00; D04h 3/02

U.S. Cl. 28-1

14 Claims



Apparatus for producing nonwoven net fabrics composed of adhered warp and weft thread sheets, including means for winding a continuous weft thread around thread support means to form a plurality of thread sections which are advanced in generally spaced parallel relation to form the weft sheet, and means operatively associated with the winding means for sensing a predetermined condition and for advancing the thread sections in response thereto to facilitate uniform positioning of the thread sections in the weft sheet.

3,593,395

STRAND TREATMENT

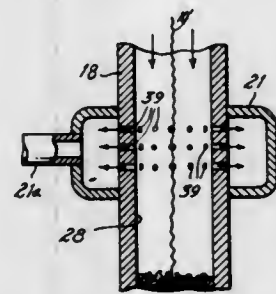
Robert K. Stanley, 620 Meadowvale Lane, Media, Pa.

Filed Apr. 28, 1969, Ser. No. 819,824

Int. Cl. D02g 1/12

U.S. Cl. 28-72.14

15 Claims



Textile strand compressively crimped, as by stuffer crimping, is withdrawn longitudinally from a compact accumulation thereof in a laterally confining region through a counter-current flow of gaseous fluid.

3,593,396

METHODS OF MAKING CONVERGENCE CUP ELECTRODES BY AFFIXING SHIELDS TO INNER CYLINDER WALLS

Jay H. Johnson, Owensboro, Ky., assignor to Kentucky Electronics, Inc., Owensboro, Ky.

Division of Ser. No. 788,777, Jan. 3, 1969, Pat. No. 3,513,479, which is a continuation-in-part of application Ser. No. 633,822, Apr. 26, 1967, now Patent No. 3,441,769.

Filed Mar. 9, 1970, Ser. No. 17,756

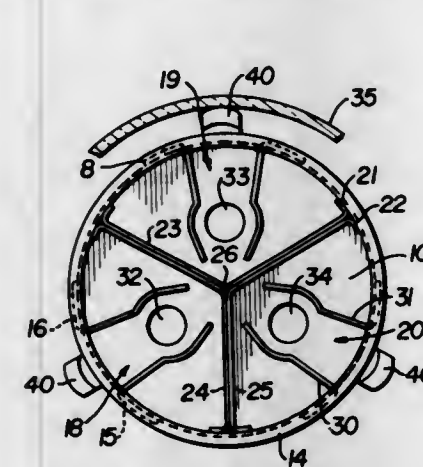
Int. Cl. H01j 9/18, 9/36

U.S. Cl. 29-25.16

4 Claims

Methods are disclosed for making cylindrical cup electrodes for three-gun color picture tubes having internally mounted shield inserts of magnetic material affixed to the inner walls of the cup. The upper rim of the cup is kept intact and may be flanged outwards to improve roundness after

apertures are formed in the cup sidewalls. Apertures in the the carbon fibers and the compatibility of the polymeric cup walls are confined to those required for magnetic pole matrix therewith cooperate to permit the construction of



pieces extending into said cup comprising three pairs of slits in the sidewalls of the cup.

3,593,397

TEST STAND ROLLER

Jean Odier, Antony, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

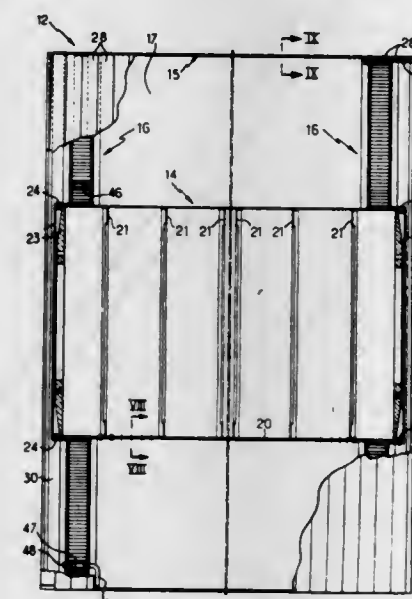
Filed May 13, 1969, Ser. No. 824,240

Claims priority, application France, May 20, 1968, 152 438

Int. Cl. B21b 31/08

U.S. Cl. 29-130

17 Claims



The invention relates to a roller having a case preferably of metal intended in particular for use in the stationary testing of a self-propelled vehicle. This roller has a gastight enclosure, formed between an outer cylindrical rolling or bearing wall, an inner cylindrical wall coaxial with the first wall, and two annular sealing flanges extending from one wall to the other at the extremities of the walls, the said enclosure may be pressurized in relation to the surrounding atmosphere.

3,593,398

RELATIVELY LONG MACHINERY ROLL HAVING HIGH STRENGTH-TO-WEIGHT RATIO

Ralph A. Hess, Medfield, Mass., and James P. McNamee, Pawtucket, R.I., assignors to S W Industries, Inc., Newton, Mass.

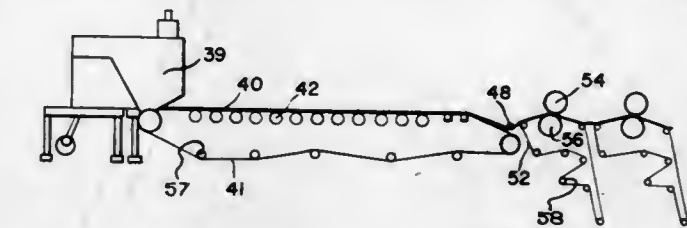
Filed Sept. 11, 1969, Ser. No. 857,186

Int. Cl. B21b 31/08

U.S. Cl. 29-132

14 Claims

A machinery roll, particularly for use in papermaking machinery, has a mandrel, characteristically composed of a two-phase system having an external phase containing a synthetic polymeric matrix and an internal phase containing aligned continuous carbon fibers. The high tensile strength of



relatively long thin rolls which, for example in papermaking machines, enable wider construction and higher speed operation.

3,593,399

METHOD OF MAKING A ROD END BEARING

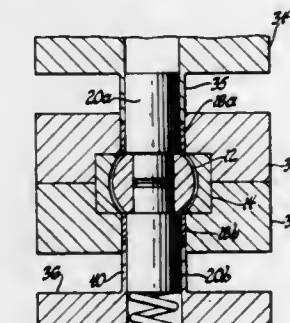
George I. Bannister, Orange, Calif., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed Dec. 11, 1969, Ser. No. 884,297

Int. Cl. B23p 11/00

U.S. Cl. 29-149.5 B

3 Claims



A method for making spherical rod end bearings comprising pressing a right cylindrical bushing into a radially uniform semispherical clearance between a ball and a bearing retainer or banjo. A single or double bushing may be used. A new bushing may be used to eject an old one. The retainer is preferably provided with axially oriented annular flats adjacent the opposite ends thereof to lock the bushing into place.

3,593,400

METHOD OF FORMING A BUTTERFLY VALVE

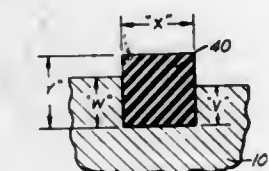
Donald L. Geiselman, and Frederick T. Newell, both of Bradford, Pa., assignors to Dresser Industries, Inc., Dallas, Tex. Continuation-in-part of application Ser. No. 604,090, Oct. 31, 1966, now Patent No. 3,420,500, and a division of Ser. No. 631,255, Apr. 17, 1967, Pat. No. 3,525,499.

Filed Aug. 18, 1969, Ser. No. 862,577

Int. Cl. B23p 15/26, 17/00; B23k 19/00

U.S. Cl. 29-157.1 R

6 Claims



A butterfly valve in which the seat is formed of a stainless steel ring fused to the valve body by casting the body about the prepositioned ring prior to the finished machining thereof.

3,593,401

ECCENTRIC TOOL

Chirco, Peter R., Utica, Mich., assignor to Huck Manufacturing Company, Detroit, Mich.

Filed Feb. 14, 1969, Ser. No. 799,250

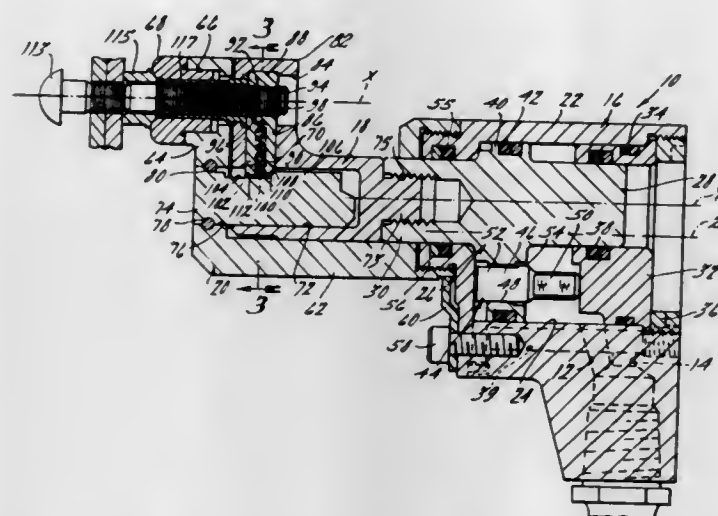
Int. Cl. B23p 19/00

U.S. Cl. 29-200 R

7 Claims

A tool for setting fasteners of the two-piece type, i.e., such as a lock bolt including a pin and a collar adapted to be swaged thereon, and having an anvil for swagging the collar

onto the pin and including gripping means in line with the anvil for gripping the pin whereby a relative axial force can be applied between the anvil and the gripping means to effect-



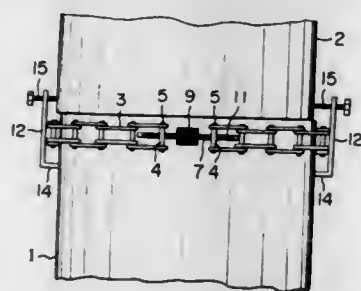
actuate the swagging with the relative axial force being applied on a line eccentric from the axis of the anvil and the gripping means whereby clearance is provided.

3,593,402

APPARATUS FOR ALIGNING THE ENDS OF CYLINDRICAL SECTIONS TO BE JOINED
Masunori Mori, No. 5 Nozaki 21, Wakayama, Japan
Filed Aug. 11, 1969, Ser. No. 849,094
Claims priority, application Japan, Aug. 19, 1968, Sept. 25, 1968, 43/59079; 43/69265
Int. Cl. B23p 19/00

U.S. Cl. 29-200 P

6 Claims

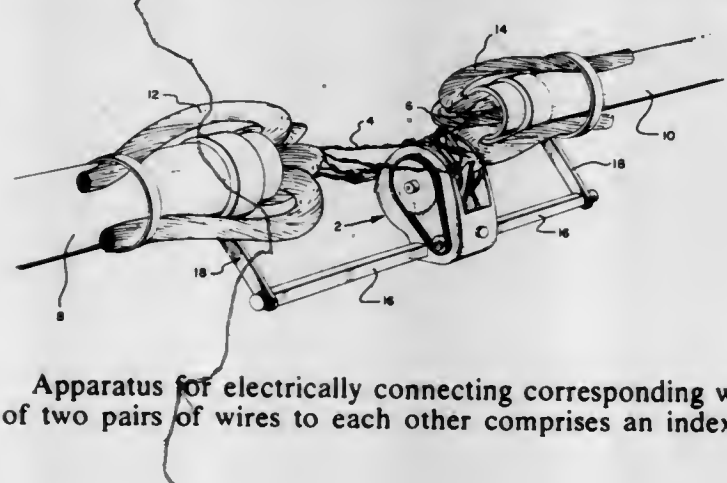


Apparatus for aligning two cylindrical members includes a roller chain wrapped around one of the cylindrical members and a plurality of plates secured to the roller chain. Tightening of the roller chain causes one end of the plates to bear against the second cylindrical member and align it with the first cylindrical member.

3,593,403

APPARATUS FOR SPLICING CABLES CONTAINING PAIRS OF CONDUCTORS
Grey Manning Gurley, Clearwater, Fla., assignor to A.M.P. Incorporated, Harrisburg, Pa.
Filed Mar. 14, 1969, Ser. No. 807,300
Int. Cl. H01r 43/04; H05k 13/00
U.S. Cl. 29-203

17 Claims



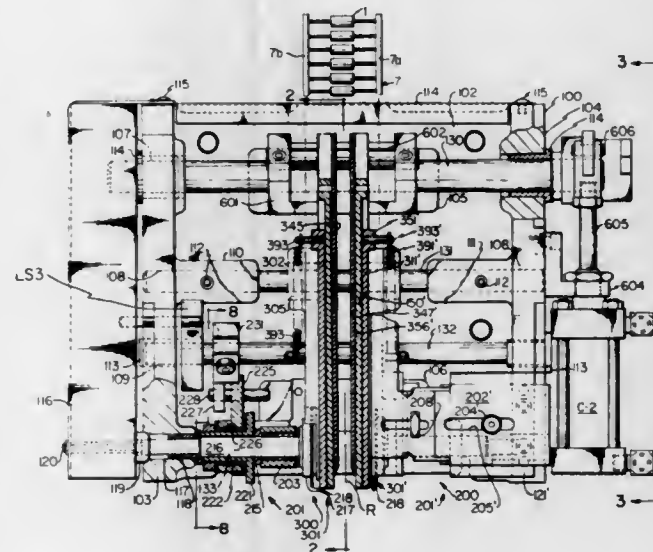
Apparatus for electrically connecting corresponding wires of two pairs of wires to each other comprises an indexible

shaft having means at each end for receiving a pair of wires and trimming means intermediate its ends for trimming the wire ends. A dual-connector device is supported in parallel-spaced relationship to the shaft and in a position to receive the trimmed wires. Means are provided on each side of the trimming means for separating the wires of the pairs and subsequently pushing them into the connector device. The connector device comprises two side-by-side separate connectors which are insulated from each other and which are held in a single insulating sheath.

3,593,404

MULTISIZE DUAL CENTER DISTANCE ELECTRONIC COMPONENT INSERTION MACHINE
Phillip A. Ragard, Binghamton, N.Y., assignor to Universal Instruments Corporation, Binghamton, N.Y.
Filed Nov. 14, 1969, Ser. No. 876,726
Int. Cl. H05k 13/04; H01r 43/04; B27f 27/06
U.S. Cl. 29-203 B

17 Claims

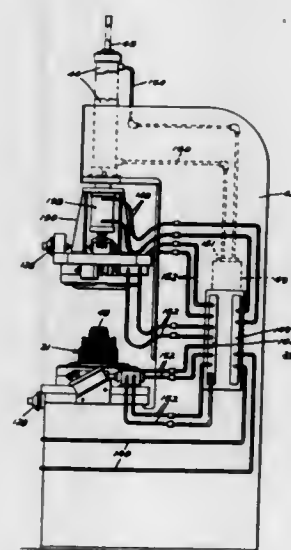


An electronic component insertion apparatus having an insertion head assembly automatically adjustable to accommodate axial lead components having body portions of variable diameter and lengths. The apparatus includes lead end cutters and bending assemblies and spacing means therefor with integrated control means operable to actuate the spacing means to provide two predetermined spacing settings for the varying size components.

3,593,405

APPARATUS FOR FORMING WINDING END TURNS
George G. Hahn, Fort Wayne, Ind., assignor to General Electric Company
Filed Sept. 5, 1969, Ser. No. 855,720
Int. Cl. H02k 15/06
U.S. Cl. 29-205 D

14 Claims



An apparatus for forming magnetic core winding end turn assemblies includes a center-mounting member to receive the

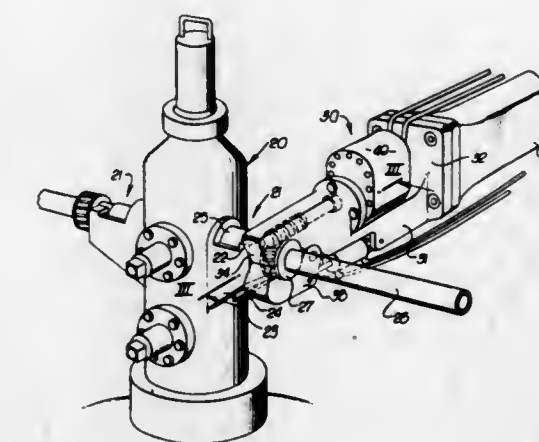
3,593,408

APPARATUS AND METHOD OF MAKING UNDERWATER PIPE CONNECTIONS

Raymond W. Walker, Huntington Beach, Calif., assignor to Deep Oil Technology, Inc., Long Beach, Calif.
Filed Nov. 26, 1968, Ser. No. 779,004
Int. Cl. B23p 19/00, 19/04

U.S. Cl. 29-429

9 Claims



cores thereabout. Arcuate outer jaws are positioned to be outside the end turn assembly and arcuate inner jaws are positioned to be inside the end turn assembly. The jaws are connected to cams outside the end turn assembly, the inner jaws by arms positioned axially beyond the end turn assembly, which are actuated for moving the jaws toward each other to confine the end turn assembly. A forming ring is movable relative to the core between the jaws for applying a compressive force on the end turn assembly to form the assembly into a compact mass. There is a stop, movable relative to the forming ring for regulating the amount of movement of the forming ring. The apparatus has two forming units, each having inner jaws, outer jaws and a forming ring. One forming unit is axially movable relative to the center-mounting member to allow insertion and removal of cores.

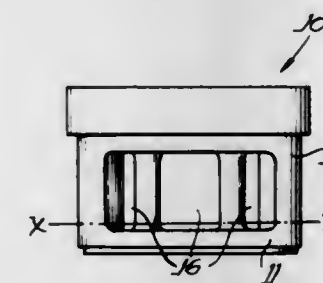
3,593,406

METHOD OF RECONSTRUCTION OF DIESEL CYLINDER HEADS

Robert H. Jones, Jr., and Richard B. Jones, both of c/o J & J Casting, Inc., R. R. #1, Box 267, Hibbing, Minn.
Filed Sept. 25, 1969, Ser. No. 861,005
Int. Cl. B23d 19/10; B23p 7/00

U.S. Cl. 29-401

9 Claims



A method of reconstructing worn cylinder heads, where only the inner face of the cylinder head forming a portion of a cylinder for a piston exhibits wear, including the steps of severing the worn portion from the remainder of the cylinder head, providing a new casting to be substituted for the worn portion, preparing the abutting surfaces of the unworn portion of the cylinder head and the new casting, applying a suitable flux to the surfaces, inserting a brazing alloy gasket of a configuration of the cross section of the cylinder head at the line of severance, aligning the parts together, heating the parts and brazing alloy to approximately 1,325° F. for approximately 2 hours, and slowly cooling the bonded parts.

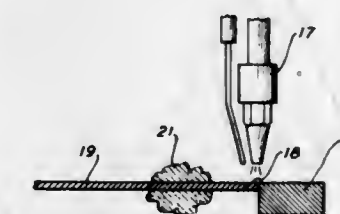
3,593,409

METHOD FOR INHIBITING SPREAD OF HEAT UTILIZING BENTONITE

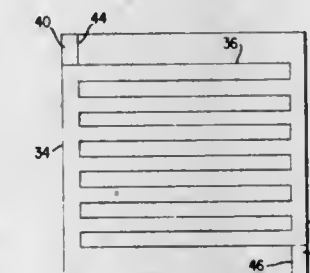
Joseph J. Silverstein, Woodmere, N.Y., assignor to The Ore-Lube Corporation, College Point, N.Y.
Filed June 11, 1969, Ser. No. 832,071
Int. Cl. B23k 1/20, 31/02

U.S. Cl. 29-488

10 Claims



A process for preventing the spread of heat to areas adjacent a portion of a member being subjected to heat, as by gas torch, electric arc or the like. The process includes the application of a paste comprising a water swollen bentonite clay to areas adjacent the zone to be heated, and/or the application of a paste as a temporary protective covering for adjacent objects to be protected from radiation or direct flame contact. The water swollen bentonite acts as a water curtain to absorb the heat. When it is applied adjacent the heated zone of a member, it prevents conduction of heat to other portions of the member which might otherwise be subject to distortion and/or other damage. When applied as a temporary protective covering to adjacent objects, it prevents the covered objects from reaching ignition temperature or otherwise being damaged due to flames or radiation impinging thereagainst.



METHOD OF MAKING A PALLET
Dwight C. Brown, 414 N. Granada St., Arlington, Va.
Filed Nov. 7, 1968, Ser. No. 774,020
Int. Cl. B23p 17/00

U.S. Cl. 29-416

9 Claims

A method for making a pallet and the pallet produced by cutting a piece of solid sheet material and using the cut portion and remaining portion of said solid sheet as two separate pallet decks of substantially the same dimension as the original solid piece.

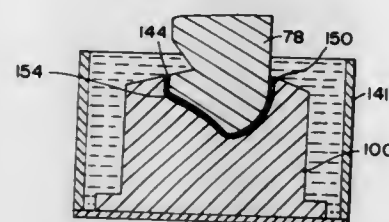
3,593,410

METHOD FOR CASTING AND FINISHING TOOLS OR DIES

Robert A. Taylor, 6599 Osage St., Allen Park, Mich.
Filed Nov. 21, 1967, Ser. No. 684,763
Int. Cl. B23p 13/04

U.S. Cl. 29—557

7 Claims



Male and female members are matched and fitted together in order to remove any protuberances. The die members are mounted in a vibrating machine where the matching surface of one die member is chemically treated with an active solution such as copper sulfate to chemically alter the matching surface to a predetermined depth. Abrasive grains or grits are also interposed in the solution between the matching surfaces of the die members. The relative movement between the die members caused by the vibration of the machine results in the abrasive grains scratching the chemically altered surface at the points or areas of contact. Thus by mechanically abrading and chemically altering such areas an extremely high-quality level of tool and die spotting or matching is obtained.

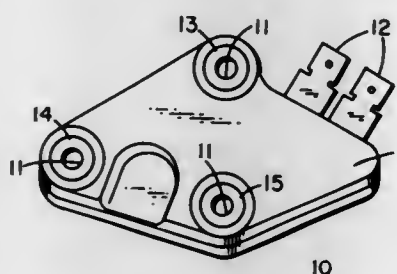
3,593,411

UNITIZED ASSEMBLY PLASTIC ENCAPSULATION PROVIDING OUTWARDLY FACING NONPLASTIC SURFACES

Thomas A. Dunn, Mesa, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Division of Ser. No. 693,611, Dec. 26, 1967. This application
Dec. 3, 1968, Ser. No. 780,777
Int. Cl. B01j 17/00; H01l 1/10

U.S. Cl. 29—588

5 Claims



A method for plastic molding an electrical assembly having a plurality of upstanding tubular members with predetermined peripheral deformations. During molding operations, the tubular members are further deformed by pressures between two facing die parts such that tolerance of the thickness of the final assembly is less than the sum of the tolerances of the individual parts. The tubular members have radially extending surfaces forming electrical contacts along one surface of the assembly. Another metal plate attached to the tubular members forms substantially the opposite surface for providing a good heat sink connection. The tubular members are spaced peripherally of the metal plate such that mold pressures are evenly applied along the plate for preventing plastic encapsulating material from seeping over the plate. Portions of the plate may extend outwardly from the tubular members with the provision of a rigidizing and apertured deformation in the base plate for preventing flexure of the plate in a mold. The apertures in the rigidizing member permit plastic flow for solidly locking the plastic encapsulating material to the base plate. Plastic encapsulating material is provided inside the tubular members by runners in other parts of the electronic assembly.

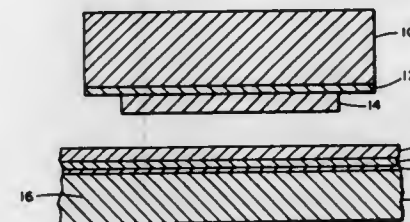
3,593,412

BONDING SYSTEM FOR SEMICONDUCTOR DEVICE

Robert S. Foote, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Filed July 22, 1969, Ser. No. 843,717
Int. Cl. B01j 17/00; H01l 7/02

U.S. Cl. 29—589

6 Claims



A method of bonding a semiconductor device to a metal substrate involving depositing a gold solder preform onto the device and coating the metal substrate with a first layer of gold, a second layer of silver and a third layer of gold. The device is bonded to the metal substrate by heating the substrate to an elevated temperature and placing the gold preform on top of the third gold layer of the substrate.

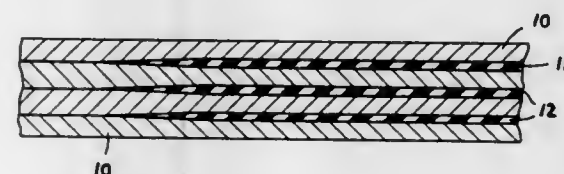
3,593,413

METHOD OF MANUFACTURING POWER-CURRENT CRYOTRONS

Wilhelm Kafka, Tennenlohe, Germany, assignor to Siemens Aktiengesellschaft, Erlanger, Germany
Continuation of application Ser. No. 575,117, Aug. 25, 1966, now abandoned. This application July 22, 1969, Ser. No. 849,555
Int. Cl. H01v 11/00

U.S. Cl. 29—599

9 Claims



Described is a method of manufacturing a power-current cryotron having a layered gate-conductor structure which in the normal conducting state at the cryotron operating temperature has a free electron path length smaller than in the superconductor material of the cryotron. The method comprises steps of situating a pulverulent insulating material between a plurality of layers of superconductor material, and then compressing the layers together with the pulverulent insulating material therebetween to reduce the cross-sectional area of the cryotron. The superconductor material is selected from the group consisting of lead and niobium and the pulverulent insulating material is selected from magnesium oxide and aluminum oxide.

3,593,414

METHOD OF MANUFACTURING A MAGNETIC HEAD

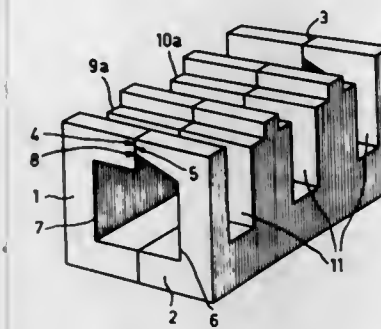
Jacobus Pieter Beun; Jules Bos, and George Ludwig Walther, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 15, 1969, Ser. No. 850,546
Claims priority, application Netherlands, Aug. 22, 1968, 6811950
Int. Cl. H01f 7/06

U.S. Cl. 29—603

4 Claims

A very precise method of manufacturing multiple magnetic heads which are to write, read and/or erase extremely narrow (<0.2 mm.) tracks situated beside each other, for example, video heads or "tunnel-erase" heads. For that purpose very shallow (200—300 μ) parallel pairs of channels are sawn in a "sandwich" consisting of two plates of ferrite combined by

means of glass which channels are afterwards filled with glass. Deeper (1 mm.) sawcuts are then provided in the con-



ventional manner between the pairs of channels mutually and filled with nonmagnetizable intermediate members.

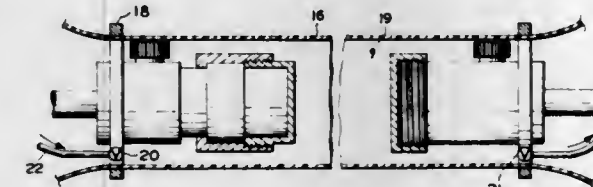
3,593,415

METHODS OF UNDERWATER MECHANICAL ASSEMBLY OF ELECTRICAL CONNECTORS, AND THE LIKE

Delbert R. Wofford, Owensboro, Ky., assignor to Texas Gas Transmission Corporation, Owensboro, Ky.
Filed Aug. 28, 1969, Ser. No. 853,807
Int. Cl. H01r 43/00; H05k

U.S. Cl. 29—628

5 Claims



A method of assembling electrical cables underwater without subjecting the electrical circuits to salt water is disclosed. A flexible membrane isolates a work area and the mechanical assembly and disassembly of parts takes place therein by grasping the membrane from the water side. The membrane may be a hollow toroid and the inner surface extending about the work area can be ruptured to produce more working area and less area that is purged of water before rupture. The outer membrane can be ruptured after the operation is terminated by mating the connectors in a waterproof seal.

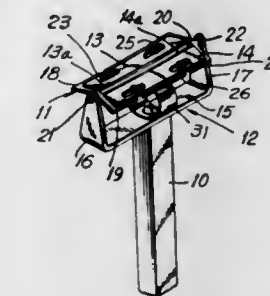
3,593,416

SAFETY RAZOR

Roger C. Edson, Old Saybrook, Conn.
Filed Oct. 10, 1968, Ser. No. 766,394
Int. Cl. B26b 21/00

U.S. Cl. 30—50

13 Claims



Disclosure relates to a razor having a bifurcated yoke at one end of a handle and on which a blade carrier is pivotally mounted to rock. The blade carrier has surfaces for replaceably mounting a pair of blades in an opposed inclined relationship with a space between adjacent cutting edges. Each of the blades then acts as a guide for the opposite blade as they are moved in opposite directions and the carrier pivots to follow the contour of the surface being shaved.

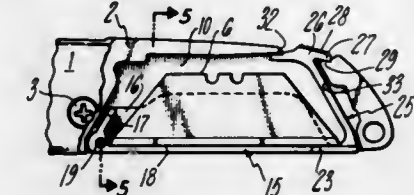
3,593,417

HAND TOOL HAVING A HOLDER FOR SPARE BLADES AND THE LIKE

Robert F. West, West Simsbury, and Robert S. Hyde, East Hartford, both of, Conn., assignors to The Stanley Works, New Britain, Conn.
Filed Aug. 13, 1969, Ser. No. 849,663
Int. Cl. B26b 1/11

U.S. Cl. 30—125

10 Claims



A holder for spare blades and the like mounted in the handle portion of a hand tool which holder is in the form of a tray pivotally mounted in the bottom wall of the handle for swinging movement between a closed position within the handle and an open position extending outwardly from the handle, the holder having a movable catch which in the closed position of the tray extends through an opening in a wall of the handle opposite said bottom wall for engagement with a keeper and being exposed at said opening for manual actuation to disengage the catch from the keeper.

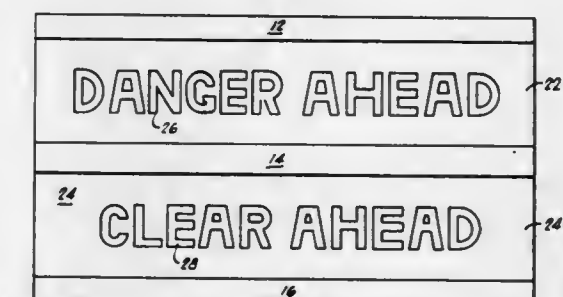
3,593,418

SAFETY WARNING DEVICE

James P. Evans, 3233 S.W. 23rd St., Oklahoma City, Okla.
Filed June 10, 1969, Ser. No. 831,857
Int. Cl. G09f 13/00

U.S. Cl. 40—130

1 Claim



A safety warning device constituting a sign attachable to the bumper of a vehicle, or mountable at the rear window of a vehicle, and including a pair of translucent or transparent panels which carry indicia and are mounted in a supporting structure in vertically spaced relation to each other. Behind each of the panels is mounted means for illuminating the panel, and transmitting light therethrough. The illuminating means is electrically actuated, and the electrical circuitry utilized includes a flasher device for intermittently energizing and deenergizing the source of illumination, ON-OFF switches mounted on the dashboard of the automobile for directing electrical energy to the source of illumination behind a selected one of the two panels, and a source of electrical energy such as a battery or the like.

3,593,419

CLIP-ON SEVERING DEVICE

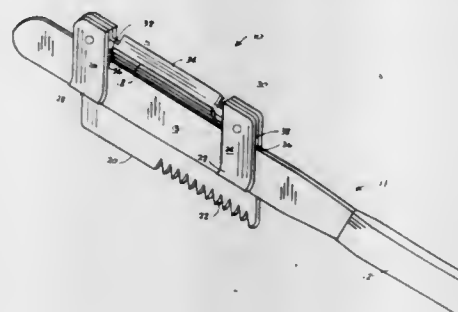
Frank M. Hula, 5201 Hamm Ave., Cleveland, Ohio
Filed Sept. 2, 1969, Ser. No. 854,436
Int. Cl. B26b 11/00

U.S. Cl. 30—142

10 Claims

A device for severing which is adapted to be clipped on the blade of a knife. The device comprises a thin strip of metal having two parallel faces bounded by a periphery, and includes a base portion and an offset portion. The base portion has two separate cutting edges, a serrated scraping edge and a sharp slicing edge, both being formed on its periphery. The offset portion includes a sharp cutting edge for peeling of vegetables or fruits. Spring clips, fixed adjacent one face of

the thin metal strip, are adapted to clamp the strip against the knife blade. A bar which is sandwiched between the clips and the face of the metal strip extends the length of the offset



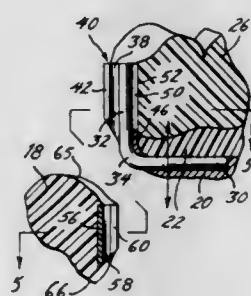
peeling edge and is spaced peripherally thereof to provide a landing for exerting finger pressure on the device when it is in operative position.

3,593,420

CLASPLESS PARTIAL DENTURE AXIAL RETAINER CONSTRUCTION

Arthur Ritter, 1902 Chestnut St., Philadelphia, Pa.
Filed Dec. 15, 1969, Ser. No. 885,217
Int. Cl. A61c 13/22

U.S. Cl. 32-5



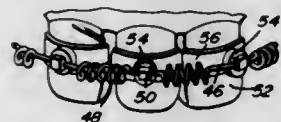
A claspless partial denture having an elongated resilient member or cantilever spring in substantially L-shaped form in which the horizontal portion is affixed to the saddle beneath an end tooth and the vertical portion extends along said end tooth but is not connected thereto. The horizontal portion of the spring carries a male member which telescopically interlocks in a female slot or channel member in the crown abutment which opens through the occlusal and gingival surfaces thereof and has a reduced throat which opens through one vertical face thereof, either the distal or mesial face, depending on the position of attachment of the partial denture. A bracing arm is carried by a strut of the saddle to one side of but unconnected to the vertical portion of the cantilever spring, the bracing arm being adapted to engage the crown abutment. The denture is adjustable, self-cleaning and absorbs displacement stresses.

3,593,421

MULTIHELICAL OMNIARCH

Allen C. Brader, 1305 Hamilton St., Allentown, Pa.
Filed Nov. 15, 1967, Ser. No. 683,405
Int. Cl. A61c 7/00

U.S. Cl. 32-14 A



A resilient arch form structure characterized by helices formed integrally therewith. The helices are pitched and may be interspersed integrally within the arch form structure or may be continuous within the arch form structure such as a continuous wire, plastic form or the like. The arch form is

operatively connected with a tooth for delivering a force simultaneously in at least three planes of space and also enabling force application in the form of torsion or torque to achieve position changes in the tooth root.

3,593,422

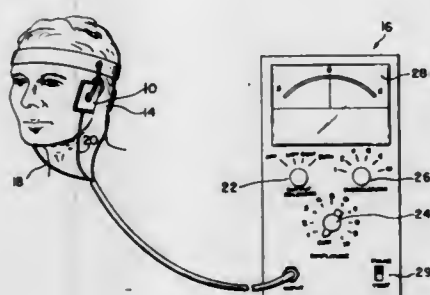
METHOD OF PRODUCING A MUSCULARY BALANCED CLOSURE OF THE HUMAN MANDIBLE

Bernard Jankelson, Stimson Medical Center, Seattle, Wash. 98101

Filed Sept. 5, 1969, Ser. No. 855,480
Int. Cl. A61c 9/00

U.S. Cl. 32-21

17 Claims



Mandibular closure is produced by simultaneous and even electrical programmed stimulation of the motor nerves controlling the masticatory and facial muscles. The resultant involuntary closure of the mandible is independent of the volition of the patient or the manual guidance of the dentist. The method and techniques associated therewith are useful in a number of clinical and diagnostic techniques.

3,593,423

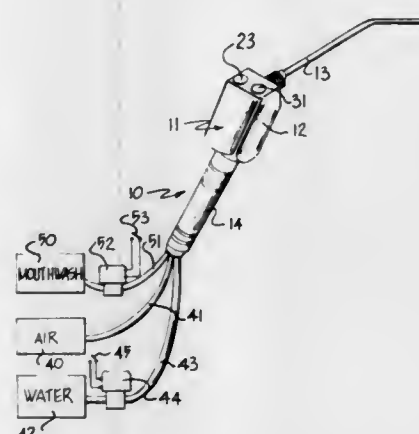
MULTIPURPOSE DENTAL SYRINGE APPARATUS

Arthur L. Jones, and George V. McGaha, both of Charlotte, N.C., assignors to The Pelton & Crane Company, Charlotte, N.C.

Filed Apr. 18, 1969, Ser. No. 817,378
Int. Cl. A61c 19/02

U.S. Cl. 32-22

12 Claims



Dental syringe apparatus characterized by being so constructed as to alternatively and selectively dispense a spray of air, water, mouthwash, mixture of air and water, and mixture of air and mouthwash. The apparatus comprises syringe means including a main body portion and a nozzle portion having liquid- and air-conveying conduits therethrough and selectively operable valve means therein for alternatively and selectively dispensing a spray of air, liquid and a mixture of air and liquid from the nozzle portion, means for supplying air, water and mouthwash under pressure to the syringe means including separate supply means and separate conduit means, valve means operatively connected with the water and mouthwash conduit means for selectively and alternatively allowing and preventing the conveying of water and mouthwash therethrough to the syringe liquid conduit means, and means operatively connected with the mouthwash, water and syringe liquid conduit means for merging the mouthwash

and water conduit means into the syringe liquid conduit means.

3,593,424

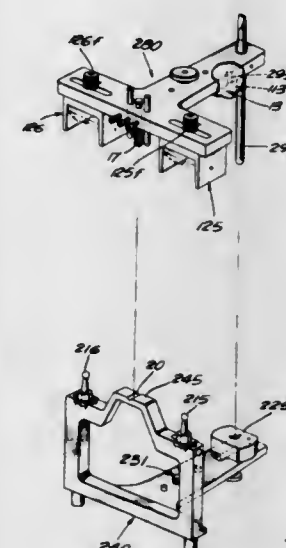
DENTAL ARTICULATOR WITH REMOVABLE ANALOGUE BLOCKS

Robert L. Lee, Colton, Calif., assignor to Gene W. Arant; Robert L. Lee and Arlene M. Lee, Los Angeles, Calif., part interest to each

Division of Ser. No. 569,472, Aug. 1, 1966, Pat. No. 3,452,439.
application June 25, 1969, Ser. No. 836,293
Int. Cl. A61c 11/00

U.S. Cl. 32-32

19 Claims



A dental articulator including upper and lower frames, the lower frame having a pair of laterally separated spherical styluses representing simulated condyles which extend upwardly therefrom. The upper frame has a pair of lateral arms and a forward arm, and the forward arm has means for indicating the orbital axis reference point. The lateral arms of the upper frame are adapted to receive a pair of simulated upper joint members, or analogue blocks, which are removably fastened thereto.

Each simulated upper joint member has a roughly cubical configuration except for one longitudinal edge being cut off and curved in approximately a 90° arc so that the configuration of the member also corresponds approximately to one-quarter of a cylinder. A generally flat side opposite the curved surface is adapted to be attached to the underside of the articulator upper frame. Each simulated upper joint member has an irregularly shaped opening formed in its curved surface, one part of that opening representing the centric relation position.

Each simulated upper joint member (analogue block) also has a dimple formed in its outward lateral side. When the spherical styluses of the lower frame are received in the centric parts of the openings of the simulated upper joint members, the common axis of the two dimples also passes through the radius centers of the spherical styluses.

The articulator also includes a centric reference means for indicating the lateral alignment of the upper frame relative to the lower frame. The centric reference means has upper and lower parts extending from the respective frames, the two parts being adapted to interengage at a point precisely located on the common axis that passes through the radius centers of the two spherical styluses.

3,593,425

ELECTRIC ULTRASONIC TOOTH-CLEANING APPARATUS

Seymour Robinson, Miami, Fla., assignor to Hydrosonic Corporation, Miami, Fla.

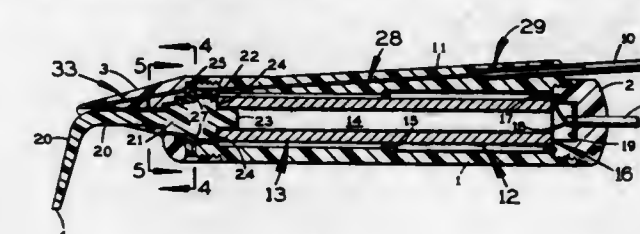
Filed Sept. 10, 1969, Ser. No. 856,689
Int. Cl. A61c 3/01

U.S. Cl. 32-58

5 Claims

An apparatus for rapidly cleaning and removing plaque and calculus from the teeth without damage to the enamel and injury to the gums, consisting of a device for hand

manipulation containing an electronic ultrasonic transducer coupled to a quick-replaceable cleaning applicator formed from wear-resistant plastic material. The handle of the device



includes channel means for conducting a flow of pressurized water to the applicator. The device is coupled to a source of electronic ultrasonic energy and a source of pressurized water by flexible conductors and tubing, respectively.

3,593,426

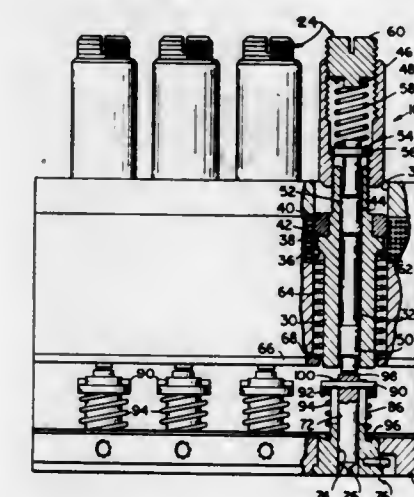
CUTTER HEAD ASSEMBLY

Gerald S. Domagalski, San Jose, Calif., assignor to American Micro-Systems, Inc., Santa Clara, Calif.

Filed Aug. 11, 1969, Ser. No. 848,801
Int. Cl. B431 13/00

U.S. Cl. 33-18

5 Claims



A cutter head assembly adaptable for use on a plotter-type mask making apparatus utilizes a plurality of actuators within a block each operable by a controllable solenoid. Each actuator includes a guide and a relatively movable plunger thereon which is vertically aligned with a cutting or scribing instrument which is retained by an insert guide member fixed within a plate below the actuator. Both the stroke of the cutting instrument and its pressure on material being cut are controllable by adjustments on the actuator.

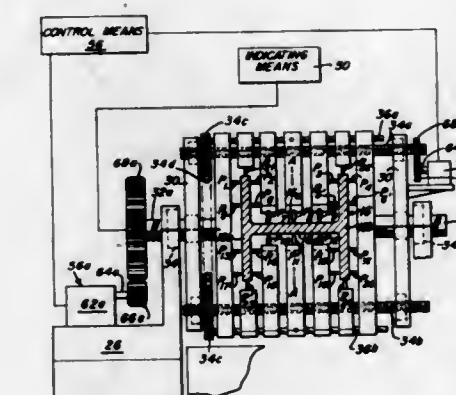
3,593,427

APPARATUS FOR DETERMINING A DIMENSION OF A MEMBER

Eugene V. Abarotin, Franklin Township, Westmoreland County, Pa., assignor to United States Steel Corporation
Filed Feb. 26, 1969, Ser. No. 802,553
Int. Cl. G01b 7/28

U.S. Cl. 33-174 PA

10 Claims



An apparatus for determining a dimension of a member and having a frame, a sensing means on the frame adjacent

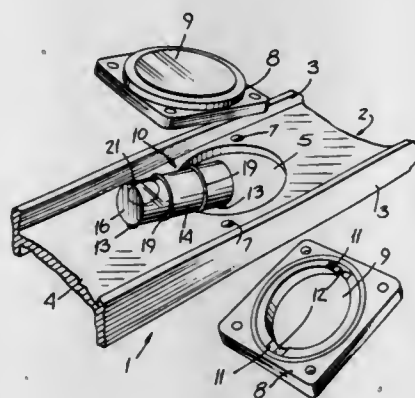
the member and the sensing means having opposed sensing assemblies aligned adjacent the dimension is disclosed. Each of the sensing assemblies has a housing, a probe reciprocable in the housing and with respect to the member, retraction means associated with the probe and operable to retract the probe to an initial starting position, biasing means connected to the probe for moving the probe from the initial starting position to a measuring position into engagement with the member, and a first signal means associated with the probe and operable to produce a first output signal when the probe is in the measuring position. Indicating means are connected to the sensing assemblies and are adapted to receive the first output signals from the sensing assemblies and to indicate the dimension.

3,593,428 SPIRIT LEVEL

Sydney Jacoff, Mineola, N.Y., assignor to Great Neck Saw Manufacturers, Inc., Mineola, N.Y.
Filed Sept. 26, 1968, Ser. No. 762,884
Int. Cl. G01c 9/24

U.S. Cl. 33-211

9 Claims



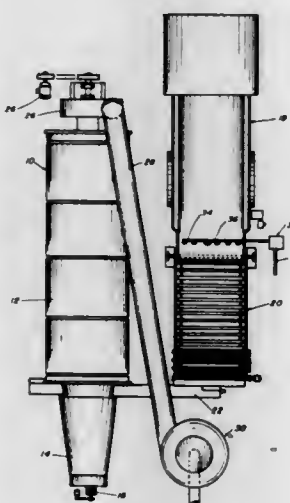
The present invention comprises a spirit level in which the vial thereof has a cylindrical outer surface and a curved inner surface. The curved inner surface is formed during the molding of the vial by taking advantage of the memory and natural resiliency of the plastic used.

3,593,429 METHOD OF DEHYDRATING A CROP

Stanley P. Thompson, Box 7, St. Marys, Kans.
Filed Aug. 4, 1969, Ser. No. 847,270
Int. Cl. F26b 3/00

U.S. Cl. 34-9

8 Claims



This method of dehydrating a crop such as alfalfa or the like includes the step of spraying a coating of water on the

crop just prior to advancement of the crop into the heated dehydrator drum.

3,593,430 CROP DEHYDRATOR

Stanley P. Thompson, Box 7, St. Marys, Kans.
Filed Nov. 4, 1968, Ser. No. 773,188
Int. Cl. F26b 11/02

U.S. Cl. 34-108

8 Claims



A dehydrator including an elongated drum mounted for rotation about its longitudinal axis. A frustoconical furnace sidewall cooperates with a ring burner to provide hot combustion gases for dehydrating material in the drum. Vanes in the drum are bent at varying angles to enhance even distribution of the material across the drum and cleats are also provided to reduce the slippage of material from some of the vanes.

3,593,431

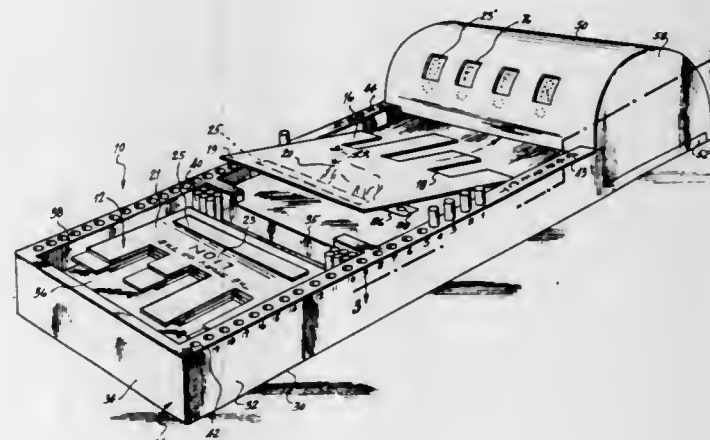
EDUCATIONAL CARD-READING TOY APPARATUS
Pasquale A. Candido, 13 Prospect Ave., Brentwood, N.Y., and Elliott Manketo, Farm Road Head of the Harbor, St. James, N.Y.

Filed Apr. 14, 1969, Ser. No. 815,644

Int. Cl. G09b 1/04

U.S. Cl. 35-8 R

7 Claims



This toy has a plurality of cards inscribed with pictures of figures such as animals. Each card has a plurality of projections of different lengths. A card-reading device has rotatable discs with letters at their edges exposable at windows in the device. When a card is inserted in the device, the discs rotate and the name of the figure on the card appears at the windows. The device has lamps arranged to illuminate the letters appearing at the windows.

3,593,432 TEACHING AID FOR COACHING SPORTS AND MANUAL SKILLS

Michael L. Reynolds, 8304 E. 110th Terrace, Kansas City, Mo.

Filed Nov. 7, 1969, Ser. No. 874,871

Int. Cl. G03b 25/00

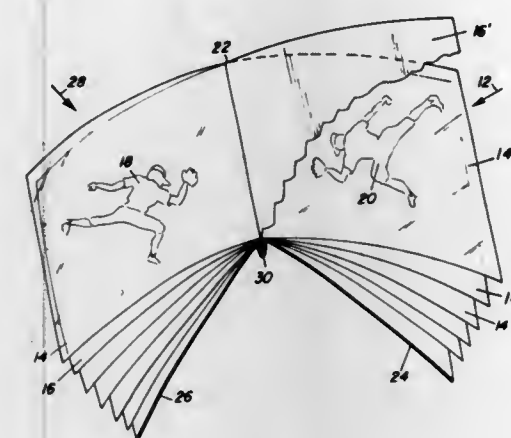
U.S. Cl. 35-29 R

5 Claims

A teaching aid comprising transparencies is disclosed for coaching sport and other manual skills requiring coordina-

tion, in time, of various parts of the body. Transparencies showing various incremental movements of a complicated action in a play or the like are arranged to be flipped for

face the flexibility of inversion with double factual question-



sequential rapid viewing to indicate movements of a right-handed or a left-handed professional player as a teaching aid. Transparencies are generally secured at one edge as by a gripper to provide a booklet form.

3,593,433

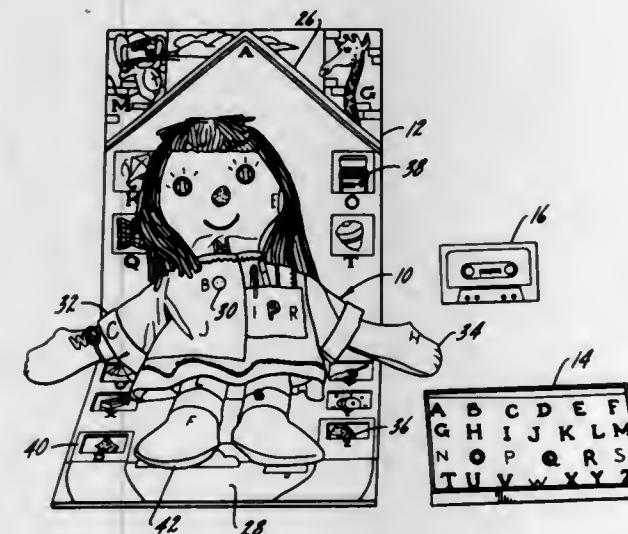
METHOD AND APPARATUS FOR TEACHING READING
Leo L. Dillon, and Helen S. Dillon, both of 10420 S. Laverne, Oak Lawn, Ill.

Filed Jan. 26, 1970, Ser. No. 5,513

Int. Cl. G09b 17/00

U.S. Cl. 35-35 R

6 Claims



This invention presents an educational kit and associated method of teaching. Particularly well suited for use by young children, this invention utilizes environmental objects familiar to them to captivate their attention while they are schooled in the fundamentals of reading.

3,593,434

EDUCATIONAL VISUAL AID
James McGarry, 118-60 Metrolita Ave. Apt. 3L, Kew Gardens, Queens, N.Y.

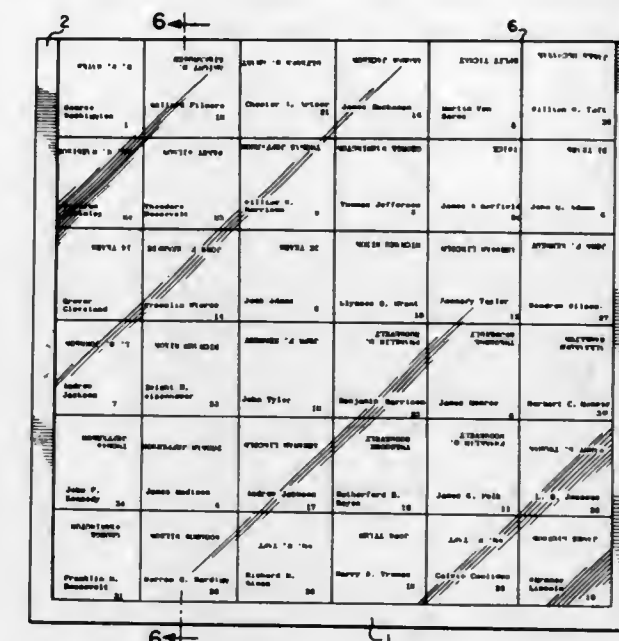
Filed Oct. 14, 1969, Ser. No. 866,239

Int. Cl. A63f 9/10

U.S. Cl. 35-73

4 Claims

A double solution puzzle having pieces that afford on one



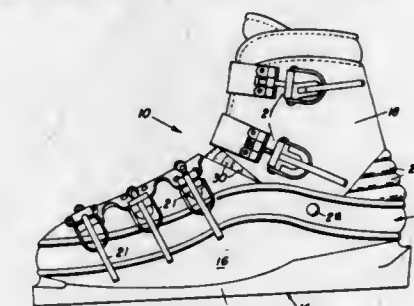
and-answer opportunity for solution that also serves at least one other face of the puzzle.

3,593,435 PLASTIC SKI BOOT

Robert B. Lange, Washington Building, Dubuque, Iowa
Filed Jan. 6, 1969, Ser. No. 789,151
Int. Cl. A43b 00/00; A61f 5/00

U.S. Cl. 36-2.5

2 Claims



A boot of heavy gauge plastic having a molded plastic foot portion having sole with parallel sides, a gaiter of heavy gauge plastic pivoted to the foot portion, and an inner sock and tongue member for receiving a formable, stable dialatent material such as polybutadiene.

3,593,436

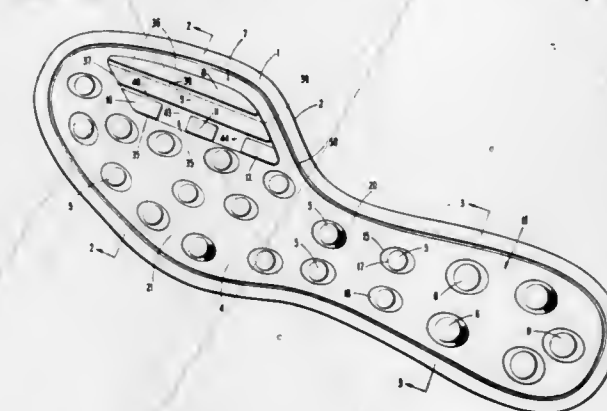
ATHLETIC SHOE SOLE
Frank Vietas, Bedford, Mass., assignor to Hyde Athletic Industries, Inc., Cambridge, Md.

Filed May 29, 1969, Ser. No. 828,823

Int. Cl. A43b 13/06

U.S. Cl. 36-32

7 Claims



An athletic shoe sole useful with synthetic turf is formed of a single piece of flexible resilient material in which a plurality of substantially frustoconical cleats project downwardly from the bottom of the sole from the heel to the toe. In addition, a set of elongated cleats are positioned on the ball part of the sole adjacent to the instep. These elongated cleats are angled inwardly to provide lateral traction.

3,593,437 HEEL FOR FOOTWEAR

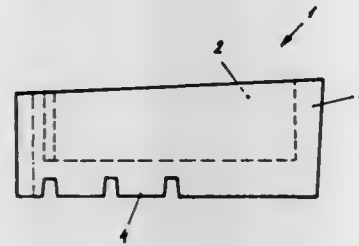
Herbert Kogert, Vienna, Austria, assignor to Semperit Österreichisch-Amerikanische Gummiwerke Aktiengesellschaft, Vienna, Austria

Filed Sept. 4, 1969, Ser. No. 855,314

Claims priority, application Austria, Sept. 5, 1968, A8611/68
Int. Cl. A43b 21/20

U.S. Cl. 36-34

19 Claims



Heels and soles comprising an insert and an outer layer, which are particularly useful for footwear are disclosed. The heels and soles of this invention exhibit several desirable properties including their lightweightness, good wear resistance, as well as being readily adhered to the shoe material. The insert is preferably made from a rigid polyurethane foam although a rigid polyether or polyester foam may also be employed. The outer layer preferably consists of a semirigid, closed-cell foamed polyurethane.

3,593,438 SPREAD-RESISTANT METAL TOE FOR SAFETY SHOES

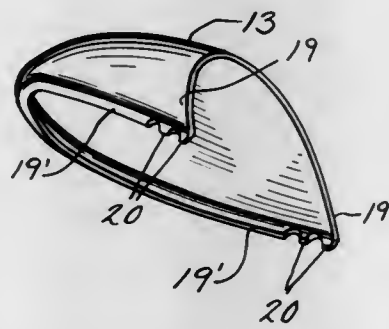
Martin J. Mitchell, Pittsburgh, Pa., assignor to Bata Shoe Company, Inc., Belcamp, Md.

Filed July 30, 1969, Ser. No. 846,044

Int. Cl. A43c 13/14

U.S. Cl. 36-77

1 Claim



The lower edge at each side of the rear of the metal toe piece of a safety shoe is formed with several sawteeth which are positioned to bite into the welt of the shoe in response to a blow on the toe piece of a type which might otherwise result in lateral spreading of the sides of the toe piece.

3,593,439 TORSION BAR FOR SCRAPER ELEVATOR FRAME

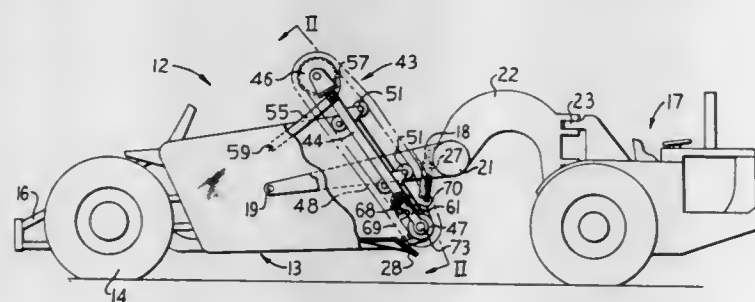
Larry G. Eftefield, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 3, 1969, Ser. No. 813,191

Int. Cl. B60p 1/38

U.S. Cl. 37-8

7 Claims



In a self-loading scraper having an elevator frame, a torsion shaft interconnecting the lower elevator frame support

link members so as to provide a stable suspension means for the elevator frame. The torsion shaft is fixed relative to the support links and mounted for movement relative to the elevator frame.

3,593,440 GARMENT TREATMENT METHOD AND APPARATUS

George Schlemon, 3060 Pharr St., N.W., Atlanta, Ga.

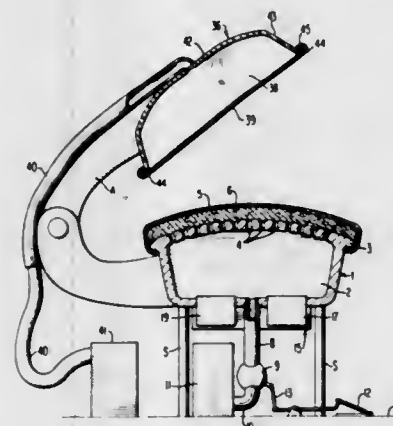
Division of Ser. No. 736,176, June 11, 1968, Pat. No. 3,501,857.

Continuation-in-part of application Ser. No. 676,098, Oct. 18, 1967, now Patent No. 3,486,255, which is a continuation-in-part of application Ser. No. 543,996, Apr. 20, 1966, now abandoned. This application Sept. 15, 1969, Ser. No. 871,006

Int. Cl. D06f 71/34, 71/36

U.S. Cl. 38-16

9 Claims



A method and apparatus for imparting a permanent press to garments comprising arranging the garments in their respective proper pressing position on a pressing surface, applying light pressure to the garments with a flexible screen which substantially conforms to the shape of the garments on the pressing surface, passing substantially saturated steam from the pressing surface through the garments and through the flexible screen to loosen the fabric of the garments, and passing air heated to a temperature at which the fabric is cured through the garment.

3,593,441 STEAM IRON METALLIC SEALING STRUCTURE

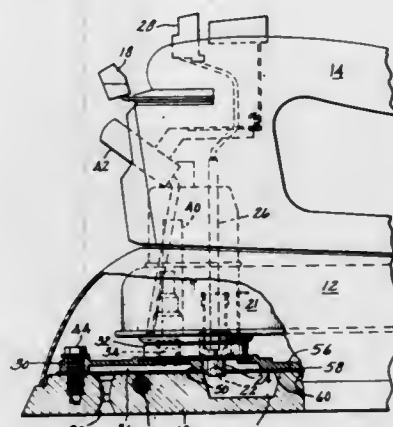
Bryce A. Denton, Ontario, Calif., assignor to General Electric Company

Filed Dec. 15, 1969, Ser. No. 884,823

Int. Cl. D06f 75/06

U.S. Cl. 38-77.83

8 Claims



The invention discloses a metallic sealing structure for steam and steam-powered spray irons which use a thin ridged

aluminum gasket disposed between a coverplate and the soleplate for sealing a steam generating and steam distributing cavity to confine steam flow in desired channels.

3,593,442 IRON STABILIZER AND CORD SUPPORT

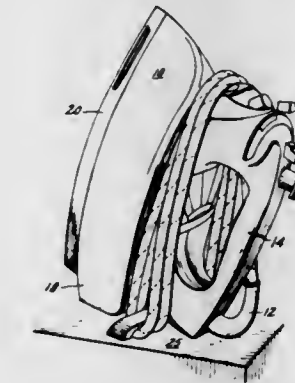
William E. Davidson, Ontario; Harold S. Foster, Ontario, and Llewellyn Delano Busby, Upland, all of, Calif., assignors to General Electric Company

Filed Nov. 6, 1969, Ser. No. 874,582

Int. Cl. D06f 75/40

U.S. Cl. 38-79

8 Claims



The invention discloses a stabilizing and cord support means in a single structure wherein outrigger-type arm means is attached to the iron to extend sideways from the iron. The outrigger is equipped with rearward extending ears at the ends of the arm whereby the ears are additional supports for the iron in the heel rest position. The dimension of the ears is such that a cord may be wrapped around the arm while it acts as a stabilizing means with no interference by the cord when the iron is in rest position.

3,593,443 LABEL FOR USE IN BLIND CLINICAL STUDIES OF A MEDICAMENT

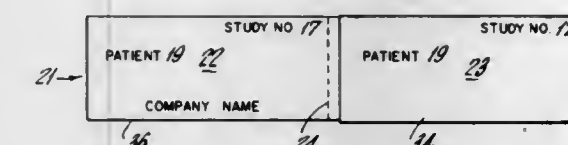
Julius Christ Demetrius, Jr., Lansdale, and Wayne Martin Grim, Chalfont, both of, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Sept. 17, 1969, Ser. No. 858,669

Int. Cl. A44c 3/00

U.S. Cl. 40-2

6 Claims



A label to be used in the clinical studies of the effects of a particular medicament and comprises two separable parts, one part of which is secured to the container while the other goes into a file and with both sections having visible thereon the necessary patient and study numbers but not the nature of the medicament nor the dosage. This information is on the file section of the label but is normally hidden by a removable cover.

3,593,444 VISUAL DISPLAYS

Harold S. Akrongold, and Rochelle Akrongold, both of 39 Cathay Road, East Rockaway, N.Y.

Filed Nov. 25, 1968, Ser. No. 778,502

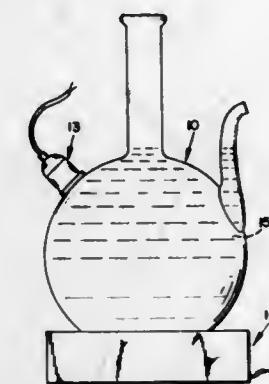
Int. Cl. G09f 13/24

U.S. Cl. 40-106.21

11 Claims

A liquid in a transparent container has a relatively small quantity of pearl essence crystalline powder pigment mixed therewith. When quiescent, the mixture appears substantially opaque and lacking a mist pattern. When agitated, as by stirring by a motor-driven bar or propeller or the like, the mix-

ture while remaining substantially opaque takes on a constantly changing mist pattern containing, for example, randomly moving veins of gold, streaks, lines, and/or areas, all more or less darkened, which constantly alter their shape,



texture, direction and dimensions. It may be said to simulate marble wherein the veins are in constant change and flux. When a lamp is lit within or without the enclosure of the container, the mixture is made to appear translucent.

3,593,445 STREET SIGN ARRANGEMENT

Lyle E. Gant, Indianapolis, Ind., assignor to John W. Guter-

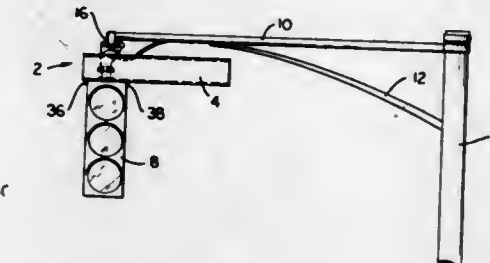
man, Indianapolis, Ind., a part interest

Filed May 29, 1969, Ser. No. 829,025

Int. Cl. G09f 7/22

U.S. Cl. 40-128

3 Claims



A street sign arrangement for mounting on a traffic signal having a base section and a street name plaque section. The base section is proportioned for mating engagement with the top portion of a traffic signal. A slot is provided in said base section and is proportioned to receive a cylindrical threaded portion of the supporting structure of the traffic signal. A nut forming a part of the supporting structure and received on said threaded portion is used to fix the street sign arrangement to said traffic signal.

3,593,446 ILLUMINATED MULTICOLOR DISPLAY DEVICE

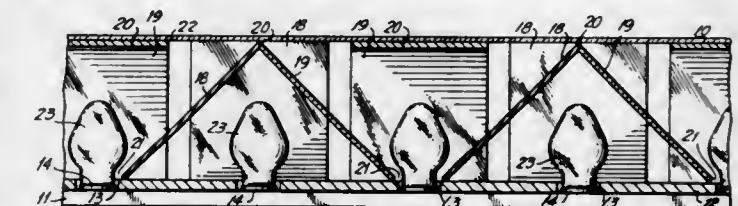
Herbert Gesner, III, 789 W. End Ave., New York, N.Y.

Filed Dec. 9, 1968, Ser. No. 782,308

Int. Cl. G09f 13/12

U.S. Cl. 40-130 B

10 Claims



An illuminated display device includes a plurality of side-by-side longitudinal sets of alternately oppositely inclined reflector panels converging to apices, the apices of each set being laterally aligned with the troughs of adjacent sets, a plurality of side-by-side transverse sets of alternately op-

positely inclined reflector panels interweaving the first sets, and a translucent screen extending along parallel to the plane of the apices, and being illuminated by substantially reflected light. Periodically energized and deenergized electric bulbs of different colors are positioned in the dihedrals defined by the reflector rear faces and project light onto the screen by way of the front faces of corresponding registering reflectors. One or more of the reflector front faces may carry indicia.

3,593,447

FACE RETAINER FOR ILLUMINATED SIGNS

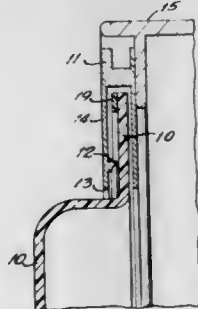
Alvin Winegarten, Dallas, Tex., assignor to Textile Industries, Inc., Dallas, Tex.

Filed Sept. 22, 1969, Ser. No. 859,697

Int. Cl. G09f 13/00

U.S. Cl. 40—130 R

4 Claims



A retainer device for translucent plastic panels or faces for illuminated signs whereby to secure the panels against displacement from the sign housings or frames by wind pressures thereon. The plastic panels, being flexible and subject to lateral expansion and contraction under varying temperature conditions, are customarily installed in their frames with liberal marginal tolerances thus, when flexed by wind pressures at relatively low temperatures, the face panels can escape their mountings resulting in damage thereto.

3,593,448

INTERNALLY LIGHTED, OVERHEAD, TRAFFIC SIGN FOR STREETS AND HIGHWAYS

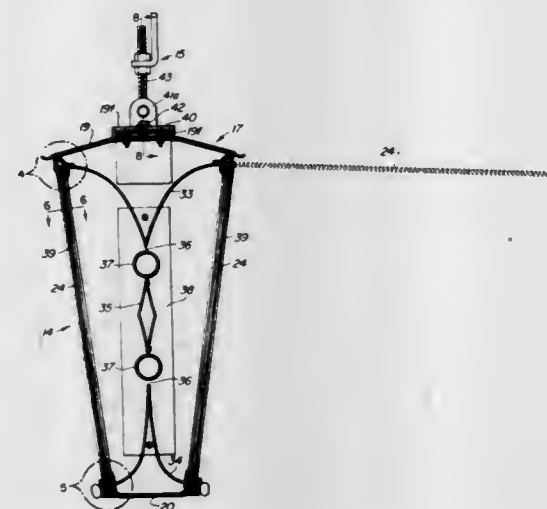
Herbert R. Schoepf, Salt Lake City, and John L. Babcock, Sandy, both of Utah, assignors to Nu-Art Lighting and Manufacturing Company, Salt Lake City, Utah

Filed July 22, 1969, Ser. No. 843,368

Int. Cl. G09f 13/00

U.S. Cl. 40—132

12 Claims



An internally lighted, overhead sign for streets and highways that is so constructed as to be quickly legible to passing traffic and easily maintained. A housing framework made up of extruded aluminum components receives and hinges sign panels that can be swung open and closed for quick and easy maintenance. The framework includes ex-

truded clamping strips for normally holding the sign panels tightly closed, sealing strips, and drip guards overhanging the sign panels for protection from precipitation. Reflectors for directing light to opposite panel sides converge along the vertical axis of the sign in alignment with longitudinal axes of lighting elements. Hangers provide for controlled swinging movement of the sign to accommodate wind currents.

3,593,449

WRIST BAND ATTACHMENT

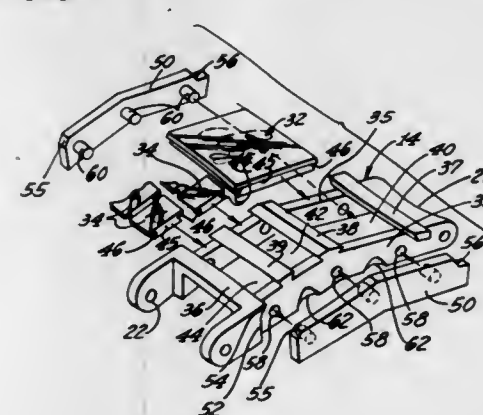
Lonnie R. Nielson, Las Vegas, Nev., assignor to Carlson Engineering Company, Incorporated, Las Vegas, Nev.

Filed June 5, 1969, Ser. No. 830,663

Int. Cl. G09f 7/02

U.S. Cl. 40—140

20 Claims



A frame for incorporation into a wrist band adjacent a wrist band watch has at least one window opening to receive a corresponding ornamental panel or insert which is secured by releasable keeper means. The frame provides a guide channel for movement of the insert into assembled position and the removable keeper means blocks the channel against withdrawal of the insert.

3,593,450

POLE BANNER SIGN CONSTRUCTION

Samuel J. Mollet, III, Canton, and Thomas Friedrichsen, Massillon, both of Ohio, assignors to The Massillon-Cleveland-Akron Sign Company, Massillon, Ohio

Filed Nov. 26, 1969, Ser. No. 880,117

Int. Cl. G09f 7/18

U.S. Cl. 40—145 R

7 Claims



The pole banner sign construction has permanent hardware for supporting a flexible banner on a pole. All of the hardware is permanently mounted on the pole, eliminating the need for removing hardware components for storage when not used for supporting a banner. The hardware can be positioned easily on the pole to be inconspicuous and out of the way when not used to support a banner component. A simple flexible banner that may be changed from time to time is mounted on the hardware and is adapted to be folded into a small package for shipment in an envelope. A pair of banner members may be similarly mounted on either side of the pole. The banner may be changed from time to time without the use of any tools by merely unhooking several

hooks from banner engagement and then hooking the replacement banner in place.

3,593,451

PROTECTORS FOR FIREARM MUZZLES

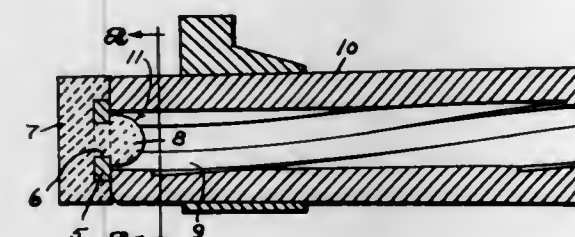
John J. McDonnell, 1245 Broadway, Rensselaer, N.Y.

Filed Nov. 27, 1968, Ser. No. 779,520

Int. Cl. F41c 21/14

U.S. Cl. 42—1 N

1 Claim



Protectors for the muzzles of firearms are disclosed, each protector being shaped and dimensioned to close the muzzle end of a firearm barrel and including a magnetic member dimensioned to extend across the bore and a centering projection dimensioned to fit freely therein to center the member for engagement with the muzzle.

3,593,452

BOLT STOP FOR FIREARMS

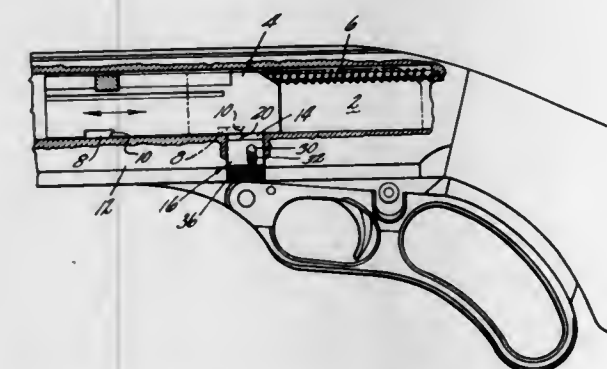
Roger M. Pekarek, West Simsbury, Conn., assignor to Colt's Inc., Hartford, Conn.

Filed Aug. 18, 1969, Ser. No. 850,932

Int. Cl. F41c 11/06, 11/00

U.S. Cl. 42—16 F

3 Claims



A spring biased bolt stop is slidably retained in a passage disposed in a trigger housing. A slidable bolt, which includes a peripheral notch, is mounted in a receiver section adjacent the trigger housing. A projection on the upper surface of the bolt stop is adapted to be received in the notch to prevent axial movement of the bolt. A surface of the projection forms an acute angle with the upper surface of the bolt stop and is adapted to contact a parallel surface of the notch so as to check the spring urged movement of the bolt stop away from the notch. A serrated contour on the lower exterior portion of the bolt stop generally conforms to the adjacent exterior surface of the trigger housing when the bolt stop is spring urged to its lower limit of axial travel away from the notch. The bolt stop is manually pressed into the notch for retention of the bolt and released from the notch by displacing the bolt.

3,593,453

HIGH-SPEED BAIT SLED

Gary R. Bishop, 950 Ashbridge, Harbor City, Calif., and Kenneth H. Bishop, 4591 Don Felipe Drive, Los Angeles, Calif.

Filed May 16, 1969, Ser. No. 825,315

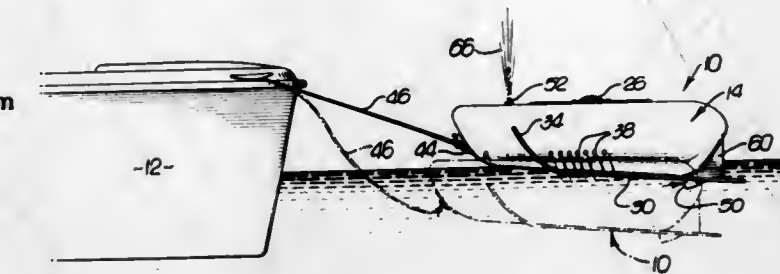
Int. Cl. A01k 97/04

U.S. Cl. 43—55

5 Claims

A water-borne device, such as a high-speed bait sled to be towed behind a motor-powered boat, having a chamber with

a forwardly facing inlet below the waterline and an exposed outlet above the waterline arranged in a manner such that ram pressure at the inlet occasioned by motion of the device



through the water induces waterflow into the chamber. The water emerges from the chamber through the exposed outlet to indicate water circulation through the chamber.

3,593,454

TOY PARKING GARAGE

Alfred Einfalt, Nurnberg, Germany, assignor to Gebruder Einfalt Blechspielwarenfabrik, Nurnberg, Germany

Filed Oct. 29, 1968, Ser. No. 771,446

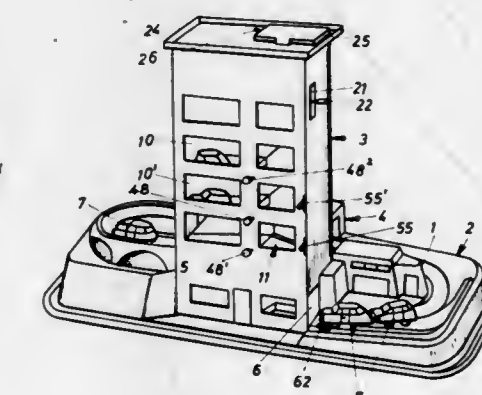
Claims priority, application Germany, Feb. 9, 1968, P 16 78

331.6

Int. Cl. A63h 18/06

U.S. Cl. 46—12

23 Claims



A toy representing a multistory car park and having a descending track along which toy vehicles, such as toy motor cars may roll, and a lift or elevator in a shaft for raising the vehicles from the lower level end to the upper level end of the track between an entrance into the lift shaft at one end of the track and an exit from the shaft at the other end of the track, a catch combined with an advance action catch being provided for intercepting a vehicle outside the entrance, characterized in that the toy vehicles are raisable by the lift above the level of the exit and possibly also lowerable to below the level of the entrance for selectably transferring the vehicles into and collecting them from parking bays at levels above the exit or below the entrance.

3,593,455

FIGURINE DOLL

Billie Joe Farris, 6227 Shady Brook Lane, Apt. 167, Dallas, Tex.

Filed Apr. 29, 1969, Ser. No. 828,068

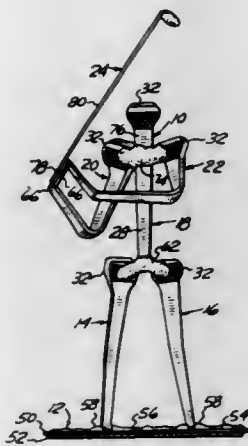
Int. Cl. A63g 3/10

U.S. Cl. 46—151

6 Claims

Using horseshoe nails, a figurine, for example simulating an animal such as a human being, is constructed by bending the shanks of the nails to form a pair of legs with feet; securing the feet to a baseplate, as by solder or welding; securing the heads of the leg nails together with the lower end of the shank of a trunk nail between them; bending another pair of nails to simulate arms; and securing the heads of these nails as shoulders on opposite sides of the shank of the trunk nail

immediately below the head thereof. A miniature implement, such as a golf club, is optionally formed of wire with a lump



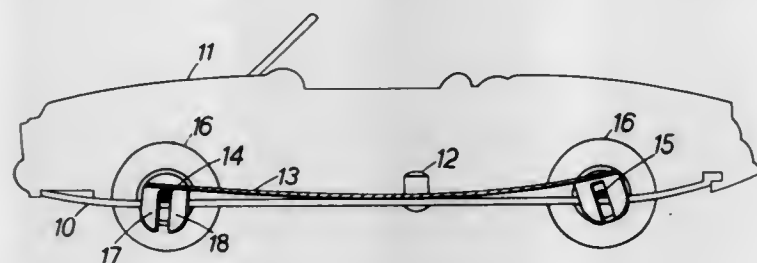
of solder in a loop at one end thereof and secured at its other end to the hand portions of the arm nails.

3,593,456 TOY VEHICLES

Aubrey Robert Mills, Palmers Green, England, assignor to Die Casting Machine Tools Limited, London, England
Filed June 11, 1969, Ser. No. 832,248
Claims priority, application Great Britain, Sept. 24, 1968, 45,355/68
Int. Cl. A63h 1/110

U.S. Cl. 46—201

7 Claims



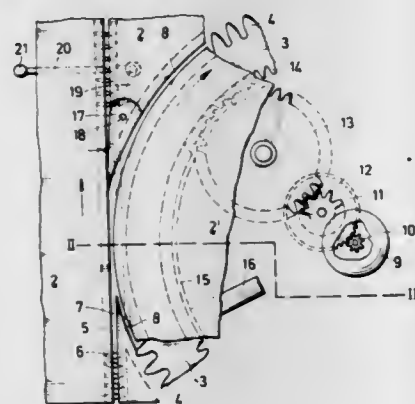
The invention provides a toy vehicle having a resilient plate carrying tabs which straddle an axle and thereby retain it over a metal chassis. The tabs are formed with thin edges where they bear on the axle. This considerably assists the free running of the vehicle.

3,593,457 TOY RAILROAD

Max Ernst, Lohengrinstrasse 14, 85 Nuremberg, Germany
Filed Nov. 14, 1968, Ser. No. 775,596
Claims priority, application Germany, Nov. 15, 1967, E 35 1741C/771
Int. Cl. A63h 18/00

U.S. Cl. 46—243

7 Claims



A track system for toys including baseplate means, upper plate means arranged above and in spaced relationship to the baseplate means and provided with at least two grooves each being closed in itself so as to form a closed track adapted to

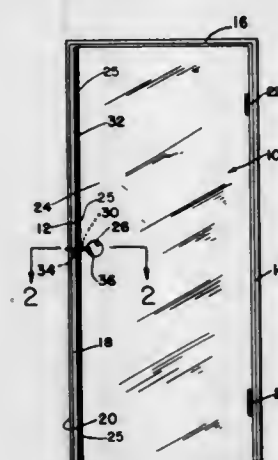
receive follower means of toys. The tracks have at least one section in common with each other. The driving power transmitting means located between the baseplate means and the upper plate means and respectively arranged in alignment with the tracks pertain to different tracks engaging each other at common sections of the tracks. Control means are provided at said common sections and are operable selectively to move from a first position into a second position and vice versa to control the communication from the respective common section to the respective desired adjacent track in the direction of movement of the respective driving power transmitting means pertaining to the respective adjacent tracks. Driving means are drivingly connected to the driving power transmitting means pertaining to at least one of the tracks.

3,593,458 SHIPPING DOOR LOCK

James A. Wahlfeld, Peoria, and Robert C. L. Jacobs, East Peoria, both of Ill., assignors to Wahlfeld Manufacturing Company, Peoria, Ill.
Filed Nov. 25, 1969, Ser. No. 879,847
Int. Cl. E06b 1/00

U.S. Cl. 49—380

12 Claims



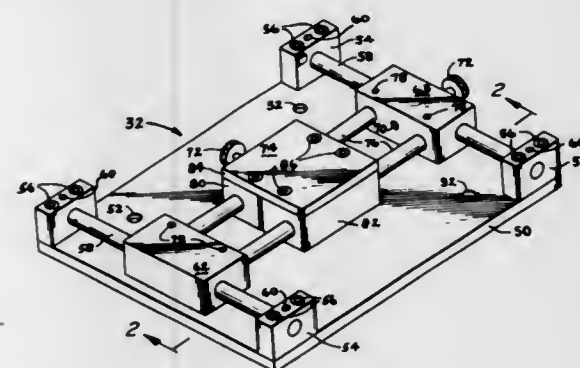
A retainer for a prehung door unit to maintain the squareness and alignment of the door within its frame during shipping and installation which is readily installed in existing lock, latch and keeper openings, having a member mating with the latch opening, and a member, separable or integral therewith mating with the keeper opening and a fastener engageable through the mating members and the door jamb to hold the door in place and releasable for removal of the securing device after installation of the unit.

3,593,459 MOVABLE SUPPORT FOR ABRADING APPARATUS

Walter Kulischenko, East Brunswick, N.J., assignor to Pennwalt Corporation, Philadelphia, Pa.
Filed June 6, 1969, Ser. No. 831,825
Int. Cl. B24c 3/12

U.S. Cl. 51—8

2 Claims



A nozzle for directing an abrasive stream and a workpiece holder are adjustably positioned relative to one another in

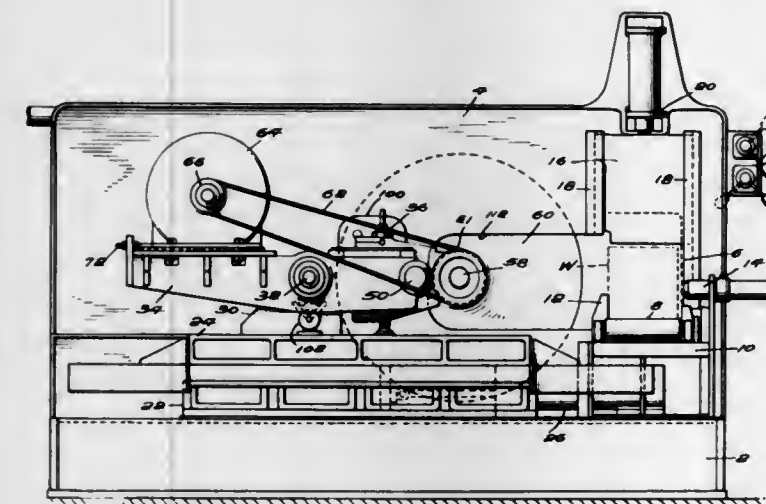
horizontal directions by means of device which supports one or the other by horizontal slide structures that are movable at right angles to each other.

3,593,460 ABRASIVE CUT-OFF MACHINES

James L. Hensley, Clinton, Tenn., assignor to The Carborundum Company, Niagara Falls, N.Y.
Filed June 13, 1968, Ser. No. 736,779
Int. Cl. B24b 7/00, 9/00, 55/02

U.S. Cl. 51—33 R

19 Claims



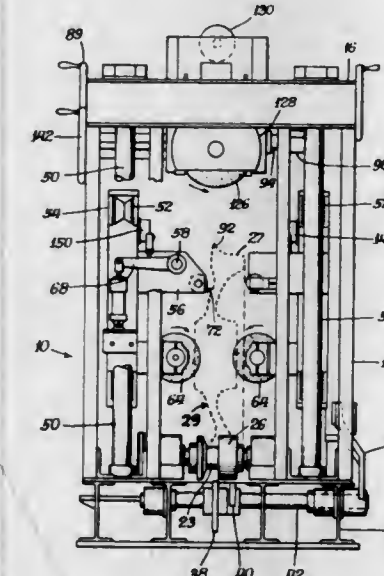
An abrasive cutoff wheel operating at high speed to cut through a bar of hard metal or other material. The rotating wheel is moved into the work while a rocking, as well as a vibrating, motion is imparted thereto. Cooling fluid is circulated over top of the wheel and down to the area of cutting to dissipate the heat of friction, thence to a tank in the base of the machine.

3,593,461 CHAMFERING DEVICE

Alden V. Gay, 1013 Capri Circle, Hueytown, Ala.
Filed May 1, 1969, Ser. No. 820,764
Int. Cl. B24b 5/46

U.S. Cl. 51—88

4 Claims



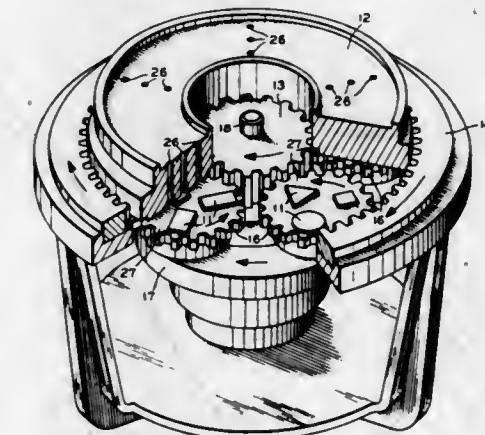
The device automatically rotates and grinds successive railway wheels in the area of the hub and the apex of the flange and thereafter ejects each wheel from the device. The device is adjustable to accommodate various size wheels.

3,593,462 APPARATUS FOR ABRADING ARTICLES

Paul A. Ryhl, Haverhill, Mass., assignor to Western Electric Company Incorporated, New York, N.Y.
Filed Mar. 24, 1969, Ser. No. 809,846
Int. Cl. B24b 5/18

U.S. Cl. 51—161

6 Claims



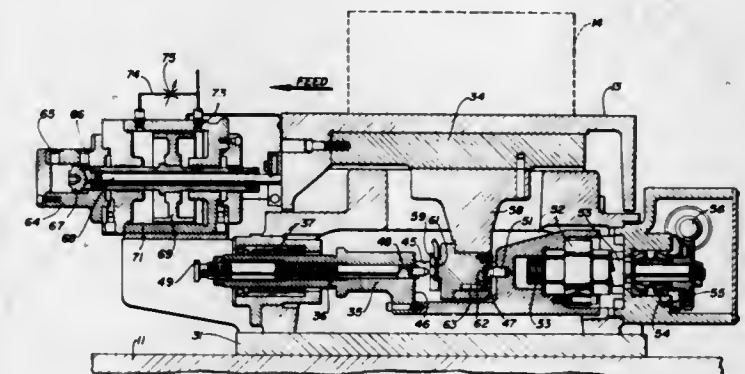
Extremely thin quartz crystal plates are nested in toothed nesting members of still lesser thickness, each of which rests upon a different planetary gear of a planetary gearing assembly. The nesting members conform to the shape of the planetary gears and move with the planetary gears upon the operation of a drive motor. This movement causes the top faces of the nested crystal plates to be lapped against a bottom lapping surface of a nonrotary lapping plate. The top faces of the crystal plates, thus, are lapped into substantially exact parallelism with unaltered bottom faces of the crystal plates.

3,593,463 GRINDING MACHINE

Herbert R. Uhtenwoldt, Worcester; Frederick A. Hohler, Holden, and Richard T. Knorr, Worcester, all of Mass., assignors to The Heald Machine Company, Worcester, Mass.
Filed Sept. 27, 1968, Ser. No. 763,294
Int. Cl. B24b 49/08

U.S. Cl. 51—165.8

9 Claims



This invention relates to a grinding machine and, more particularly, to apparatus for generating a surface of revolution by the abrasion process, wherein two hydraulic cylinders and a motor-driven screw are provided and combined to operate the machine in three distinct modes; controlled-force, controlled-rate short-throw, and controlled-rate long-throw.

3,593,464 AUTOMOBILE-BUMPER-GRINDING APPARATUS

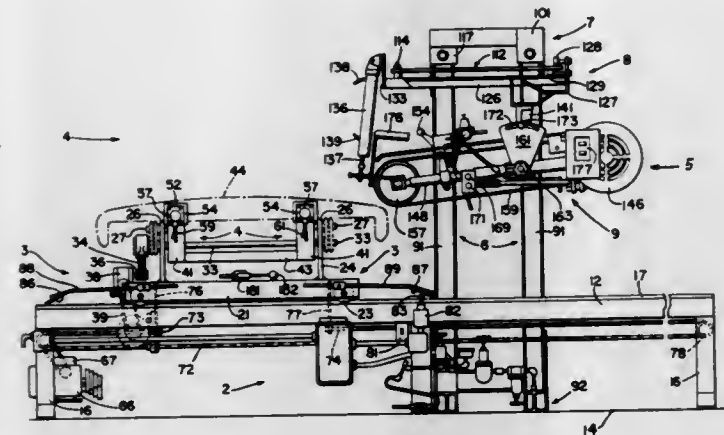
William A. Bell, 1771 Balsa Ave., San Jose, Calif.
Filed Mar. 10, 1969, Ser. No. 805,721
Int. Cl. B24b 21/16, 47/04

U.S. Cl. 51—143

21 Claims

Presented is an automobile-bumper-grinding apparatus on

which an automobile bumper may be supported while its means is enclosed within a flexible enclosure, such as a bellows, for preventing contamination thereof, such as by the abrasive compound.



various surfaces are being abraded to effect smoothing thereof.

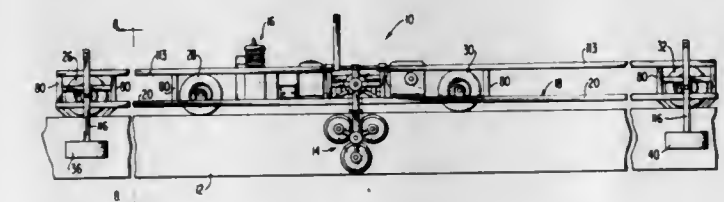
3,593,465

CONCRETE RAIL GRINDER

James A. Krippes, 1910 E. Jackson St., Pensacola, Fla.
Filed Apr. 1, 1968, Ser. No. 717,563
Int. Cl. B24b 23/00, 7/00, 9/00

U.S. Cl. 51-178

23 Claims



A self-propelled concrete rail-grinding machine including lateral supporting tires and vertical supporting tires. Opposite sides of the rail are ground by opposed sets of grinding cups. Each set of grinding cups includes three cups which rotate about their own axes as the set revolves about a central axis. The lateral supporting tires are spring loaded to bear against the side of the rail.

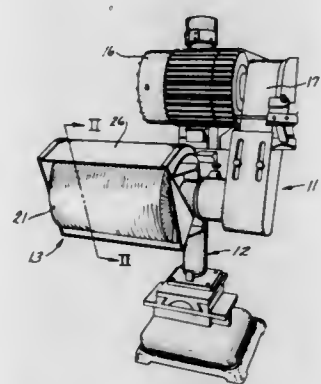
3,593,466

ABRASIVE-COMPOUND-APPLICATING MEANS

Ramsay M. Bell, Schoolcraft, Mich., assignor to Hammond Machinery Builders, Inc., Kalamazoo, Mich.
Filed Jan. 31, 1968, Ser. No. 702,024
Int. Cl. B24b 57/00

U.S. Cl. 51-263

9 Claims



A polishing or buffing machine having a reciprocating abrasive-compound-applicating means adjacent the periphery of the polishing or buffing wheel for applying an abrasive compound thereon. A drive means, preferably including a reciprocating fluid actuated power cylinder and a flexible cable drive, is provided for reciprocating the applicating means along the length of the wheel. The complete drive

This invention provides for a retractable window case structure or container, in the form of a boxlike unit, for removable attachment and adjustable support from a laterally adjustable support removably engaged within an open window area. The adjustable support is provided with at least one laterally movable member for frictional supporting engagement within the window frame area. The case structure is fully supported through an opening formed within the support for movement to either the outside weather or the inside controlled conditions. The device is a protective container for food, small animals, birds, plants and the like.

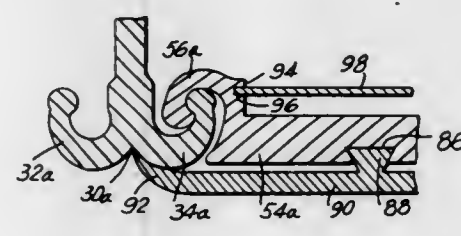
3,593,468

INTERLOCKING CHANNEL SECTIONS FOR USE IN THE CONSTRUCTION OF FLOORS, CEILINGS, WALLS AND THE LIKE

Leopold Bustin, 194 Emmon Road, Flanders, N.J.
Filed Nov. 5, 1968, Ser. No. 773,395
Int. Cl. E04b 2/18; E04c 2/08

U.S. Cl. 52-27

7 Claims



The present invention is directed to interlocking channel sections having means for matingly engaging one another in interlocking relationship to form a floor, ceiling or wall assembly and, more particularly, to channel sections having longitudinally extending flanges and recesses wherein the flanges in one section are adapted to become hingedly engaged in the recesses in an adjacent section to form an interlock therebetween. The invention also contemplates the use of auxiliary closure members in combination with the interlocking channel sections whereby the channel sections may also be employed to provide ventilating, heating, cooling ducts and the like.

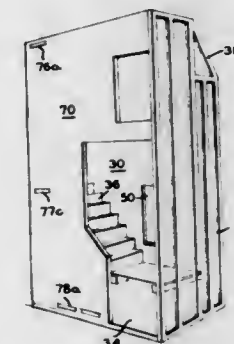
3,593,469

PREFABRICATED SERVICE MODULE FOR A DWELLING UNIT

Harlin Joseph Wall, State College, Pa., assignor to General Housing Industries, State College, Pa.
Filed Dec. 9, 1969, Ser. No. 883,379
Int. Cl. A47k 3/16; E04h 1/12

U.S. Cl. 52-27

33 Claims U.S. Cl. 52-66



A prefabricated service module for a dwelling unit. A center wall has a stairway extending upwardly along one side thereof having space beneath it for a water heater and a powder room. A floor portion extends laterally from the middle of the other side which serves as a floor for a bathroom and a ceiling for a kitchen. The kitchen appliances are arranged along the center wall in the kitchen space and the bathroom fixtures along the center wall in the bathroom space. The utility systems, such as heating ducts, vent ducts, electric supply, water and sewer systems are provided in the center wall. The entire structure can be completely prefabricated and can even include all of the appliances, plumbing fixtures and the like, so that it can be fully tested out at the point of its manufacture, and thereafter transported to the site of the building into which it is to be incorporated.

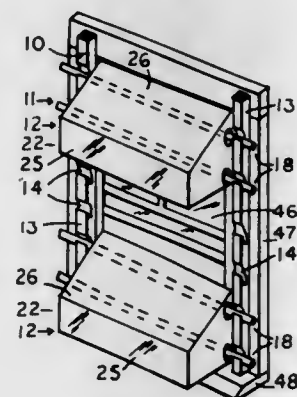
3,593,470

COMBINED AWNING AND CASE STRUCTURE

John P. Francis, 20 Boston St., Haverhill, Mass.
Filed Sept. 4, 1969, Ser. No. 855,256
Int. Cl. A47g 7/02; A47h 27/00

U.S. Cl. 52-36

9 Claims U.S. Cl. 52-221



This invention provides for one or more vertically spaced apart case structures or containers, somewhat in the form of boxlike units, to be vertically movable and adjustable adjacent a window or other opening in the wall of a building or the like. Each case structure also serves as an awning, more so when an angled top cover is provided. Each specific case structure is a protective container for food, small animals, birds, plants and the like, and supported from laterally positioned supports removably supported on opposing vertical supports attached to a wall area.

3,593,471

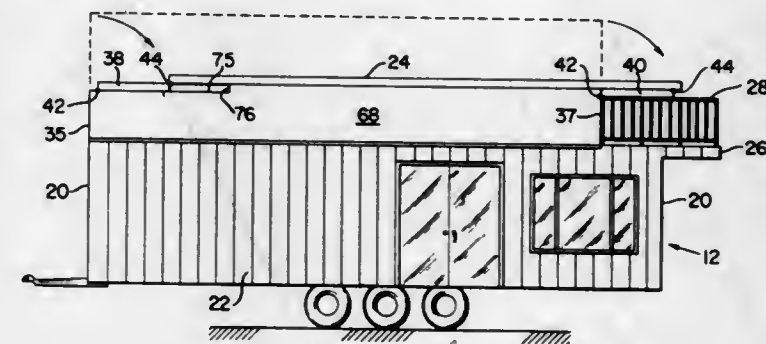
COLLAPSIBLE MULTI-STORY MOBILE HOME STRUCTURE

Eugene R. Fields, Arcadia, Calif., assignor to Haskill H. Grodberg

Filed Oct. 28, 1968, Ser. No. 771,083

Int. Cl. E04b 7/16

9 Claims



A mobile home structure typically including two sections which are joined together along a vertical plane extending longitudinally through the structure matching doorway and common wall portions of each section. Each section includes a foldable second level portion having a roof which is pivotally attached to be raised and lowered on two hinged opposite wall portions. The foldable portion of the second level has removable sidewall panels adapted to be inserted between the roof and a fixed lower portion of the sidewall, with one of the sidewall panels being dimensioned to interlock against longitudinal movement.

3,593,472

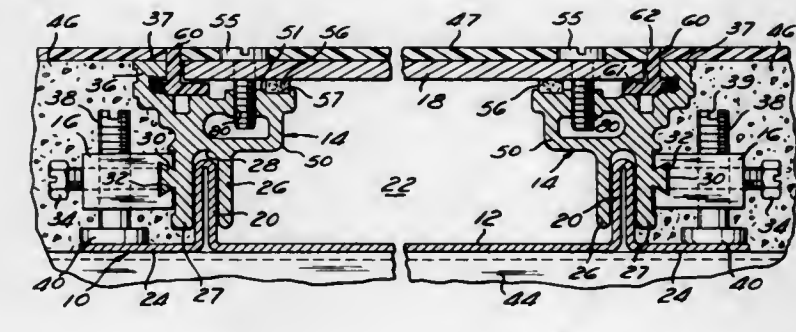
TRENCH DUCT

Paul R. Bargar, Novelty; Charles E. Shirer, Broadview Heights, and John P. Penczak, North Olmstead, all of Ohio, assignors to Bargar Metal Fabricating Company, Cleveland, Ohio

Filed Apr. 25, 1967, Ser. No. 633,560

Int. Cl. E04b 5/48; E04f 17/08

5 Claims



An underfloor electrical trench duct has a bottom channel member with adjustable height side rails and a removable cover plate. A reversible trim strip which snaps into different grooves in the side rails provides a moisture seal between the cover plate and the side rails during construction and in the finished floor as well as a decorative trim strip between the covering on the cover plate and that on the surrounding floor. The cover plate fastening arrangement includes a fastener slot extending the length of each side rail for receiving cover plate fasteners at any point along the length of a duct section.

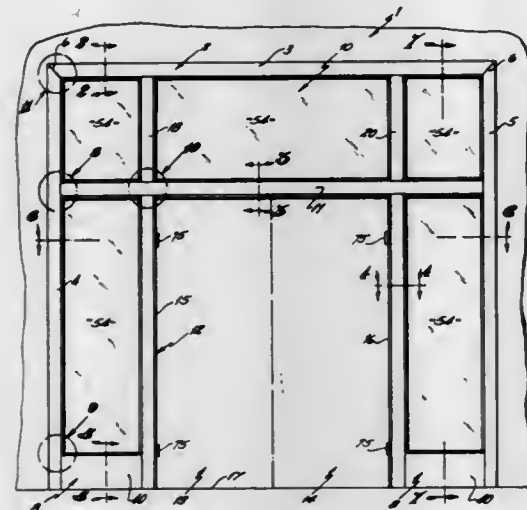
3,593,473

SECTIONAL SIDE LIGHT DOOR FRAME

Donald L. King, Loveland, Ohio, assignor to The Steelcraft Manufacturing Company, Cincinnati, Ohio
 Filed May 28, 1969, Ser. No. 828,638
 Int. Cl. E06b 1/12

U.S. Cl. 52-204

8 Claims



A sectional sheet metal frame for doors consisting of a main frame mounted within a wall opening in which vertical side light panels and a horizontal transom panel, formed of glass, are mounted within the main frame. A secondary door frame, consisting of vertical jambs and a horizontal header, is mounted in spaced relationship within the main frame. The frame assembly is furnished to the user in prefabricated sections and the several sections include connecting devices, whereby the main frame is installed within the wall opening, then the secondary door frame, consisting of the vertical door jambs and a horizontal header is installed, with the ends of the vertical jambs resting upon the floor and connected to sills, which are anchored to the floor.

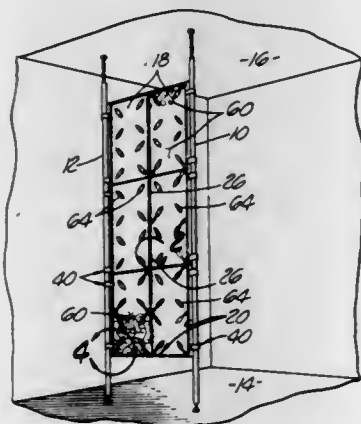
3,593,474

MEANS FOR SUBDIVIDING AN OCCUPIABLE SPACE

Michael M. Neels, 3732 Keystone Ave., Apt. 9, Los Angeles, Calif.
 Filed May 12, 1967, Ser. No. 638,025
 Int. Cl. E04c 2/40

U.S. Cl. 52-239

1 Claim



Means for dividing a room into a plurality of areas, such means comprising a series of preferably latticed panels supported by vertical support elements, preferably removably secured, extending between the ceiling and the floor, and on which elements are provided a plurality of clamping devices, serving to hold the panels fixedly in relation to the vertical support elements. The clamping devices are adjustably movable on the vertical elements. These clamping devices are designed to be tightened by a tap screw, and upon tightening, not only are thereby secured in a fixed position on their

respective vertical elements, but also serve to grip the edges of decorative panel members, one or more of which extend most of the distance between a pair of vertical support elements. The decorative panel members may assume many forms but preferably are latticed with areas to receive plastic colored inserts which may be snapped into the portion of the lattice defining such areas, but are removable therefrom. Special plastic tubular fastening devices are employed to secure together in abutment the edges of a pair of panel members.

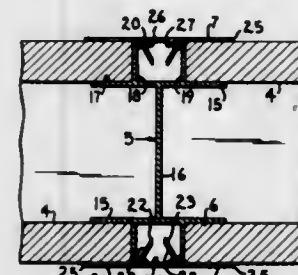
3,593,475

PARTITION SYSTEM

David H. LaGue, Kansas City, Mo., assignor to The Glen O'Brien Movable Partition Company, Inc., Kansas City, Mo.
 Filed Jan. 27, 1969, Ser. No. 794,077
 Int. Cl. E04b 2/28, 2/78

U.S. Cl. 52-241

4 Claims



A partition system extending between a floor surface and a ceiling surface comprises a plurality of pairs of laterally spaced wall-defining panel units extending between upright joint-framing members which engage facing edge portions of adjacent panel units. Snap-on retainer-cover members are mounted on the joint framing members and engage the facing edge portions of the adjacent panel units. Ceiling, floor, and end framing members engage and position upper, lower, and end edge portions, respectively, of the panel units. The edge member at the ceiling surface receives and retains a resilient clip therein which cooperates with the ceiling edge member to engage and retain the upper edge portions of the panel units.

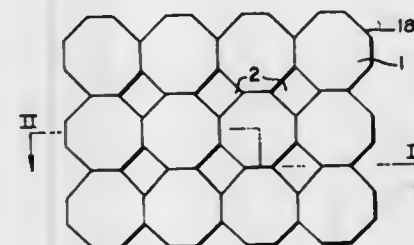
3,593,476

ROTARY CEMENT KILN LINING BRICK

Friedrich Hodl, Vienna, Austria, assignor to Veltscher Magnesitwerke-Actien-Gesellschaft, Vienna, Austria
 Filed Jan. 6, 1969, Ser. No. 789,298
 Claims priority, application Austria, Jan. 5, 1968, A 157/68
 Int. Cl. E04b 1/32

U.S. Cl. 52-249

2 Claims



Refractory bricks for rotary cement kiln linings have beveled edges, and adjoining beveled edges of adjacent bricks in the lining form channels open toward the hot inner face of the lining to facilitate anchoring of the coating formed during operation of the kiln.

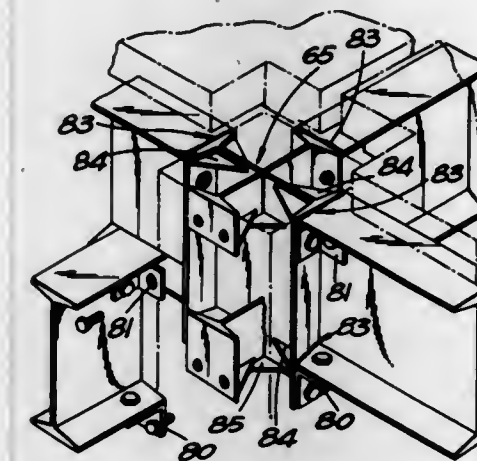
3,593,477

REINFORCED CONCRETE COLUMNS OR BEAMS

Martin H. Briggs, London, England, assignor to Sanders and Forster, Limited, London, England
 Filed Jan. 16, 1969, Ser. No. 791,699
 Claims priority, application Great Britain, Jan. 23, 1968, 3566/68

U.S. Cl. 52-253

5 Claims



This application discloses a reinforced concrete beam or column having side attachment means for a further beam or column and comprising an anchor member which is short relative to the beam or column, which is embedded in the concrete and which has at least one plane surface in the plane of a sideface of the beam or column and having bolt holes for fixing bolts for the further beam or column.

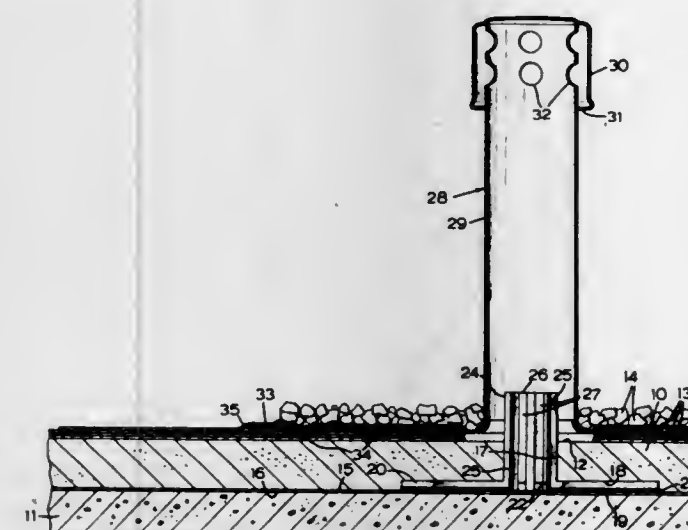
3,593,478

ROOFING INSTALLATION

Robert W. Mason, Port Credit, Ontario, Canada, assignor to Marathon Equipment & Supply Limited, Weston, Ontario, Canada
 Filed Dec. 12, 1969, Ser. No. 884,405
 Int. Cl. E04b 1/70

U.S. Cl. 52-302

16 Claims



A roofing installation in which spaced holes are formed through a layer of fibrous or closed-cell thermal insulation and through bitumen-coated roofing felts which have an upper layer of gravel chips and which are disposed on top of the layer of insulation. The lower face of the layer of insulation, between which and a supporting concrete roofing deck a vapor barrier layer is disposed, is recessed around each hole, and a breather core comprising a tubular portion and an annular flange portion presented at the lower end of the tubular portion is disposed with the tubular portion snugly fitted within the hole and with the flange portion disposed within the recess on the lower face of the layer of insulation.

The flange portion of the core is of castellated form, the grooves constituted by the castellations each being of truncated sector-shaped form. The tubular portion of the core is also of castellated form with the grooves constituted by these castellations being disposed parallel to the vertical, longitudinal axis of the tubular portion, the grooves on the outer face of the tubular portion each being in communication with one of the grooves on the upper face of the flange portion, and the grooves on the inner face of the tubular portion each being in communication with one of the grooves on the lower face of the flange portion. Thus, water vapor, gas and the like can pass from the lower face of the layer of insulation defined by the recess, from the face of the layer of insulation presented by the hole formed therethrough, and from the upper face of the layer of insulation through the grooves in the flange and tubular portions of the core into the lower end of a breather pipe which is mounted on the roofing felts and from the upper end of which the water vapor or gas can pass to the atmosphere through a downwardly open passage while the entry of rainwater into the breather pipe is prevented.

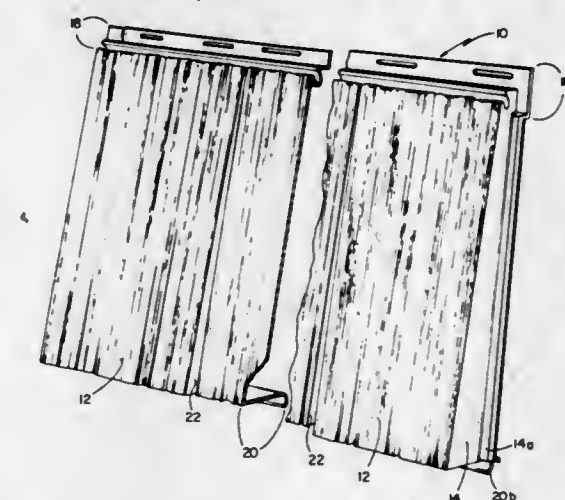
3,593,479

MOLDED PLASTIC SIDING UNITS

Caryl E. Hinds, Norwood, and James W. Jackson, East Walpole, both of, Mass., assignors to Bird & Son, Inc., East Walpole, Mass.
 Filed Jan. 31, 1969, Ser. No. 795,509
 Int. Cl. B44f 9/02

U.S. Cl. 52-313

3 Claims



Generally rectangular, hollow-open-backed, ornamental wood-simulating siding units of molded rigid plastic material, for weather-protective exterior application in overlapping horizontal courses to houses, etc., the preferred novel forms of said units being characterized by wood-grain-replica decorative indentations of wood shake shingles with the edge portions of the rectangular units being formed and adapted to overlap and interlock with other like units, of the same and adjacent courses, to prevent ingress of rain and wind-lifting of the offset weather-exposed butts thereof.

3,593,480

PLASTIC SHELL CONSTRUCTION BLOCK

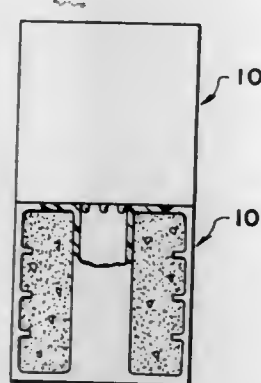
Jerry L. Bouchillon, 2329 Amy Ave., Kingsport, Tenn.
 Filed July 23, 1969, Ser. No. 853,583
 Int. Cl. E04b 2/18; E04c 2/20

U.S. Cl. 52-415

19 Claims

A construction block and block assembly thereof is disclosed comprising a formed, finished appearing plastic shell having cavities filled with cementitious material which are separated by pocket means to provide dead air or insulating

spaces, having a chemical composition adaptable to fire proofing, resistance to moisture permeation, resistance to rotting and other deterioration, and having high-strength characteristics when filled with said cementitious material.

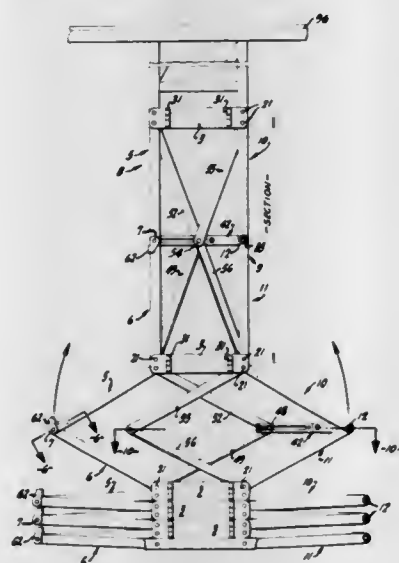


rotting and other deterioration, and having high-strength characteristics when filled with said cementitious material.

3,593,481

EXTENSIBLE STRUCTURE

Tom T. Mikulin, 1469 Bellevue Ave., Burlingame, Calif.
Filed Mar. 19, 1969, Ser. No. 808,603
Int. Cl. E04h 12/34; E01d 15/10
U.S. Cl. 52-632



A structure adapted to be extended from a compact form to a greatly elongated form to provide a vertically extending tower or a horizontally extending bridge or the like. The main structural members are similar to lazy tongs and the sides of the structure are formed of pivotally connected panels adapted to be nested in side by side relation in the compact form and opened into coplanar relationship in the extended form. Locking means is provided for fixedly connecting the extended sections together to provide the equivalent of a rigid structure.

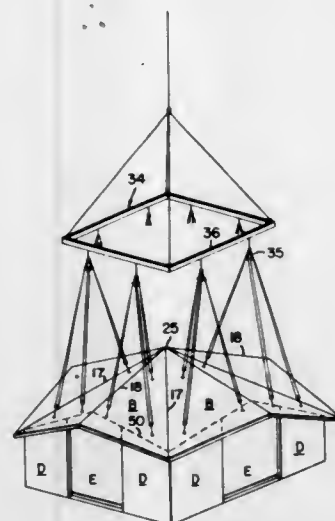
3,593,482

PROCESS FOR ERECTING FOLDING SLAB CONSTRUCTION

Delp W. Johnson, 240 Oakview Drive, San Carlos, Calif.
Filed Dec. 12, 1968, Ser. No. 783,236
Int. Cl. E04b 1/344; E04g 21/14
U.S. Cl. 52-745

A building structure and construction process in which four or more individual slabs are formed and hingeably

joined in coplanar relation. Thereafter the slabs are simultaneously raised, folded and braced in an erect position to



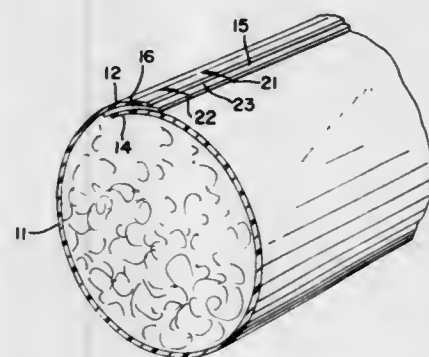
form an enclosed structure having angularly inclined ridges and valleys along the folded seams.

3,593,483

METHOD OF FORMING A PACKAGE WITH EASY OPENING DEVICE

7 Claims Alan C. Tracy, Davenport, Iowa, assignor to The Kartridg Pak. Co., Davenport, Iowa
Division of Ser. No. 730,411, May 20, 1968, Pat. No. 3,497,131.
This application July 28, 1969, Ser. No. 845,201
Int. Cl. B65b 61/18
U.S. Cl. 53-14

3 Claims



A package and a method of forming the same wherein a plastic film is formed into a tube and filled with a flowable product, margins of the film being overlapped and sealed with a tear strip in the seam thus formed which is fabricated of a material having a tear strength greater than the film, which has a width sufficient to extend along both sides of the seal line and a length sufficient to extend the full length of the package so that the ends thereof are anchored in the ends of the package which are gathered and sealed with bendable clips of metal or similar material. A pair of longitudinally spaced transverse slits are cut in the outside edge of the tear strip and the film margin to facilitate tearing either circumferentially or longitudinally so as to open the package.

3,593,484

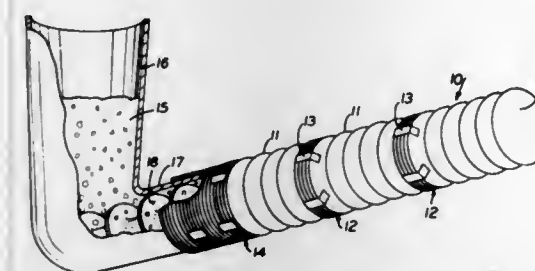
METHOD AND APPARATUS FOR SEQUENTIALLY PACKAGING MATERIALS INTO UNITS OF DESIRED VOLUME

Joseph A. Dussich, 15-09 215th St., Bayside, N.Y.
Division of Ser. No. 774,368, Nov. 8, 1968. This application Mar. 23, 1970, Ser. No. 21,766
Int. Cl. B65b 1/24, 63/02
U.S. Cl. 53-24

This method and apparatus employs an elongated axially compressed material having alternate axial portions which

18 Claims

are secured and unsecured against axial expansion. The containers are filled sequentially, and subsequently, at any



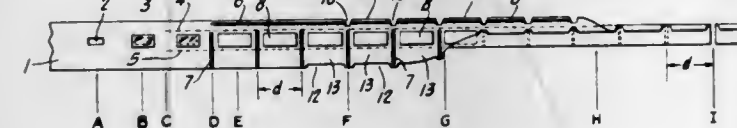
desired time, they are separated into discrete packages of prearranged volume.

3,593,485

METHOD OF FORMING ENVELOPES HAVING INSERTS THEREIN FROM A MOVING BLANK WEB

Milton A. Stovall, Duncansville, Pa., assignor to F. L. Smithe Machine Company, Inc., Duncansville, Pa.
Filed Dec. 1, 1969, Ser. No. 881,258
Int. Cl. B65b 9/06
U.S. Cl. 53-28

6 Claims



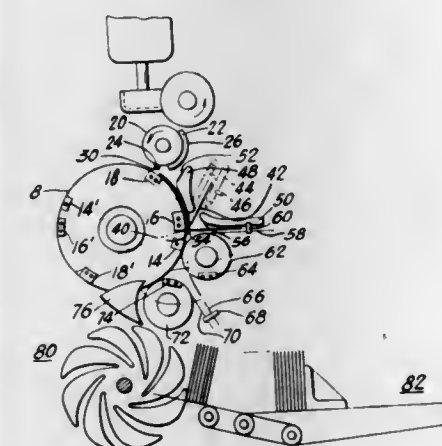
A method of forming envelopes having inserts therein from a continuously moving web of uniform width. The web is advanced along a line at selected forward speeds, continuously gummed along one edge to form an adhesive strip parallel to that edge, gummed at selected spaced intervals to form adhesive strips beginning at the web's opposite edge and extending in a direction normal to the continuous adhesive strip, inserts are placed on the gummed moving web, marginal cuts are made along both edges of the moving web to form bottom and closure flaps which are successively folded and sealed to form a moving web of discretely packed insert materials which is cut transversely of its direction of travel along the spaced adhesive strips to form envelopes having inserts sealed therein.

3,593,486

METHOD FOR INSERTING MATERIALS IN ENVELOPE BLANKS

Herbert W. Helm, Hollidaysburg, Pa., assignor to F. L. Smithe Machine Co., Inc., Duncansville, Pa.
Filed Dec. 29, 1969, Ser. No. 888,452
Int. Cl. B65b 11/48
U.S. Cl. 53-31

6 Claims



Methods of enclosing insert materials in continuously advancing envelope blanks and forming mailing pieces comprising an envelope having insert materials sealed therein wherein the insert materials are enclosed and sealed in an envelope blank during the envelope formation process. An envelope blank having closure flap, body and bottom flap portions is contacted with a rotating cylinder having vacuum and

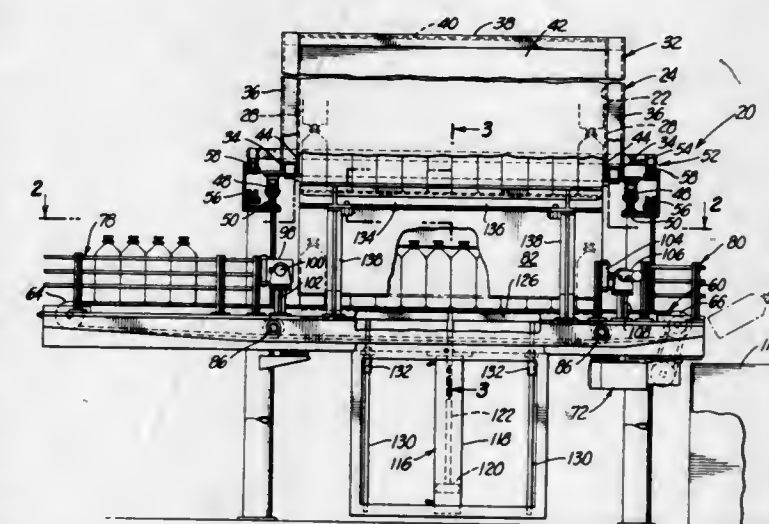
pressure ports. A negative pressure is formed at the vacuum ports for maintaining the envelope blank in overlying contacting relationship with the cylinder. A positive pressure is formed at the pressure ports for urging the bottom flap portion of the blank away from the rotating cylinder to form a fold between the bottom flap and body portions of the envelope blank. Insert materials are injected into the fold thus formed and the bottom flap portion is thereafter folded into overlying contacting relationship with the body portion of the blank to enclose the insert materials therein. The envelope blank has adhesive strips applied thereto as required and is folded and sealed to form an envelope having insert materials sealed therein.

3,593,487

ARTICLE-HANDLING APPARATUS

Kelth B. Cleland, Whittier, Calif., assignor to Hunter Industries, Santa Fe Springs, Calif.
Filed Feb. 14, 1969, Ser. No. 799,480
Int. Cl. B65b 5/10, 57/14
U.S. Cl. 53-54

6 Claims



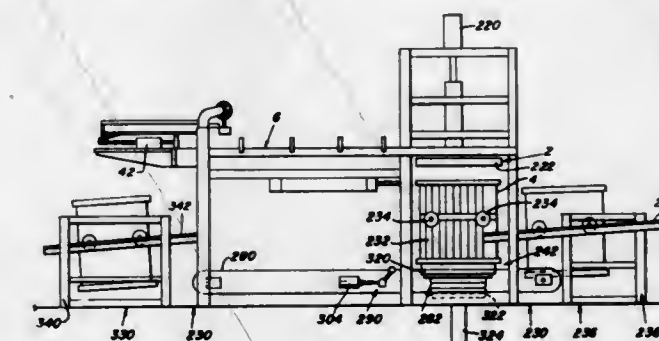
An apparatus for loading tiered rows of articles into and for unloading same from open-bottomed containers. The apparatus is particularly applicable to handling such light weight, slippery articles as empty plastic bottles which are to be loaded into containers at manufacturing locations for use at other locations. The apparatus includes a loader which forms the articles into rows and which inserts successive rows upwardly into successive compartments of multicompartment containers. The apparatus further includes an unloader for removing successive tiered rows from successive container compartments at a point of use.

3,593,488

CONTAINER-LOADING APPARATUS

Albert H. Merkner, Pittsburgh, and Chester L. Gutowski, Castle Shannon, both of Pa., assignors to H. J. Heinz Company, Pittsburgh, Pa.
Filed Aug. 2, 1968, Ser. No. 749,813
Int. Cl. B65b 57/10, 35/30
U.S. Cl. 53-61

10 Claims



Apparatus for loading metallic containers into a container receiver. A magnetic container-loading head adapted to receive containers from first conveyor means and transfer the containers to the container receiver. Second conveyor means

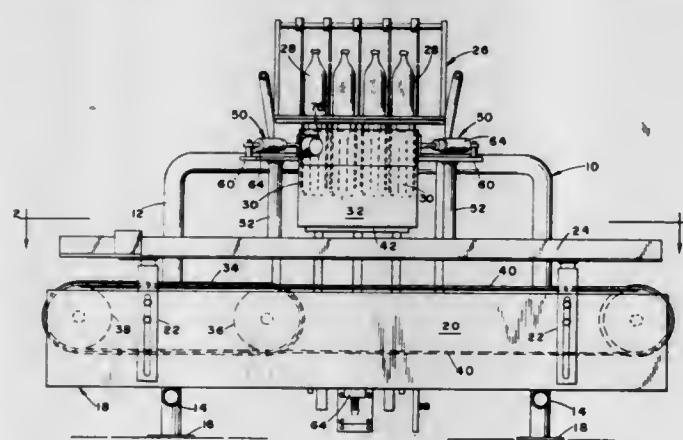
for supplying containers to the first conveyor means. Control means intermittently terminating the supply of said containers from the second conveyor means to the first conveyor means. Third conveyor means for transporting container receivers to a loading position under the magnetic container-loading head and subsequently away from the underlying position. Positioning means for establishing relative vertical movement between the magnetic container-loading head and the container receiver. Release means responsive to the relative vertical positioning of the magnetic container-loading head and the container receiver to release the containers from the former and transfer them to the latter. The first conveyor means may have a stationary container-receiving table and a reciprocating walking beam assembly with pusher means to move the containers received on the stationary table from the second conveyor means to the walking beam. Pattern-forming means operating responsive to movement of said pusher means to produce lateral nesting movement of the containers and means for raising and lowering the walking beam assembly.

3,593,489

AUTOMATIC TAB SLITTER FOR CASER

William F. Roth, Hanover, Pa., assignor to Chisholm-Ryder Company of Pennsylvania, Hanover, Pa.
Filed Sept. 23, 1969, Ser. No. 860,369
Int. Cl. B65b 5/08, 43/26, 61/00
U.S. Cl. 53-167

17 Claims



Mechanism for severing tabs connected to adjacent edges of certain flaps of a shipping case to be packed with containers or the like in connection with casing operations, said tabs holding the upper flaps of a case closely against the outer surfaces of the sides and ends of a case incident to being loaded. The case includes mechanism to elevate the cases successively to loading mechanism and incident to such elevation, tab-severing means are positioned to engage the tabs to sever the same and thereby permit the flaps to be closed as a subsequent operation. The tab-severing mechanism includes units respectively movable diagonally toward and from opposite corners of a case where the tabs are located and include rotatable serrated cutters which are power-driven. Fluid-operated means also move said cutter units laterally toward said corners of a case to position the same for severing the tabs.

3,593,490

WRAPPING MACHINE

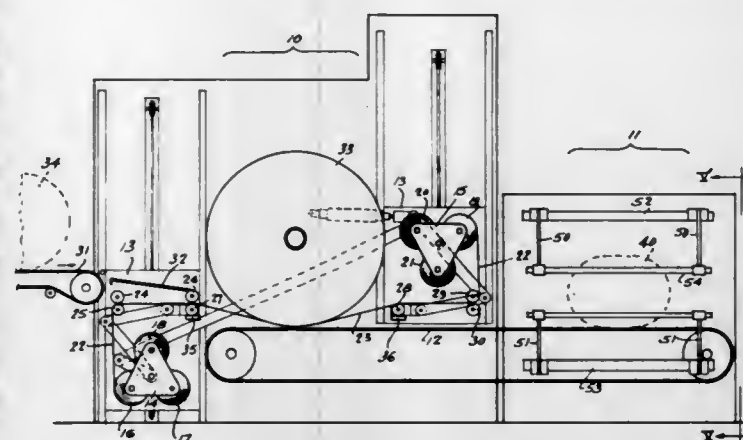
John A. Pinatel, Jr., and John M. Lefebvre, both of P.O. Box 490, Joliet, Quebec, Canada
Filed Apr. 15, 1970, Ser. No. 28,756
Claims priority, application Canada, June 18, 1969, 054,663
Int. Cl. B65b 11/12, 11/48

U.S. Cl. 53-66

5 Claims

A bale or roll of textile material is wrapped in a thermoplastic film. At a circumferential wrapping station a frame carrying film is raised to cause a web of film to embrace the sides of the workpiece; rollers which move together at the top of the workpiece carry heat-sealing and severing bars to complete the circumferential wrap and to rejoin the film to form an uninterrupted web for the next workpiece. At a sub-

sequent end-wrapping station, arms bearing heat-sealing and severing bars are closed to complete the wrap. The operations are sequenced to follow automatically upon each other,



the circumferential wrapping operation serving to measure the height of the workpiece and store this information for use in adjusting the operation height of the heating bars in the end-wrapping operation.

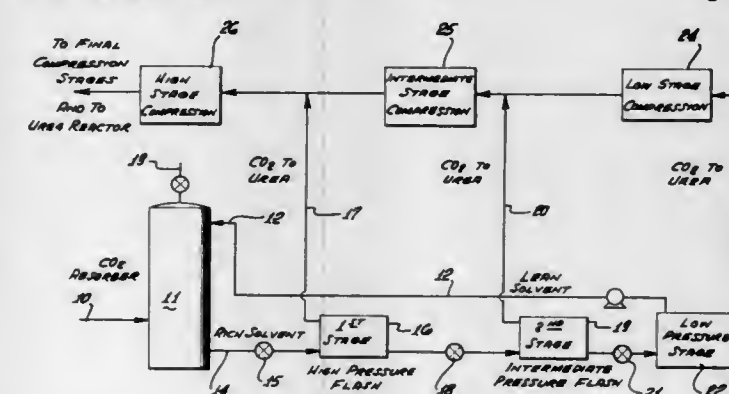
3,593,491

AMMONIA PLANT CARBON DIOXIDE ABSORPTION AND COMPRESSION

Robert N. Tennyson, Anaheim, Calif., assignor to Fluor Corporation, Los Angeles, Calif.
Continuation-in-part of application Ser. No. 82,551, May 21, 1969, now abandoned. This application July 24, 1969, Ser. No. 850,306
Int. Cl. B01d 19/00, 53/00

U.S. Cl. 55-43

1 Claim



Carbon dioxide is recovered by dissolution in a physical solvent under relatively high contactor pressure which is conserved for purposes of carbon dioxide delivery to a urea plant by incremental or stage pressure reduction of the rich solvent flowing through a succession of separation zones from which their respective gas releases are progressively combined and compressed as feed to the urea reactor.

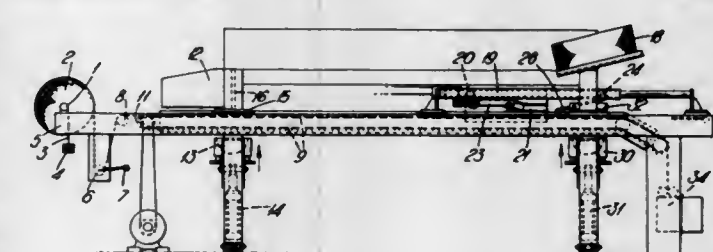
3,593,492

APPARATUS FOR THE PACKAGING OF PRODUCTS

Arnoudus Cornelis Wilhelmus Maria Frankfort, Mln. Charles Ruysstraat 18, Venray, Netherlands
Filed July 18, 1968, Ser. No. 745,942
Claims priority, application Great Britain, July 20, 1967, 33474/67
Int. Cl. B65b 47/02

U.S. Cl. 53-184

24 Claims



The invention relates to apparatus for packaging products and having a continuous conveyor with an intermittent step-by-step movement and which conveys a film of thermoplastic

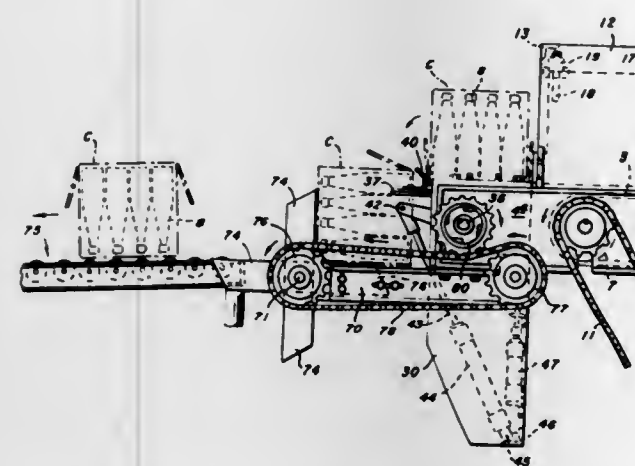
sheet material. This material is softened by heat or any other way, shaped into a series of depressions into which products may be placed. Cardboards are automatically fed into position and placed over the depressions in the thermoplastic material and sealed around the products on to the board and, at the same time, the sheet material is cut around the sealed portion. The invention also includes the complete package made in this way.

3,593,493

CONVERTIBLE CASE PACKING UNIT AND UPSIDE-DOWN CASE PACKER THEREFOR

Frank P. Alduk, 116 Guadalcanal Road, New Castle, Pa.
Filed Feb. 3, 1969, Ser. No. 796,092
Int. Cl. B65b 5/06; B65h 21/22; B65h 35/54
U.S. Cl. 53-243

9 Claims



There is disclosed a basic case-packing unit that is convertible for use with interchangeable case-packing units of various types, and an upside-down case packer for use thereon. The basic unit comprises a frame with an endless conveyor belt that receive containers and container-shaped articles at one end, and arranges them in a predetermined arrangement for removal at the discharge end over a dead plate flush with the top reach of the belt. Projecting frame structures at the discharge end of the belt provide support for various case-packing units that can be interchangeably mounted thereon. An upside-down case packer for mounting on the projecting frame structures is also disclosed.

3,593,494

PROCESS FOR THE SEPARATION OF GASEOUS MIXTURES OF CYANOGEN CHLORIDE AND HYDROGEN CHLORIDE

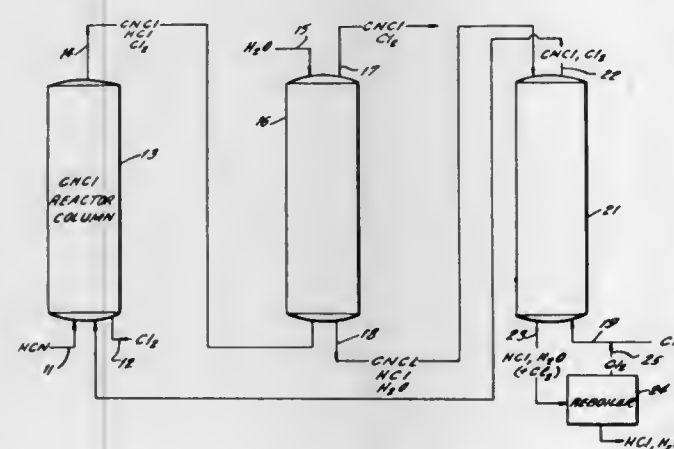
William S. Durrell, and Robert J. Eckert, Jr., both of Mobile, Ala., assignors to Gelgy Chemical Corporation, Ardsley, N.Y.

Filed Aug. 8, 1968, Ser. No. 751,197

Int. Cl. B01d 53/14

U.S. Cl. 55-51

6 Claims



Process for the separation of hydrogen chloride from gaseous mixtures incorporating the same in admixture with

cyanogen chloride, involving absorption of the hydrogen chloride in water followed by stripping of the aqueous bottoms from the absorber to remove residual cyanogen chloride from the HCl-containing stream and thus facilitate the recovery of HCl in economically attractive concentrations. The process permits such recovery without substantial concomitant loss of the cyanogen chloride product by hydrolysis.

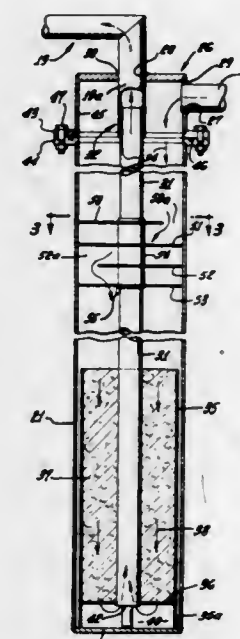
3,593,495

A METHOD FOR GAS PURIFICATION FROM A SYSTEM RETORT

John M. Ellison, Sherman Oaks, Calif., assignor to Vacuum Atmospheres Corporation, North Hollywood, Calif.
Filed June 19, 1969, Ser. No. 834,653
Int. Cl. B01d 39/00

U.S. Cl. 55-68

4 Claims



The disclosure concerns the operation of a gas purification retort unit wherein removal of a gas flow tube and getter carrier from a heated container are facilitated, and the mode of operation of the tube and baffle structure carried thereby are such that heat transfer from hot gas to a sealed interconnection between the container and a removable head is blocked. Operation of the retort unit in a system for treating gas containing oxygen, hydrogen and water is also disclosed.

3,593,496

METHOD FOR PURIFYING GASES

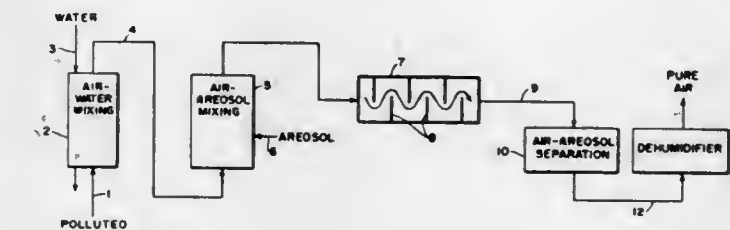
Edward W. Merrill, Cambridge, Mass., assignor to Charles River Foundation, Boston, Mass.

Filed Sept. 10, 1969, Ser. No. 856,765

Int. Cl. B01d 53/06

U.S. Cl. 55-77

7 Claims



Organic pollutants, such as hydrocarbons, can be removed from air by mixing the air with an aerosol of particles of water containing a surfactant which presents an oleophilic surface on the particles. The air is preferably humidified to 100 percent RH prior to mixing it with the aerosol, so that evaporation of the aerosol particles will not occur. The aerosol particles are effective by absorbing organic pollutants into their oleophilic surfaces, and removal of the particles by filtration or electrostatic precipitation leaves the air substantially purified of such pollutants.

3,593,497

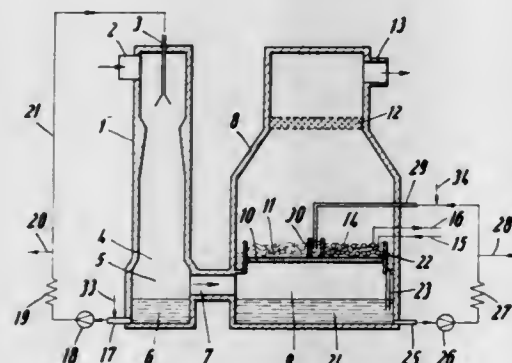
ABSORPTION PROCESS

Hugo Grimm, Frankfurt am Main, and Karl-Heinz Dorr, Mainz, (Rhine), both of, Germany, assignors to Metallgesellschaft A.G., Frankfurt, Main, Germany
 Filed Jan. 28, 1969, Ser. No. 794,509
 Claims priority, application Germany, Feb. 3, 1968, P 17 19 559.4

Int. Cl. B01f 3/04

U.S. Cl. 55-250

11 Claims



Absorption process comprising supplying SO_2 or water containing gas through a gas supply conduit disposed in the upper portion of a vertical tube having an outlet opening at its lower end; supplying absorbent liquid through a liquid supply conduit disposed in the tube, providing a bath of said liquid disposed below the outlet opening of the tube, passing unabsorbed gas through a gas-filled space, disposed below a horizontal, gas-permeable plate which succeeds the tube and is contained in a housing which communicates with a gas space below the outlet opening of the vertical tube, through said plate and through a layer of the liquid disposed on top of and carried by the gas-permeable plate which layer of liquid is agitated by said gas flowing through the gas permeable plate and through the liquid thereon, discharging the liquid from said layer; and venting unabsorbed gas through a gas outlet opening in the upper portion of the housing.

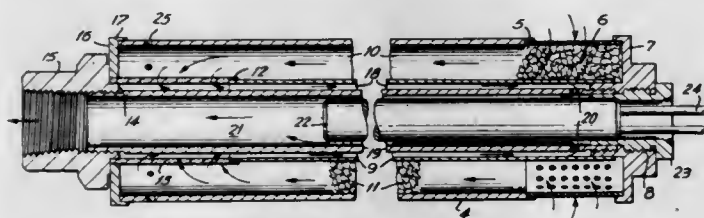
3,593,498

AIR DRIER AND FILTER

Albert L. Semon, 11 Elliot Place, Short Hills, N.J.
 Filed Jan. 21, 1969, Ser. No. 792,730
 Int. Cl. B01d 53/26

U.S. Cl. 55-267

6 Claims



An air drier and filter wherein the air enters through a perforated metal filter in the sidewall and at one end of a casing, said air flowing longitudinally of said casing from the perforated metal filter through an annular mass of a desiccating agent to the opposite end of the casing where it passes laterally through a porous metal filter into an annular passage to flow toward the inlet end of the casing where it flows laterally into a heated chamber leading to a center outlet of the casing.

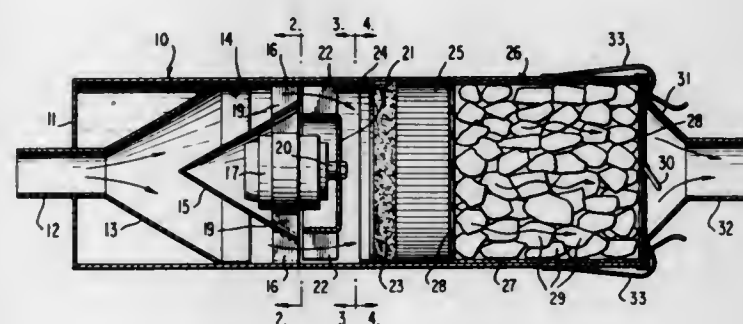
3,593,499

EXHAUST MUFFLER AND PURIFIER

Herbert E. Kile, Hagerstown, Md., assignor to Richard D. Myerly; Gene A. Cook; James E. Hurd; William G. Price, Hagerstown, Md.; William E. Cale and Virgel M. Cale, Jr., Hot Springs, Va., part interest to each
 Filed Apr. 11, 1969, Ser. No. 815,385
 Int. Cl. B01d 50/00

U.S. Cl. 55-267

1 Claim



A unitary combined muffler and air purifier for internal combustion engine exhaust systems having a replaceable canister for charcoal chunks or the like and other replaceable filter components, together with a fan to overcome back pressure in the unit. The device is characterized by simplicity, economy of construction, durability, minimum weight and ease of maintenance.

3,593,500

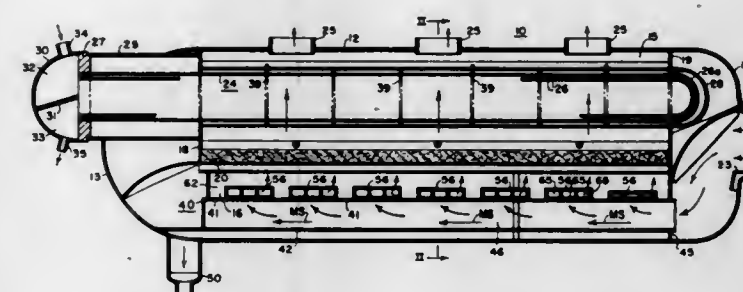
DEVICE FOR SEPARATING MOISTURE-LADEN VAPOR
 Paul D. Ritland, Secane, and Eugene J. Barsness, Broomall, both of, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 25, 1968, Ser. No. 778,672

Int. Cl. B01d 45/08

U.S. Cl. 55-319

5 Claims



This invention provides an arrangement for improving the removal of moisture from a moisture-laden hot pressurized vapor, such as steam, in a vessel having a moisture separator, by directing the high-velocity incoming steam through a manifold extending in side-by-side lengthwise relation with the separator and having outlet orifices along its length formed in groups and arranged in such a manner that the total cross-sectional area of the orifices in the groups decreases in the direction of flow of steam through the manifold. Vanes extending transversely to the length of the manifold are employed to turn and direct the steam from the outlets into a diffusion space between the separator and the manifold, and baffle plates are mounted across the vanes to prevent direct infringement of the steam issuing as jets from the orifices.

3,593,501

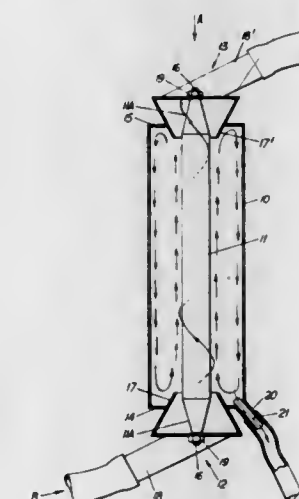
DEVICE FOR SEPARATING PARTICULATE MATERIAL FROM A MIXTURE OF PARTICULATE MATERIAL AND FLUID

Antony D. Cameron, Aberdeen, England, assignor to Aberdeen Engineering Design Limited, Aberdeen, England
 Continuation-in-part of application Ser. No. 725,868, May 1, 1968, now abandoned. This application Dec. 19, 1969, Ser. No. 886,462

Int. Cl. B01d 45/12

U.S. Cl. 55-338

2 Claims



A centrifugal dust-from-air separator in which an upright cylindrical casing has mutually opposed nozzles on each end which project into the casing through opposite end walls and are convergent towards the interior of the casing. A guide member extends along the axis of the casing and enters the mouth of the nozzles so that swirling air and dust mixture entering one nozzle induce a secondary recirculating airflow in the casing, dust moving into the secondary flow under centrifugal force and being deposited at the lower end of the casing and clean air leaving by way of the upper nozzles.

3,593,502

MOUNTING FOR FLUID FILTERS

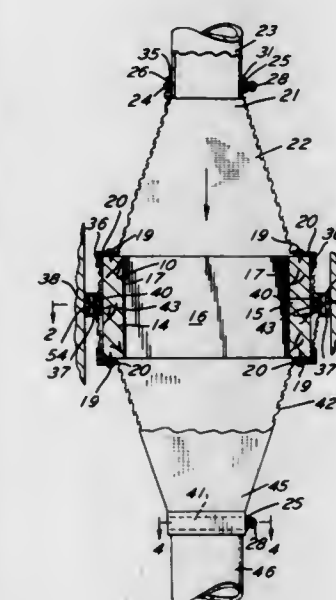
Michael H. Pelosi, Jr., Broomall, Pa., assignor to CRS Industries, Inc.

Filed May 31, 1966, Ser. No. 553,841

Int. Cl. B01d 46/00

U.S. Cl. 55-481

2 Claims



A mounting for fluid filters of the type which have a filter carried in a rigid frame, the frame having nonrigid or flexible filter entrance and exit ducts extending thereto and in overlapped relation to prevent leakage, with seals also to confine the fluid to be filtered, the outer ends of the ducts being detachably connected into a duct system and when detached

being movable toward and away from the filter for purposes of installation and changeover.

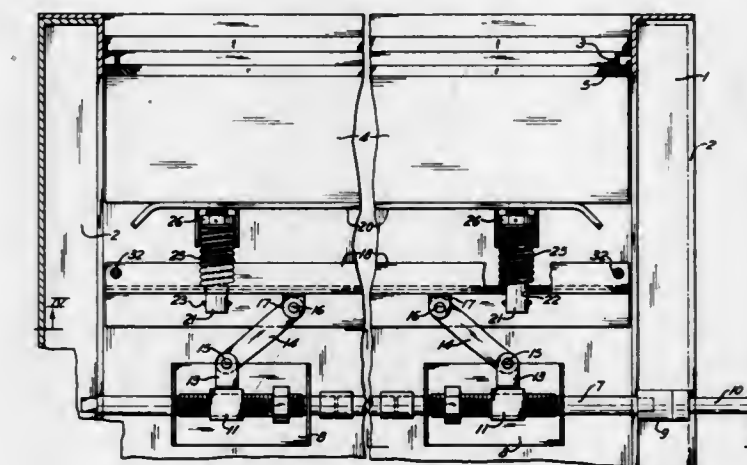
3,593,503

SIDE-LOADING FILTERING APPARATUS

Paul D. Andrews, Dormont, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.
 Filed May 27, 1969, Ser. No. 828,206
 Int. Cl. B01d 27/08

U.S. Cl. 55-481

5 Claims



Filter-clamping mechanism in a side-loading filter housing includes means extending across the housing for applying pressure to the back of a filter. A screw behind such means and parallel to it has right- and left-hand threads on which nuts are mounted. Extending forward from the nuts and inclined laterally relative to each other are links that are pivotally connected to the nuts and the pressure-applying means on vertical axes. When the screw is turned to cause the links to approach parallelism, the pressure-applying means is moved forward to press a filter against a sealing flange in the front of the housing.

3,593,504

FREE-CUTTING MOWING MACHINE

Karl-Heinz König, and Antonius Huntrup, both of Essen, Germany, assignors to Landmaschinenfabrik Essen G.m.b.H., Essen, Germany

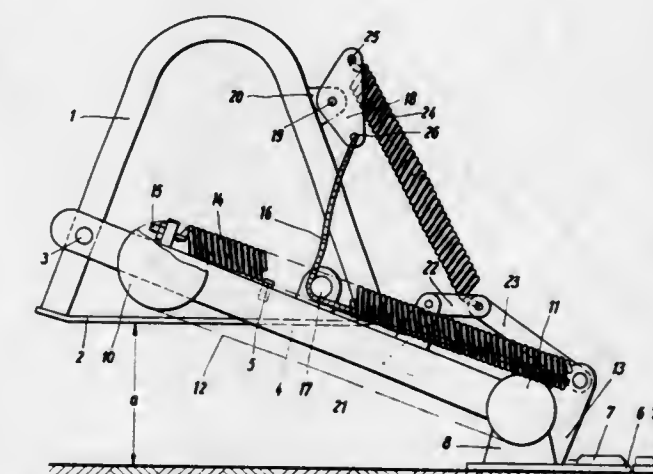
Filed Jan. 30, 1969, Ser. No. 795,168

Claims priority, application Germany, Jan. 31, 1968, Feb. 2, 1968, P 16 32 812.4; P 16 32 813.5

Int. Cl. A01d 35/26

U.S. Cl. 56-6

8 Claims



A free-cutting mowing machine especially a mowing machine comprising a main frame and a trailing beam pivotally carried on one end thereof on the main frame. A mowing beam is pivotally connected to the other end of the trailing beam and cutting discs rotate about vertical axes and are carried by the mowing beam. A first spring operatively

connects the mowing beam with the trailing beam and a second spring operatively connects the mowing beam with the main frame. A tensioning device connects in its operative length to the mowing beam and to the main frame via the trailing beam such that the load of the mowing beam is equalized in a transporting position at least partly for the purpose of an easy, high raising.

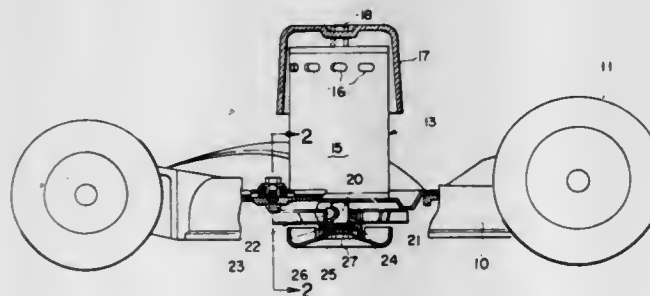
3,593,505

MOWER MOTOR COOLING SYSTEM

Robert A. Mittelstadt, Burnsville, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Sept. 4, 1968, Ser. No. 757,328
Int. Cl. A01d 35/26

U.S. Cl. 56-12.8

15 Claims



A cooling system for the electric motor of an electric rotary mower. The system includes a fan which is mounted on the mower shaft under the deck of the housing so as to be enclosed in said housing together with the cutter blade which is also mounted on the motor shaft. The fan draws cooling atmospheric air into the upper end portion of the motor and downwardly through the motor into the blade housing.

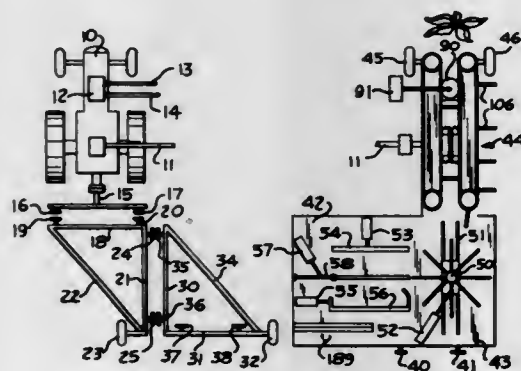
3,593,506

TOBACCO PLANT HARVESTER

James H. Casada, and Edward M. Smith, both of Lexington, Ky., assignors to The University of Kentucky Research Foundation, Lexington, Ky.
Filed Aug. 21, 1969, Ser. No. 851,891
Int. Cl. A01d 45/16

U.S. Cl. 56-27.5

12 Claims



A harvester for tobacco plants is provided for towing by a prime mover to which an articulated frame is attached, the frame mounting a movable turret having spears on which tobacco stalks are impaled. During removal of the stalks from the spears, they are loaded on sticks which are then manually removed from the harvester.

A hydraulic system powered from the prime mover serves to actuate each of the turrets, an empty stick supplying mechanism, a loaded stick removing mechanism, and the mechanism for transferring stalks from the spears to the sticks; and a mechanical power takeoff shaft driven by the prime mover drives the conveyor which moves stalks after being cut from their root systems to the turret for impaling on the spears.

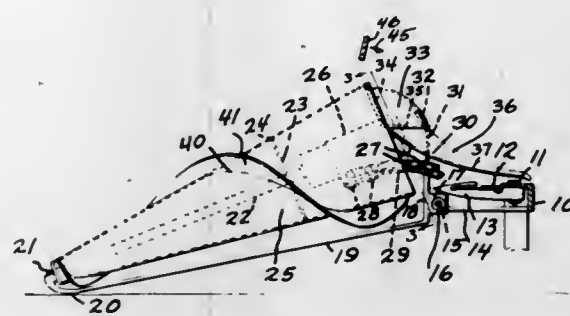
3,593,507

DEVICE FOR GATHERING SOYBEAN CROPS

William F. Mohr, Laurel, Nebr.
Filed June 5, 1967, Ser. No. 644,452
Int. Cl. A01d 45/02

U.S. Cl. 56-119

2 Claims



An improved harvesting device for soybeans or the like having rotating frustoconical lifting members to raise the bean vine to a cutting height. Vanes on the conical shape assist in the lifting. Internal motors in the cones provide a clear path for the harvested vine to be carried into the harvesting machine.

3,593,508

APPARATUS FOR IMPARTING A PREDETERMINED VALUE OF TWIST TO A MATERIAL

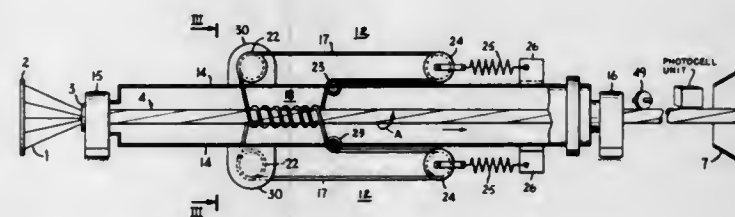
Ludwik Jachlmowicz, Elizabeth, and Adolf S. Knott, Roselle, both of, N.J., assignors to General Cable Corporation, New York, N.Y.

Filed May 23, 1968, Ser. No. 731,454

Int. Cl. D07b 7/02

U.S. Cl. 57-34

11 Claims



An apparatus for imparting a predetermined twist to a multistrand cable during takeup in which a cable twisting unit is mounted for rotation about the axis of said cable and includes a twist imparting means of flexible cylindrical material of endless length and coarsing a winding path of a plurality of helical turns around said cable and in engagement with said cable thereby transmitting twist force to said cable to provide a predetermined twist in said cable. A braking means is associated with the cable twisting unit to vary the twisting force transferred by the twist imparting means to the cable and is controlled by a twist sensor sensing variations from the predetermined twist.

3,593,509

APPARATUS AND A METHOD FOR STRANDING A TWISTED UNIT OF A CABLE

Wolfgang Feese, Berlin; Heinz Oberender, and Heinz Badura, Neustadt/Colburg, all of, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Munich, Germany
Filed May 19, 1969, Ser. No. 825,647
Claims priority, application Germany, May 21, 1968, P 17 65 452.3

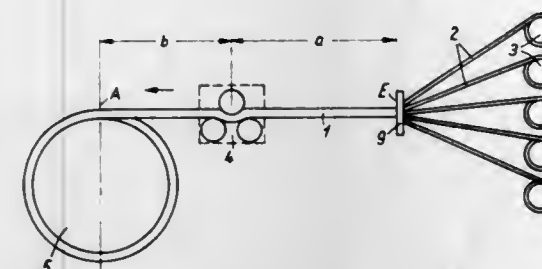
Int. Cl. H01b 13/02

U.S. Cl. 57-34 AT

23 Claims

For SZ stranding, the stranding elements which remain united in the stranding or twisted unit are led in a stretched twisted condition to a twisting device which twists the twisted unit in sections, each of a multiple of stranding strokes. The twisting device is positioned closer to the takeup point than to the payout point of the twisted unit. A longitudinal section

of the twisted unit has a minimum length equal to the distance between the takeup point and the twisting device having a venturi-type member in axial alignment for use in



and a maximum length equal to three times the distance between the twisting device and the payout point.

threading a yarn into the grip through its outlet end.

3,593,510

YARN-TWISTING DEVICE

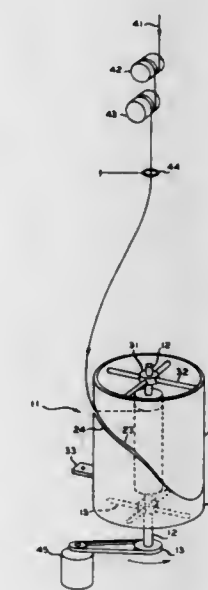
Peter A. Taylor, Greenville, S.C., assignor to Phillips Petroleum Company

Filed Sept. 2, 1969, Ser. No. 854,368

Int. Cl. D01h 1/06, 7/68, 7/70

U.S. Cl. 57-74

10 Claims



A spindle adapted to receive a yarn package core is surrounded by an annular sleeve. The sleeve is split along a closed line located between and spaced from its ends to form an upper section and a lower section having mating surfaces. The median plane of the closed line is inclined at an acute angle to the spindle axis. The yarn to be twisted is passed from a point, exterior to the sleeve and at least substantially close to the spindle axis, through the space between the adjacent ends of the sleeve sections and onto the package core.

3,593,511

TWISTING HEAD FOR TEXTILE MACHINE

Claude Guignard, Ferney-Voltaire, France; Jean Pellaton, Chatelaine, and Maurice Poull, Meyrin, Switzerland, assignors to Electrospln Corporation, Columbus, Ohio
Filed Jan. 21, 1970, Ser. No. 4,669

Claims priority, application Switzerland, Feb. 18, 1969, 2418/69

Int. Cl. D01g 23/08; D01h 7/92, 15/00

U.S. Cl. 57-77.33

9 Claims

A supporting and driving head for a radially clamping grip

3,593,512

COMBINATION OF POROUS SPINNING OR TWISTING RINGS WITH A RING RAIL AND COMMON LUBRICANT SUPPLY

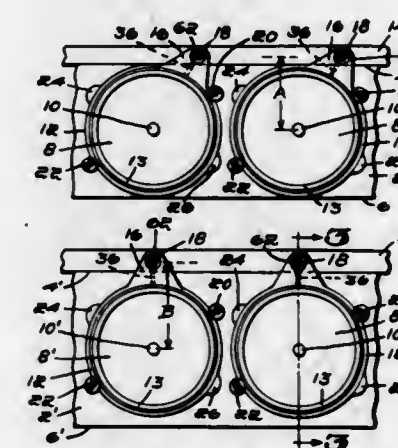
Andrew J. Wayson, Needham, and Richard N. Perkins, Rockland, both of, Mass., assignors to Merriman, Inc., Hingham, Mass.

Filed Aug. 13, 1969, Ser. No. 849,793

Int. Cl. D01h 7/62

U.S. Cl. 57-120

6 Claims



A porous spinning ring and holder of a selected diameter is mounted on a ring rail of greater or lesser width and the holders and rings are connected with a common source of lubricant in the form of a pipe extending along the front or rear of the ring rail. The ring holder has a lateral extension of at least a minimum length and the holder may be rotated within limits on the ring rail to a position at which the effective connecting point of the extension will be directly over the lubricant pipe and the extension and pipe can be connected. The connection and the holder extension have passages in series leading from the pipe to the porous ring for the transmission of lubricant. Identical ring holders and rings mounted thereon may be used on ring rails of differing widths within limits and still be connected by identical means to a common source of lubricant.

3,593,513

DYEING OF MIXED SYNTHETIC POLYMERIC YARNS

Cecil Everett Reese, Winston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 5, 1967, Ser. No. 665,623

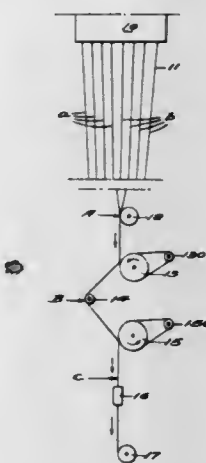
Int. Cl. D02g 3/04

U.S. Cl. 57-140

4 Claims

A composite yarn of two discrete classes of filaments, each class having a different dye affinity or dissimilar inherent apparent coloration is characterized by a degree of filament intermingling of at least 65 percent, a break elongation from 5 percent to 100 percent, the difference in percent break elongation

gation between the discrete classes of filaments being less than 15, and a tenacity from 1.0 to 10 g.p.d. The yarn is produced by separately spinning or cospinning two synthetic fiber-forming polymeric compositions into a multiplicity of



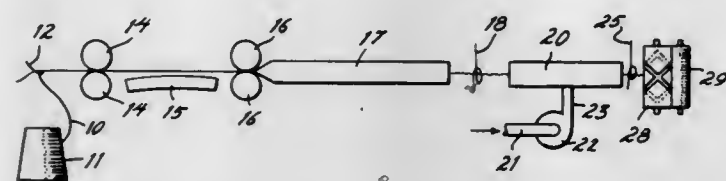
discrete filaments, combining the filaments into a composite yarn during or prior to drawing the filaments as an integral yarn, and further processing the yarn to yield the desired properties.

3,593,514 STRAND TREATMENT

Robert K. Stanley, Media, Pa., assignor to Techniservice Corporation, Kennett Square, Pa.
Continuation-in-part of application Ser. No. 620,873, Mar. 6, 1967, now abandoned. This application Oct. 22, 1968, Ser. No. 772,468
Int. Cl. D02g 1/02

U.S. Cl. 57-157

4 Claims



The interfilament spacing of stuffer-crippled textile strands is increased by application of fluid circumferentially thereto in a temporarily confining region, such as when the strand travels from the stuffer-cripping region to windup. The strand is false twisted in such processing, the initial direction of twisting being opposite to the direction of any substantial twist in the untreated strand.

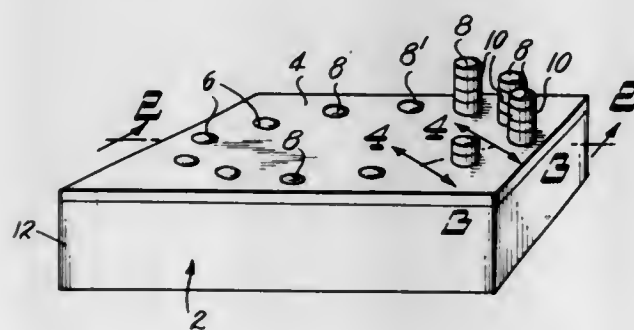
3,593,515 PEG CLOCK

Janet R. Schockner, 818 N. Alta Vista Blvd., Hollywood, Calif., and Leo A. Rosetta, 9806 E. Bexhill Drive, Kensington, Md.

Filed Feb. 9, 1970, Ser. No. 9,476
Int. Cl. G04b 45/00

U.S. Cl. 58-2

13 Claims



A hollow wood block houses a clock motor which drives a drum cam one turn in 12 hours. The drum cam sequentially

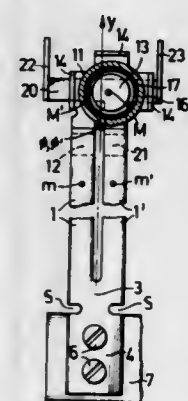
lifts the pegs of a circular array of 12 pegs, representing the hours of the day, to project them upwardly from the upper surface of the block, each peg rising for 1 hour and being held in its upper position. When all 12 pegs have been lifted they are all dropped back into the block and the cycle is repeated.

3,593,516 MECHANICAL OSCILLATOR FOR TIME-KEEPING DEVICES

Franz R. Mayer, Altenfurt near Nuremberg, Germany, assignor to Diehl, Nuremberg, Germany
Filed June 23, 1969, Ser. No. 835,422
Claims priority, application Germany, June 21, 1968, May 3, 1969, P 17 73 678.0; P 19 22 640.5
Int. Cl. G04c 3/00

U.S. Cl. 58-23

7 Claims



An oscillator in the form of a pair of parallel resilient arms joined at one end and free at the other end. The arms oscillate in counterphase and each has a mass element on the free end so disposed thereon as to counterbalance the torque about a line between the arms which is developed by oscillation of the arms.

At the free ends of the arms one thereof has associated therewith a driver for driving the arms, while the same, or the other arm, has a device thereon for imparting motion to a driven member, such as the input member for a clockwork.

3,593,517 ILLUMINATED DISK CLOCK FACE

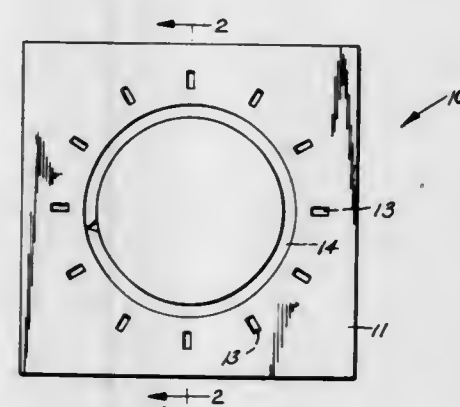
Lawrence S. Knippler, 354 East 21st St. Apt. 3A, Brooklyn, N.Y.

Filed Sept. 10, 1968, Ser. No. 758,842

Int. Cl. G04b 19/30

U.S. Cl. 58-50

1 Claim



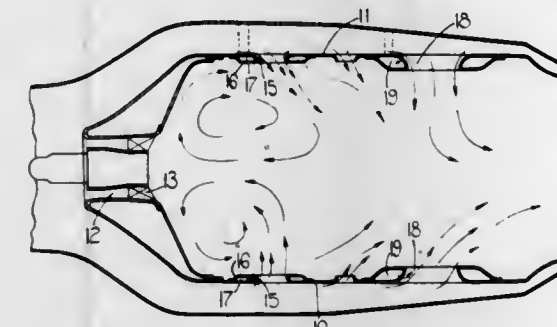
A clock face having a multiple of clear windows which will indicate through the use of an opaque disc having an arcuately clear window which will allow view to the face in order to indicate the hour. This device also includes an opaque disc to indicate minutes of the hour, the disc indicating minutes having a clear triangular window which will allow the passage of light from the interior of the clock to go through an annular window in order to indicate minutes of the hour simultaneously as the hour is indicated by the same light.

3,593,518 COMBUSTION CHAMBERS FOR GAS TURBINE ENGINES

Alan Joseph Gerrard, Blackburn, England, assignor to Joseph Lucas Industries Limited, Birmingham, England
Filed Sept. 17, 1969, Ser. No. 858,770
Claims priority, application Great Britain, Sept. 20, 1968, 44,805/68
Int. Cl. F02c 9/14

U.S. Cl. 60-39.65

7 Claims



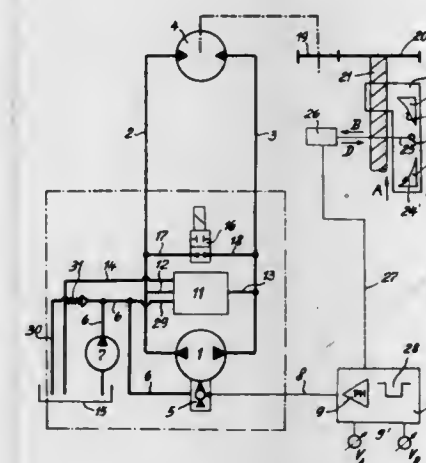
A combustion chamber for a gas turbine engine has a primary air inlet and a number of additional air nozzles at intervals along the chamber. Each of the air inlets has one or more holes in the inlet wall, so that air may be injected into the inlets or extracted therefrom. Air injection effectively reduces the inlet areas and extraction increases the inlet areas. The airflow through each inlet, or group of inlets, may thus be controlled, the arrangement being such that, irrespective of the proportion of the total airflow which enters each inlet, the resistance to airflow through the combustion chamber does not vary. The holes in the inlet walls may be tangential to create a vortex within the inlet.

3,593,519 DEVICE FOR PRECISION REVERSING IN A MANNER SUBSTANTIALLY INDEPENDENT OF LOAD, FOR USE IN A HYDRAULIC POWER DRIVE FOR RECIPROCATING MOVEMENTS, FOR INSTANCE FOR MACHINE TOOLS AND ELEVATORS

Paul Fuhrmann, Romanshorn, Switzerland, assignor to Hydrel A. G. Maschinenfabrik, Romanshorn, Switzerland
Filed June 11, 1969, Ser. No. 832,066
Claims priority, application Switzerland, Sept. 10, 1968, 13690/68
Int. Cl. F15b 15/18, 15/22

U.S. Cl. 60-52 R

11 Claims



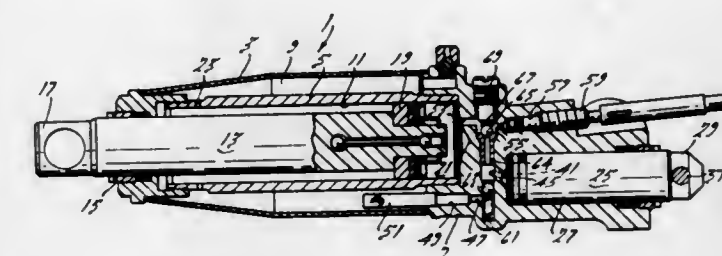
A system for the precision reversal of the motion of a movable member, such as an elevator, connected to a hydraulic motor. The movable member is provided with a pair of reversing surfaces so shaped as to determine braking distance, reversing point and reacceleration characteristics and cooperating with a feeler which transmits a signal through an amplifier to a servo valve for switching a pump.

3,593,520 SPEED PUMP FOR HYDRAULIC JACKS

James R. Laundry, Racine, Wis., assignor to Tenneco Inc., Houston, Tex.
Filed June 16, 1969, Ser. No. 833,585
Int. Cl. F15b 15/18

U.S. Cl. 60-52 HA

5 Claims



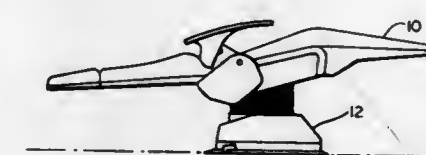
An unseated, pressure-responsive ball valve mechanism connects the speed pump of a two-speed hydraulic ram unit to the reservoir when the load on the ram reaches a level demanding the higher pressures produced by the power pump.

3,593,521 LOWERED HYDRAULIC CHAIR BASE

John M. Gardella, Matawan, N.J.; Anthony Ciavattini, Staten Island, N.Y., and Karl Helmur, Staten Island, N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.
Filed Nov. 24, 1969, Ser. No. 879,279
Int. Cl. F15b 15/18

U.S. Cl. 60-52 HD

10 Claims



A hydraulic chair base, for raising and lowering a dental chair, has a unitary pump-closed reservoir structure mounted thereon for delivering fluid to a fluid motor to raise the chair. Return of the fluid to the reservoir is controlled by a valve. Additionally, a catch sump is provided to capture fluid leakage from the fluid motor, from which catch sump the pump returns the fluid leakage to the reservoir, the catch sump also serving to capture any fluid in excess of the capacity of the closed reservoir.

3,593,522 ELECTROHYDRAULIC SERVO DEVICE

Hans Angert, Mannheim-Feudenheim, and Oskar Imb, Mannheim, both of Germany, assignors to Brown, Boveri & Cie A. G., Mannheim, Germany

Filed May 14, 1969, Ser. No. 824,494

Claims priority, application Germany, May 21, 1968, Mar. 29, 1969, P 17 50 645.5; P 19 16 266.4

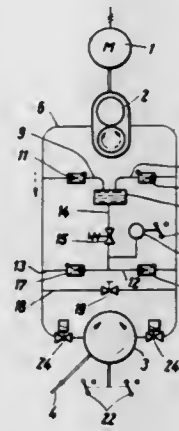
Int. Cl. F16d 31/04; F15b 15/26

U.S. Cl. 60-53

17 Claims

Electrohydraulic servo devices are described comprising an electric drive motor, a fluid medium pump connected to and driven by the drive motor, a tank containing hydraulic fluid as the pumping medium, a hydraulic servomotor communicating with and acted upon by the pump medium and means for reversing or operating in either of opposite directions of rotation the electric drive motor, the pump and the servomotor. Incoming and outgoing pressure medium lines are provided which are connected to the servomotor

and form a closed circuit, each of the said pressure medium lines communicating with the tank containing the fluid medi-



um and having a check valve therein to direct flow of medium from tank to pump.

3,593,523

ELECTROHYDRAULIC REMOTE CONTROL OF HYDRAULIC DIRECTIONAL VALVES

Heniz Flaschar, Ludwigsburg; Walter Werner, Waiblingen; Wilhelm Weigert, Schwieberdingen, and Manfred Kramer, Fellbach-Lindle, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

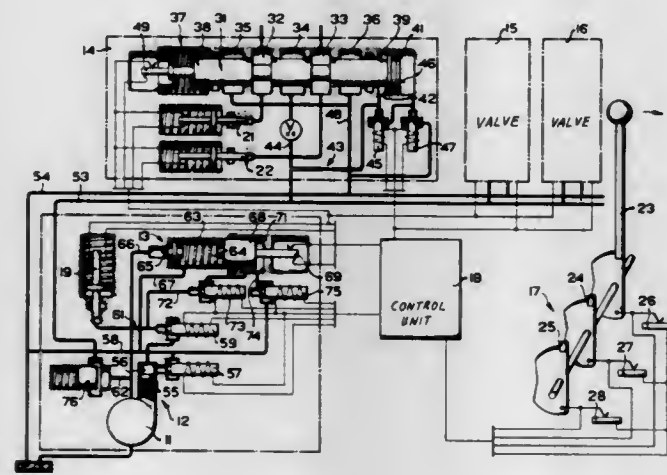
Filed Oct. 30, 1969, Ser. No. 872,672

Claims priority, application Germany, Nov. 6, 1968, P 18 07 172.2

Int. Cl. F15b 15/18

U.S. Cl. 60—52 VS

11 Claims



An arrangement for the electrohydraulic remote control of directional valve in which a variable displacement pump provides fluid under pressure to a load or a hydraulically operated device. Signal transducers are arranged at the pump and the load to provide electrical signals as a function of the pressures prevailing at the pump and the load. An electrical control unit compares the signals from the transducers, and is operatively connected to an electrohydraulic actuated positioning means in the pump when the signals correspond. The regulation is such that the fluid flow from the pump is controlled as a function of the load magnitude.

3,593,524 DEVICE FOR PRODUCING HIGH-PRESSURE PULSE-TYPE JETS OF LIQUID

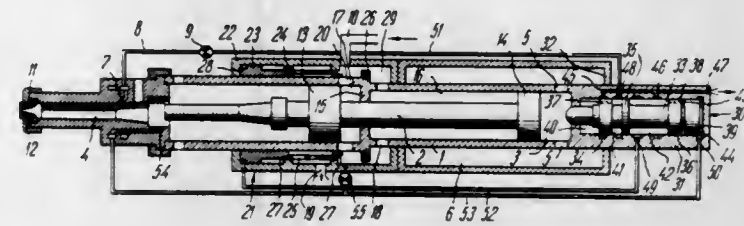
German Petrovich Chermensky, ulitsa Novskogo, 11, kv. 3; Mikhail Andreevich Nikiforov, ulitsa Kirova, 33, kv. 19; Jury Vladimirovich Gaiduk, ulitsa Shkolnaya, 21, kv. 13; Klavdia Mikhailovna Khvoschevskaya, ulitsa Kirova, 7, kv. 39; Igor Borisovich Natapov, Rynochny proezd, 3, kv. 11; Alexei Andreevich Kilin, ulitsa Kutuzova, 58, kv. 2, and Mikhail Antonovich Shvetsov, ulitsa Ryazanskaya, 9, all of Novokuznetsk, U.S.S.R.

Filed Dec. 23, 1969, Ser. No. 887,645

Int. Cl. F15b 7/00

U.S. Cl. 60—54.5

1 Claim



The invention describes a device for producing pulse-type high-pressure liquid jets created by the impact of a piston on the liquid contained in a chamber having a hole for the outflow of the liquid. For this purpose the piston is accelerated in the cylinder by compressed gas and, after producing an impact returns to the initial position compressing the gas by feeding the liquid under pressure into said cylinder.

3,593,525

ROCKET MOTOR THRUST CONTROLLER

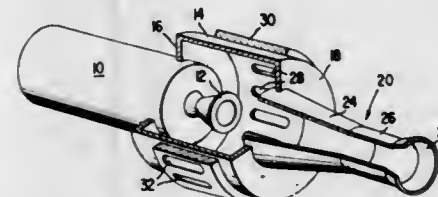
Allen B. Holmes, Rockville, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed Feb. 19, 1969, Ser. No. 800,652

Int. Cl. F02k 9/04

U.S. Cl. 60—254

4 Claims



A rocket motor thrust controller having a hollow cylindrical rocket motor casing for containing solid propellant therein with a nozzle formed at one end thereof for providing an exhaust passage for combustion products, an elongated open ended hollow tubular member axially aligned with the rocket motor casing and in open communication with the nozzle, an apertured cylindrical member enveloping the nozzle and one open end of the tubular member for inducing secondary air flow to the exhaust gases, and an apertured cylindrical sleeve movably mounted about the cylindrical member for varying the aperture openings and the amount of secondary airflow. By reducing the amount of secondary air flow, it is possible to reduce the final value of thrust by over a factor of two because of the combined effect of the mass reduction and velocity losses within the hollow tubular member.

3,593,526

APPARATUS AND METHODS FOR OIL SLICK CONTAINMENT

David Parks Hoult, 11 Cameron Road, Wayland, Mass., and James Alan Fay, 36 Spruce Hill Road, Weston, Mass.

Filed June 4, 1969, Ser. No. 830,270

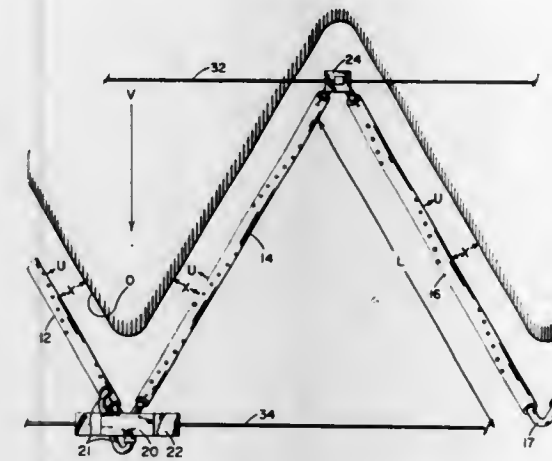
Int. Cl. E02b 15/04

U.S. Cl. 61—1

2 Claims

Apparatus and methods for oil slick containment in the open sea, in the presence of waves and currents, utilizing a

submerged, segmented, pneumatic boom arranged in zigzag, accordion-pleated configuration in which the included angle between adjoining segments is between about 120° and 20°, with the minimum distance between adjacent apices greater



than wave-caused water movement, the boom segments being submerged beneath the water surface at the predetermined depth d in which d/a is in the range of 5 to 10, a being the value of wave amplitude.

3,593,527

WATER FLOW CONTROL

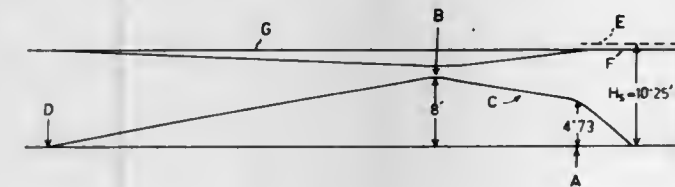
Gordon Rieneke McKay, Brookfield, Queensland, Australia, assignor to The University of Queensland, Queensland, Australia

Filed Apr. 21, 1969, Ser. No. 817,935

Int. Cl. E02b 3/00, 9/02

U.S. Cl. 61—2

3 Claims



A structure for control of liquid flow, (such as a dam or weir, or a channel or culvert) has the relations between depth, width and total flow at every cross section perpendicular to the flow, such as to give minimum energy of flow at a maximum design level.

3,593,528

SAFETY TRENCHING BOX

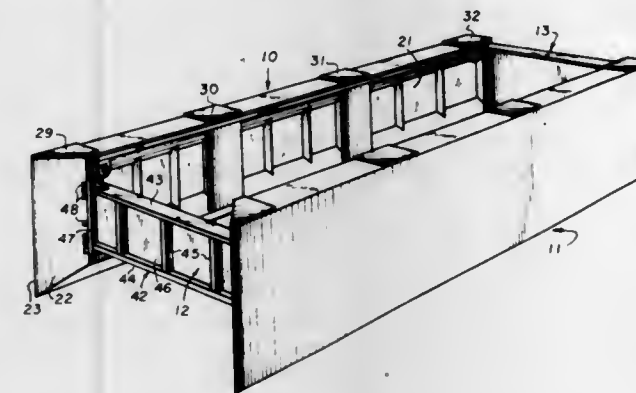
John R. Pavese, 771 Rivervale Road, Rivervale, N.J.

Filed Dec. 15, 1969, Ser. No. 885,252

Int. Cl. E21d 7/00

U.S. Cl. 61—41

2 Claims



A safety trenching box is provided having a pair of earth-retaining wall members which are tapered at one end thereof to form a pair of vertical cutting edges. The vertical cutting

edges permit the box to be dragged through trench excavations having little or no clearance between the sides of the box and the sides of the trench, since the edges shear off projecting portions of the trench walls. The bottom edge of each wall member is also tapered to form a pair of horizontal cutting edges on the box and push plates are provided on the top edge of each wall member to permit the trenching box to be driven downwardly into the trench by externally applied forces. The outer surface of each of the wall members in contact with the sides of the trench is cambered to provide the box with increased structural strength under laterally applied load conditions. Horizontally disposed beams employed in the construction of each wall member are provided with inclined cover plate to form skid paths for earth and stone accidentally dropped into the trenching box, thereby preventing any dangerous accumulation of such materials on such beams and adding to the structural strength of the box. If desired, legs may be mounted on the bottom tapered edges of the wall members to facilitate the stacking of a number of such boxes for use in deep trench excavations or for storage purposes.

3,593,529

METHOD AND APPARATUS FOR INSTALLING DRILLING PLATFORMS

August Hendrik Maria Smulders, Wassenaar, Netherlands, assignor to N. V. Industriele, Handelscombinatie, Netherlands

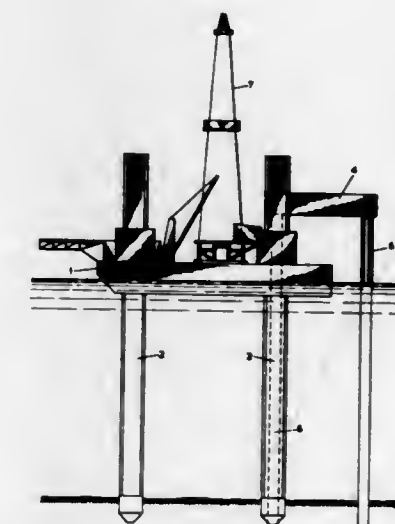
Filed Oct. 9, 1968, Ser. No. 766,274

Claims priority, application Netherlands, Oct. 11, 1967, 67-13804

Int. Cl. E02b 17/02; B63b 35/44

U.S. Cl. 61—46.5

1 Claim



A buoyant mobile drilling platform has a gap in its side in which is detachably disposed a permanent drilling platform. The two platforms are floated to the drilling site and temporarily emplaced. If a test drill shows the presence of gas or oil, then the permanent platform is permanently emplaced and the mobile platform is floated away.

3,593,530

MARINE PLATFORM WITH REMOVAL COLUMN CLAMPS

Ivo C. Pogonowski, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed July 22, 1969, Ser. No. 843,331

Int. Cl. E02b 17/06

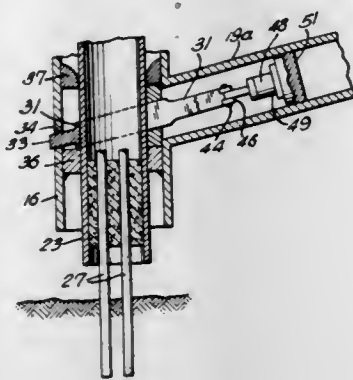
U.S. Cl. 61—46.5

9 Claims

The invention relates to a marine platform adapted to be fixedly positioned in an offshore environment by anchoring to the ocean floor. The platform includes a work deck normally elevated above the water's surface, a foundation pedestal at the ocean floor, and one or more intermediary support columns which connect the deck to the pedestal. The

columns are releasably held at their lower ends by remotely actuated clamping means. The elevated deck is thus sup-

ported with a central concavity while the end plate on the adjoining pile section has a complementary central convex



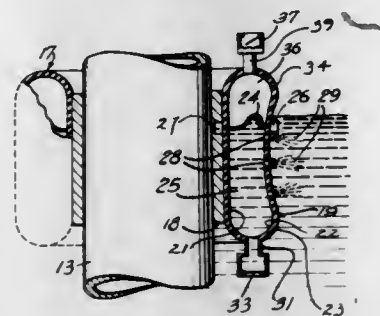
portably carried by the columns at an adjustable operating height.

3,593,531 MARINE FENDER

Fuad T. Saadeh, and Ivo C. Pogonowski, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.
Filed June 27, 1969, Ser. No. 837,074
Int. Cl. E02b 3/22

U.S. Cl. 61-48

6 Claims



The invention relates to a fender for marine structures such as a support leg or column positioned to elevate a working platform above the water's surface. The fender is comprised of shock-absorbing members at least partially submerged to receive and absorb the impact of floating vessels, debris or the like. The fender includes cooperatively arranged hydraulic and pneumatic chambers, the hydraulic chamber being communicated with the body of water whereby to be maintained in a substantially full condition. The pneumatic chamber is separated from the hydraulic chamber by a yieldable diaphragm which is displaced into the air chamber as the fender is deformed in response to contact with a large floating body.

3,593,532

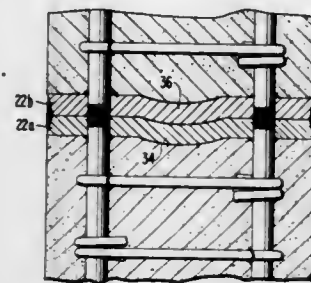
CONCRETE PILE SECTIONS AND JOINTS THEREFOR
John Grazel, Santurce, P.R., assignor to John Grazel Inc., San Juan, P.R.

Filed Oct. 2, 1968, Ser. No. 764,384
Int. Cl. E02d 5/30

U.S. Cl. 61-56

3 Claims

Each cast concrete pile section has longitudinally extending reinforcing rods, the opposite ends of which are partially received within openings formed through normally disposed end plates. The rod ends extend intermediate the length of the openings and are welded to the end plates about the inside faces of the plates with weld also being applied externally within the openings from the outer faces of the plates. The edges of the end plates are beveled and the sectional piles are welded about the adjoining beveled edges in end to end relation. In one form, an end plate on one pile section is



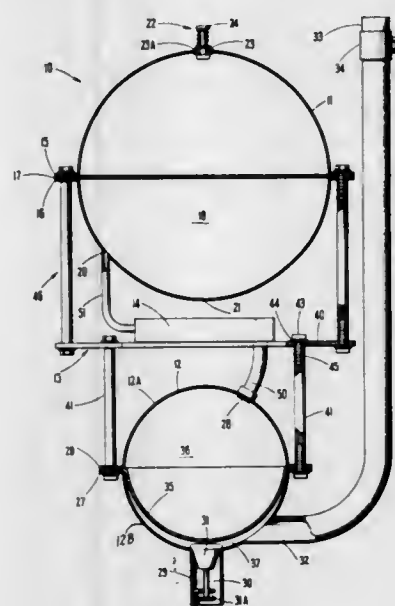
portion adapted to be received within the concavity as to align the piles in coaxial relation one to the other.

3,593,533

UNDERWATER COLLECTING AND LIFTING DEVICE
Lamar Washington, Natick, Mass., assignor to Ocean Recovery Corporation of America, Cambridge, Mass.

Filed Oct. 23, 1968, Ser. No. 769,843
Int. Cl. B63c 11/00; G01n 1/14; E02f 3/88
U.S. Cl. 61-69

7 Claims



An underwater collecting and lifting device for use in obtaining material from below the earth's surface, such as the floor of the ocean, has a first chamber for raising and lowering the device in a body of water and a second chamber for collecting the material and transporting it. A diaphragm divides the second chamber into two compartments and is movable so as to change the volumes of the two compartments inversely to each other.

3,593,534

METHOD OF AND APPARATUS FOR HEAT EXCHANGE BETWEEN GAS STREAMS

Max Seidel, Munich, Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Germany

Filed May 20, 1969, Ser. No. 827,485
Claims priority, application Germany, May 20, 1968, P 17 51 383.6

Int. Cl. F25j 1/00, 3/04, 5/00

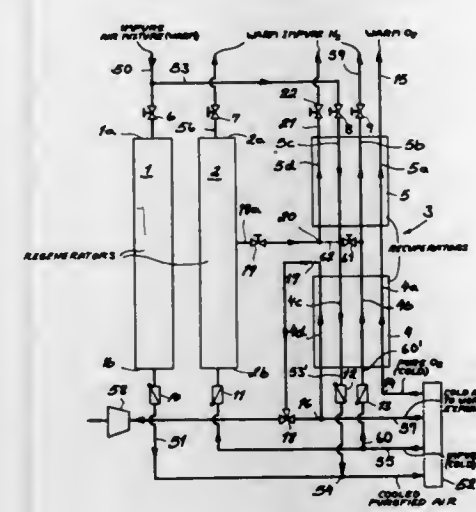
U.S. Cl. 62-13

11 Claims

A system for the heat exchange of low-temperature gas mixtures, e.g. for the separation of gases in an air rectification installation or the like, in which part of the cold is obtained by expansion of a warm fraction of the gas mixture to be rectified or from a portion of the rectification products. The heat exchanger system is subdivided into regenerators and recuperators which are interchangeable in function at least in part. The recuperator system is subdivided into a relatively cold recuperator branch and a relatively warm recuperator branch. A portion of the gas mixture to be expanded or the

mentioned fraction of the rectification product is warmed in an unswitched passage of the colder recuperator branch while another fraction of the gas mixture or rectifica-

tion product is withdrawn from an intermediate location of the regenerator and is passed through the warmed recuperator branch.



3,593,535

LIQUEFACTION OF NATURAL GAS EMPLOYING MULTIPLE-COMPONENT REFRIGERANTS

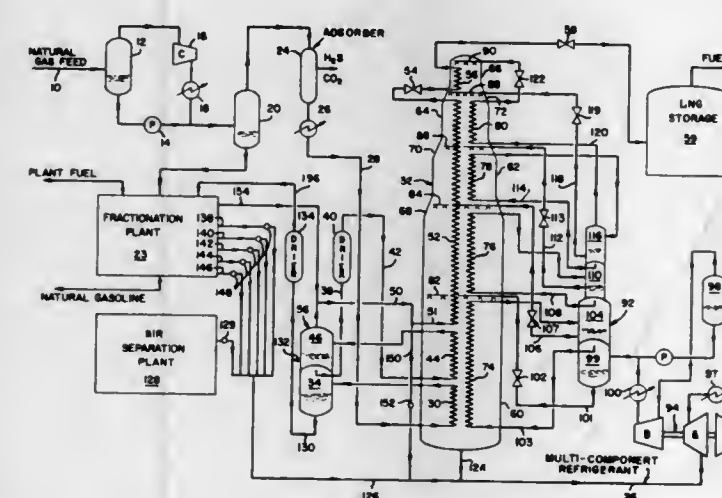
Lee S. Gaumer, Jr., Allentown, and Charles L. Newton, Emmaus, both of, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation of application Ser. No. 722,135, Apr. 17, 1968, now abandoned, which is a continuation of application Ser. No. 468,008, June 29, 1965, now abandoned. This application Dec. 22, 1969, Ser. No. 882,781

Int. Cl. F25j 3/00

U.S. Cl. 62-23

5 Claims



Natural gas is liquefied by heat exchange with a multi-component refrigerant. The respective refrigerant components in the order of increasing volatility are heat exchanged serially with the natural gas stream at progressive points along zones of decreasing temperature.

3,593,536

CRYSTALLIZATION PROCESS AND APPARATUS
Regis Lafay, Suresnes, and Jean C. Macalre, La Celle St. Cloud, both of, France, assignors to Institut Français du Pétrole, des Lubrifiants et Carburants, Rueil-Malmaison, France

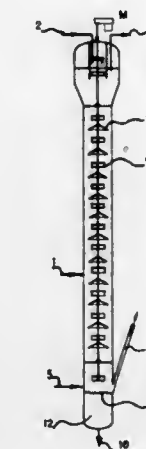
Filed July 8, 1968, Ser. No. 743,114
Claims priority, application France, July 11, 1967, 113992
Int. Cl. B01d 3/30, 9/04

U.S. Cl. 62-58

19 Claims

A process for selectively crystallizing one of the constituents of a liquid mixture of at least two components com-

prising cooling down the mixture by direct thermal exchange with an immiscible liquid coolant circulating in a countercurrent relationship with respect to said mixture and introduced at a sufficiently low temperature to permit the crystallization of one of said components, wherein said direct thermal



3,593,537

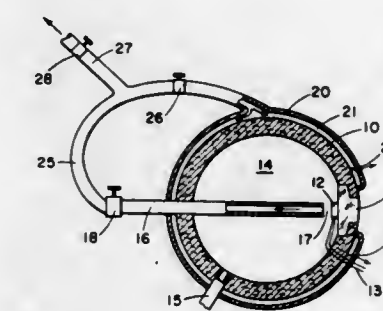
PROCESS AND APPARATUS FOR RAPIDLY COOLING A SMALL THERMAL LOAD

Robert W. Stuart, Wakefield, and Walter H. Hogan, Wayland, both of, Mass., assignors to Cryogenic Technology, Inc., Waltham, Mass.

Filed Apr. 7, 1969, Ser. No. 813,959
Int. Cl. F25b 19/00

U.S. Cl. 62-62

12 Claims



A small thermal load such as an infrared detector is exposed to a high-pressure inert fluid contained within a small high-pressure vessel. A valve-controlled vent tube extending through the wall of the vessel provides means for controllably bleeding off fluid from the vessel and hence for rapidly developing refrigeration. The fluid bled off may be circulated around the vessel surface to minimize loss of refrigeration in cooling the vessel wall.

3,593,538

REFRIGERATOR FLORAL DISPLAY CABINET
Ralph W. Bachman, and Alvin Miller, both of Minneapolis, Minn., assignors to Bachman's Inc., South Minneapolis, Minn.

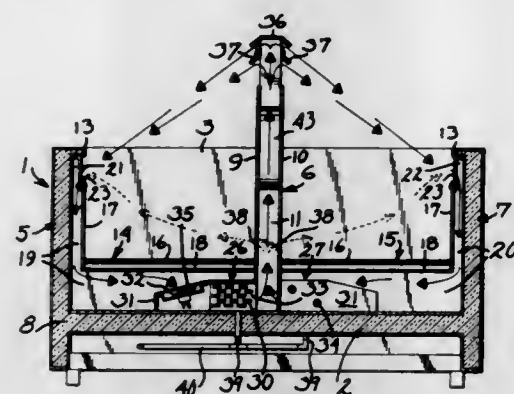
Filed Apr. 7, 1969, Ser. No. 814,071
Int. Cl. A47f 3/04

U.S. Cl. 62-256

2 Claims

An elongated refrigerator floral display cabinet having an open top and a merchandise-supporting tray therein cooperating with the cabinet to define a plenum having an air inlet adjacent the top of one longitudinal wall. Refrigerating mechanism includes a plurality of longitudinally spaced evaporator units in the plenum, the evaporator units having air inlets connecting with the plenum and air outlets communicating with air passage means in an opposite longitudinal

cabinet wall. Blower means imparts airflow through the evaporator units upwardly through said air passage means,



and deflector means overlying the air passage means directs flow of air therefrom angularly downwardly over the tray and toward the air inlet to the plenum.

3,593,539

ICE-FLAKE-MAKING MACHINE

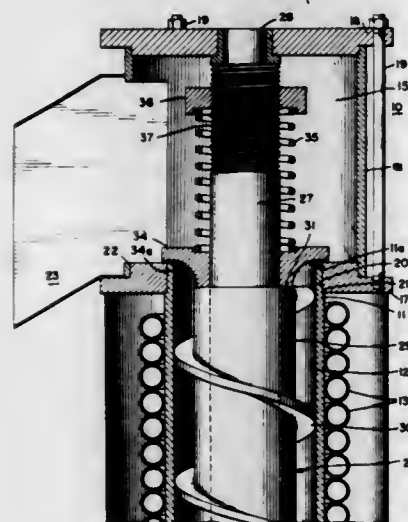
Armin Fiedler, 1109 West North Shore Ave., Chicago, Ill.

Filed Nov. 14, 1968, Ser. No. 775,876

Int. Cl. F25c 1/14

U.S. Cl. 62-354

7 Claims



There is provided an improvement in an icemaking machine of the type wherein there is a cylindrical vertical chamber including a chamber sidewall having a discharge opening at its upper end. Means are provided for supplying water to the lower end of the chamber. Refrigeration means are provided for freezing the water on the inside surface of the chamber wall. A screw conveyor is rotatably mounted within the chamber and includes a helical screw in close proximity to the inside surface of the chamber to scrape off ice therefrom as the conveyor rotates and delivers a column of ice toward the opening. A generally annular breaker member is provided around the upper portion of the screw conveyor in the path of the column of ice moving toward the opening. Means are provided for biasing the breaker member downwardly.

3,593,540

ABSORPTION REFRIGERATION SYSTEM USING A HEAT TRANSFER ADDITIVE

Neil E. Hopkins, York, Pa., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Jan. 2, 1970, Ser. No. 60

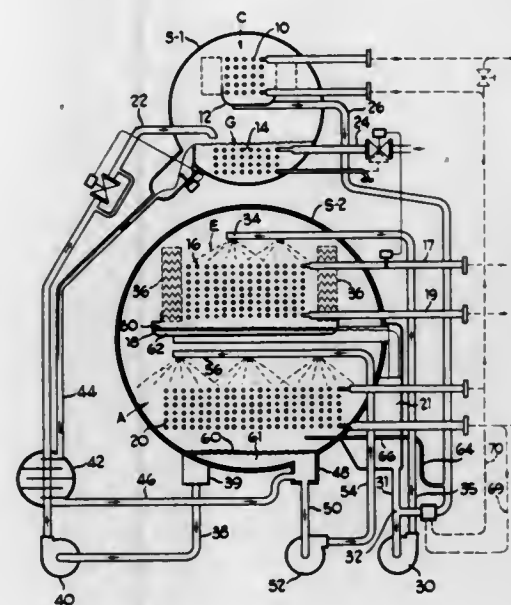
Int. Cl. F25b 15/06

U.S. Cl. 62-476

3 Claims

An apparatus and method for increasing the effectiveness of a heat transfer additive, such as, for example, 2-ethyl, n-hexanol, in an absorption refrigeration machine by introducing the refrigerant containing the additive directly from the

condenser into a circulating stream of refrigerant being withdrawn from the evaporator, and being pumped to the evaporator refrigerant distribution system, thus distributing the additive flow from the condenser uniformly throughout



the evaporator surface. Any noncondensables from the condenser are vented back to the absorber, where they are removed by a conventional purge device. Increased capacity can also be achieved by cooling the refrigerant with condensing water.

3,593,541

CONSTANT VELOCITY UNIVERSAL JOINT

Masao Kuroda, Mie-ken, Japan, assignor to Toyo Bearing Manufacturing Company Limited, Osaka-shi, Japan

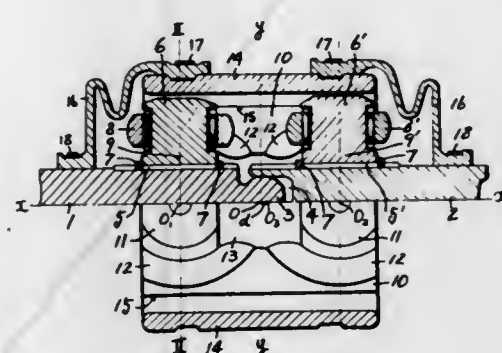
Filed Apr. 10, 1969, Ser. No. 815,059

Claims priority, application Japan, Apr. 23, 1968, Dec. 9, 1968, 43/272,256; 43/90,041

Int. Cl. F16d 3/30

U.S. Cl. 64-21

7 Claims



An improved essentially constant speed universal joint comprises two shafts with interfitted ends, each carrying a frustrospherical boss provided with stud shafts. The spherical portions of the bosses are mounted in spherically surfaced recesses in adjacent wall elements. The stud shafts are provided with wheels, preferably crowned, which roll on tracks carried by the wall elements, preferably grooves concentric with the spherical recesses therein, in which the crowned wheels are centered. The shaft ends are interfitted by male and female elements fixed to the respective shafts, which provide a simple, strong and lubrication-promoting structure. Securing means, confined to a region radially outwardly of the tracks, wheels and stud shafts, and preferably in the form of a sleeve, or of elements integral with the wall elements, secures the assembly in a simple, permanently effective manner.

3,593,542

LIMITED TORQUE COUPLING

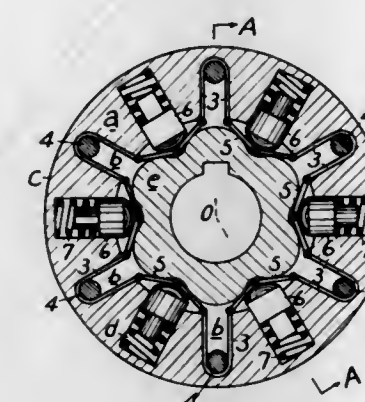
Motoro Urayama, 9-8 Iribancho Koshien, Nishinomlya Hyogo, Japan

Filed June 4, 1969, Ser. No. 830,930

Int. Cl. F16d 3/56, 7/00

U.S. Cl. 64-29

6 Claims



A torque coupling having its capacity limited by the torque and the speed includes a hollow cylinder having plate links which form an apex which may extend toward the rotary coupling part or outwardly therefrom, the rotary coupling part having concave and convex surfaces for receiving the apex of the plate links with the plate links being supported by U-shaped springs and the apex formed by the plate links being urged inwardly by a spring reacting against a weight engaging the apex of the plate links so that spring pressure normally produces the driving action between the hollow cylinder and the rotary coupling part while the weights are urged outwardly by centrifugal force to limit the speed at which the coupling maintains a driving relation. The concave-convex surfaces may be rounded about centers transverse to the input and output axes to permit angular relation without stress.

3,593,543

APPARATUS FOR TREATING FABRICS FROM AN ORGANIC SOLVENT

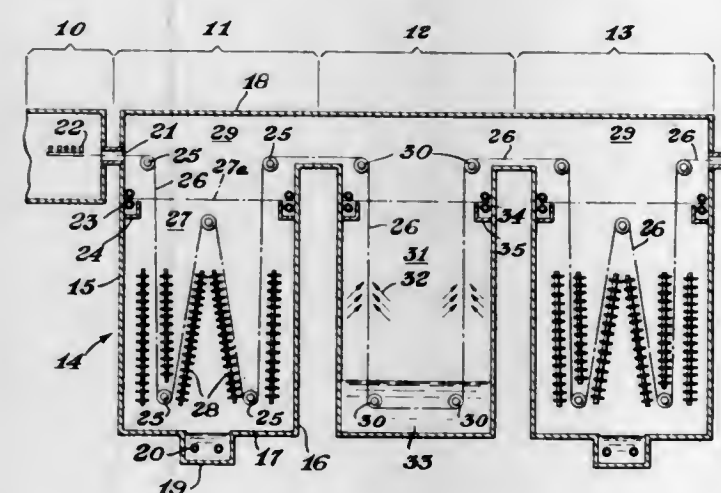
Sylvester Bergman, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed May 26, 1969, Ser. No. 827,607

Int. Cl. D06f 43/06; D06c 1/06

U.S. Cl. 68-5

3 Claims



The present invention relates to an apparatus for treating fabrics from an organic solvent, e.g. dyeing, which apparatus comprises: a formulation application module having means associated therewith to apply an agent to a fabric, a first chamber, in fluid communication with the formulation application module and having means to maintain a zone within the chamber filled with vapors of an organic solvent,

means to remove solvent vapors, and means, which may be the solvent vapors, to exchange heat into the fabric, a second chamber having means to flush and wash the fabric, and a third chamber which is substantially identical with the first said chamber.

3,593,544

AUTOMATIC CLOTHES DRYER TO HEAT SHRINK TRANSFER AGENT USED TO CLEAN FABRICS

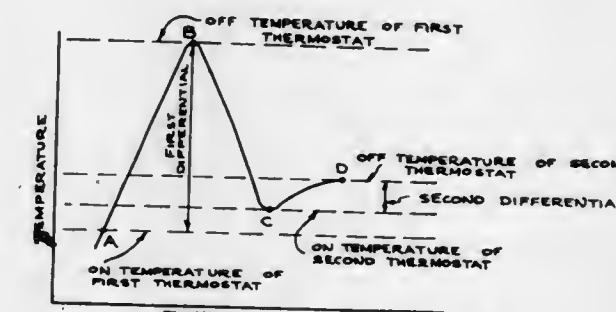
Billie D. Henderson, Louisville, Ky., assignor to General Electric Company

Filed Nov. 24, 1969, Ser. No. 879,034

Int. Cl. D06f 33/02; F26d 21/02, 21/06

U.S. Cl. 68-12

2 Claims



An automatic clothes dryer adapted to clean fabrics by tumbling the fabrics therein with a charge of liquid and transfer agent, and then to automatically separate the transfer agent from the fabrics, is provided with a control means to bring the temperature of the air flowing through the dryer drum to a temperature sufficient to heat shrink the soiled, segregated transfer agent, thereby reducing its volume and facilitating its disposal.

3,593,545

APPARATUS FOR DYEING TEXTILE ARTICLES

Manfred Blumenkamp, Via Bissolati, Cremona, Italy

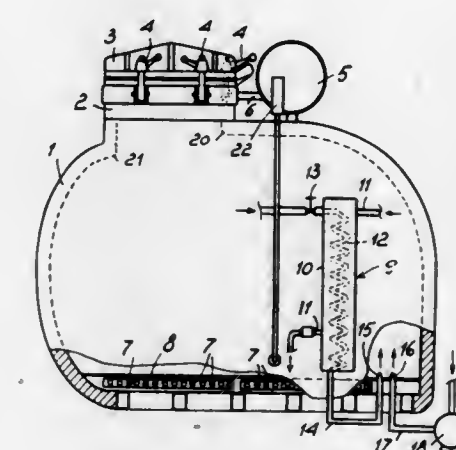
Filed Jan. 3, 1969, Ser. No. 788,883

Claims priority, application Italy, July 8, 1968, 18699A/68

Int. Cl. D06f 17/02, 39/04

U.S. Cl. 68-15

2 Claims



An apparatus for dyeing textile articles including a tank for the dye bath and heating means, said tank comprising a top opening for the introduction withdrawal of the articles to be processed, an outer cover for sealingly close said opening, at least one nozzle for compressed air supplied by a suitable source, and at least one nozzle for a dyeing liquid which is drawn from said dye bath, the said nozzles being arranged in said tank in such manner as to cause circulation stream in said dye bath throughout the said tank.

3,593,546

FABRIC-RELAXING APPARATUS

Fumisato Hasegawa, Kashiwara-shi, and Hiroyuki Nagata, Hiroshima-shi, both of Japan, assignors to Hirano Kinzoku Kabushiki Kaisha, Osaka-shi, Japan

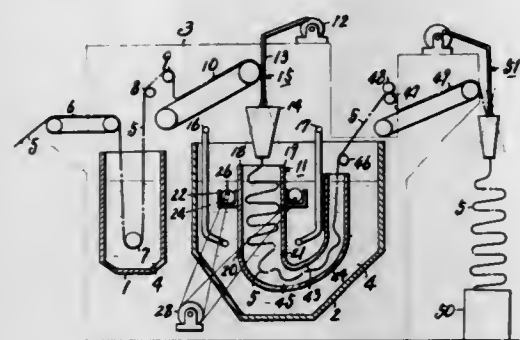
Filed Dec. 2, 1968, Ser. No. 780,420

Claims priority, application Japan, Dec. 16, 1967, 42/105845

Int. Cl. B05c 3/05, 3/134

U.S. Cl. 68-178

5 Claims



A fabric-relaxing apparatus wherein a continuous fabric drawn from a roll is led to the top of the receiving region of a main treating tank either directly or after it is passed through a liquid in a preparatory tank in a taut state, and at the main treating tank the fabric is delivered by shaking-off means positioned to effect a folding of the fabric essentially at the liquid level in the tank with each fold descending in the liquid in spaced relation to the next formed fold. The region, or vertical passage, through which the fabric descends is positioned within a vertical passage frame comprising two plates which are vibrated essentially out of contact with the fabric, and their vibration effects agitation or pulsation of the liquid, which in turn imparts beat shocks, i.e. pulsations, to the fabric. The fabric is then led out of the bottom of the vertical passage frame to one side of the main treating tank through a guide installed in the liquid and being then led out of the main treating tank through the opening in said guide, said fabric being then stacked as folded at a predetermined place outside the main treating tank.

3,593,547

TAMPER-RESISTANT LOCKING LATCH FOR CASEMENT WINDOWS

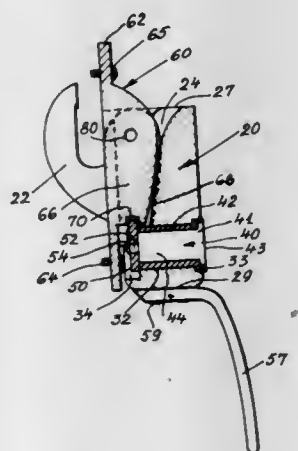
Harold V. Taylor, 40 Parkway Circle, Scarsdale, N.Y.

Filed Aug. 18, 1969, Ser. No. 850,951

Int. Cl. E05b 7/00, 13/10; E05c 3/04

U.S. Cl. 70-89

7 Claims



A locking latch assembly for a casement window has a handle block pivotally engaged on a base bracket which mounts on the jamb of the window. A cylinder lock is set in the block and can only be opened by a key. The bracket has slotted sidewalls which engage a cam at the inner end of the rotatable lock cylinder in the block. The cam and lock are enclosed and protected against tampering. The assembly has a replaceable handle.

3,593,548

EXTERIORLY OPERABLE LOCK BOLT

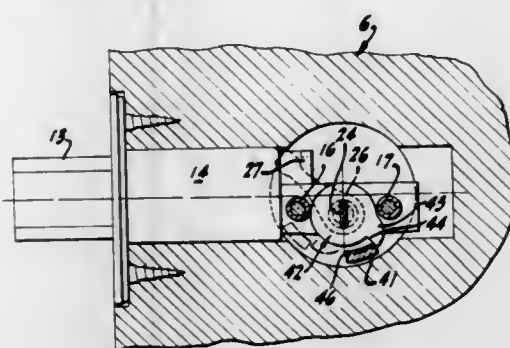
Marron Kendrick, Atherton, Calif., assignor to Schlage Lock Company

Filed May 5, 1969, Ser. No. 821,673

Int. Cl. E05b 63/00, 33/00; E05c 1/06

U.S. Cl. 70-129

7 Claims



A lock bolt mounted on a door panel can be projected and retracted by an inside thumb turn or by an outside key or both and can also be projected but not retracted by a finger-operated, outside movable piece.

3,593,549

PRESSURE REGULATOR WITH LOCKING DEVICE

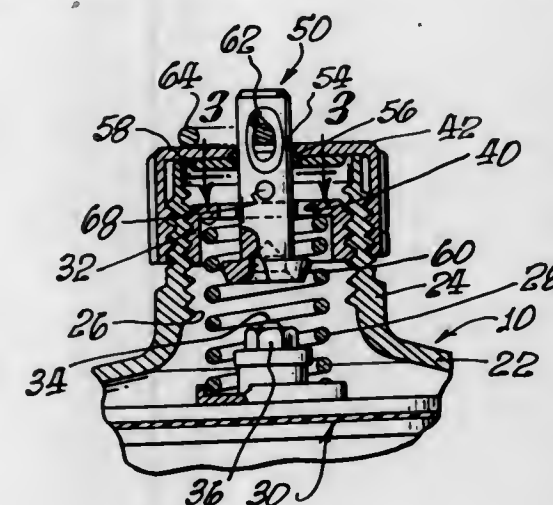
Frederick R. Lakins, Alhambra, and Scott E. Allen, Los Angeles, both of, Calif., assignors to Swingspout Measure Co., Los Angeles, Calif.

Filed Dec. 10, 1969, Ser. No. 883,880

Int. Cl. F16k 35/10, 17/06

U.S. Cl. 70-164

4 Claims



A locking device for an adjustable pressure regulator of the type having a spring chamber containing a compression spring, an adjusting member threaded into the spring chamber and rotatable to adjust the compression of the spring, and a closure for the spring chamber threadedly connected to the housing of the regulator. The locking device prevents sufficient movement of the closure in a direction away from the adjusting member to permit access to the latter, and comprises an axial locking pin extending outwardly through the adjusting member and the closure, a head on the inner end of the locking pin and engageable with the adjusting member to prevent withdrawal of the locking pin, and a transverse opening through the locking pin outwardly of the closure to receive the shackle of a padlock, such opening being so located as to limit outward movement of the closure sufficiently to preclude access to the adjusting member.

3,593,550

REFRIGERATOR DOOR HANDLE WITH CYLINDER DOOR LOCK UNIT ON THE HANDLE

Irving L. Berkowitz, Binghamton, N.Y., assignor to Kason Hardware Corporation, Binghamton, N.Y.

Filed Oct. 22, 1968, Ser. No. 769,677

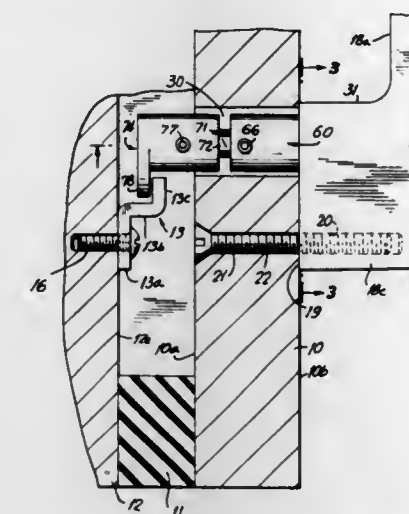
Int. Cl. G05g 5/26; E05b 27/08, 65/06

U.S. Cl. 70-207

9 Claims

The cylinder lock unit is mounted on the handle. It has adjustment features for rough as well as fine adjustment. A stud

of appropriate length is used to take care of the thickness of the door. A setscrew on a locking cam takes care of the micrometer adjustment for variations in door and gasket



thickness. This handle and lock unit is for magnetic closure gasket-type refrigerator doors. The handle is fixed to the door by screws.

3,593,551

ELECTROHYDRAULIC TRANSDUCERS

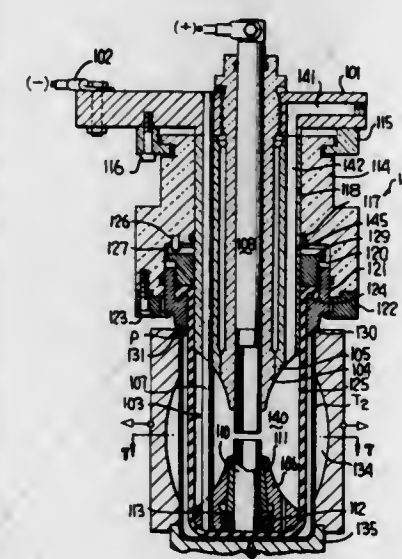
Roth, Donald J., Chicago Heights, and Pesce, Carl A., Chicago, both of, Ill., assignors to Continental Can Company, Inc., New York, N.Y.

Filed Sept. 25, 1968, Ser. No. 762,523

Int. Cl. B21d 26/12

U.S. Cl. 72-56

7 Claims



This disclosure relates to electrohydraulic transducers of the type where electrical energy is discharged across a gap between a pair of electrodes to create a shock wave which expands a flexible chamber to urge a tubular workpiece telescopically externally thereof into conformity with a mold cavity, and includes an internal cage structure for supporting the chamber and at least one of the electrodes, and means for clamping the tubular workpiece at a predetermined position relative to the cavity prior to a forming operation.

3,593,552

CAN BODY FABRICATION

Ermal C. Frazee, Dayton, Ohio, assignor to Dayton Reliable Tool & Mfg. Company, Dayton, Ohio

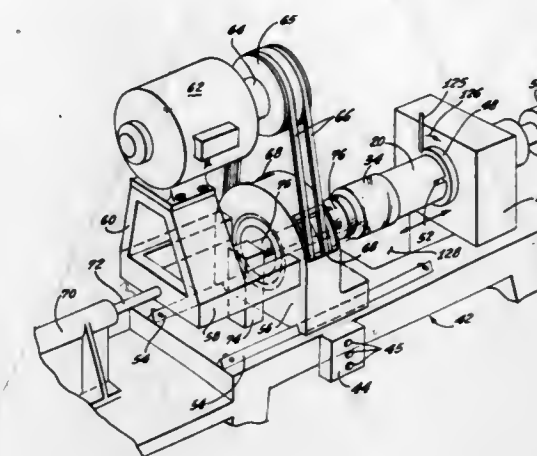
Filed Mar. 12, 1969, Ser. No. 806,550

Int. Cl. B21d 22/16

U.S. Cl. 72-83

23 Claims

To produce a cylindrical can body, a cup-shaped workpiece having a relatively thick and relatively short cylindrical



mandrel to cooperate with the mandrel to thin and spread the cylindrical wall.

3,593,553

METHOD AND APPARATUS FOR ROLLING TUBES

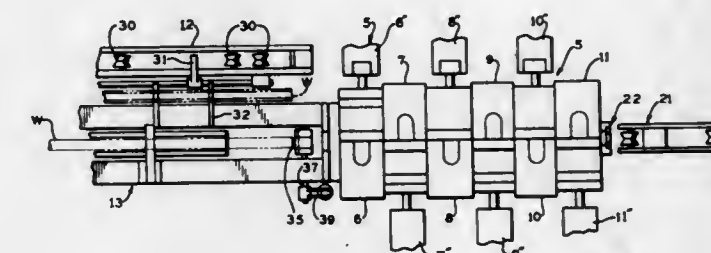
Rodder, William, Pittsburgh, Pa., assignor to Blaw-Knox Company, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 432,597, Feb. 15, 1965, now Patent No. 3,392,565. This application July 12, 1968, Ser. No. 744,366

Int. Cl. B21b 17/10

U.S. Cl. 72-209

14 Claims



A tube mill and a method of rolling tubes in which tubular workpieces are supported by a mandrel as they pass through a series of roll stands that have grooved rolls that reduce the wall thickness and greatly elongate the workpieces during their passage through the mill. The movement of the mandrel is controlled to distribute wear on the mandrel throughout a substantial area and to facilitate entry of the workpieces into the mill. The mandrel is periodically rotated to distribute wear on the mandrel. A construction is provided for quick interchange of mandrels. The positions of the mandrel and the workpiece are indicated to the operator during the rolling operation so that he can change the operation of the mill if that is desirable.

3,593,554

ROLLING MILLS

Eric Owen Swift, Rotherham, England, assignor to Davy and United Engineering Company Limited, Sheffield, England

Filed Aug. 4, 1969, Ser. No. 847,322

Claims priority, application Great Britain, Aug. 9, 1968, 38054/68

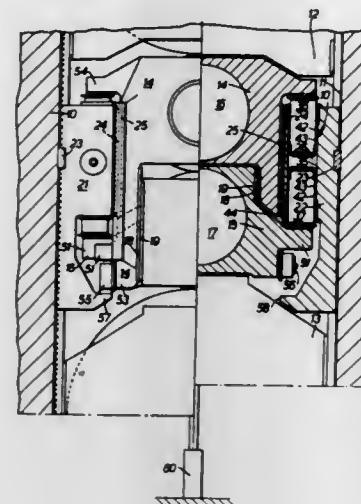
Int. Cl. B21b 31/10

U.S. Cl. 72-238

12 Claims

In a rolling mill the bearing chock assemblies of the processing rolls are arranged with the chocks on one roll in the chocks of the other roll and the chock assemblies are provided with wheels, rollers or slide surfaces which are brought into engagement with beams in the mill housings for the purpose of roll changing. The novelty resides particularly in that the wheels on adjacent chocks engage the same beams

with the wheels on one chock behind the wheels on the other chock and in this way the processing rolls and their chocks bearing surfaces along their entire length whereby the bearing surfaces of the working rolls are held in pressure engage-



can be withdrawn together from the mill housings at fixed centers and with the rolls spaced apart.

3,593,555

HANDLING APPARATUS FOR MILL ROLLS

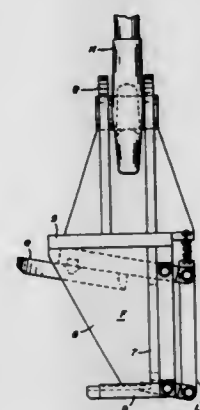
John A. Grosko, Whitaker, Pa., assignor to United States Steel Corporation

Filed July 22, 1968, Ser. No. 746,659

Int. Cl. B21b 31/10

U.S. Cl. 72-239

7 Claims



A roll-handling device for suspension from and operation by the hook of a crane hoist comprising a frame having a pair of horizontal arcuately shaped plates for supporting engagement with a circumferentially extending rib on an assembly of a bearing chock and a mill roll. Lateral movement of the assembly out of engagement with the supporting plates is prevented by a holding member in the form of a ring which is mounted on the frame for movement to an operative holding position in which it encircles the roll neck and is moved to such position by a linkage system that is operated in response to upward movement of the frame to engage said plates with said supporting rib.

3,593,556

ROLLING MILL WITH PRESTRESSED HOUSING

Paul Blain, Saint Germain-en-Laye, Yvelines, France, assignor to Institut de Recherches de la Siderurgie Francaise, St. Germain-en-Laye, France

Filed Apr. 14, 1969, Ser. No. 815,810

Claims priority, application France, Apr. 12, 1968, 148,137

Int. Cl. B21b 13/14

U.S. Cl. 72-241

5 Claims

In a four-high mill, the two working rolls have bearing surfaces in rolling contact with each other. Pressure is exerted upon the two mating backup rolls and transmitted to the

ment with each other while a rolling space is defined therebetween to permit the product to pass therethrough.

3,593,557

METHOD AND APPARATUS FOR MAKING A RISING HINGE

Anton Uekotter, and Paul Greisner, both of Telgte, Westphalia, Germany, assignors to Aug Winkhaus, Telgte, Westphalia, Germany

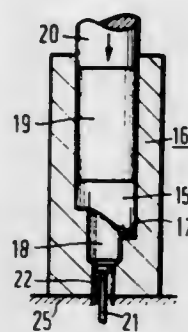
Filed Feb. 5, 1969, Ser. No. 796,768

Claims priority, application Great Britain, Mar. 13, 1968, 12192/68

Int. Cl. B21c 23/00

U.S. Cl. 72-254

6 Claims



The tubular barrels of a rising hinge having a loose pin are shaped in a tubular die in which an obliquely inclined annular face of an internal shoulder divides the die bore into two portions of different uniform cross section, by inserting a metal blank into the wider bore portion and partly extruding the metal through the orifice in the annular face into the second, narrower bore portion. The wider portion of the intermediate metal body so obtained which duplicates the shape of the annular face, is drilled out to a cross section greater than that of the narrower bore portion so that the narrower metal portion is severed from the now-tubular wider portion of the metallic body.

3,593,558

PAYOFF REEL CONTROLLER

Alexander F. Spurdut, New Britain, Conn., assignor to The Fenn Manufacturing Company, Newington, Conn.

Filed July 24, 1969, Ser. No. 844,389

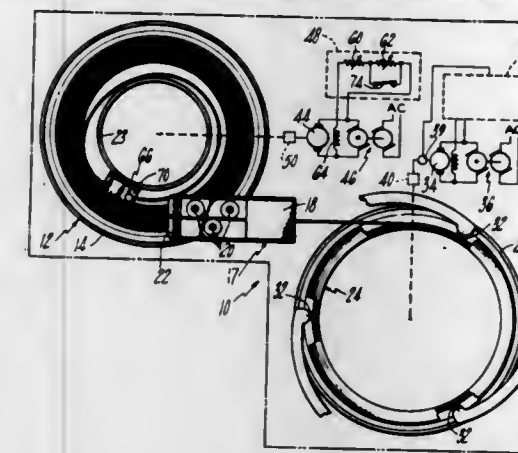
Int. Cl. B21c 1/02

U.S. Cl. 72-289

9 Claims

A drawing block having a die box, a rotatable block for drawing stock through the die box, and a motorized payoff reel for feeding stock in a generally arcuate path to the die box and having a sensing rotor mounted for sensing inward movement of the arcuate stock feed path. A pair of variable resistors are connected in series with the field of the payoff

reel drive motor and a switch operated by a speed-sensitive actuator rotated by the sensing rotor provides for selectively



shunting one of the variable resistors to increase the motor speed when the sensing rotor is engaged and rotated by the stock.

3,593,559

APPARATUS FOR TUBE TAPERING AND REFORMING A DRAWING RING

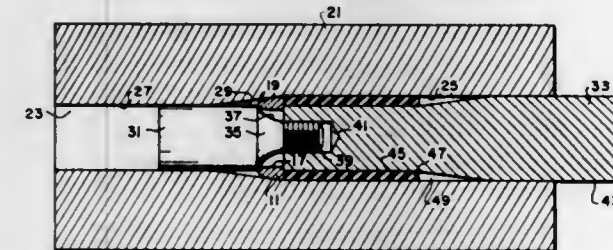
John W. Hinshaw, Garden Grove, Calif., assignor to The Battelle Development Corporation, Columbus, Ohio

Filed Mar. 10, 1969, Ser. No. 805,581

Int. Cl. B21d 22/10

U.S. Cl. 72-354

2 Claims



Apparatus for reducing the diameter of an expanded tube-tapering drawing ring after the ring has been enlarged by tapering a tube and a combination tube-tapering and drawing ring reducing apparatus. The drawing ring is forced through a tapered cylinder to reduce both the outside and inside diameter while the axial length is maintained substantially constant. A tube-drawing apparatus has a rotating head for holding drawing rings and indexing the drawing rings at a plurality of operational stations which include apparatus for tube drawing, annealing the rings, cooling the rings, and reducing the diameter of the rings.

3,593,560

FORMATION OF LOCKING KEYS FOR FASTENERS

Robert Neuschotz, 1162 Angelo Drive, Beverly Hills, Calif.

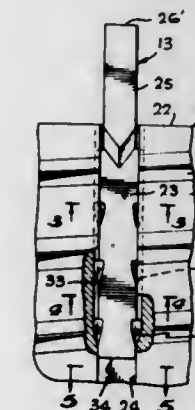
Division of Ser. No. 798,659, Feb. 12, 1969.

Filed Mar. 17, 1970, Ser. No. 20,293

Int. Cl. B21k 1/76; B21d 53/24

U.S. Cl. 72-374

4 Claims



A method of forming a locking key to be received within a groove in a threaded fastener, by initially forming a mounting

portion of the key to a width not substantially greater than the groove, and then locally upsetting a predetermined region of that mounting portion to form a widened fin adapted to cut an undercut guideway recess in the sidewall of the groove upon installation therein.

3,593,561

DIE PRESS PRODUCT EJECTION

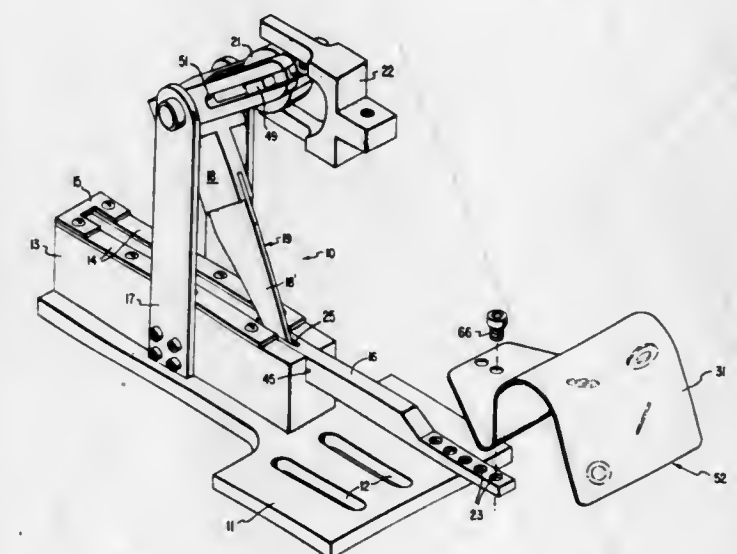
Josef Roth, 13694 Settlement Acres Drive, Brookpark, Ohio

Filed Nov. 12, 1968, Ser. No. 774,753

Int. Cl. B21d 45/00; B26d 7/06

U.S. Cl. 72-427

6 Claims



An ejecting mechanism for a die press that utilizes the vertical motion of the ram to create a linear sweep of an ejecting plate across the face of the die bed. The ejecting mechanism provides a simple mechanical arrangement of parts which transforms the vertical motion of the ram into a linear motion of a carriage carrying the plate. The carriage is adjustably designed to carry a bouncer plate which both lifts and propels small articles falling from the raised die or a puller plate which pulls articles onto its face and out of the die area.

3,593,562

SWAGING PRESS

John L. Williams, P.O. Box 572, and Anton Dresden, 2430 S.

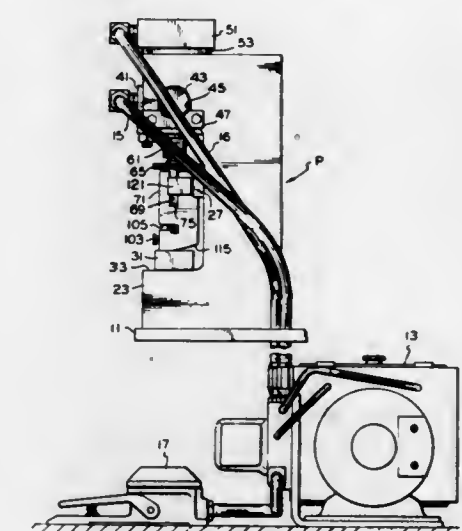
W. Summit Court, both of Lake Oswego, Oreg.

Filed July 18, 1969, Ser. No. 843,063

Int. Cl. B21j 9/06

U.S. Cl. 72-447

7 Claims



A swaging press having an upright hydraulic power head pivotal away from a fixed anvil to an inclined inoperative position, and slidably carrying a guide block which slidably

carries a pair of swagging dies, which are readily replaced in the inoperative position of such power head.

3,593,563

FLAMMABILITY TESTER

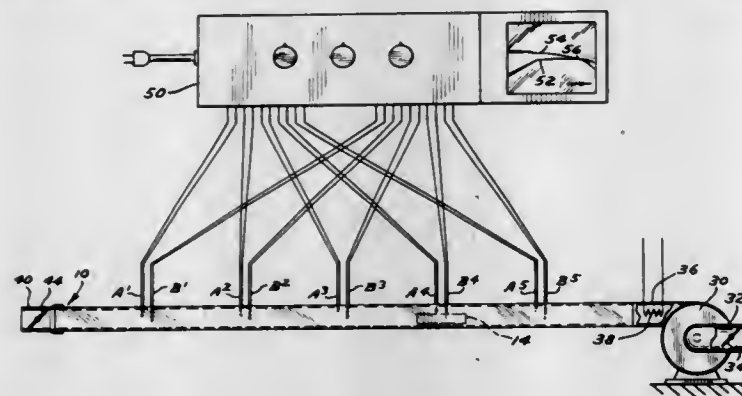
Ralph A. Marmor, and David K. Cunningham, both of Minneapolis, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed July 12, 1968, Ser. No. 744,386

Int. Cl. G01n 1/00

U.S. Cl. 73-15.4

8 Claims



A flammability tester for measuring the ignition temperature of materials in a gas stream is composed of a tube containing a small pan in which the product is placed. Hot air is blown into one end of the tube. Convection and radiation cause the outlet end of the tube to be cooler than the inlet end. A temperature sensor such as a thermocouple is placed in the pan. A second temperature sensor is placed in the airstream immediately above the pan. When the hot airstream heats the material being tested to a sufficiently high temperature, the material ignites. The temperature within the product then rises above the temperature of the surrounding airstream thereby defining the ignition temperature.

3,593,564

METHOD AND APPARATUS FOR EXAMINING MATERIAL SAMPLES

Thaddaus Kraus, Vaduz, Liechtenstein, assignor to Balzers Patent- und Beteiligungs Aktiengesellschaft, Balzers, Liechtenstein

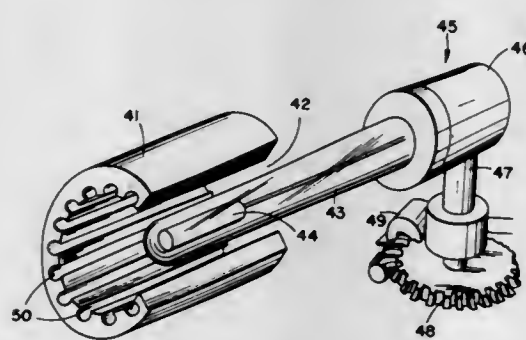
Filed Jan. 16, 1969, Ser. No. 791,674

Claims priority, application Switzerland, Jan. 18, 1968, 969/68

Int. Cl. G01n 7/14, 25/22

U.S. Cl. 73-19

4 Claims



In a method for examining material samples, wherein the sample is heated under vacuum and the amount of gas exchanged by the sample is determined as a function of temperature, the sample is enclosed in a vessel which is permeable to radiant heat. The temperature of the sample is regulated by effecting relative movement between the vessel and the heating chamber, as by dipping the vessel into a heating chamber, raising and lowering a heating bell with respect to the vessel, or swinging the vessel laterally into and out of a laterally opening heating chamber. The apparatus includes the vessel, the heating chamber, and the means for effecting

relative movement between the vessel and the heating chamber, in addition to the known evacuating and measuring means.

3,593,565

METHOD FOR MONITORING THE REFINING OF PIG IRON

Roland Holper, Seraing, Belgium, assignor to Centre National de Recherches Metallurgiques, Brussels, Belgium

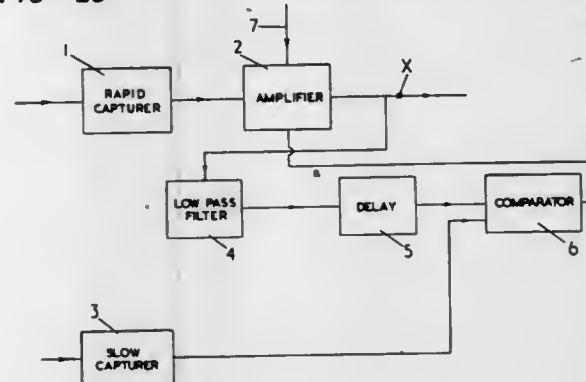
Filed Mar. 17, 1969, Ser. No. 807,820

Claims priority, application Belgium, Mar. 22, 1968, 712694

Int. Cl. G01n 27/00

U.S. Cl. 73-23

4 Claims



A method for monitoring the operation of refining pig iron characterized in that for the purpose of evaluating the rate of decarburization of the pig iron, use is made of a first capturer the time lag of which is very small and the pass band wide; and the drift of the values supplied by this first capturer is determined and compensated, by means of data supplied by a second capturer the accuracy of which is greater than that of the first capturer.

3,593,566

MEANS FOR AND METHOD OF GAUGING ARTICLES

Pieter Jacob Loopuyt, Johannesburg, Republic of South Africa, assignor to African Explosives and Chemical Industries Limited, Johannesburg, Transvaal, Republic of South Africa

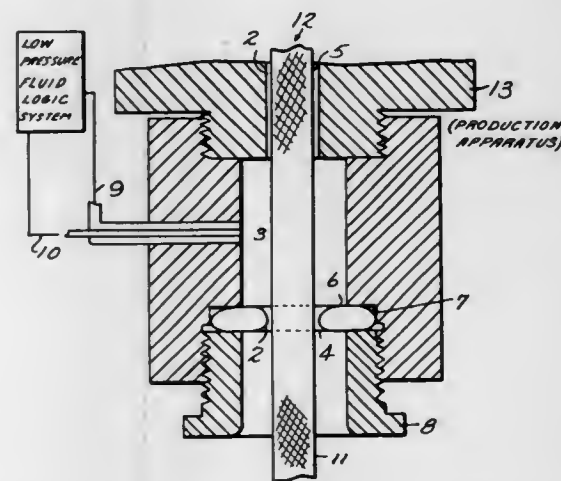
Filed Jan. 22, 1969, Ser. No. 793,140

Claims priority, application South Africa, Jan. 31, 1968, 68/688

Int. Cl. G01b 13/08

U.S. Cl. 73-37.7

13 Claims



A gauging device senses dimensional measurements of elongate articles by detecting variations in the rate of escape of a fluid from a passageway through which the elongate article passes. Fluid is admitted into a chamber in the passageway in a controlled constant supply, and a flow of the fluid is received in a fluid logic circuit to detect any changes in rate of flow. A method of sensing changes in dimensional measurements utilizes this type of gauging device.

3,593,567

LEAK CHECKER

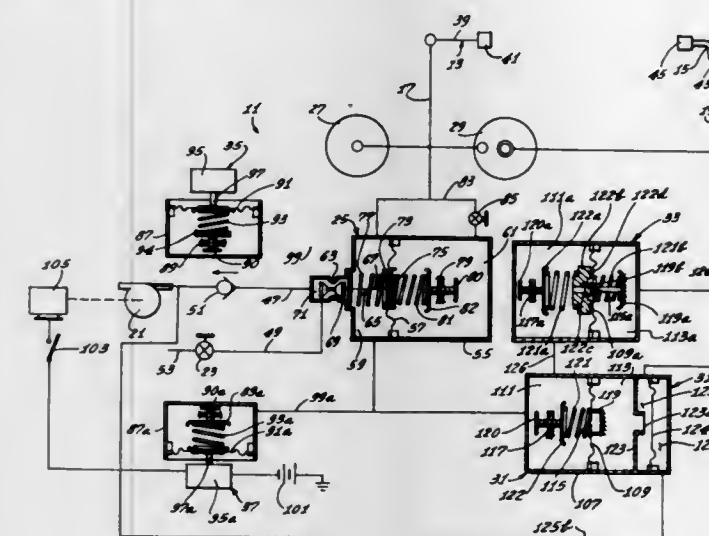
Ezra D Hartley, 2700 Jalmia Drive, Los Angeles, Calif.

Filed June 9, 1969, Ser. No. 831,288

Int. Cl. G01m 3/28

U.S. Cl. 73-40

12 Claims



A leak checker for checking the static and pitot pressure systems of an aircraft for leaks which has first and second conduit means connectable respectively to the static and pitot pressure systems of the aircraft and a control valve for limiting the rate of evacuation or pressurization of the static pressure system. An indicator is operatively coupled to one of said conduits for providing an indication of leakage into or out of the pressure system. The checker also includes a valve limiting the maximum differential pressure between the two conduits and to prevent the pressure in the first conduit from substantially exceeding the pressure in the second conduit.

3,593,568

PROTHROMBIN TIME MEASURING APPARATUS WITH MEANS TO START THE TIMER IN RESPONSE TO THE INITIAL DECREMENT OF OPTICAL TRANSMISSIVITY

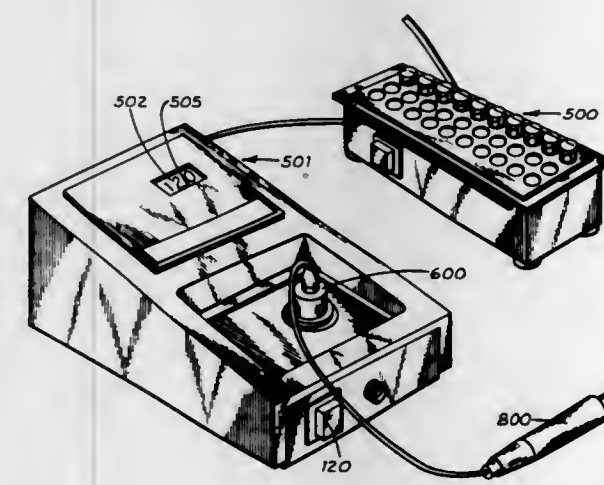
William D. Schmitz, Indianapolis; Lewis E. Bovard, Lawrence, and Larry G. Durkos, Lawrence, all of Ind., assignors to Bio-Dynamics, Inc., Indianapolis, Ind.

Filed Apr. 1, 1969, Ser. No. 812,056

Int. Cl. G01n 31/14, 33/16

U.S. Cl. 73/6401

8 Claims



A coagulation meter including automatic means for maintaining the test temperature at 37° C. A photocell is used to sense the change in turbidity of the contents of a cuvette. The test is started by the change in voltage output produced by the photocell when the final test component is injected into the cuvette and is ended by the change in photocell voltage output caused by the change in turbidity produced by clotting. The time between these two events is measured by a digital time circuit and display automatically actuated by a differentiation circuit and a detector circuit.

3,593,569

ULTRASONIC TESTING APPARATUS

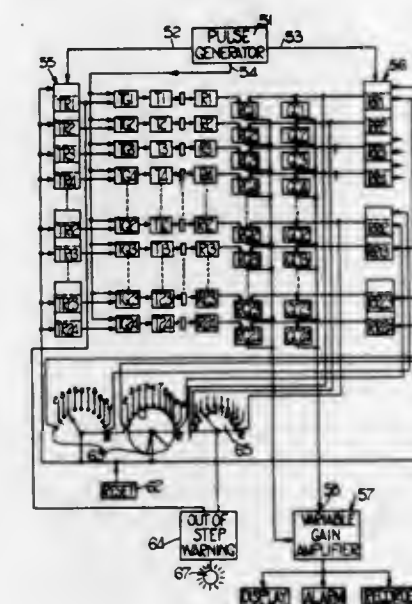
Donald Malcolm Wilson, Linton, England, assignor to S.T.D. Services Limited

Filed Mar. 11, 1968, Ser. No. 712,085

Int. Cl. G01n 29/04

U.S. Cl. 73-67.7

4 Claims



Ultrasonic-testing apparatus in which a series of transducers are pulsed and scanned under the control of two ring counters, one controlling the pulsing sequence and the other controlling the scanning sequence, with a device for varying the phase relationship of the counters to vary the mode of testing.

3,593,570

ULTRASONIC TESTING DEVICE

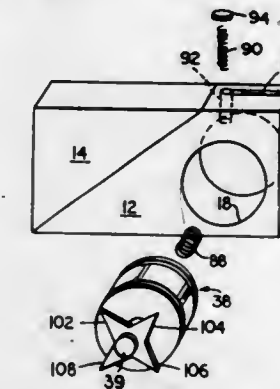
Richard W. Megoloff, 763 Taylor Ave., Alameda, Calif.

Filed June 13, 1969, Ser. No. 833,085

Int. Cl. G01n 29/04

U.S. Cl. 73-71.5

4 Claims



An ultrasonic-testing device including four crystals fixed to a member which may be rotated to a variety of positions. Each crystal when vibrated is adapted to emit ultrasonic waves of a frequency different from the other three. One crystal only is selectively vibrated at any given time, and the position of that vibrated crystal, and thus the direction of ultrasonic waves emitted therefrom, may be varied to an extent by rotation of the member to such variety of positions.

3,593,571

DRYNESS SENSOR ASSEMBLY

Jay A. Wiechert, Benton Harbor, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Aug. 4, 1969, Ser. No. 847,361

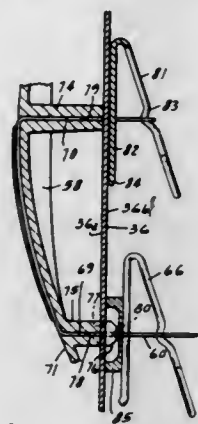
Int. Cl. G01n 5/02; F26b 13/10

U.S. Cl. 73-73

6 Claims

A bridging-type sensor assembly for use in domestic laundry dryer wherein a pair of sensing elements having leg

portions extending through an insulating mounting base and through a bulkhead of a drying chamber for engagement by resilient clips which secure the sensing assembly onto the bulkhead. At least one of the clips is provided with means for



biting into the bulkhead to provide an electrical ground for the sensing element that it is engaging and the leg portion of the other sensing element is provided with a second insulating member to electrically insulate it from the bulkhead member.

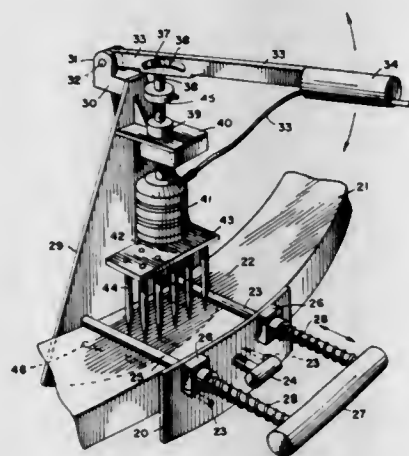
3,593,572

MEASURING THE TENDERNESS OF MEAT

Leo J. Hansen, Clarendon Hills, Ill., assignor to Armour and Company, Chicago, Ill.
Continuation-in-part of application Ser. No. 705,722, Feb. 15, 1968, now abandoned. This application Nov. 15, 1968, Ser. No. 776,234

Int. Cl. G01n 3/48

U.S. Cl. 73-81



To test raw meat in order to determine how tender it will be upon cooking, a pointed probe is pressed into the meat and the resistance of the meat to the movement of the probe is measured and the result compared with a standard established by similar tests on meat of the same class under similar conditions. The meat may be supported or suspended when the probe is introduced into the meat, and preferably the probe is pressed to a predetermined depth in the meat and at an angle to the grain of the meat. The apparatus employed may include retainer means for holding or suspending the meat to be tested, pointed probe means for penetrating the meat, stop means for limiting the extent of penetration to a predetermined depth, and means for measuring the force of the penetration.

3,593,573

FLUID PRESSURE END LOADING TEST APPARATUS

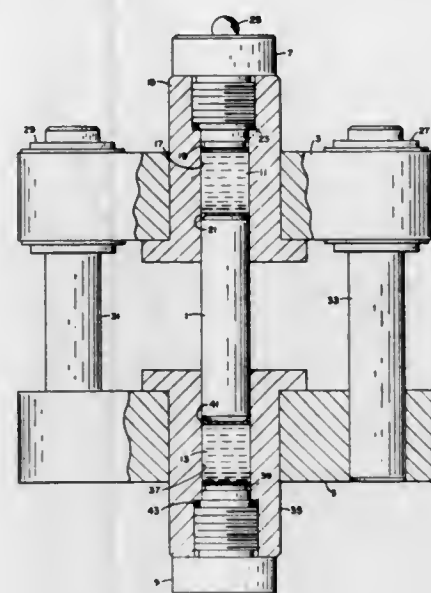
Richard E. Ely, Huntsville, Ala.
Filed Mar. 24, 1969, Ser. No. 809,854
Int. Cl. G01n 3/10

U.S. Cl. 73-94

5 Claims

A fluid pressure end loading apparatus for axially testing cylinder specimens under compression loads. The apparatus

includes a top plate having a fluid housing mounted thereon, a bottom plate also having a fluid housing mounted thereon



and guide pins for guiding the movement of the top plate. The specimen to be tested is mounted between the two fluid housings and the load is applied until the specimen fractures.

3,593,574

TESTING APPARATUS

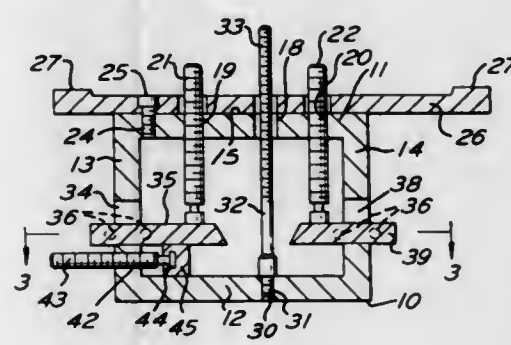
Ray E. Omholt, Berwyn, Pa., assignor to Powerlock Floors, Inc., Philadelphia, Pa.

Filed Aug. 18, 1969, Ser. No. 850,953

Int. Cl. G01n 3/08, 3/24, 3/28

U.S. Cl. 73-95

5 Claims



A portable testing tool is provided for testing flooring system components such as holddown clips to determine the holddown strength of the clip, the clip load at which the board fails, the strength of the tongues, the flexibility of the board, and other characteristics, and for these purposes has a frame with parallel force applying walls, a force applying unit adapted for reading of the applied force and holding elements for specific force application to clips, to the tongues of boards and to boards.

3,593,575

COMBINATION FLOW METER AND CONTROL VALVE

Horst R. Thieme, Horsham, Pa., assignor to Emerson Electric Co., St. Louis County, Mo.

Filed Jan. 5, 1968, Ser. No. 696,030

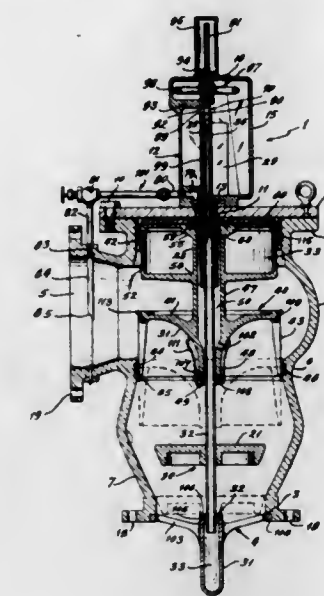
Int. Cl. G01f 1/02

U.S. Cl. 73-199

19 Claims

A combination variable area meter and flow limiter having a pilot valve plug and a readout magnet attached to a float rod of the variable area meter. Seating of the pilot valve plug in an adjustable pilot valve seat increases pressure in a con-

trol chamber, forcing down a skirt-guided plug and diaphragm assembly to limit the flow. A shutoff valve



3,593,576

APPARATUS FOR THE MEASUREMENT OF FLUCTUATING FLUID FLOW

James Robertson Bouvard Greer, Newton Mearns, Glasgow, Scotland, assignor to Mercury Electronics (Scotland) Limited

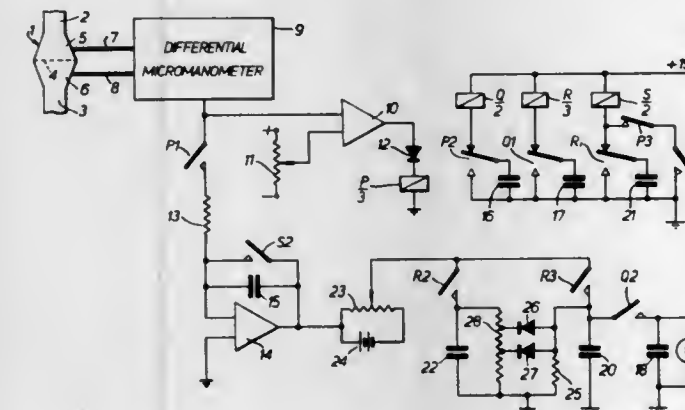
Filed July 8, 1968, Ser. No. 743,164

Claims priority, application Great Britain, July 13, 1967, 32,212/67

Int. Cl. G01f 1/04

U.S. Cl. 73-206

11 Claims



Apparatus for the measurement of fluctuating fluid flow includes a transducer developing an electric signal related to the pressure difference between opposite sides of a barrier in the path of the flow. Switch means responsive to the onset of flow in a selected direction applies the transducer signal to an integrator. When flow in the selected direction ceases a switch applies the integrator output voltage to charge a capacitor, which is continuously discharged at a constant rate. When flow recommences the voltage on the capacitor is applied to control an indicator, which thus provides an indication of average flow rate in the selected direction.

3,593,577

ADIABATIC CALORIMETER CONTROL SYSTEM

Ray J. Monner, Moline, Ill., assignor to Parr Instrument Co., Moline, Ill.

Filed Apr. 22, 1968, Ser. No. 723,222

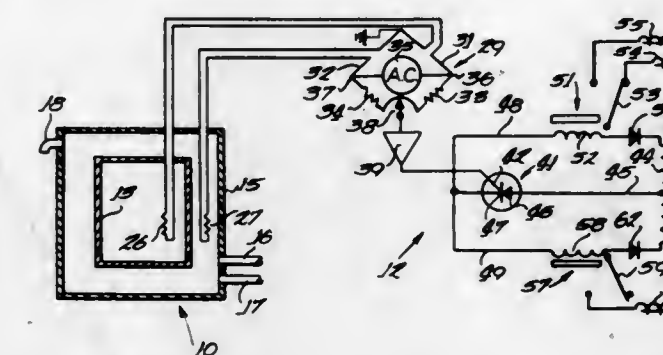
Int. Cl. G01k 17/00

U.S. Cl. 73-190 R

8 Claims

A control system utilized for an adiabatic calorimeter including a pair of thermistors positioned in the bucket and the

jacket of a calorimeter and connected to an off-null electrical bridge circuit that actuates one of two relays controlling the flow of hot and/or cold water to the calorimeter jacket. A signal from the bridge indicating an imbalance in the thermistor temperatures is amplified in two stages and fed to



a thyristor. Depending on the phase of the signal, one relay will be actuated while the other relay is blocked; one relay controlling the addition of small amounts of hot or cold water and the other relay controlling the addition of a large amount of hot water when the sample in the calorimeter is ignited.

3,593,578

HEAT TRANSFER METERS

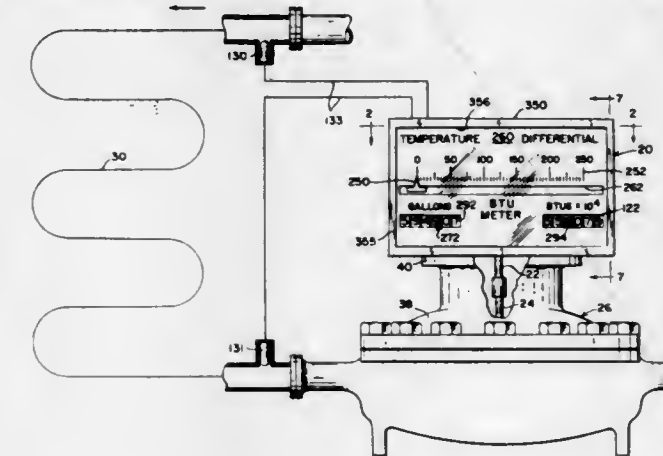
Thomas C. Farrell, Glenshaw, and Harry W. Fisher, Pittsburgh, both of, Pa., assignors to Emerson Electric Co., Saint Louis, Mo.

Filed May 9, 1968, Ser. No. 727,797

Int. Cl. G01n 1/00

U.S. Cl. 73-190

14 Claims



An apparatus for measuring the amount of heat absorbed or given up by a heat-transferring structure such as a heat exchanger and comprising a wheel-and-disc-type integrator having a disc coupled to a volumetric flowmeter output shaft and a wheel positionable on the disc by a dual bellows assembly which measures the inlet and outlet temperatures of the heat exchanger. The position of the wheel represents the differential between the foregoing temperatures, and the integrator multiplies the volume of fluid flowing through the heat exchanger by the temperature differential. A differential mechanism, having inputs respectively coupled to the output of the integrator and to the output of the flowmeter, has an output drive connected to a counter for totalizing the amount of heat transferred relative to the heat exchanger.

3,593,579

LIQUID DROP SENSING AND COUNTING SYSTEM

Daniel T. Hindman, Kenmore, and Paul J. Hufnagel, Getzville, both of, N.Y., assignors to Mennen-Greatbatch Electronics, Inc., Clarence, N.Y.

Filed July 16, 1969, Ser. No. 842,291

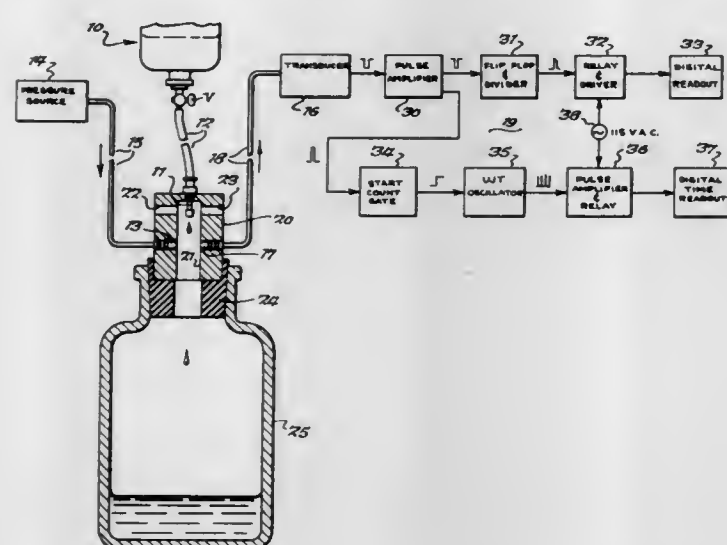
Int. Cl. G01f 3/00; A61m 5/00

U.S. Cl. 73-194 E

8 Claims

Apparatus for sensing and counting a flow of liquid drops including a nozzle communicating with the liquid to be mea-

sured and providing liquid drops in a first path. Gas under pressure in the range giving rise to a laminar flow is directed, as by a nozzle, in a second path positioned so as to be interrupted by the liquid drops. A pressure transducer in commu-



nication with the gas stream provides an electrical signal in response to each pressure decrease caused by a liquid drop interrupting the gas flow. The transducer is operatively connected to a suitable counter.

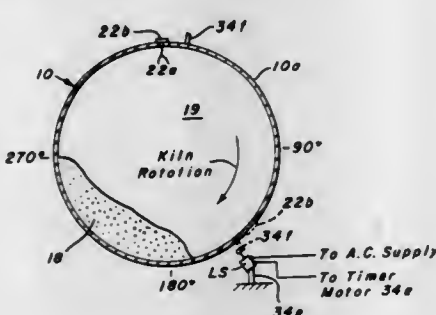
3,593,580

ELECTRONIC PEAK-PICKER

Norman C. Ludwig, deceased, late of Chicago, Ill. (by Ruth L. Ludwig, executrix), and Gillard Harrity, Valparaiso, Ind., assignors to United States Steel Corporation
Filed Apr. 22, 1969, Ser. No. 818,457
Int. Cl. G01k 7/02, 13/08

U.S. Cl. 73-343.5

35 Claims



This invention relates to apparatus for determining the temperature of one of a kiln load and a heated fluid stream at a predetermined location on a longitudinal axis of a kiln having the heated fluid stream passing therethrough and for heating the kiln load. The apparatus has a temperature-responsive means connected to the kiln at the predetermined location and rotatable with the kiln to cyclically pass through the kiln load and the heated fluid stream to produce a temperature signal. A rate switch module is connected to the temperature-responsive means for producing a blocking output from an increasing voltage input from the temperature-responsive means while the temperature-responsive means is passing through the fluid stream and a tracking output from a decreasing voltage input from the temperature-responsive means while the temperature-responsive means is passing through the kiln load. Alternatively, the rate switch module produces a blocking output from a decreasing voltage input from the temperature-responsive means while the temperature-responsive means is passing through the kiln load and a tracking output from an increasing voltage input from the temperature-responsive means while the temperature-responsive means is passing through the heated fluid stream. In addition, the apparatus has a first relay, a comparator module connected to the temperature-responsive means and to the first relay, and a track and hold module connected to the temperature-responsive means and to the comparator

module and operable to provide a substantially maximum output signal and a substantially minimum output signal to the comparator module when the temperature-responsive means is passing through the fluid stream and the kiln load respectively so that when the temperature signal is less than the maximum output signal and greater than the minimum output signal respectively, the first relay is energized by the comparator module.

The rate switch module is operable while the rate switch module is receiving a decreasing temperature signal and an increasing temperature signal respectively to produce the tracking output thereby causing the output signal of the track and hold module to follow the temperature signal being fed to the track and hold module and to then produce the blocking output, thereby holding the output signal of the track and hold module at a substantially minimum temperature signal and a substantially maximum temperature signal respectively. The comparator module then is operable to deenergize the first relay when the temperature signal is greater than the output signal of the track and hold module and less than the output signal of the track and hold module respectively, and reset means are connectable to the track and hold module to apply a tracking output to the track and hold module and operable to connect the track and hold module to a substantially maximum temperature signal and a substantially minimum temperature signal respectively, thereby producing a substantially maximum output signal and substantially minimum output signal respectively to the comparator module.

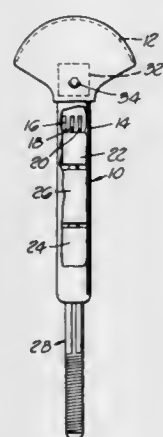
3,593,581

ELECTRICAL THERMOMETER

Leroy E. Beightol, Los Angeles, Calif., assignor to Solar Laboratories, Inc., Torrance, Calif.
Filed Jan. 10, 1969, Ser. No. 790,307
Int. Cl. G01k 7/16

U.S. Cl. 73-362

6 Claims



This patent describes an electrical thermometer device comprising an electrical circuit containing a disposable resistance element which is adapted to be inserted into an opening of the human body and which resistor undergoes changes in resistance as a result of a change in temperature produced therein by the human body.

3,593,582

COMBINATION PRESSURE-RESPONSIVE INDICATING AND ACTUATING DEVICE

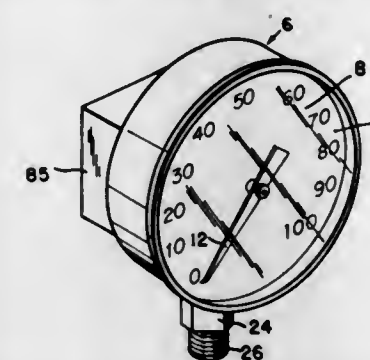
Ramond J. Birkmeyer, Cincinnati, Ohio, assignor to Jay Instrument and Specialty Co., Cincinnati, Ohio
Filed Sept. 26, 1969, Ser. No. 861,306
Int. Cl. G01l 19/12

U.S. Cl. 73-411

13 Claims

The gauge involves the use of two separate pressure-measuring members both of which are responsive to a single source of actuating pressure. One of said members actuates the pointer of an indicator whereas the other member simul-

taneously actuates a control member which in turn controls remotely located alarm, signal or other mechanisms. No



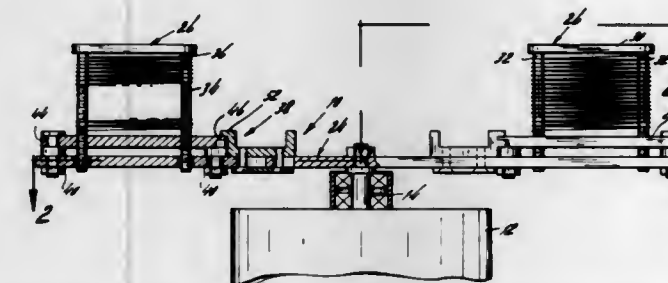
change is required in conventional mounting of the gauge, using a single connection to a pressure source.

3,593,583

MERCURY AIR SAMPLER FOR GEOLOGICAL STUDIES
Howard H. Anderson, Covina; Rudolph H. Moyer, West Covina; Donald J. Sibbett, Cucamonga, and David C. Sutherland, El Monte, all of, Calif., assignors to Geomet, Incorporated, Rockville, Md.
Filed Apr. 29, 1970, Ser. No. 32,918
Int. Cl. G01n 1/22

U.S. Cl. 73-421.5 R

7 Claims



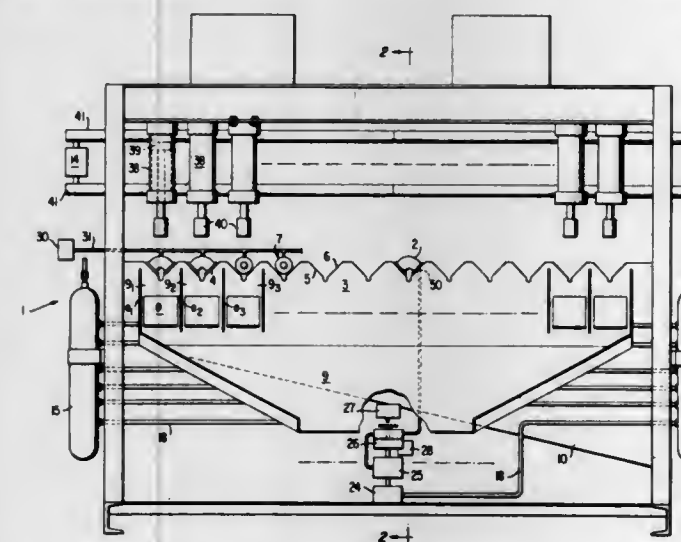
Apparatus and system for detecting and sampling mercury vapor in the atmosphere especially adapted for geological surveying or studies utilizing sensitized absorption of the vapor on surfaces of noble metal wire grids. The wire grids operate to concentrate encountered low levels of vapors. Release of mercury from the grid into a photometer for quantitation is achieved by direct passage of electrical current through the grid wire. The grids are designed to allow for ohmic heating of the absorbent wire to render possible a portable monitoring device. The apparatus is operable from vehicle batteries or the like or from alternator power

3,593,584

AUTOMATIC TESTING UNITS FOR PIPE FITTINGS
Victor Dudick, Middletown, and Richard A. Gerlach, Lancaster, both of, Pa., assignors to Jack Solomon, Harrisburg, Pa.
Filed Mar. 6, 1969, Ser. No. 804,806
Int. Cl. G01m 3/26

U.S. Cl. 73-45.1

8 Claims



A new and improved testing system for pipe fittings including a battery of testing blocks into which fittings to be tested

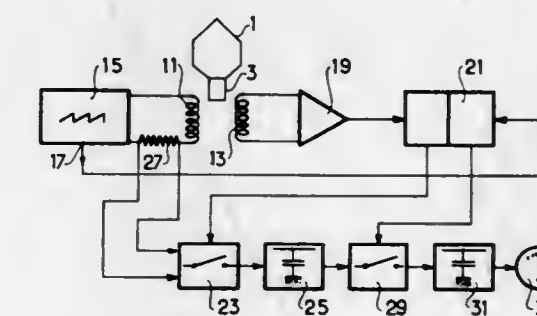
are placed, a battery of piston-cylinder units for holding the fittings in the blocks for a controlled period of time, a metering device for administering over a controlled period of time, fluid interior of the fittings and to a pressure-sensing unit. The sensing unit is then isolated by the metering device and upon a pressure change occurring in the sensing unit, a trap-door is raised adjacent the testing block associated with the unit sensing a pressure change. A battery of kickout units then ejects the fittings being tested with the fittings of the blocks producing a pressure change being trapped as rejects.

3,593,585

MEASUREMENT OF THE DENSITY OF A FLUID
Eugene J. M. Bresson, Longjumeau, France, assignor to Compagnie Generale D'Electricite, Paris, France
Filed Apr. 15, 1969, Ser. No. 816,254
Claims priority, application France, Apr. 17, 1968, 428425
Int. Cl. G01n 9/08

U.S. Cl. 73-453

4 Claims



A float fitted with a magnet is immersed in the liquid whose density is to be measured. A generator sends a ramp current periodically to a main coil, thus causing a progressively increasing attraction towards the bottom of the float. At the moment the float sinks suddenly, a moment depending on the density of the liquid, the sudden movement is detected by a second coil which sets a flip-flop. At this time the intensity which caused this drop is recorded in a buffer storage unit. This information is subsequently stored, during the interval between two readings, in a second storage unit which controls the data indication units in a quasi-continuous manner.

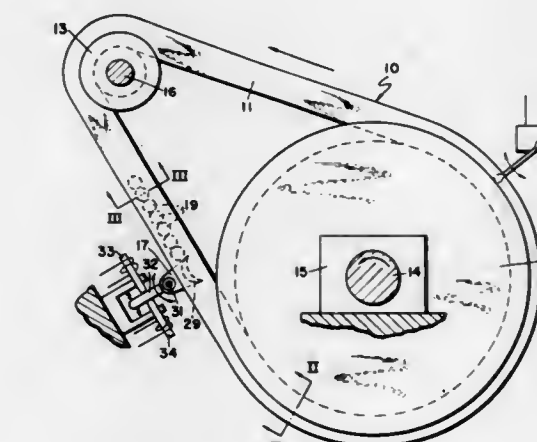
3,593,586

MEMORY DEVICE

Francis P. Dunigan, Holden, Mass., assignor to MEK Control, Inc., Northboro, Mass.
Filed Feb. 13, 1969, Ser. No. 799,009
Int. Cl. F16h 37/00

U.S. Cl. 74-1 R

7 Claims



A memory device consisting of a moving, endless belt, spheres slidably positioned in the belt, a finger which causes one of the spheres to be nonslidably positioned in the belt, and a sensor adjacent to the belt which detects when a sphere passes by.

ERRATA

For Classes 118—206, 118—630, 118—2, see:
Patent Nos. 3,593,677 thru 3,593,680

3,593,587

INDEXING APPARATUS

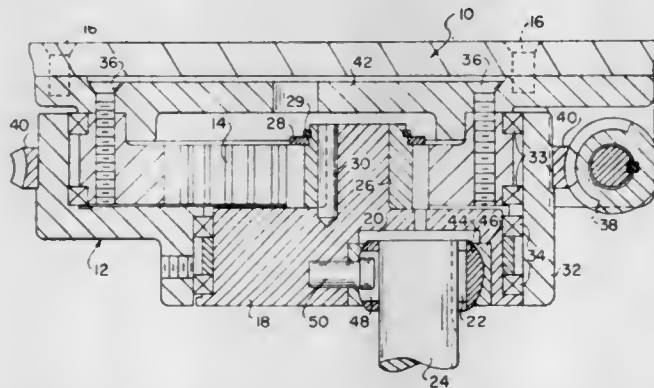
Robert R. Henry, Andover, Mass., assignor to Yorkshire Industries Inc., Andover, Mass.

Filed Sept. 29, 1969, Ser. No. 861,643

Int. Cl. G01c 19/02; G05g 1/00

U.S. Cl. 74—22

16 Claims



Indexing apparatus comprising, in combination: adjustment apparatus having a rotatable carrier, a rotatable mounting member supported by the carrier eccentrically to the axis of the carrier, a shaft nonrotatably connected to one side of the mounting member, eccentrically of the axis of the mounting member, the carrier and shaft axes being parallel to and equidistant from the axis of the mounting member, and on the other side of the mounting member, a pinion coaxial with the mounting member and nonrotatably connected thereto and an internal gear in driving engagement with the pinion, and mounted coaxially of the carrier and nonrotatably relative thereto, the pinion having a pitch diameter of one half that of the internal gear, and the shaft axis lying in the pitch circle of the pinion drive means connected to the carrier for rotating the carrier; at least one drive member coaxially connected to the shaft nonrotatably in the direction of rotation of the shaft; and, an endless loop in driving engagement with each drive member.

3,593,588

ACTUATOR USING ROLLER TRANSMISSION

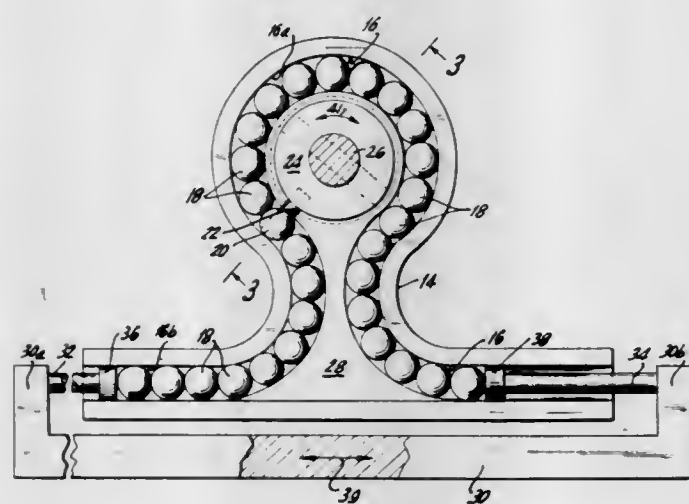
Alexander B. Hulse, 55 Austin Pl., Staten Island, N.Y.

Filed May 8, 1969, Ser. No. 823,068

Int. Cl. F16h 27/02; F16c 1/10

U.S. Cl. 74—89

10 Claims



An actuator includes a closed circulating ball or roller system arranged in a defined path, particularly a combined arcuate and linear path, constructed to facilitate a linear and rotary motion change. In one embodiment, the actuator includes a housing defining a closed ball channel which in-

cludes a central loop portion for transmitting rotary motion and one or more end linear portions for transmitting linear motion. The loop portion is arranged to surround a central cylindrical cavity for a rotary vane member or disc which includes a radially outwardly projecting portion which is formed with a ball head.

3,593,589

BELT-INSTALLING APPARATUS

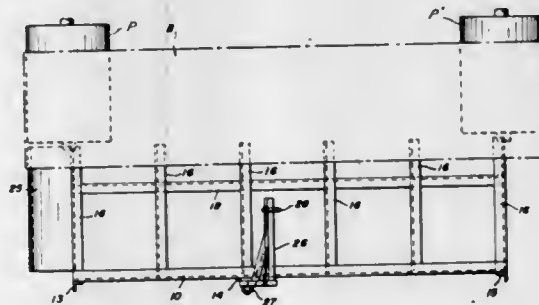
Norris R. Logan, Thornton Township, Cook County, Ill., assignor to United States Steel Corporation

Filed Dec. 23, 1969, Ser. No. 887,471

Int. Cl. F16h 7/08; B23p 19/00

U.S. Cl. 74—242.5

4 Claims



An apparatus for installing a belt over a pair of spaced apart pulleys, intended particularly for installing belts of thin-gage metal strip on a belt-type continuous casting machine. Apparatus includes a portable rigid frame, a plurality of upper and lower fingers fixed to the frame, and a semicircular pulley-matching head fixed to one end of the frame. Fingers and head support the belt without allowing it to sag and enable it to be manually slipped onto pulleys.

3,593,590

IDLER ASSEMBLY

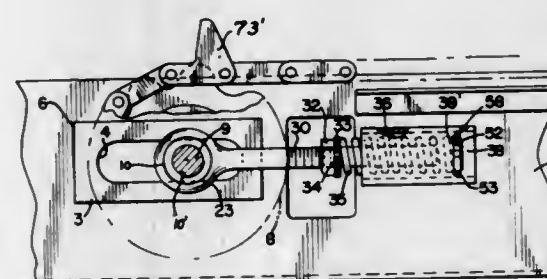
Elmer M. Kesi, and Carmen S. Phillips, both of Downers Grove, Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Mar. 3, 1970, Ser. No. 16,177

Int. Cl. F16h 7/10, 7/12

U.S. Cl. 72—242.14 R

10 Claims



A mounting for an idler from a frame which has an elongated slot. A journal bolt for the idler is slidably secured to the frame in the slot and is connected to one end of an adjusting element which fits at its other free end into a spring and has a nut threaded thereon abutting the spring. The free end of the adjusting element extends with the spring into a housing which has openings in opposed walls. A spring steel U-shaped pin is collapsed and inserted into the openings and in spreading out locks with the housing portions about the margins of the openings. The pin has corrugated legs which hold the pin wedged to the walls of the housing and the legs form an opening therebetween which receives the free end of the adjusting element preventing withdrawal of the pin. The pin seats the other end of the spring and the threaded nut adjusts the compression of the spring.

3,593,591

ADJUSTABLE MOUNTING MEMBER AND A SELF-ALIGNING SHAFT-BEARING ASSEMBLY

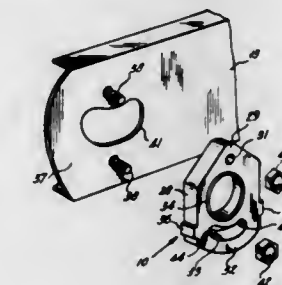
Alfred Chantland, Humboldt, Iowa

Filed Mar. 12, 1970, Ser. No. 18,937

Int. Cl. F16h 7/10

U.S. Cl. 74—242.15 R

4 Claims



A mounting member and an associated self-aligning shaft bearing are provided at each end of a rotatable shaft. The mounting members have one of their ends pivoted on upright parallel frame supports for swinging movement of their opposite ends in planes parallel to the planes of the frame supports. With the self-aligning bearings located adjacent to such opposite ends the mounting members are relatively movable to swing the axis of the rotatable shaft to a first adjusted position normal to the planes of the frame supports or to a second adjusted position inclined relative to the planes of the frame supports.

3,593,592

STEERING GEAR

Fredrick J. Adams, Campton, near Shefford, England, assignor to Cam Gears Limited, Hitchin, Hertfordshire, England

Filed Dec. 5, 1969, Ser. No. 882,547

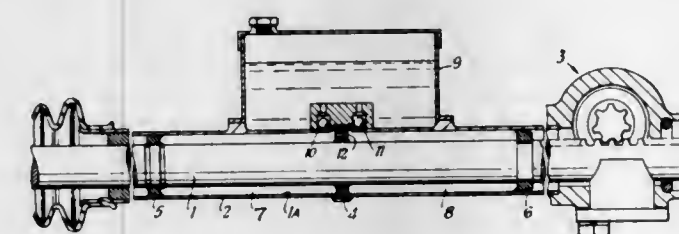
Claims priority, application Great Britain, Dec. 6, 1968,

57988/68

Int. Cl. B62d 3/12

U.S. Cl. 74—498

12 Claims



Rack and pinion steering gear with fluid damping to absorb undesirable feedback from the rack bar to the steering column. The damping may be controlled from a maximum in the median or straight-ahead steering range to a minimum as the two extremities of the steering range are approached.

3,593,593

RACK AND PINION ASSEMBLIES

Kenneth Clifton Bradshaw, England, assignor to Cam Gears Limited, Hitchin, Hertfordshire, England

Filed Dec. 12, 1969, Ser. No. 884,761

Claims priority, application Great Britain, Dec. 12, 1968,

59141/68

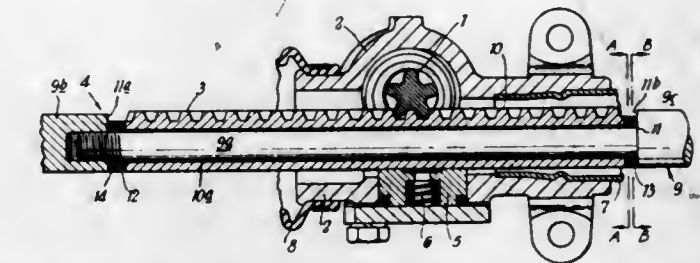
Int. Cl. B62d 1/20; F16h 1/04, 55/14

U.S. Cl. 74—498

9 Claims

Rack and pinion automotive steering gear with shock absorbing means between the rack bar and rack for damping transfer of road shocks from the rack bar to the pinion. The rack bar has a reduced diameter portion receiving a rack sleeve and shock absorbing means, such as resilient washers, are interposed between the ends of the sleeve and shoulders of the rack bar. The rack bar is preferably cylindrical, and

the reduced diameter portion thereof has an eccentric axis. The rack sleeve is preferably cylindrical with an eccentric bore so located to provide a thick rack tooth wall and to



position the external cylindrical sleeve surface concentric and flush with the main-rack bar. The bar and sleeve are slidably supported in a spring biased yoke.

3,593,594

APPARATUS FOR MANIPULATING RADIOACTIVE MATERIAL TO AND FROM A STORAGE UNIT

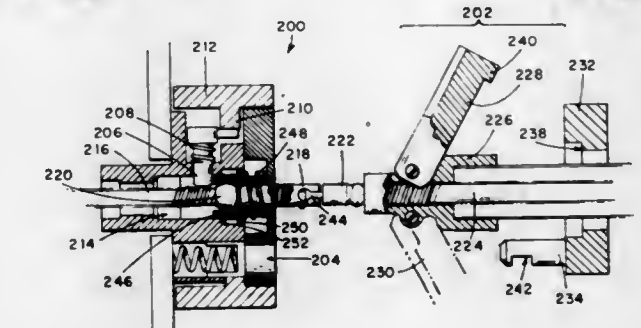
George J. Perry, Sudbury, Mass., assignor to Technical Operations Incorporated, Burlington, Mass.

Filed Oct. 4, 1968, Ser. No. 765,245

Int. Cl. G21h 5/00; F16c 1/10; F16b 7/04

U.S. Cl. 74—501

8 Claims



Apparatus for manipulating radioactive materials to and from a storage unit and more particularly, novel features in a coupling unit for coupling propulsion means for the source to the source and its storage unit. Structures are shown for rendering the coupler fail-safe to prevent coupling of the propulsion means with the storage unit unless a propelling cable and the source are properly connected; other structures are shown for preventing decoupling except when the source is in its storage unit and for facilitating connection of the propelling cable with the source.

3,593,595

DIFFERENTIAL GEARING MECHANISM AND METHOD OF ASSEMBLY

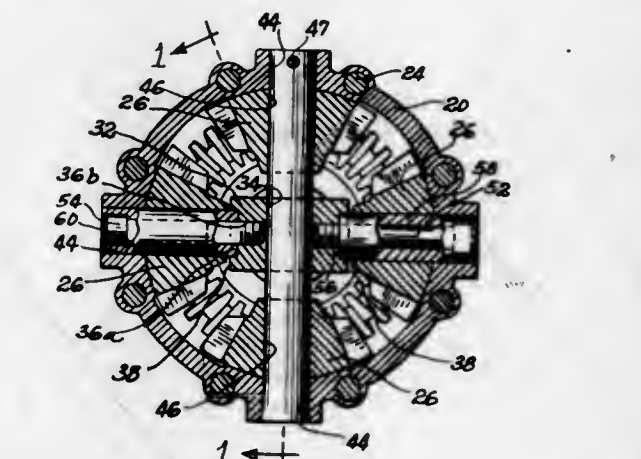
Eugene D. Taylor, Kenosha, Wis., assignor to J. I. Case Company

Filed Aug. 19, 1969, Ser. No. 851,282

Int. Cl. F16h 1/40

U.S. Cl. 74—713

5 Claims



A differential gearing mechanism including pinion gears supported in a housing by a pinion support member. The sup-

port member comprises a central member having an axial opening and a pair of bores disposed on axes angularly related to the axial opening. The central opening receives a pin which also extends through coaxial openings in the housing and supports a pair of pinion gears. The support member further includes a pair of support elements respectively extending through further housing openings and each element has one end secured in a bore and the opposite end supported in an associated housing opening.

The differential gear mechanism is assembled by locating the pinions in the housing and aligning support pinion openings with respective housing openings, inserting the pin through coaxial housing openings and the central opening, and inserting the respective support elements through the remaining housing openings and securing the one end of the elements in the support member bore.

In a modified form, the central member includes a plurality of bores angularly related to each other and each receiving a pinion support element.

3,593,596

POWER TRANSMISSION MECHANISM

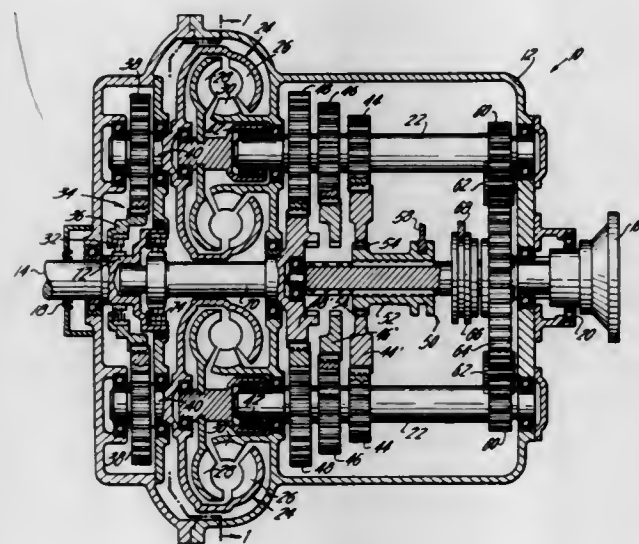
Keith W. Race, Hagerstown, Md., and Delbert E. Willis, deceased, late of Hagerstown, Md. (by Marie E. Willis, executrix), Hagerstown, Md., assignors to Mack Trucks, Inc., Allentown, Pa.

Filed Dec. 15, 1969, Ser. No. 885,233

Int. Cl. F16h 47/06, 3/08

U.S. Cl. 74—720

16 Claims



A power transmission mechanism having mechanical and hydraulic drive paths comprising a pinion shaft drivingly connected to a plurality of countershafts and a hydraulic torque converter drivingly connected to each countershaft by a one-way clutch. The torque converters and the pinion shaft are disposed for selective engagement with an input shaft by means of clutches. In an alternative arrangement, a clutch selectively connects each converter rotor to its impeller and another clutch selectively grounds each converter stator to the transmission housing.

3,593,597

INDEXING MECHANISM

Richard F. Jennings, Springfield, Vt., assignor to Tertron, Inc., Providence, R.I.

Filed Nov. 7, 1967, Ser. No. 681,238

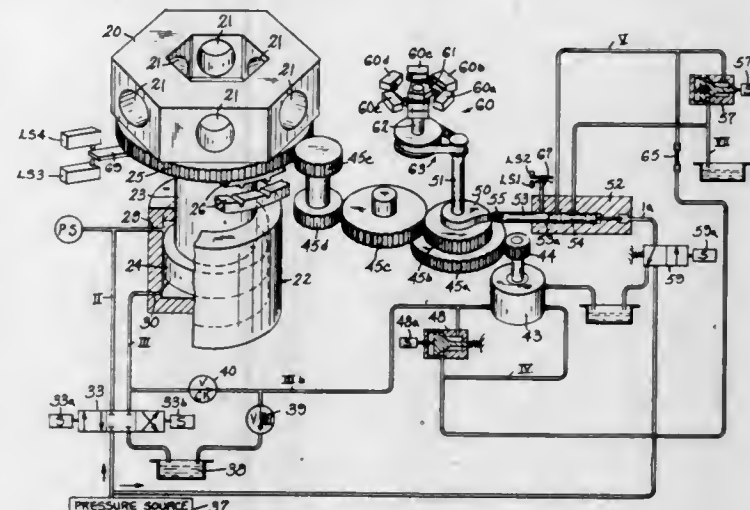
Int. Cl. B23q 17/18

U.S. Cl. 74—818

9 Claims

An indexing mechanism for a machine tool, comprising toolholding means for supporting a plurality of tools mounted for rotation, the toolholding means including first and second face coupling means for positioning and preventing rotation of the toolholding means, hydraulic cylinder means for raising and lowering said toolholding means in order to separate and bring together said first and second face coupling means, said toolholding means being rotatable when said first and second face coupling means are separated, gear drive means for rotating said toolholding means and for indexing the

same, hydraulic motor means for driving said gear drive means, and flow valve means having a spool responsive to



cam means driven by said gear drive means for controlling said hydraulic motor means.

3,593,598

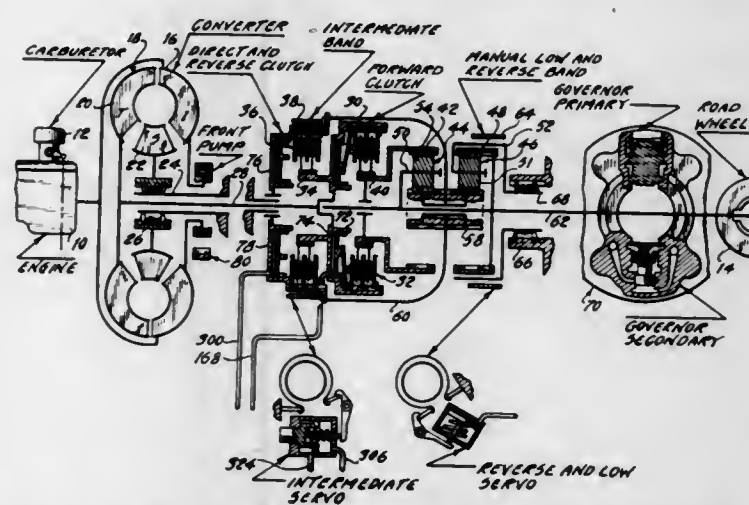
AUTOMATIC POWER TRANSMISSION CONTROLS
William C. Winn, Inkster, and Stanley D. Rosen, Farmington, both of, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of application Ser. No. 747,340, July 24, 1968, now abandoned. This application Aug. 5, 1969, Ser. No. 850,692

Int. Cl. B60k 21/08

U.S. Cl. 74—864

6 Claims



This specification discloses a control valve system for a geared, automatic, power transmission mechanism, including fluid pressure operated clutches and brakes for establishing various speed ratios. During operation in the lowest speed ratio, the gearing torque reaction is accommodated by a friction brake that acts as the reaction point also during reverse drive. A servo pressure modulator establishes the optimum servo pressure during forward drive acceleration in the lowest speed ratio. Provision is made for overruling the pressure modulating action of the modulator during reverse drive, thereby causing an increase in the servo operating pressure to accommodate the increased reaction torque requirement during reverse drive.

3,593,599

HYDRAULIC GEAR-SHIFT CONTROL FOR AUTOMOTIVE TRANSMISSION SYSTEMS

Hansjorg Dach, Friedrichshafen, Germany, assignor to Zahnradfabrik Friedrichshafen Aktiengesellschaft, Friedrichshafen, Germany

Continuation-in-part of application Ser. No. 817,981, Apr. 21, 1969. This application July 28, 1969, Ser. No. 845,464

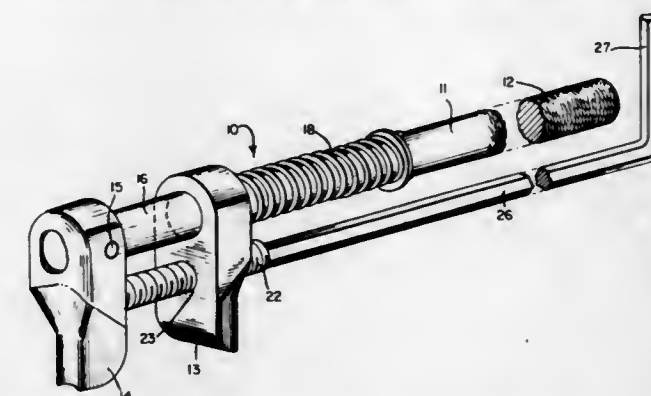
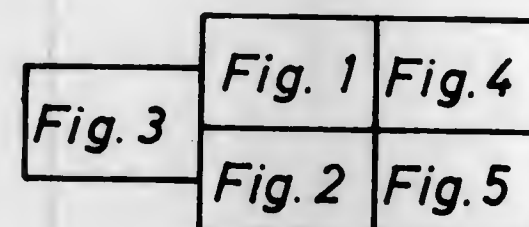
Int. Cl. B60k 21/10; F16h 57/10

U.S. Cl. 74—869

23 Claims

Hydraulic oil from a motor-driven pump is fed to a main valve (10) which delivers it to a hydraulic torque converter

(W), inserted between the drive motor and the transmission input shaft of an automotive vehicle, and to a set of fluid-operated clutches (K1, K2) and brakes (B1, B1F, B2) at a supply pressure determined by the stress of a pair of biasing springs (27a, 27b) and by the output pressure of a throttle valve (40) responding to the position of the vehicular accelerator. Two cascaded switching valves (70, 90), normally responding to speed-dependent fluid pressure from a regulator (PR) driven by the transmission output shaft, are biased by load-dependent fluid pressure from the throttle valve in a partly depressed position of the accelerator to create a



various apparatus may be gripped, particularly for engagement inside bores of disc brake pistons, for removal of the same.

3,593,602

TAPER ATTACHMENT FOR A TURNING LATHE

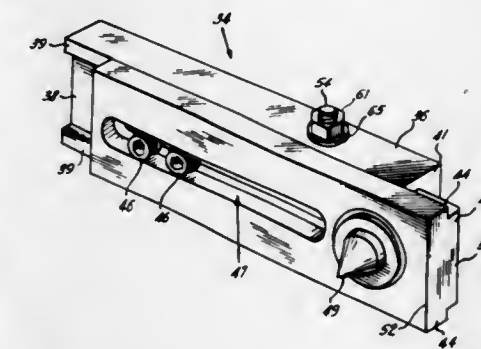
Stanley John Westrom, 918 Douglas, Des Moines, Iowa

Filed Mar. 24, 1969, Ser. No. 809,772

Int. Cl. B23b 5/38, 23/02

U.S. Cl. 82—15

1 Claim



The taper attachment provides a center on the tailstock of a turning lathe that enables the operator to quickly set up the lathe for cutting tapers over the full length of the lathe bed without requiring any movement or setting of the tailstock. The attachment includes a baseplate that has a sideplate provided with a tapering center. The baseplate is mounted on the tailstock quill with the slide plate horizontally movable transversely of the lathe to move the tapering center from a coaxially aligned position with the quill axis to an adjusted position providing for a desired taper cut.

3,593,603

TURNING MACHINE FOR MACHINING WORKPIECES OF MULTICONToured CONFIGURATIONS

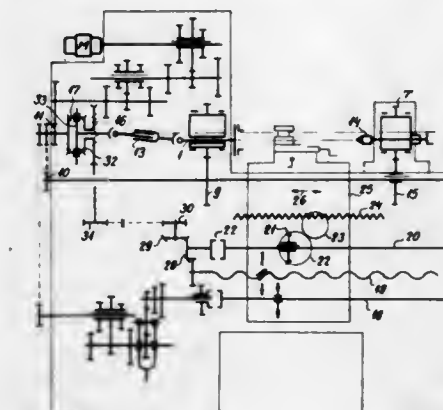
Karoly Gellert, Miskolc, Hungary, assignor to Licencia Talalmányokat Ertekesito Vallalat, Budapest, Hungary

Filed Oct. 7, 1968, Ser. No. 765,430

Int. Cl. B23b 3/28

U.S. Cl. 82—18

1 Claim



A method of making a band saw blade by welding strips of high-speed steel to a wide strip of flexible back-forming strip material. The strips of high-speed steel are welded in opposed relationship to opposite sides of the backing material and in opposed relationship at the edge of the flexible back-forming strip material. The composite band saw stock is now cut down the middle of the high-speed strip and the middle of the backing material to form the band saw blank for two or more band saw blades. The composite band saw blank is then milled to give teeth of the desired size and pitch with their cutting edges and top portions of high-speed steel. The base of the teeth, like the backing band, is made of the less tempered material.

3,593,601

WRENCH

Frederick R. McFarland, Lancaster, Pa., assignor to K-D Manufacturing Company, Lancaster, Pa.

Filed Jan. 7, 1969, Ser. No. 789,566

Int. Cl. B25b 13/48, 13/16

U.S. Cl. 81—72

3 Claims

A device is disclosed, for use in operation in a manner generally similar to that of a wrench, comprising opposed

A lathe for producing multicontoured workpieces comprises a working spindle and a tailstock for rotatably support-

ing opposite ends of the workpiece, the spindle and tailstock being independently mounted for rotation in a pair of eccentric sleeves whose adjustment about the axis of the workpiece alters the radius of rotation of the spindle and tailstock independently of each other.

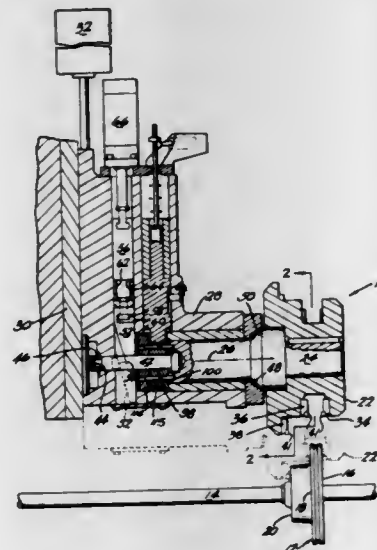
3,593,604

MACHINE TOOL INDEXING APPARATUS

Robert Irwin Sattler, Grosse Point Shores, Mich., assignor to La Salle Machine Tool, Inc., Warren, Mich.
Filed Jan. 17, 1969, Ser. No. 792,100
Int. Cl. B23b 29/32

U.S. Cl. 82-36 A

10 Claims



Machine tool apparatus wherein a plurality of sequentially usable tools are mounted on an indexable turret head so that a large number of parts can be machined to exactly the same dimensions without requiring machine shutdown for tool replacement purposes. The apparatus includes a rotatable indexable spindle for rotating the head so as to place a new set of tools in operative position and means for moving the spindle axially to a predetermined fixed position in which the indexable tools are precisely located along the spindle axis. Apparatus is disclosed wherein the spindle is both rotated and moved axially to precise positions in response to actuation of a single motor.

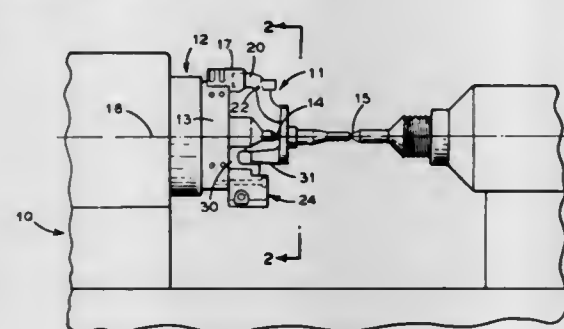
3,593,605

APPARATUS FOR DYNAMICALLY BALANCING A ROTATING WORKPIECE

Sylvester Ray Cudnohufsky, Pontiac, Mich., assignor to The Babcock & Wilcox Company, New York, N.Y.
Filed Jan. 29, 1969, Ser. No. 794,884
Int. Cl. B23b 33/00

U.S. Cl. 82-40 R

8 Claims



A dynamic balancing device for the mass production of rotating unbalanced workpieces, wherein a counterbalance element is attached to each workpiece during the working procedure to compensate for the unbalance. The counterbalancing effect is preferably applied perpendicular to the axis of workpiece rotation, and in the same plane as the

center of gravity of the workpiece unbalance to avoid runout of the workpiece during the machining process.

3,593,606

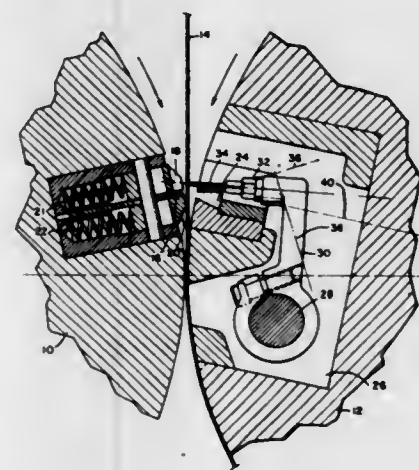
WEB FEEDING MECHANISM

William B. Raybuck, 200 North Lansdowne Ave., Lansdowne, Pa.

Filed June 6, 1969, Ser. No. 830,945
Int. Cl. B65h 35/08

U.S. Cl. 83-154

3 Claims



Male and female cutting cylinders, an elongated cutter disposed longitudinally of the male cylinder, and longitudinally spaced impaling pins carried by the female cylinder for impaling the web, in advance of its engagement with the cutter, to hold a sheet severed from the web, and to release it to a folder or other mechanism, or to delivery. The impaling pins are so arranged that during penetration of the web, the axes of the pins will form angles of 90°, or slightly more, with the vertical plane of the web which moves downwardly between the cylinders.

3,593,607

ARTICULATED ROTARY TRANSMISSION AND SHEARS COMPRISING THE SAME

Curt Munchbach, Pforzheim-Sonnenberg, Germany, assignor to Irma Ungerer nee Dollinger, Pforzheim, Arlingerstr., Germany

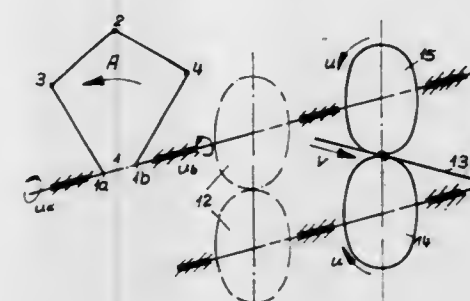
Filed Dec. 9, 1968, Ser. No. 782,328

Claims priority, application Germany, Feb. 10, 1968, P 16 50 881.9

Int. Cl. B23d 25/06, 25/12

U.S. Cl. 83-311

9 Claims



A quadrilateral linkage comprises a double articulated joint having input and output members which are mounted on a common central axis for rotation relative to each other, an outer articulated joint adapted to revolve about said axis, and first and second lateral articulated joints connecting said outer articulated joint to said input and output members, respectively. The outer articulated joint is movable to vary the distance between it and said double articulated joint and thus to vary the relation of the angular velocities of said input and output members.

3,593,608

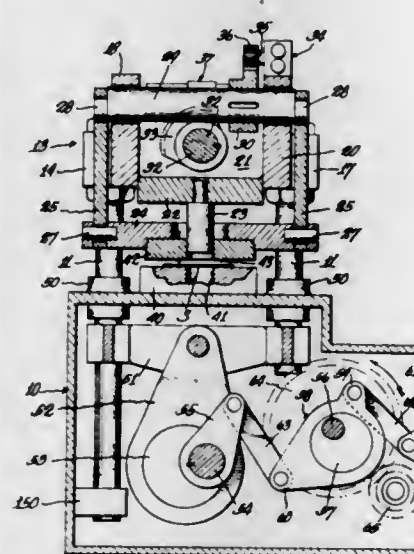
PRESS APPARATUS

Robert Soman, Warren, Ohio, assignor to Wean Industries, Inc.

Filed July 3, 1969, Ser. No. 838,866
Int. Cl. B26d 7/02

U.S. Cl. 83-375

10 Claims U.S. Cl. 83-580



Blanking apparatus for highly accurate blanking operations and the like having a punch holder supporting a punch movable toward and away from a workpiece and such punch holder carrying with it, during a portion of its movement, a pressure applying member which exerts a strong compressive or restraining force on the workpiece during the interval that the punch is piercing the workpiece. During a portion of punch holder movement, pressure applying member movement therewith is arrested whereby relative movement between the pressure applying member and the punch holder occurs. The present invention provides novel means which prevents cocking or tilting the pressure applying member during relative movement between the latter and the punch holder.

3,593,609

CROSSCUTTING ASSEMBLY EMBODYING ROTARY KNIFE MEANS

Herbert Schonmeier, Dusseldorf-Benrath, Germany, assignor to Jagenberg-Werke AG, Dusseldorf, Germany

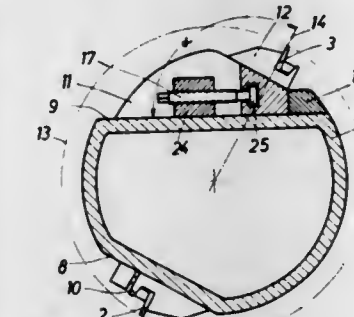
Filed Feb. 20, 1969, Ser. No. 800,859

Claims priority, application Germany, Feb. 24, 1968, P 16 11 770.7

Int. Cl. B26d 1/12

U.S. Cl. 83-563

6 Claims



A rotary crosscutting assembly for cooperation with a counter knife in cutting a moving web of paper, cardboard or like material comprising rotary head means, at least two knife means carried by and extending longitudinally of said head means, means mounting one of said knife means for displacement in a tangential direction relative to the axis of rotation of said head means to impart compound movement to said one knife means relative to the axis of said head means between an operative cutting position at a particular radial distance from said axis to an inoperative position at a lesser distance from said axis and means for releasably holding said one knife means at said positions.

3,593,610

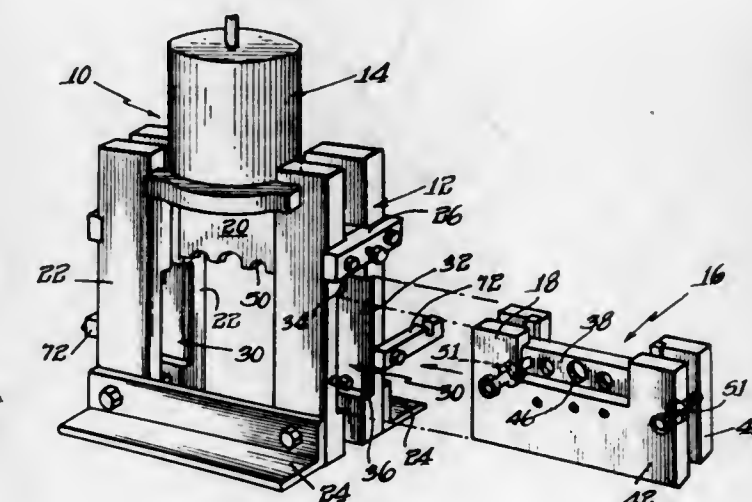
METAL FABRICATING APPARATUS

Raymond L. Valente, Kankakee, Ill., assignor to Manco Manufacturing Co., Bradley, Ill.

Filed Aug. 21, 1969, Ser. No. 851,983

Int. Cl. B23d 35/00

14 Claims



Metal fabricating apparatus of the type which include a frame, a die unit supported on said frame, and a ram assembly mounted atop said frame. The die unit is comprised of an anvil arrangement having a stationary die blade, and a shear blade member carried by said anvil assembly and adapted for connection to a reciprocal member of the ram assembly. The frame has opposed wall portions which cooperate to define a space for reception of the die unit. In addition, the die unit includes opposed relatively movable elements, such that after initial reception of the die unit within said space, separating movement may be utilized to force said elements in firm engagement with the frame wall portions.

3,593,611

CUTTING BLADE STRUCTURE

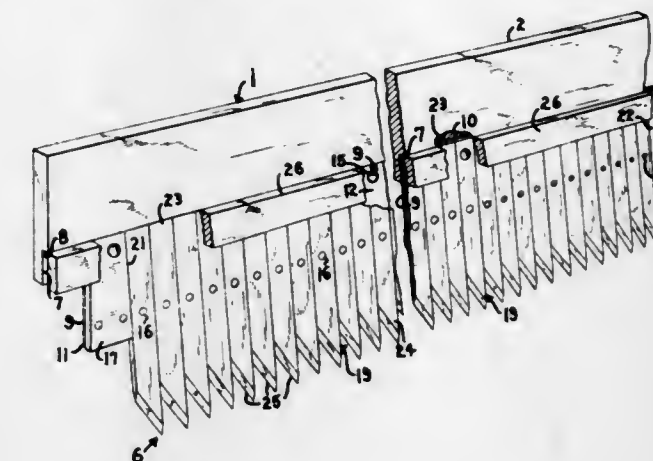
Leonard G. Sagehorn, Kansas City, Mo., assignor to Industrial Grinding & Supply Co., Kansas City, Mo.

Filed Sept. 15, 1969, Ser. No. 857,955

Int. Cl. B26d 1/06

U.S. Cl. 83-697

6 Claims



A cutting blade structure for use in a material working apparatus, such as a shear for cutting fiberglass matting. The cutting blade has an elongate blade mounting or backing member secured in the material working apparatus for movement toward and away from material to be cut. A pair of end members are mounted on one side of the backing member at opposite ends thereof with the end members having substantially parallel facing edges for facilitating positioning a plurality of cutting blades or members between the end members. The cutting members each are secured to the backing member and have sharpened free ends extending beyond the

backing member for cutting the respective material. The cutting members are elongate and have their free ends inclined relative to the long dimension thereof with each cutting member forming one tooth of a saw tooth edge of the cutting blade structure.

3,593,612

SEALING AND ANCHORING DEVICE

Karl Peter Schulze, Carrum, Victoria, Australia, assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed July 29, 1969, Ser. No. 847,002

Claims priority, application Australia, July 31, 1968, 41481/68

Int. Cl. F16b 13/04

U.S. Cl. 85-80

1 Claim



The invention is in an improved device for providing an anchor for a screw or the like and for providing a fluidtight seal to a panel into which it is inserted. The device has a body portion adapted to be engaged in the panel and has means on the outer surfaces thereof to engage the panel and provide a secure anchorage thereto and operable to provide a fluidtight seal with the panel.

3,593,613

ADJUSTING TOOL

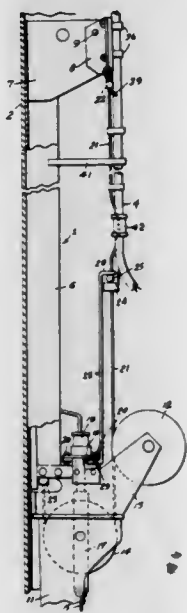
Oscar L. Davis, 7603 Mazatlan, El Paso, Tex.

Filed Feb. 25, 1969, Ser. No. 802,010

Int. Cl. F41f 3/04

U.S. Cl. 89-1.811

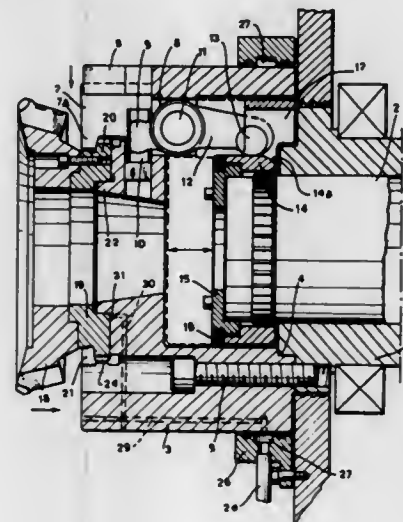
8 Claims



A tool for automatically adjusting the required slack in umbilical cables for their separation from a missile in a launching shell using spring actuated cable retractors and consists of a flat bar having notched, oppositely turned end portions. The tool is inserted over the explosive nut assembly at one end, the other end engaging the wire cable separation rope which is attached to the cables and to the retractor. By taking up the slack of the cables until the wire rope engaging end of the tool stops a terminal block fixed on the cables, the correct amount of slack is left for proper separation of the cables by the retractor.

3,593,614
CHUCK DEVICE FOR RELEASABLY ATTACHING A MILLING CUTTER TO A MACHINE TOOL SPINDLE
Maso Galbarini, Pavia, and Francesco Cotta Ramusino, Milan, both of, Italy, assignors to Innocenti Societa General Per L'Industria Metallurgica E Meccanica, Milan, Italy
Filed Apr. 29, 1969, Ser. No. 820,162
Claims priority, application Italy, May 24, 1968, 51784-A/68
Int. Cl. B23c 1/00; B23b 31/16

6 Claims



This invention provides a chuck device for releasably attaching a milling cutter to a machine tool such as a large size milling-boring machine having an inner spindle slidable coaxially within a hollow outer spindle. The chuck device has a head which is attachable to the outer spindle of the machine tool and a plurality of clamping jaws mounted in the head for radial sliding movement under the action of cam means in response to axial movement of the inner spindle. Each jaw has a radially inwardly projecting portion which clamps, preferably by a jamming action, a cutter assembly to the head, rotation of the cutter assembly relative to the head being prevented. Preferably a compressed air stream is directed over the mating surfaces of the cutter assembly and the head from internal passages in the head for cleaning purposes.

3,593,615

MECHANISM FOR TRANSFERRING DIMENSIONAL AND SHAPE INFORMATION BETWEEN TWO AND THREE DIMENSIONAL OBJECTS

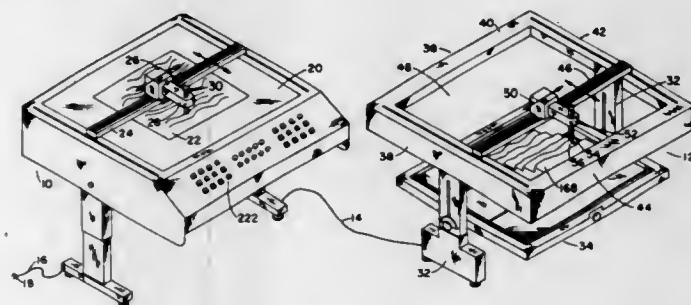
James D. Shelton, Bothell, Wash., assignor to Ralph W. Krutinger, Jr., a part interest

Filed Nov. 12, 1969, Ser. No. 875,706

Int. Cl. B23c 1/16; B43I 13/10

U.S. Cl. 90-13.1

12 Claims



A system of master-slave synchro-servomechanism interconnects, for conjoint movement, a first stylus mounted for two dimensional movement across a paper or other flat surface, and a second stylus mounted for a corresponding two dimensional movement over a three dimensional object. The second stylus is adjustable in the third dimension, and both styluses may be rotatable and interconnected by master-slave synchro-servomechanisms adapting them for conjoint rotation. The synchro-servomechanisms are reversible so that each stylus can control the other.

3,593,616
HYDRAULIC SAFETY OR OVERLOAD RELEASE MECHANISM

John Vaudrey Fox, Evesham, England, assignor to Bomford & Evershed Limited, Evesham, England

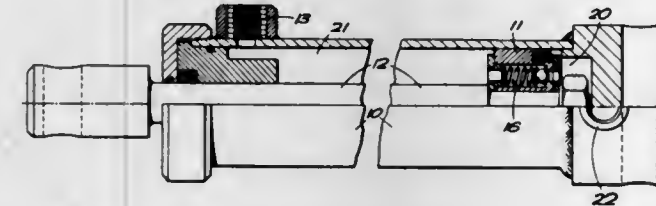
Filed June 16, 1969, Ser. No. 833,553

Claims priority, application Great Britain, June 17, 1968, 28,793/68

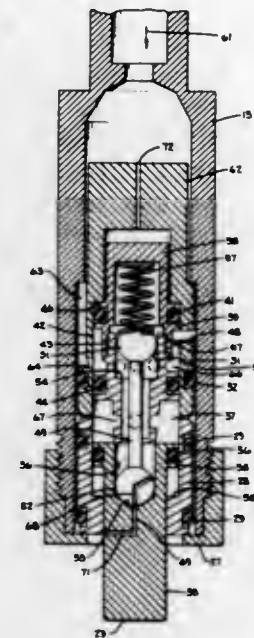
Int. Cl. F01l 21/04; F15b 15/17

U.S. Cl. 91-228

4 Claims



A hydraulic ram for use as a safety or overload device comprises a cylinder closed at one end; a piston within and movable along the cylinder with a piston rod projecting through a fluid seal or gland at the other end thereof, an inlet for pressure fluid into the gland end of the cylinder, a passageway for fluid connecting the two ends of the cylinder, a nonreturn valve in said passageway permitting substantially free flow from the gland end to the closed end and a pressure relief valve arranged to permit flow of fluid out of the closed end when the pressure in the closed end exceeds a predetermined value or a predetermined value above that in the gland end.



power and return strokes of the plunger, with appropriate porting for plunger force and timing control.

3,593,619

HYDRAULIC CONTROL CIRCUIT

Allan J. Albrecht, Rothschild, Wis., assignor to J. I. Case Company

Filed Mar. 4, 1970, Ser. No. 16,487

Int. Cl. F15b 11/16

U.S. Cl. 91-411 R

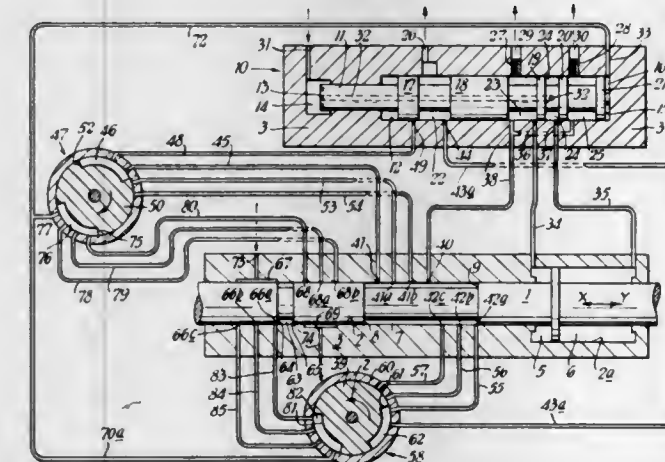
8 Claims

3,593,617
FLUID PRESSURE OPERATED MOTORS
Philip Butterworth, Bramhall, England, assignor to Butterworth Hydraulic Developments Limited
Filed Jan. 28, 1969, Ser. No. 794,745
Claims priority, application Great Britain, Feb. 12, 1968, 6,797/68

Int. Cl. F01l 25/06

U.S. Cl. 91-239

15 Claims



This invention relates to fluid pressure operated motors and in particular to such motors of the type in which a piston is mounted to exhibit axial movement in a piston cylinder and in which movement of the piston is controlled by the exhaust of liquid pressure or gas pressure from a chamber associated therewith.

3,593,618

BELLRINGER

Charles J. Eberle, R.R. 15, Box 148, Lafayette, Ind.

Filed June 5, 1969, Ser. No. 830,781

Int. Cl. F01l 15/16, 31/02

U.S. Cl. 91-273

8 Claims

A two-piece housing received in a stem receives a ported valve body with first valve seat therein, and a plunger with

A hydraulic control circuit is disclosed herein that has particular utility with a self-propelled construction equipment-type of vehicle, such as a crane or an excavator, e.g., a backhoe. The circuit includes a first pump means for providing pressurized fluid for actuating at least one fluid motor in the circuit in one direction, and a second pump means for providing pressurized fluid for actuating at least one fluid motor in the circuit in one direction, and a second pump means for providing pressurized fluid for operating the fluid motor in an opposite direction. A first control valve means is associated with the first pump means and a second control valve means is associated with the second pump means, with each control valve means having a blocked position for preventing flow of fluid therethrough and at least one open position permitting fluid to flow therethrough. The control valve means are alternatively positionable in the blocked position, and the conduit means of the circuit are arranged such that when the first control valve means is in the blocked position and the second control valve means is in the open position, one line to the fluid motor means is pressurized for operating the fluid motor means in one direction, while

another line connected to the fluid motor means is a low pressure line open to tank. When the first control means is in the open position and the second control means is in the blocked position, the last-mentioned line is pressurized for moving the fluid motor means in an opposite direction, while the first-mentioned line is a low-pressure line connected to tank.

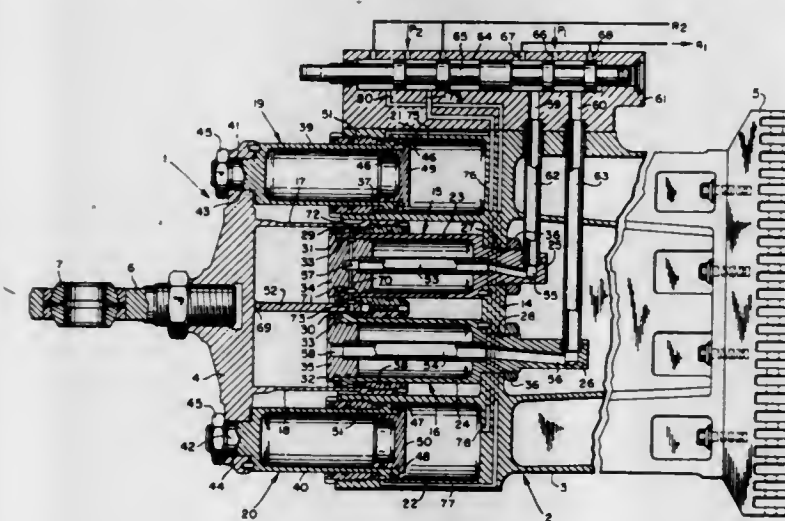
3,593,620 REDUNDANT CONTROL SYSTEM FOR ACTUATION OF FLIGHT CONTROL SURFACES

Dave John Foerster, Scotts, and James S. Mason, Marcellus, both of, Mich., assignors to Pneumo Dynamics Corporation, Cleveland, Ohio

Filed Aug. 20, 1969, Ser. No. 851,602
Int. Cl. F15b 13/06

U.S. Cl. 91-413

16 Claims



A redundant control system including a two-part housing, each part containing one or more output pistons extending into associated cylinders in the other part and two or more separate fluid circuits for actuating different pistons thus to physically isolate one system from another so that should a failure occur in one system it will not affect the other system. The porting to one or more of the cylinders is through the pistons associated therewith.

3,593,621 HYDRAULIC MOTOR

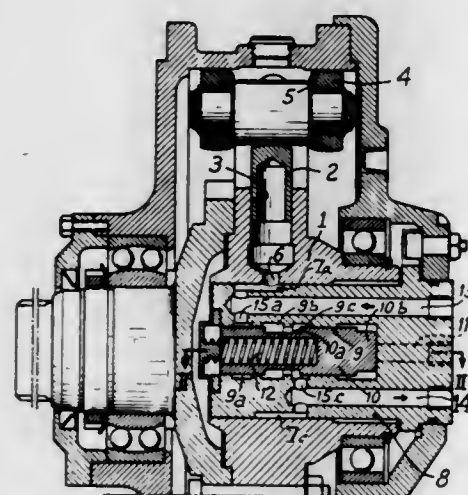
Pierre A. Praddaude, Crepy-en-Valois, France, assignor to Societe Anonyme Poclair, Le Plessis-Belleville Oise, France

Filed Feb. 7, 1969, Ser. No. 797,595

Claims priority, application France, Feb. 7, 1968, 139,018
Int. Cl. F01b 1/06, 13/06

U.S. Cl. 91-498

10 Claims



In a fluid motor comprising a rotary cylinder block, a plurality of pistons mounted in the block and a distributor mounted in the cylinder block for controlling the

flow of pressure fluid for operating the pistons, the distributor has at least three groups of fluid distributing ports, one group being connected permanently to either the main fluid supply conduit or the main fluid discharge conduit, and means are provided for connecting at least one of the other two groups selectively to one or the other of the said main fluid conduits so that all the pistons in the cylinder block operate continually at all speeds of the motor.

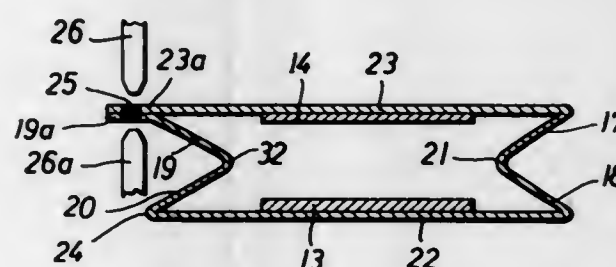
3,593,622 METHOD OF MANUFACTURING PLASTIC CARRIER BAGS

Karl H. Sengewald, 4801 Kunsebeck, Westphalia, Germany
Division of Ser. No. 685,668, Nov. 24, 1967, Pat. No. 3,468,470.
Filed June 23, 1969, Ser. No. 871,018

Claims priority application Germany, Nov. 23, 1966, and Sept. 30, 1967, S107,086 and S112,234
Int. Cl. B31b 49/04

U.S. Cl. 93-35 PT

4 Claims



A method of forming a carrier bag made of synthetic thermoplastic material wherein a printed flat sheet of plastic has two reinforcing strips attached thereto and uniformly spaced relative to the median longitudinal axis of the sheet. The sheet is then bent about the longitudinal median axis to form a hose longitudinally open at one side so that the reinforcing strips are opposite one another. Lateral folds are formed in the hose to form two collapsible sidewalls and two reinforced sidewalls, and a longitudinal weld seam is made to longitudinally close the hose. Furthermore, a bottom weld seam transverse to the longitudinal weld seam is made and the so formed bag is separated from the strip and a grip aperture is formed in the upper portion of the bag. It is also possible to have the upper portion contoured simultaneously with the forming of the grip aperture.

3,593,623 CARTON ERECTING APPARATUS

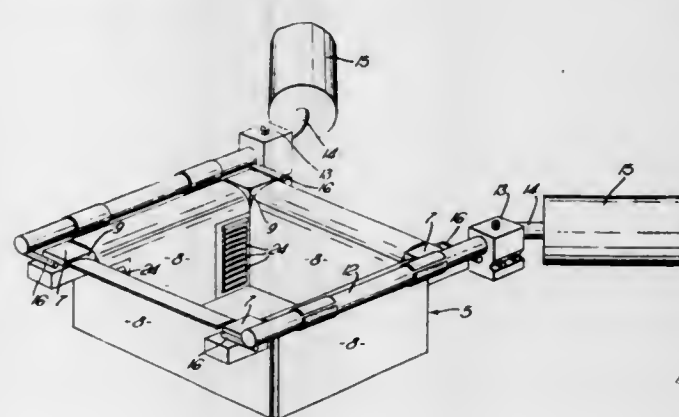
John Richard Oakley, Swindon, England, assignor to The Metal Box Company, Limited, London, England

Filed Oct. 10, 1968, Ser. No. 776,299

Claims priority, application Great Britain, Oct. 19, 1967, 47693/67
Int. Cl. B31b 1/46, 1/64, 3/74

U.S. Cl. 93-51

3 Claims



Carton erecting apparatus comprises a forming die and a reciprocable punch arranged to press a carton blank into the die and hollow members connectable with a source of heated air are supported adjacent to the mouth of the die and are arranged, before a blank resting thereon is pressed into the die, to direct heated air on to those areas of the opposite sides of

the blank which are to be sealed one to the other when the blank is pressed into the die by the punch.

tons to a point that is outwardly of the sidewalls of the large size cartons.

3,593,624 AUTOMATIC STACKING MACHINE

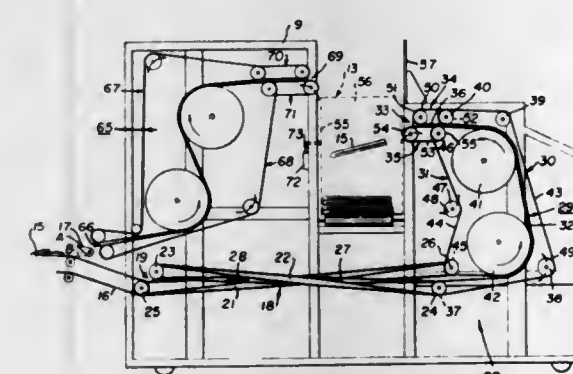
Robert V. Dufour, 10615 St. Denis, Montreal 357, Quebec, Canada

Filed Apr. 4, 1969, Ser. No. 813,658

Claims priority, application Canada, Feb. 28, 1969, 044,256
Int. Cl. B65h 33/00

U.S. Cl. 93-93

22 Claims



A machine for stacking newspapers and the like articles in which the incoming articles are counted and a predetermined number diverted to a first and to a second conveyor for ejecting the articles in a stacking bucket from opposite sides thereof. The articles are conveyed more rapidly on one of the conveyors to be stacked in a predetermined manner in the bucket and to permit unloading of the stack without stopping the incoming articles on the conveyors.

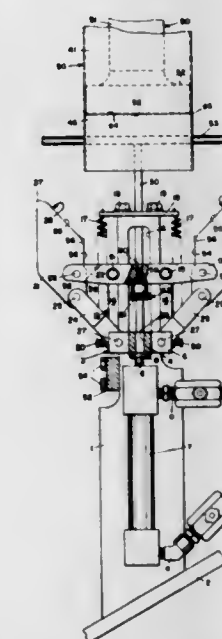
3,593,625 BOTTOM PRE-BREAKING MECHANISM FOR A CARTON FORMING MACHINE

Howard R. Garrett, St. Paul, and Percy King, Bloomington, both of, Minn., assignors to Haskon, Inc., St. Paul, Minn.

Filed Nov. 22, 1968, Ser. No. 778,135

Int. Cl. B31b 1/52, 45/00; B31f 1/08
U.S. Cl. 93-84 TW

4 Claims



This invention relates to a machine for erecting paper cartons from flat blanks and particularly to the mechanism for prebreaking the bottom panels of the carton in a machine for erecting two different cross-sectional sizes of cartons and consists of a pair of fingers that are pivotally mounted for movement of their working ends inwardly against the infolding panels of the carton, which fingers have a cam face that extends from a point outwardly of the sidewalls of the small size carton but inwardly of the sidewalls of the large size car-

3,593,626 PLASTIC GROOVE FORMER

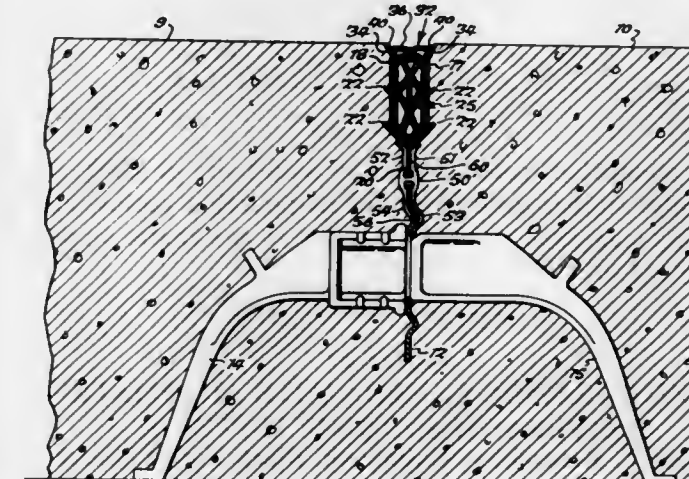
Alfred F. Crone, Williamsville, N.Y., assignor to Acme Highway Products Corporation, Buffalo, N.Y.

Filed July 22, 1968, Ser. No. 746,689

Int. Cl. E01c 11/10

U.S. Cl. 94-18

5 Claims



This application discloses a groove former and seal which includes an outer container within which an inner expandable compressor or seal is confined so that when the container is closed with the seal inside of it, it can be used to form a groove in the highway while the paving material is in its wet or plastic condition, and after the paving material has become hardened or set, the container is released from the position in which it compresses the inner seal so that this seal then expands and forces the outer container into watertight connection with the walls of the groove.

3,593,627 CONCRETE FINISHING MACHINES

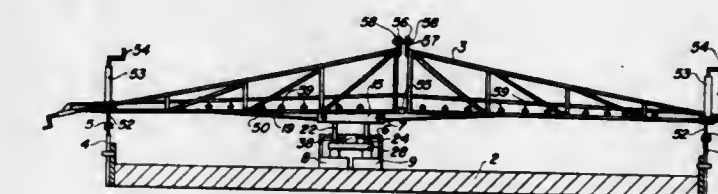
Murray A. Rowe, John E. Kessel, and Burnham C. Loveland, all of Canton, S. Dak., assignors to K & R Industries, Inc., Canton, S. Dak.

Filed Aug. 26, 1969, Ser. No. 853,177

Int. Cl. E01c 19/22

U.S. Cl. 94-45

3 Claims



A concrete finishing machine movable longitudinally of a road and having a pair of oppositely reciprocating finishing members movable transversely back and forth across the road.

3,593,628 COMPACTING DEVICE

William C. Lathers, 4337 Britta Parkway, Madison, Wis.
Continuation-in-part of application Ser. No. 617,524, Feb. 21, 1967, now Patent No. 3,446,123, dated May 27, 1969. This application May 16, 1969, Ser. No. 825,321

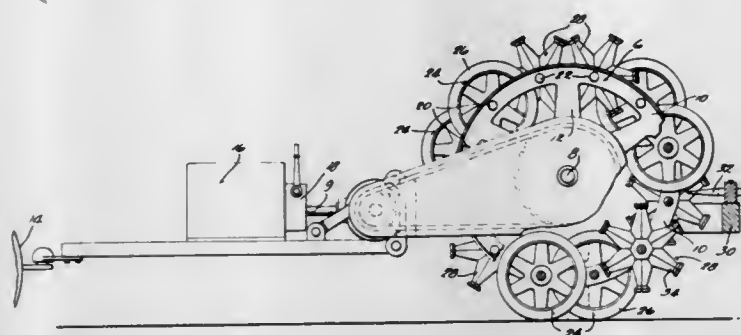
Int. Cl. E01c 19/26

U.S. Cl. 94-50

4 Claims

A frame has a primary shaft upon which a skeletonized cylinder is rotatable either idly by ground contact, or by

power. The cylinder comprises axially spaced spoke supported discs carrying secondary shafts in annular series for orbital movement about the cylinder axis. Pairs of shafts



bearing sheepsfoot rotors alternate with pairs of shafts bearing smooth rubber-tired rotors of comparable radius, all rotors being staggered to project nearly to the shafts on which neighboring rotors are mounted.

3,593,629

PHOTOGRAPHIC CAMERA WITH AUTOMATIC DIAPHRAGM AND TIME SETTINGS

Waldemar T. Rentschler, Calmbach, Black Forest, Germany, assignor to Prontor-Werk Alfred Gauthier, G.m.b.H., Calmbach, Black Forest, Germany

Filed Dec. 23, 1965, Ser. No. 523,495

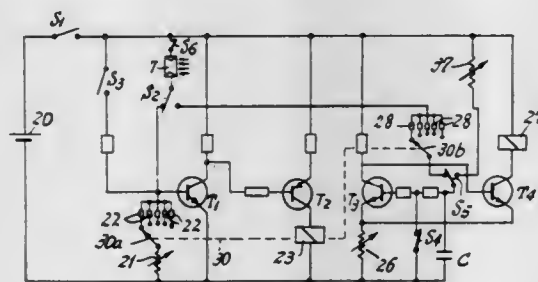
Claims priority, application Germany, Dec. 28, 1964, G

42395

Int. Cl. G03b 7/08, 9/162

U.S. Cl. 95—10

15 Claims



A photographic camera is provided with automatic light control settings for diaphragm and exposure time. One electronic circuit is provided for setting the diaphragm and another electronic circuit is provided for generating the exposure time. The two electronic circuits are related so that upon actuation of the camera release the circuit for setting the diaphragm is first automatically activated and then thereafter the circuit for generating the exposure time becomes automatically activated.

3,593,630

BRAKING AND SEQUENCING MECHANISM

Lawrence M. Douglas, Easton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of application Ser. No. 784,064, Dec. 16, 1968. This application June 30, 1969, Ser. No. 837,510

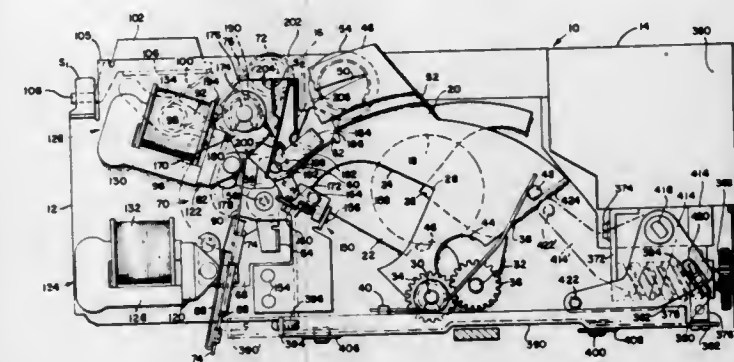
Int. Cl. G03b 7/08, 9/06, 9/160

U.S. Cl. 95—10

25 Claims

A mechanism for an exposure control system operative to sequentially control effective aperture and exposure interval. The mechanism features an actuator component which is operative to perform exposure mode sequencing in addition to actuating an aperture diaphragm brake. The actuator component is configured to operate codirectionally with the actuating portion of the brake assembly. This codirectional operation permits a high and repeatable responsiveness necessary to proper operation of the exposure control

system. The actuator component also is operative to actuate any necessary switching of the control system when it is al-



tered from an aperture regulating mode to an exposure interval regulating mode.

3,593,631

PHOTOGRAPHIC APPARATUS HAVING AUTOMATIC TEMPERATURE COMPENSATED FILM SPEED INSERTION

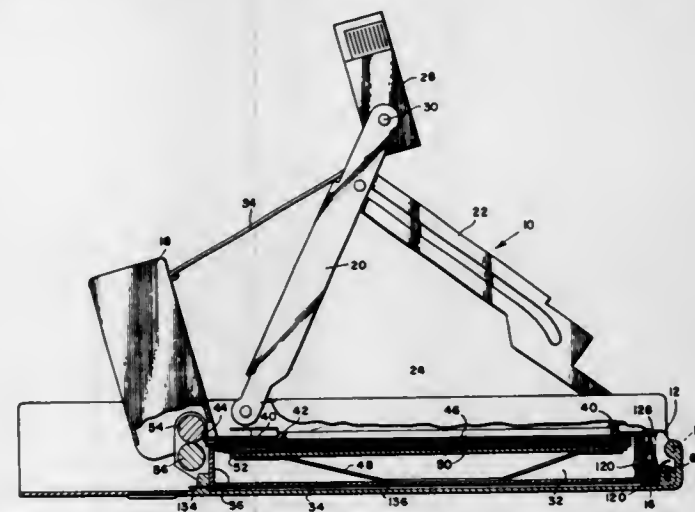
Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Nov. 19, 1969, Ser. No. 878,086

Int. Cl. G03b 7/08, 7/22

U.S. Cl. 95—10

17 Claims



Photographic apparatus in which film is exposed and then processed as an adjunct to that exposure. Exposure is performed by an automatic exposure control system which compensates for deviations of ambient temperature from an optimum value for development by adjusting exposure values. A thermistor attached to a film cassette is used for inserting film speed data as well as temperature responsive exposure compensation into the exposure control system of the apparatus.

3,593,632

VOLUME RECORDER

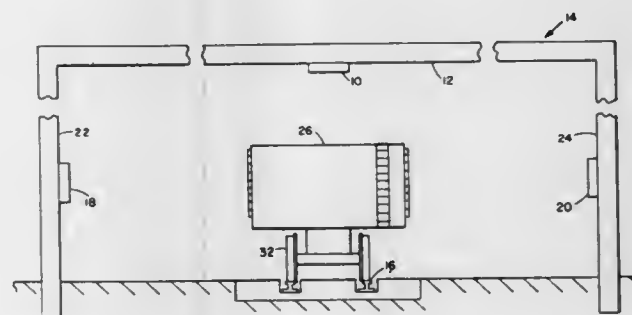
Bobby S. Woodruff, 2308 Gallatin S.W., Huntsville, Ala.

Filed May 2, 1969, Ser. No. 821,278

Int. Cl. G03b 19/00

U.S. Cl. 95—11

4 Claims



An automatic pulpwood recorder for measuring the volume of pulpwood loaded on a railroad car in which

cameras are placed over and on each side of a railroad track and by means of car-position sensing switches the cameras are operated each time a car is centered with respect to the cameras.

3,593,633

STROBO-FLASH PHOTOGRAPHING DEVICE

Jun Shimomura, and Tomio Tsuruoka, both of Tokyo, Japan, assignors to Nippon Kogaku K. K., Tokyo, Japan

Filed July 18, 1968, Ser. No. 745,849

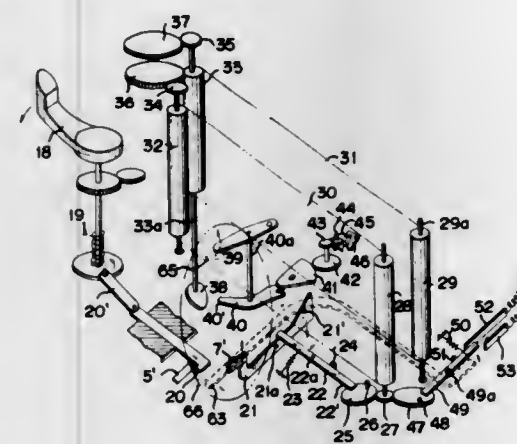
Claims priority, application Japan, July 31, 1967,

42/48846

Int. Cl. G03b 9/70

U.S. Cl. 95—11.5

9 Claims



An electronic flash photographing device for a camera having a focal plane shutter and interchangeable objective lenses each having a lens shutter. A signal member on the camera body transmits a signal to the lens shutter, upon completion of the opening operation of the first curtain of the focal plane shutter. The lens shutter is in the closed position immediately before receiving the signal from the signal member and opens in response to the signal resulting in closure of the X contacts to energize the electronic flash. The lens shutter and the second curtain of the focal plane shutter are arranged to close after the flash.

3,593,634

APPARATUS FOR MAKING A LARGE-FORMAT PHOTOGRAPH OR A NUMBER OF SMALL-FORMAT PHOTOGRAPHS WITH THE SAME TOTAL SURFACE AREA

Emil Guntersweiler, Zurich, Switzerland, assignor to Elektro-Watt, Elektrische, Und Industrielle Unternehmungen A.G., Zurich, Switzerland

Filed Dec. 11, 1968, Ser. No. 782,827

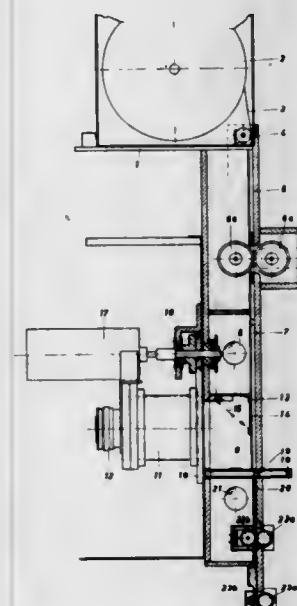
Claims priority, application Switzerland, Dec. 22, 1967,

18,217/67

Int. Cl. G03b 19/00

U.S. Cl. 95—18

4 Claims



The present invention relates to the optional production either of a large-format photograph or of a number of small-

format photographs with the same total surface area and the apparatus therefor. An object to be photographed is used to produce optionally either a large-format picture by way of a plain light deflection element and a lens of long focal length or a number of smaller picture in a single take by way of at least two light deflection elements arranged at an angle to one another and a lens of short focal length. The two lenses and the light deflection elements thereby are pivoted selectively in front of a photographic device.

3,593,635

FILM CARTRIDGE

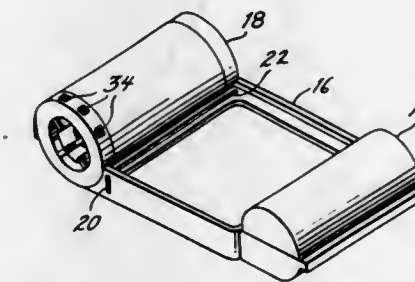
Harold J. Servetnick, 1002 Ripley St., Philadelphia, Pa.

Filed Nov. 25, 1968, Ser. No. 778,501

Int. Cl. G03b 19/04

U.S. Cl. 95—31

6 Claims



A photographic film cartridge for insertion into a camera contains supply and takeup reel housings. A structurally weak area is provided adjacent the takeup reel housing. After the film has been exposed, the takeup reel housing may be separated from the remainder of the cartridge in order to permit more convenient handling and shipping of the exposed film.

3,593,636

CAMERA LOADING DOOR AND RELEASE MEANS THEREFOR

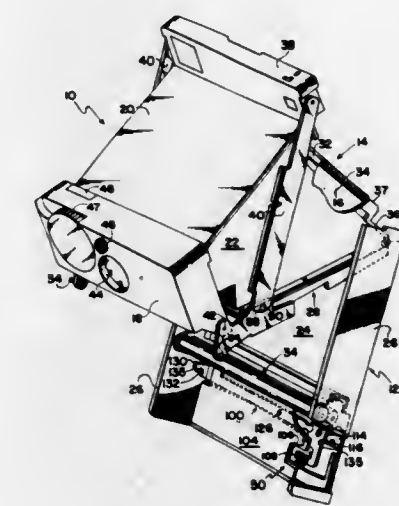
Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 13, 1969, Ser. No. 824,098

Int. Cl. G03b 17/04, 17/52, 17/00

U.S. Cl. 95—39

9 Claims



A compact folding camera including a housing having a plurality of sections, one of which includes a reflector. The sections are coupled to each other for movement between extended and folded positions and at least a portion of one of the housing sections is movable to an open position to permit loading of film into the camera. In the folded position of the camera, the reflector is located close to means for supporting the film so as to be readily accessible and subject to damage when the section is opened for loading. A release is provided which can only be actuated to open the section for loading

when the housing sections are not in the folded position, thereby insuring that the reflector is spaced from the support means.

3,593,637

PHOTOGRAPHIC CAMERA INCLUDING PULSE CONTROLLED SHUTTER

Paul Fahlenberg, Lindenstrasse 16a, Baierbrunn, and Wilhelm Pross, Einbracht-Strasse 6a/11, Munich, 9, both of, Germany

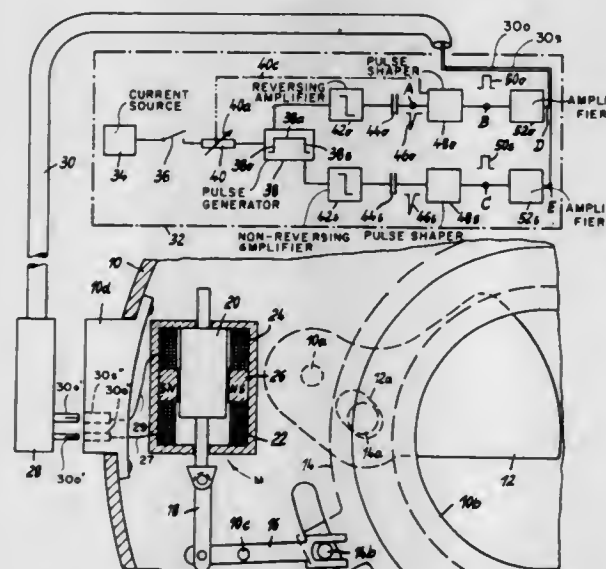
Filed June 5, 1968, Ser. No. 734,628

Claims priority, application Germany, June 14, 1967, C 42 619

Int. Cl. G03b 9/62

U.S. Cl. 95—53

8 Claims



A photographic camera includes a shutter arrangement wherein the shutter blades are moved between open and closed positions in response to first and second timing pulses produced by a detachable electronic device. The duration of the timing pulses is controlled by a timing circuit which includes a plurality of resistances which may be selectively switched into the timing circuit. The time interval between the first and second pulses controls the exposure time provided by the shutter arrangement and thus by varying the duration of at least one of these pulses possible overlap of the first and second pulses for exposure times of short duration is avoided.

3,593,638

PHOTOGRAPHIC SHUTTER WITH ELECTRONIC TIME FORMING DEVICE

Dieter Rittman, Calmbach Black Forest, Germany, assignor to Prontor-Werk Alfred Gauthier, G.m.b.H., Calmbach Black Forest, Germany

Filed Oct. 14, 1968, Ser. No. 767,282

Claims priority, application Germany, Oct. 18, 1967, P 15 97 363.4

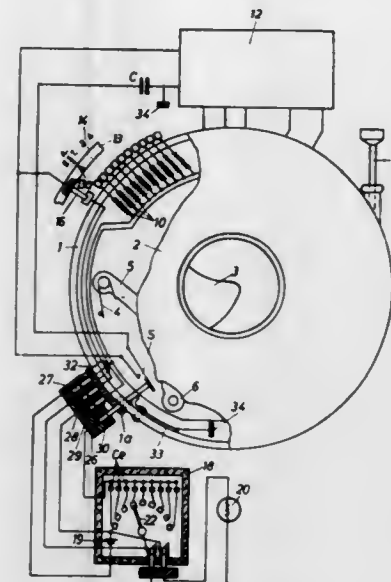
Int. Cl. G03b 9/58

U.S. Cl. 95—53

3 Claims

A photographic shutter is provided having an electronic timing circuit means for the exposure time and a setter connected to it for setting the exposure time. Control means are connectable to the electronic timing circuit means to provide for additional exposure times or exposure time dependent on ambient lighting conditions. The control means is connectable to the circuit means by a plug when a setter has been adjusted to a certain setting position. Advantageously the

shutter and the plug have interengaging portions permitting insertion of the plug only after the previous movement of the



setter to the certain setting position. A change in the position of the setter is prevented when the plug is inserted.

3,593,639

APPARATUS FOR VARIABLY MASKING A PHOTOELECTRIC CELL IN A PHOTOGRAPHIC APPARATUS

Franz W. R. Starp, Black Forest, Germany, assignor to Prontor-Werk Alfred Gauthier, G.m.b.H., Calmbach, Black Forest, Germany

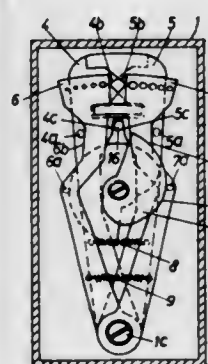
Filed Aug. 26, 1968, Ser. No. 755,134

Claims priority, application Germany, Aug. 25, 1967, P 15 72 806.0

Int. Cl. G03b 9/02

U.S. Cl. 95—64

14 Claims



Photographic apparatus for variably masking a photocell including an iris diaphragm and a hole diaphragm. The hole diaphragm has blades with a plurality of openings varying in size, and the iris diaphragm has blades moveable in a closing direction to a predetermined aperture for cooperating with the openings of the hole diaphragm blades.

3,593,640

PHOTOGRAPHIC PROCESSING APPARATUS WITH SPRAY MEANS

Kurt Gall, Welfenstr. 22, 7 Stuttgart-Birkach, Germany

Filed Oct. 22, 1968, Ser. No. 769,613

Claims priority, application Switzerland, Oct. 24, 1967, 14960/67

Int. Cl. G03c 1/72

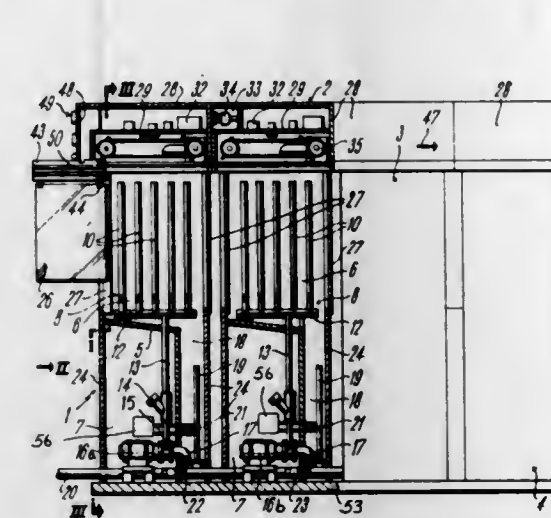
U.S. Cl. 95—89

19 Claims

A photographic processing apparatus with a plurality of film-processing compartments which lie one behind another and have aligned lateral openings which form a straight transport path in a vertical plane. Each of these compartments is provided with its own transport mechanism and spray device. This spray device has two banks of nozzles which spray film-

processing liquids on the film or plate suspended by the transport mechanism; the latter consists of a bar to which the film is clamped and which is pulled along a horizontal guide

strip of material is to be passed. Means are provided for directing into the wedge-shaped opening formed between the



by a respective endless conveyor and is picked up by the next conveyor. Doors are provided between the compartments to prevent passage of film-processing liquids or light therethrough.

3,593,641

APPARATUS FOR DEVELOPING PHOTOLITHOGRAPHIC PLATES

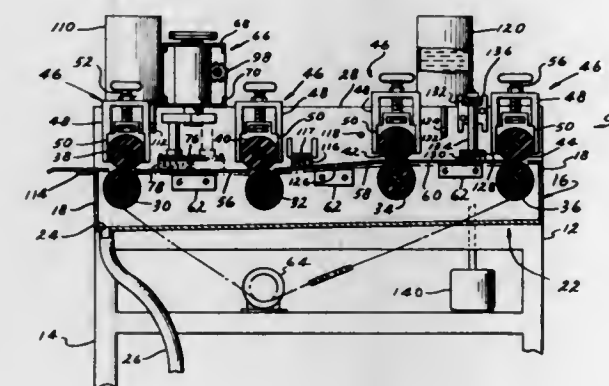
Paul Adams, and Ferdinand Lukask, both of South Hadley, Mass., assignors to John Stark Laboratories, Inc., Holyoke, Mass.

Filed Nov. 1, 1968, Ser. No. 772,543

Int. Cl. G03d 3/00

U.S. Cl. 95—89

9 Claims



An apparatus for performing the developing sequence on exposed photolithographic plates wherein a photolithographic plate is advanced through the apparatus by a series of drive and nip rolls and wherein the plate is treated with a developing emulsion which is uniformly spread over the surface of the plate by a revolving developer bar, rinsed in a water wash and treated with a gumming solution by the action of an oscillating wiper sponge.

3,593,642

STRIP HANDLING APPARATUS

Joseph Bechelraz, Marly Le Petit, and Ulrich Frauchiger, Winterthur, both of, Switzerland, assignors to Ciba Limited, Basel, Switzerland

Filed May 14, 1968, Ser. No. 729,058

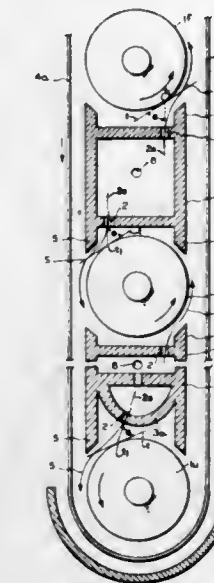
Claims priority, application Switzerland, May 16, 1967, 6,901/67

Int. Cl. G03d 3/12

U.S. Cl. 95—94

6 Claims

An apparatus for handling a strip of material such as for film processing. The apparatus has at least one rotatable roller below the level of a liquid in a tank and over which the



3,593,643

APPARATUS FOR RUPTURING A PROCESSING FLUID CONTAINING POD IN A PHOTOGRAPHIC CASSETTE

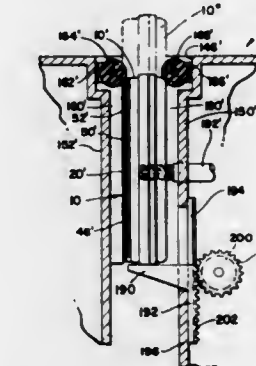
Rogers B. Downey, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed July 3, 1969, Ser. No. 838,794

Int. Cl. G03d 5/02

U.S. Cl. 95—89

8 Claims



Apparatus for receiving a cassette containing a pod of processing fluid for photographic material, for rupturing such pod and for expelling such fluid therefrom. Typically, the fluid filled pod is mounted within the cassette adjacent a support surface and initially protected by a removable cover plate. After removing the aforementioned cover plate to expose the pod, the cassette is inserted into the apparatus between a pair of resiliently compressible rollers mounted for rotation about parallel axes. One of these rollers exerts a force progressively across the pod during the insertion process whereby the pod is ruptured and the fluid expelled therefrom. The rollers are compressed by the cassette as the cassette passes therebetween and expand over an end of the cassette when the cassette has been fully inserted into the apparatus to exert a force against the cassette tending to lock it in position. Alternate devices are described for ejecting the cassette from the apparatus against the locking force of the rollers.

3,593,644

RAILROAD CAR VENTILATOR

Toraichi Shinya, 9-34, Kosheiri Nibancho, Nishinomiya, Japan

Filed Apr. 21, 1969, Ser. No. 817,800

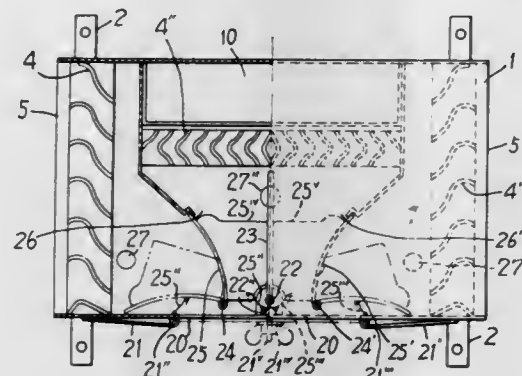
Int. Cl. B601; F231 17/04

U.S. Cl. 98—8

7 Claims

A railroad car ventilator comprises a housing body for mounting on the roof of a railroad car and a vertically

oriented conduit connecting the interior of the housing body to the interior of the railroad car. The housing body is formed with air flow passage means connecting the conduit to the railroad car exterior. A plurality of moisture draining elements are positioned in the air flow passage means, and each element comprises a vertically oriented plate of corrosion-resistant plastic composition material, and having a horizontally arched portion formed with vertically extending corrugations. Each plate is further formed with horizontally



oriented stepped flanges at the upper and lower ends of the arched portion, whereby the elements may be readily arranged in stacked relation. A hinged shutter plate controls communication between the interior and the exterior of the railroad car through the ventilator, and is spring biased to either a stable closed position or a stable opening position. The ventilator may be used either as an air inlet or an air exhaust ventilator, suitable damper plates or the like being provided for converting the operation from air supply to air exhaust.

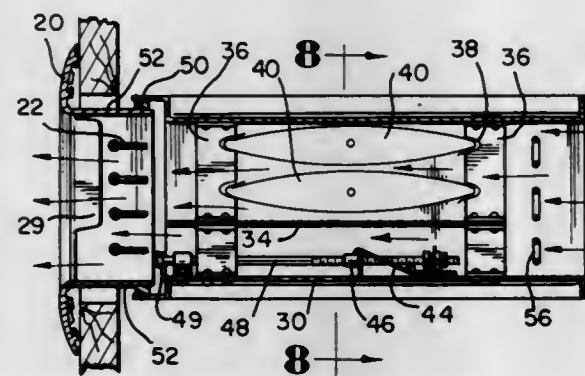
3,593,645

TERMINAL OUTLET FOR AIR DISTRIBUTION SYSTEM
Thomas L. Day, Brookfield, and Michael L. Krisko, Danbury, both of, Conn., assignors to Connor Engineering Corporation, Danbury, Conn.

Filed Mar. 3, 1969, Ser. No. 803,761
Int. Cl. F24f 13/00

U.S. Cl. 98—40 VM

2 Claims



This disclosure is directed to a controlled volume air terminal outlet for use at a room discharge of an air distribution system for a building. The terminal outlet includes a first damper section which is thermostatically controlled for throttling air passing therethrough and a second damper section which is manually or otherwise controlled. Discharge through the terminal outlets passes through a diffuser for air pattern control. A pressure and temperature branch control is also disclosed.

3,593,646

MOVABLE-APRON HOOD, NOTABLY FOR LABORATORIES

Francois Hauville, Paris, France, assignor to Teclab, Ruell-Malmaison, France

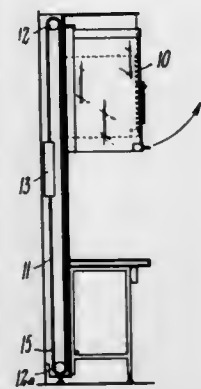
Filed June 4, 1969, Ser. No. 830,372
Int. Cl. F23J 11/00

U.S. Cl. 98—115

17 Claims

A hood, notably of the type adapted to be associated with the working surface of a laboratory table for protecting the

operators against the deleterious fumes developed, and the gaseous noxious products handled, during manipulations carried out on said surface, which comprises a movable apron suspended at its upper and rear portion from two points

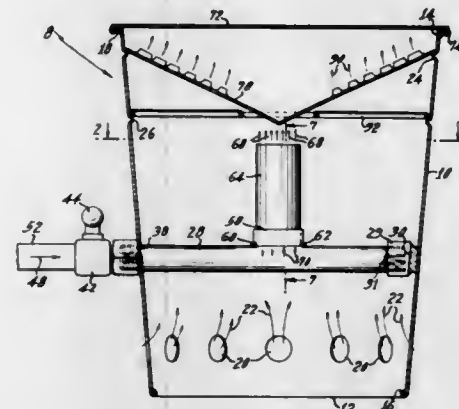
3,593,647
BROILER

Walter C. Copeland, Jr., Madison, Fla.
Filed Jan. 2, 1969, Ser. No. 788,369

Int. Cl. A47j 37/06

U.S. Cl. 99—259

5 Claims



A portable gas-fired cooker for broiling meat and the like includes a hollow generally upright cylindrical member having a closed bottom and an open top, a grill for cooking the meat positioned across the open top, gas burner means generally centered within the hollow cylindrical member and positioned spacedly downwardly from the open top, and an inverted conical plate extending across the cylindrical member and positioned between the gas burner means and the grill. The plate has an imperforate center portion and a perforated outer portion to permit flames to extend upward through the perforated outer portion to cook the meat by direct flame heat. Additionally, the plate is adapted and arranged to catch and collect drippings and juices emitted from the cooking meat permitting the burner means to burn the collected drippings and juices on the plate whereby smoke therefrom rises upward to engulf the cooking meat and impart a savory charcoal flavor to the same.

3,593,648

COOKING APPLIANCE

Roy J. Walters, 2462 Worden St., San Diego, Calif.

Filed June 25, 1968, Ser. No. 739,681

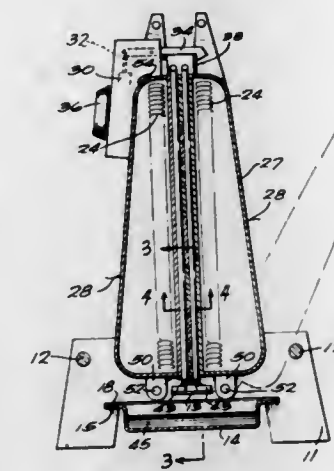
Int. Cl. A47j 27/62

U.S. Cl. 99—332

6 Claims

A cooking appliance comprising a base stand having a pair of electrical heating units pivotally mounted thereon in a substantially upright position. The heating units are pivotally mounted along the lower edges thereof and are adapted to be opened and closed in a manner similar to a woman's purse. A

portable food supporting rack is removably positioned in an upright position between the heating units and a drip pan is removably mounted beneath the rack. With the rack positioned between the heating units the units are pivoted to



close position bringing the food (such as bacon) on the rack in close contact with the heating units. The heating units are locked in closed position by a timer controlled latch mechanism adapted to release the units for movement to open position after a preset time interval.

3,593,649

COFFEE-MAKING APPARATUS

Andrea Ivo Novi, 63, Corso Buenos Aires, and Mario Egi, 2, Via Carignano, both of Milan, Italy

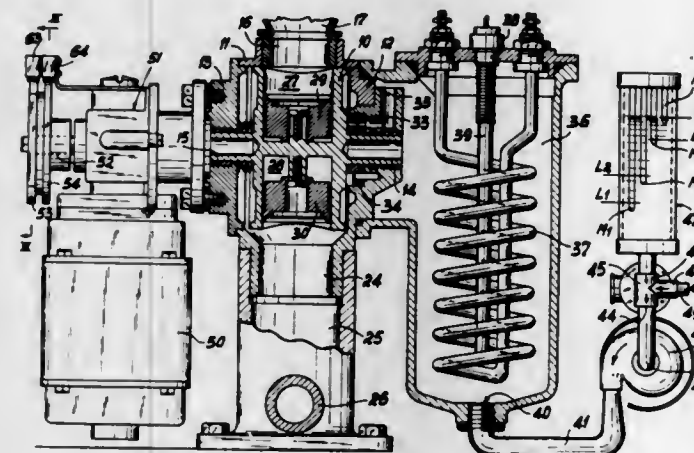
Filed Nov. 27, 1968, Ser. No. 779,570

Claims priority, application Italy, Nov. 30, 1967, 23340-A/67

Int. Cl. A47j 31/00

U.S. Cl. 99—289

8 Claims



An automatic coffeemaking apparatus comprising a drum supported for rotation about a horizontal axis within a cylindrical chamber formed in a casing and having an upwardly turned fresh coffee inlet passage, a laterally turned screened beverage outlet passage and a downwardly turned exploited coffee exhaust and dispensing passage diametrically opposite to said inlet passage, the said passage defining a first and respectively a second and a third work station circumferentially spaced of 90° from each other. The said drum is formed with two diametrically located opposite coffeemaking cavities and adapted to be intermittently driven for successive 90° rotational steps, whereby either of said cavities is sequentially indexed at any of said stations, and the indexing of any cavity at said third station for exploited coffee exhaustion causing indexing of the other cavity at the first station, preparatory for a next cycle of operation.

3,593,650

URN-TYPE COFFEE BREWER

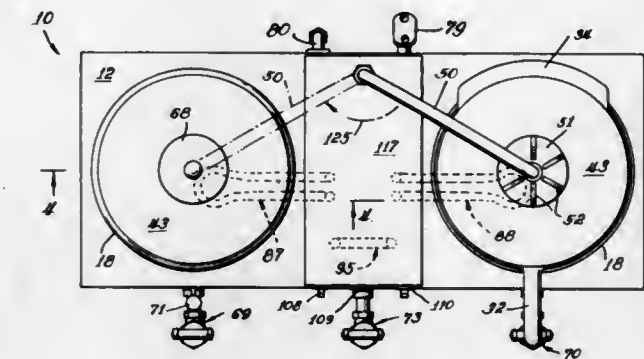
John C. Martin, and Eugene G. Rescho, both of Springfield, Ill., assignors to Bunn-O-Matic Corporation, Springfield, Ill.

Filed Jan. 15, 1970, Ser. No. 3,013

Int. Cl. A47j 31/14

U.S. Cl. 99—291

14 Claims



Urn-type coffee brewer has a tank having a cover from which a pair of coffee extract receptacles depend into hot water in the tank. Each receptacle has a downwardly stepped apertured plastic cover for receiving over a limited area a correspondingly stepped plastic funnel on which a ground coffee carrying filter is placed. The funnel is arranged for two hand manipulation. A plastic funnel cover overlies the funnel on one receptacle and a duplicate cover overlies the other receptacle. A spray head is detachably mounted underneath an apertured cup-shaped formation on the funnel cover and is supplied with hot water from the tank by an electric motor driven pump controlled by a timer which determines the length of the brewing cycle. Flow of water to the tank is controlled by a solenoid valve in accordance with the water level in the tank at a rate that is less than the rate of outflow of hot water to the spray head. L-shaped thermostatically controlled electric heating elements maintain the water in the tank at a predetermined temperature. A continuously energized heater in the tank compensates for heat loss therefrom. A replaceable panel has mounted thereon the motor driven pump and timer therefor, the valve and its water level control, the heating elements and thermostat controls, and the continuously energized heater.

3,593,651

COMBINATION COOKER, FRYER AND BUN WARMER ELECTRICAL APPLIANCE

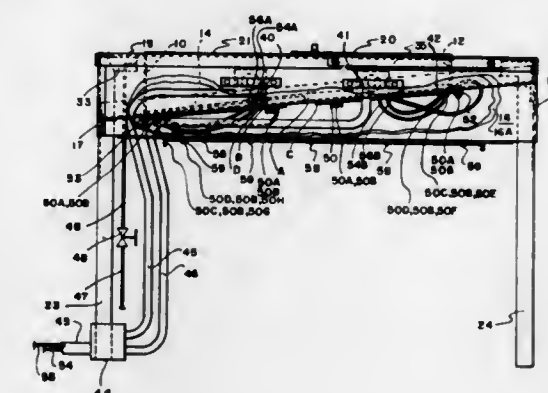
Helen E. McEvoy, 1416 W. Douglas Ave., Wichita, Kans.

Filed July 11, 1969, Ser. No. 840,904

Int. Cl. A47j 27/18

U.S. Cl. 99—339

5 Claims



Electrical food preparation apparatus comprising an open-topped cooking container recessed in the top of a housing with free airspace within the housing below and about the sides of the container. The container has a sloping bottom and independent thermostatically controlled electric heaters are disposed below the relatively upper and lower portions so as to heat controllably such respective portions and to heat the airspace for heat transfer to the top of the housing. Valve-controlled means are provided for introducing water

into the container, and means are provided for reducing heat transfer to portions of the housing as well as means for protecting the user against inadvertent contact with the housing.

3,593,652 GRIDDLE

Auguste Lostanlen, 46, Rue Auguste Buisson, 92 La Garenne, Colombes, France

Filed Apr. 2, 1969, Ser. No. 812,673

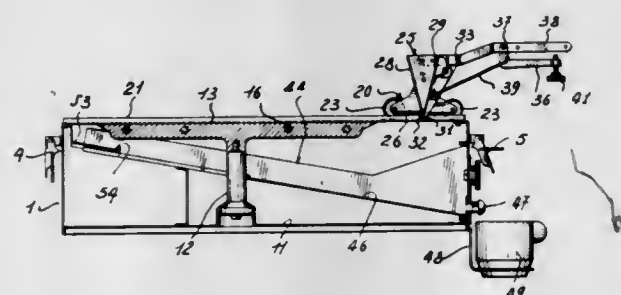
Claims priority, application France, Apr. 3, 1968, PV

146,868

Int. Cl. A47j 37/10

U.S. Cl. 99-423

11 Claims



A griddle particularly suited for the making of pancakes, the apparatus being characterized by a horizontal cooking surface and a movable batter dispensing mechanism disposed above the cooking surface. The batter dispensing mechanism comprises a trolley which includes a normally closed funnel extending across the cooking surface, the mouth of the funnel being capable of being opened to dispense batter on the cooking surface as the trolley is passed thereover.

3,593,653

ELECTRIC COOKTOP WITH A REMOVABLE SPILLOVER DEVICE

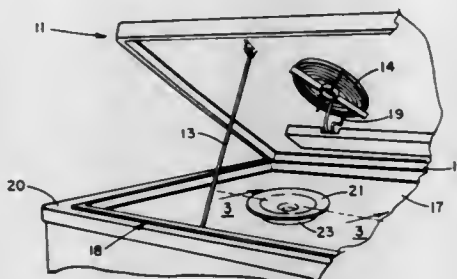
Christian E. Buerki, Fullerton, Calif., assignor to Norris Industries, Inc., Los Angeles, Calif.

Filed May 1, 1970, Ser. No. 33,683

Int. Cl. H05b 3/76

U.S. Cl. 99-446

4 Claims



An electric cooktop has a plurality of heating elements installed therein and may be lifted as a unit to provide access to reflectors and spillover bowls positioned unattachedly on a support surface below, thereby enabling ready removal of the bowls and reflectors for cleaning, without removing the heating elements.

3,593,654

PORTABLE TRASH BALER

Ray D. Mayfield, 8424 S.W. 30th Ave., Portland, Oreg.

Filed Nov. 21, 1969, Ser. No. 878,644

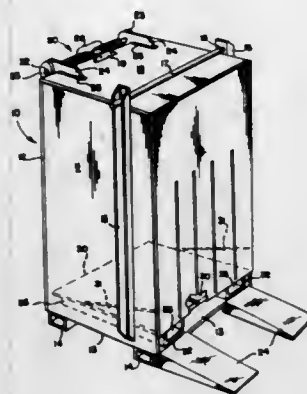
Int. Cl. B65b 13/20

U.S. Cl. 100-34

8 Claims

A boxlike structure having a plate movable therein by the forks of a lift truck to compact trash confined in the structure. Ramps receive the front wheels of the lift truck to en-

able the weight of the truck to retain the structure in place during trash compaction. Also engageable with lift truck



forks are means on the structures underside to enable convenient transport from one site to another.

3,593,655

MEANS FOR EXTRACTING WATER FROM ELASTOMERIC MATERIALS

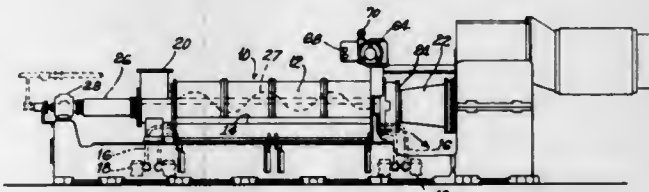
Elmer E. Prescott, Baton Rouge, La., assignor to Copolymer Rubber & Chemical Corporation, Baton Rouge, La.

Filed Jan. 31, 1969, Ser. No. 795,664

Int. Cl. B30b 3/02

U.S. Cl. 100-148

3 Claims



A device for squeezing excess water from prepared elastomeric polymeric materials by a device corresponding to a French Oil Mill having an exit opening in the form of a cone section formed with a forward passage dimensioned to correspond to the cross section of the die plate and a rearward passage of larger dimension and means for axial displacement of the cone section relative to the die plate for location of the die plate between the sections of larger or smaller dimension.

3,593,656

ROTARY REFUSE PACKER

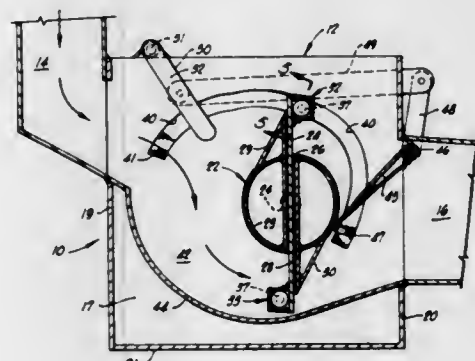
Henry W. Churchman, 2447 Wilson, and Gilbert D. Clair, 6032 Legion Road, both of Wichita, Kans.

Filed May 14, 1970, Ser. No. 37,102

Int. Cl. B30b 5/00

U.S. Cl. 100-177

10 Claims



The invention is a rotary press for compacting waste paper and trash into a removable storage container. It comprises a rotating drum carrying a sliding packing blade positioned within a housing with the blade sliding in the drum as it rotates to accommodate the narrowing compaction area. A

wiping blade coacts with the movement of the packing blade to sweep the compacted refuse into the storage container while the opposite end of the packing blade begins another compaction stroke.

3,593,657

COMBINED PRINT HAMMER MODULE AND PRINTED CIRCUIT BOARD

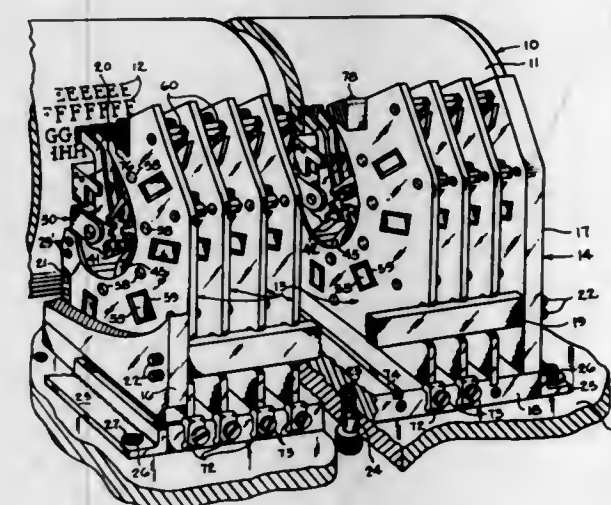
John Guzak, Jr., Waukegan, Ill., assignor to SCM Corporation, New York, N.Y.

Filed May 13, 1968, Ser. No. 728,606

Int. Cl. B41j 9/10; H05k 1/12

U.S. Cl. 101-93

5 Claims



There is disclosed a fragmentary portion of a printer having print hammer modules, each module having a frame, print hammers, and print hammer operators, and a printed circuit board.

3,593,658

HIGH-SPEED PRINTING SYSTEM WITH CONTINUOUSLY ROTATING FONT WHEEL

Auro Artom, Turin, Italy, assignor to Cseil Centro Studi E Laboratori Telecomunicazioni S.p.A., Turin, Italy

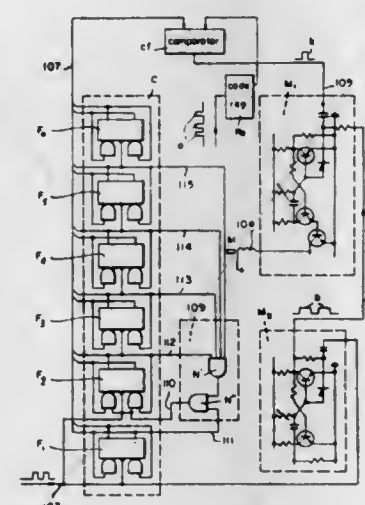
Filed July 1, 1969, Ser. No. 840,132

Claims priority, application Italy, July 5, 1968, 52330 A/68

Int. Cl. B41j 5/46

U.S. Cl. 101-93 C

5 Claims



A teleprinter responsive to binary code combinations includes a continuously rotating font wheel with 51 peripherally equispaced typefaces and, synchronized with it, a reference wheel with 51 peripherally spaced alphanumeric markings respectively assigned to these typefaces and with 9 nonalphanumeric markings interspersed with the former. A sensor generates counting pulses in response to successive markings and steps a binary counter whose setting is fed to a comparator also receiving code combinations or "words" stored in a register in response to incoming message

signals. Upon detecting a match, the comparator trips a striker successively confronted by the typefaces of the font wheel, operation of this striker being inhibited during periods in which counting pulses are generated by nonalphanumeric markings.

3,593,659

OFFSET PRINTING APPARATUS HAVING DISPOSABLE DAMPENING AND INKING MEANS

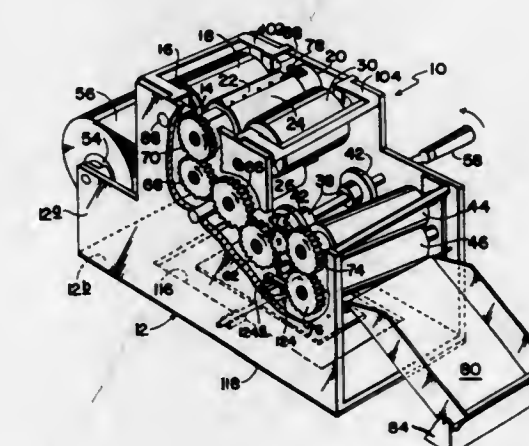
Robert D. Brackett, Wakefield, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed June 26, 1968, Ser. No. 740,212

Int. Cl. B41f 7/04, 7/24, 31/34

U.S. Cl. 101-142

18 Claims



In an offset printing press, disposable dampening and inking materials, supplied in premoistened and preinked form, are supported in an unrestrained manner by dampening and inking cylinders, respectively, and disposed between them and the plate cylinder to provide controlled dampening and inking of the pressplate.

3,593,660

STENCIL PAPER AND ELECTRIC RECORDING AND METHOD OF PRODUCING THE SAME

Seizo Kineri, Tokyo; Yuzi Harasaki, Shizuoka, and Sadamitsu Sasaki, Toyohashi, all of Japan, assignors to Tomoegawa Paper Manufacturing Company Limited, Tokyo, Japan and Nitto Electric Industrial Company Limited, Osaka, Japan

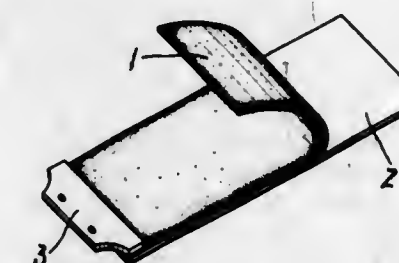
Continuation-in-part of application Ser. No. 333,171, Dec. 24, 1963, now abandoned. This application Sept. 5, 1967, Ser. No. 665,287

Claims priority, application Japan, Dec. 27, 1962, 37/59043

Int. Cl. B41n 1/24

U.S. Cl. 101-128.2

3 Claims



An electrically sensitive stencil sheet is produced by blending a thermoplastic resin, an inorganic conductive fine particle powder and an electroconductive plasticizer which is shaped into a sheet material.

3,593,661

DRY INK-FILM PRINTING

Kenneth Franklin Tripp, Hancock, N.H., assignor to Markem Corporation, Keene, N.H.

Filed May 13, 1966, Ser. No. 549,854

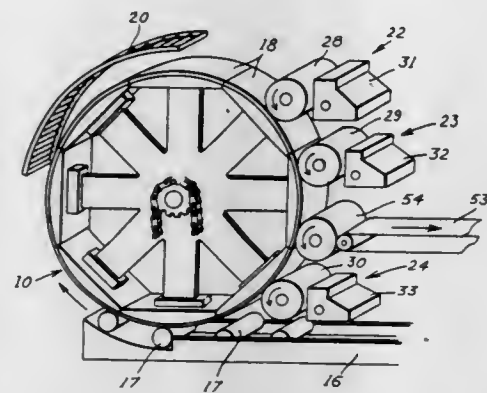
Int. Cl. B41f 17/18, 5/16

U.S. Cl. 101-175

1 Claim

This invention relates to ink film transfer and particularly to printing on surfaces by offset and direct printing

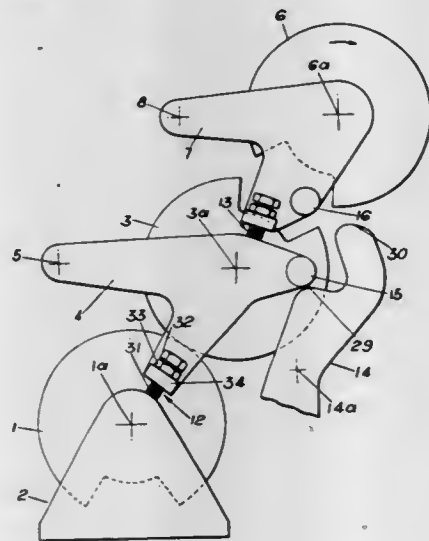
techniques with an immediately dry image transfer of controlled thickness. When these techniques are employed in direct printing, the die or printing member is not inked



directly with a fluent ink, but rather with a substantially dry ink-film, whereby small legend characters are not smothered or "filled-up."

3,593,662
CYLINDER ARRANGEMENT FOR AN OFFSET LITHO MACHINE
Albert George Ronald Gates, London, England, assignor to Gestetner Limited, London, England
Filed Sept. 26, 1968, Ser. No. 762,808
Claims priority, application Great Britain, Sept. 26, 1967, 43834/67
Int. Cl. B41f 7/04, 13/34
U.S. Cl. 101-218

9 Claims

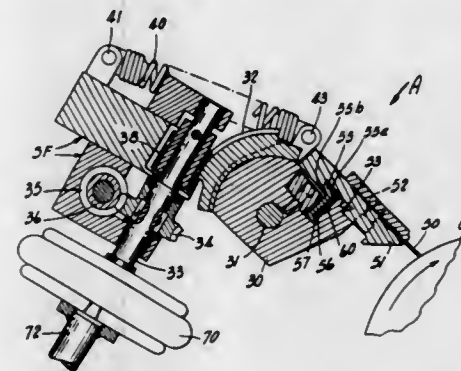


The disclosure includes an offset printing press in which the blanket and plate cylinders are mounted on swingable bearers to separate them from the impression cylinder and preferably also from each other. An adjustable stop mechanism is provided to define a minimum spacing between the axes of the blanket and impression cylinders and advantageously a further such mechanism is provided between blanket and plate cylinders. The cylinders may be separated by operation of a lifting lever. Drive gearing between two of the cylinders, desirably the blanket and impression cylinders, may include one of the two nonintermeshing gears attached to each cylinder, and a pair of intermeshing planetary pinions each meshing with a different one of the two gears.

3,593,663
DOCTOR BLADE ASSEMBLY FOR PRINTING EQUIPMENT
George Vischulis, Menomonee Falls, Wis., assignor to Zerand Corporation, New Berlin, Wis.
Filed June 3, 1969, Ser. No. 829,991
Int. Cl. B41f 9/10
U.S. Cl. 101-350

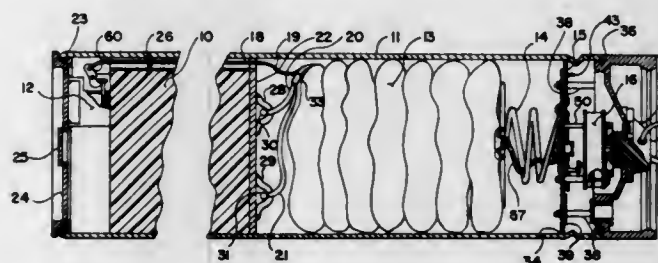
7 Claims

clamping device locks the doctor blade firmly in operative position in its holder and when the doctor blade is to be removed, the air load can be relieved and the doctor blade and its mounting quickly and easily withdrawn in an endwise direction from the printing equipment without disturbing any of the other printing equipment. The adjustment also in-



3,593,664
AERIAL FLARE AND PARACHUTE DEPLOYMENT MEANS THEREFOR
Willard F. Davis, Brigham City; Roger A. Grosgebauer, Ogden, and Gary V. Adams, Brigham, all of, Utah, assignors to Thiokol Chemical Corporation, Bristol, Pa.
Filed Dec. 26, 1968, Ser. No. 787,079
Int. Cl. F42b 13/38, 25/04
U.S. Cl. 102-35.6

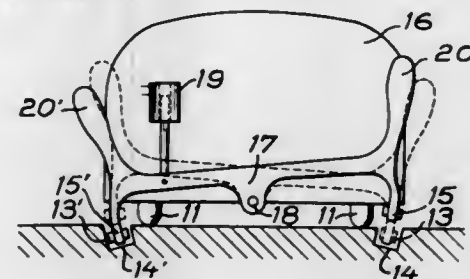
7 Claims



An aerial illuminating flare is provided having a parachute deployed from the flare by a timer in cooperation with a detent mechanism and compression spring. When a predetermined time interval has elapsed after launch, the detent releases the timer mechanism from the flare case and it is ejected, pulling the parachute out with it. The flare becomes ignited by a trigger-igniter means operated by a lanyard from the trigger to a parachute riser and pulled thereby as the parachute is deployed.

3,593,665
CONVEYING SYSTEM
Rene Henri Charles Marty, 39, rue Cardinet, Paris 170, France
Filed Dec. 22, 1969, Ser. No. 887,255
Claims priority, application France, Dec. 30, 1968, 181,734
Int. Cl. B61b 13/00; E01b 25/28, 7/12
U.S. Cl. 104-88

10 Claims

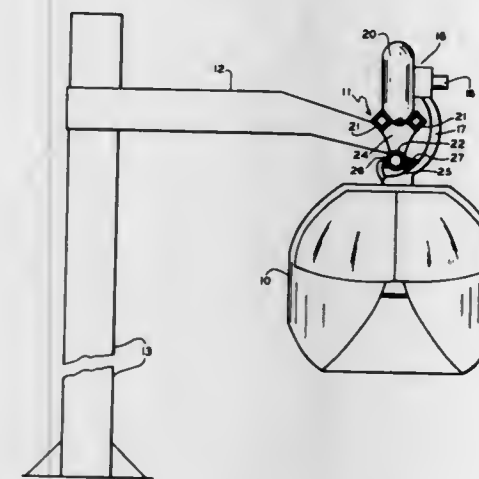


A conveying system including a complex track the sections of which are connected by junctions. Means are provided to

prevent the vehicles reaching simultaneously the junction from impinging against each other and to this end feelers are provided on such vehicles so that in the case of a simultaneous arrival, the vehicles are constrained to follow each its normal track assumed to lie parallel with that followed by the other vehicle. Means are furthermore provided for controlling without any computer the path followed by the vehicles over the complex track in a manner somewhat similar to that of automatically controlled lifts.

3,593,666
MONORAIL SYSTEM
Phillip D. Savage, Malone, N.Y., assignor to Hall Ski-Lift Company, Inc., Watertown, N.Y.
Filed Oct. 15, 1969, Ser. No. 866,571
Int. Cl. B61b 3/00; E01b 25/22
U.S. Cl. 104-89

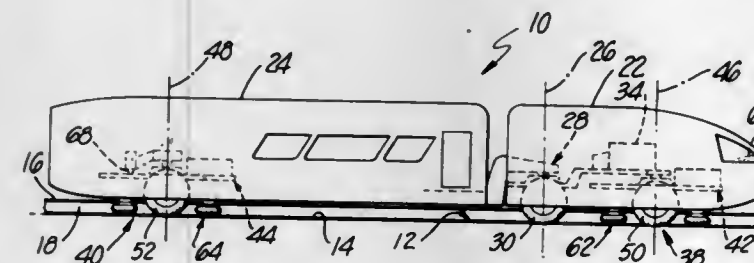
6 Claims



A monorail car is suspended from pneumatic tired wheels riding on the rail. The rail comprises a plurality of tubes secured spaced apart by web members secured thereto at spaced intervals along the rail. A pair of upper tubes are spaced horizontally and have downwardly and inwardly sloped top surfaces on which the sides of the tire treads rest. Low-friction pads on either side of a lower tube are attached to the car and can slide along the side of the lower tube to prevent side sway. A heated or cooled liquid or gas may be pumped through each of the tubes so expansion joints are not needed.

3,593,667
GUIDANCE SYSTEM FOR DUAL-MODE VEHICLE
Raymond L. Morris, 1028 15th Ave., Honolulu, Hawaii
Filed July 7, 1969, Ser. No. 839,412
Int. Cl. B62d 11/00; B61b 13/00
U.S. Cl. 104-120

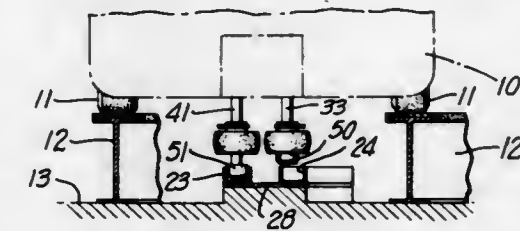
7 Claims



A vehicle capable of operation on a track having a central guide rail, or on city streets, on highways, or the like. When operating on the track, guide wheels engageable with opposite sides of the central guide rail serve to guide the vehicle. For operation off the track, the guide wheels are retracted and the vehicle is steered by the operator thereof. Retractable locking bars permit pivoting of the guide wheels between their extended and retracted positions, and are extended to positively lock the guide wheels in their extended positions or their retracted positions. An irreversible worm drive insures against creeping of the locking bars out of their extended, locking positions.

3,593,668
STATIC SWITCH
George J. Adams, Santa Monica, Calif., assignor to Stanray Corporation, Chicago, Ill.
Filed July 24, 1969, Ser. No. 844,566
Int. Cl. E01b 7/12; B61b 13/04; F01b 23/06
U.S. Cl. 104-130

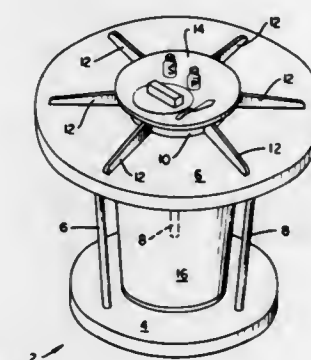
2 Claims



A switching system for a vehicle requiring no moving parts in the road bed or track. A pair of channels positioned at the switch to provide vehicle guidance along the main line and the diverging line, respectively. Guide wheels in the vehicle engaging the track for guidance during normal operation, and auxiliary wheels in the vehicle for use at the switching area for selectively engaging one of the track channels.

3,593,669
EATING UNIT
Richard K. Zimmerly, 7920 Fishback Road, Indianapolis, Ind.
Filed May 14, 1969, Ser. No. 824,471
Int. Cl. A47b 13/02
U.S. Cl. 108-150

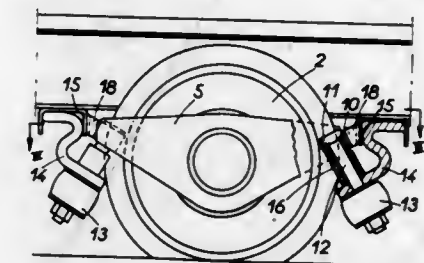
5 Claims



An eating unit comprising a circular table which facilitates stand-up eating. The table has a circular base and a circular eating surface. These components are in a spaced apart relationship and are connected by a plurality of supports. The eating surface incorporates a central aperture. A waste container is positioned on the base below the central aperture. The waste container is of such a diameter that it is adapted to pass through said supports.

3,593,670
MINE CAR SUSPENSION
Serge Aubert, Ville D'Avray, France, assignor to Societe Industrielle Delattre-Levivier "S.I.D.L.", Paris, France
Filed June 20, 1969, Ser. No. 835,118
Claims priority, application France, Aug. 2, 1968, 161,740
Int. Cl. B60b 17/00; B61d 11/00; B61f 5/36
U.S. Cl. 105-209

1 Claim



A vehicle, especially a narrow-gauge, mine car, having at least one axle on each of the journals of which the body rests

by way of an equalizer bar having an axle box within the width of the wheel.

3,593,671

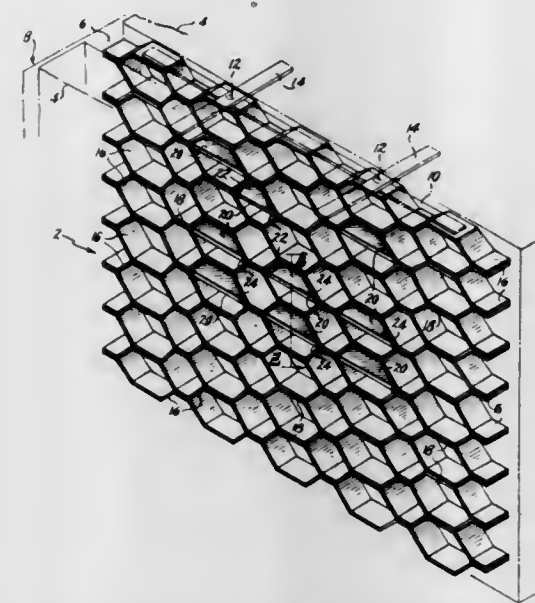
REINFORCED LOAD SPACER

Glenn D. Bramlett, Stockton, Calif., assignor to Narad, Inc., Wayne, Mich.

Filed Oct. 21, 1969, Ser. No. 868,172
Int. Cl. B61d 45/00

U.S. Cl. 105-369 B

6 Claims



An expandable honeycomb structure, of corrugated paper board, is suspended between a load and an adjacent surface in a freight carrier, to fill the space and prevent load shifting. Transverse rigid members in certain of the cells limits their horizontal contraction and prevents the honeycomb structure from sagging unduly.

3,593,672

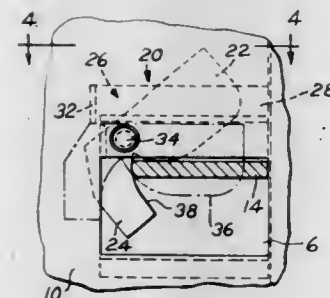
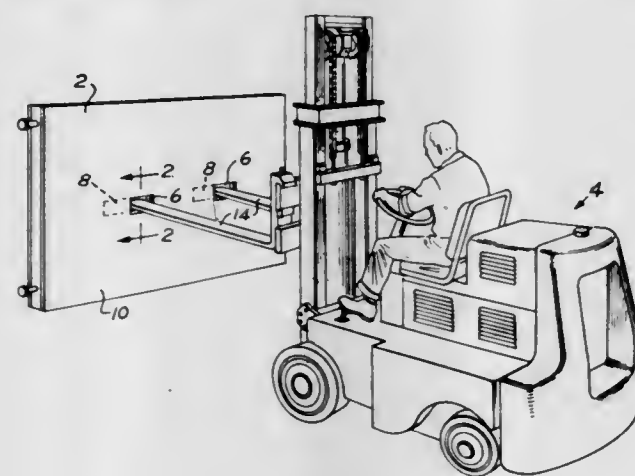
APERTURED PANEL WITH TINE-GRIPPING MEANS

Henry D. Breen, Chicago, and Russell M. Loomis, Palos Heights, both of Ill., assignors to Unarco Industries, Inc. Continuation-in-part of application Ser. No. 612,611, Jan. 30, 1967, now Patent No. 3,477,392, Continuation-in-part of application Ser. No. 615,139, Feb. 10, 1967, now Patent No. 3,431,015. This application Apr. 8, 1968, Ser. No. 719,551

Int. Cl. B61d 45/00; B60p 7/14

U.S. Cl. 105-376

17 Claims



A panel for separating lading is provided with spaced ports in its face adapted to receive therein the tips of a forklift

truck's tines, and means are provided in the ports for gripping said tines to prevent the panel from falling when the tines lift the panel. The gripping device is mechanically actuated into a positive gripping relationship with tines of a forklift truck when the tines are inserted in the ports and when the panel is lifted in a vertical position by the tines and supported thereby. When the panel is no longer supported by the tines, the gripping devices may be moved or move out of gripping relationship with the tines and the tines then may be easily removed from the ports.

3,593,673

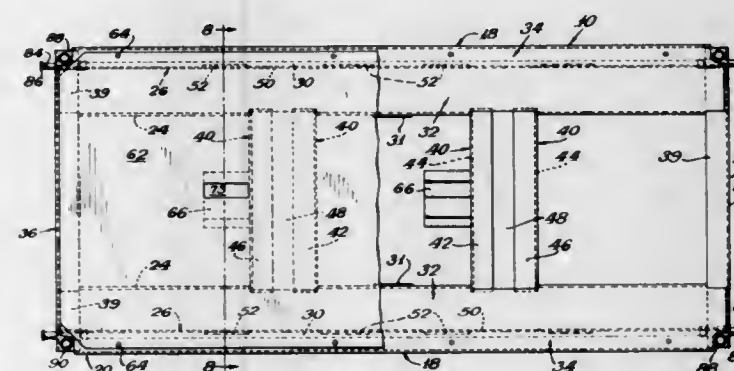
PALLET CONSTRUCTION

Russell M. Loomis, Palos Heights, and Henry D. Breen, Chicago, both of Ill., assignors to Unarco Industries, Inc. Continuation-in-part of application Ser. No. 612,611, Jan. 30, 1967, now Patent No. 3,477,392, Continuation-in-part of application Ser. No. 615,139, Feb. 10, 1967, now Patent No. 3,431,015. This application May 14, 1968, Ser. No. 729,080

Int. Cl. B61d 45/00; B60p 7/14

U.S. Cl. 105-376

11 Claims



A pallet which may also serve as a load divider formed of a frame fabricated from sheet material to define hollow edge beams, end beams and hollow intermediate beams, the edge and intermediate beams being adapted to receive the tines of a forklift truck, and the opposite faces of the frame being covered by smooth panels so that the pallet is reversible. Pins, secured in the corners of the pallet, project beyond the ends thereof to support the pallet in tracks. Open sockets may be provided in the edge beams at the corners of the pallet to receive posts by which the pallets can be stacked or to receive casters.

3,593,674

LADING CAR AND BULKHEAD ARRANGEMENT

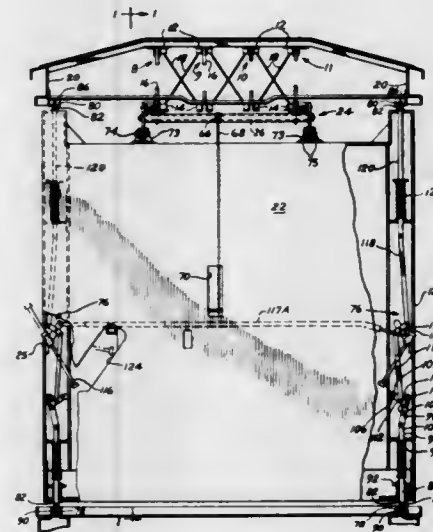
Irvan L. Winterfeldt, Crestwood; Leslie W. Martin, Chicago, and Samuel H. Enochian, Thornton, all of Ill., assignors to Unarco Industries, Inc.

Filed Mar. 21, 1969, Ser. No. 809,185

Int. Cl. B60p 7/14

U.S. Cl. 105-376

1 Claim



A lading car and bulkhead arrangement includes a car and a space divider bulkhead therein, the car having a floor, a

pair of load bearing upstanding end walls and a spinelike beam structure which is carried by the end walls and extends centrally of the car in rigidifying relationship to the car body. Outwardly extending tracks are formed on the beam structure and a moveable carriage is suspended from rollers which roll upon the track. The bulkhead is suspended from the carriage and sprocket and apertured timing means is provided on the carriage and underside of beam structure to effect nonbiased longitudinal movement of the bulkhead in the car. A slotted latching assembly is provided in the bulkhead to effect latching of the bulkhead with the floor in a predetermined longitudinal position in the car irrespective of the variation in distance between the tracks and floor of the car.

3,593,675

RAILWAY CAR CONSTRUCTION

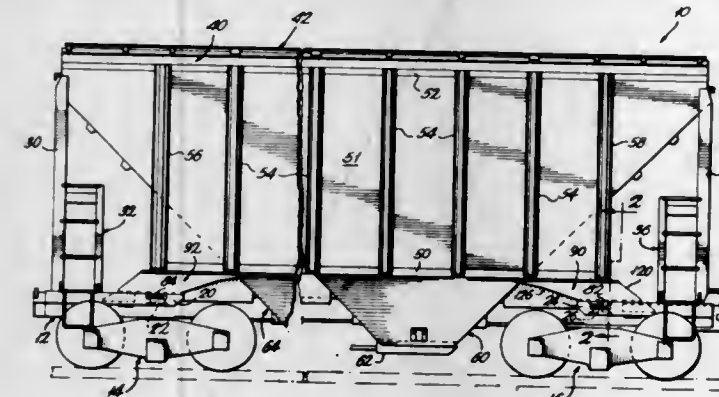
Danilo A. Dominguez, Wayne, N.J., assignor to Magor Railcar Division, Fruehauf Corporation, Clifton, N.J.

Filed Feb. 27, 1968, Ser. No. 708,586

Int. Cl. B61d 7/00, 49/00

U.S. Cl. 105-404

9 Claims



The underframe means of a railway car includes bolster means adjacent opposite ends thereof. Transition means is mounted at the four corners of the car over the bolster means. Each transition means is of generally channel-shaped cross-sectional configuration and includes an upper flange attached to the side of the car and a lower flange attached to the underframe of the car whereby the transition means is adapted to transfer loads between the underframe and the sides of the car and to support the sides at a horizontal level substantially above the underframe means.

3,593,676

DOUGH SHEETING APPARATUS

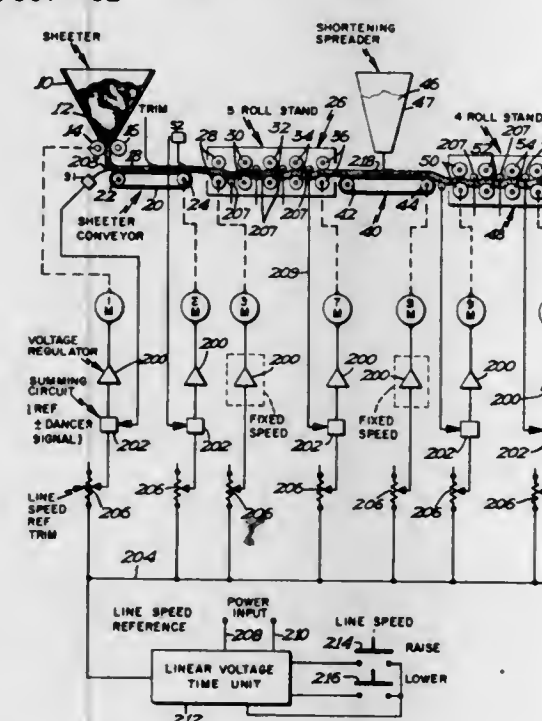
Francis R. Reid, and Selwyn Jones, both of Minneapolis, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed Apr. 4, 1969, Ser. No. 813,504

Int. Cl. A21c 3/02

U.S. Cl. 107-12

14 Claims



A dough sheeting apparatus composed of a series of adjacent roll stands each including several pairs of vertically

spaced rolls. Each successive pair of rolls is spaced slightly closer together than the one next to it for the purpose of reducing the thickness of the sheet. A depending loop of dough is maintained between each pair of rolls. A sensing arm contacts each depending loop and maintains the speed of the next downstream pair of rolls at an appropriate speed to prevent the dough from stretching or accumulating between the adjacent pairs of rolls.

3,593,677

SOLDERING APPARATUS AND METHOD

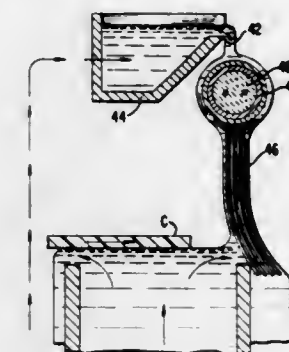
John H. McLain, Huntsville, Ala., assignor to Brown Engineering Company, Huntsville, Ala.

Filed Nov. 9, 1967, Ser. No. 681,615

Int. Cl. B23k 3/06; H05k 3/34

U.S. Cl. 118-206

12 Claims



Apparatus for applying solder to solderable substrates such as circuit boards includes a brushlike applicator. Molten solder is supplied to the brush and flows onto an article which is to be soldered. A bath of molten solder may be provided adjacent the end of the applicator so that both sides of a substrate may be soldered simultaneously.

3,593,678

ELECTROSTATIC COATING METHODS AND APPARATUS

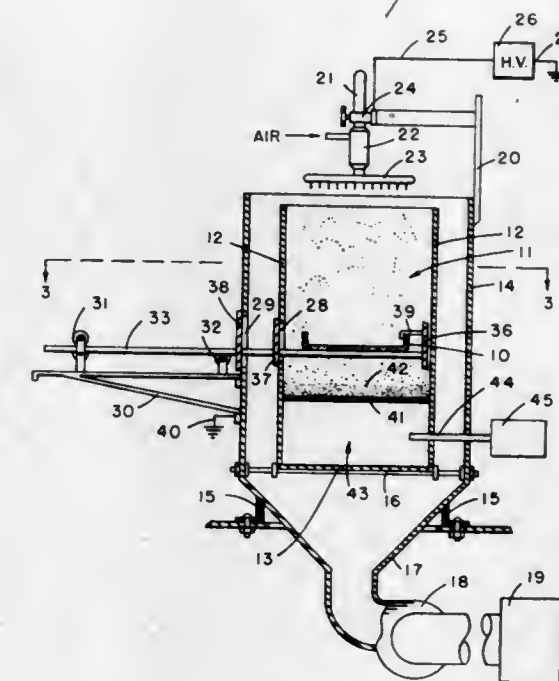
Emery P. Miller, Indianapolis, Ind., assignor to Ransburg Electro-Coating Corp., Indianapolis, Ind.

Division of Ser. No. 544,594, April 22, 1966, Patent No. 3,513,011. Filed Jan. 2, 1969, Ser. No. 810,056

Int. Cl. B05b 5/02

U.S. Cl. 118-630

10 Claims



An apparatus for coating a surface of an article with particles of a powder. A gas-permeable plate is mounted in a chamber and is used to support a layer of particles in the chamber. Means passes gas through the plate to cause the particles to form a cloud in the chamber. The article to be coated is in the cloud of particles. An electrode means is above the article to be coated with particles. Means

establishes an electrostatic field between the electrode means and the article for charging the particles and collecting their deposition on the article.

3,593,679

INSOLE CEMENTING MACHINE

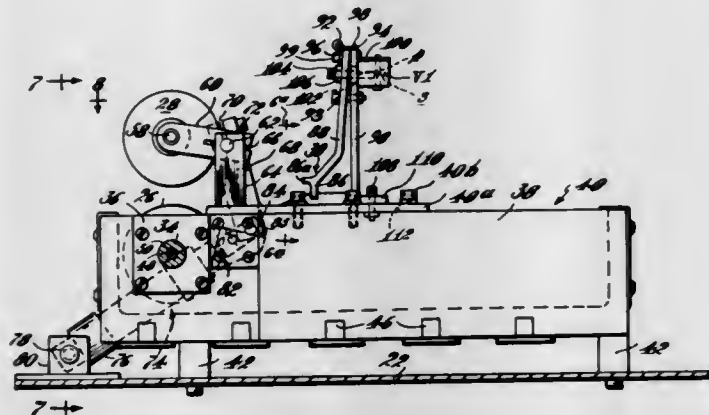
Henry von den Benken, West Roxbury, Mass., assignor to Compo Industries, Inc., Waltham, Mass.

Filed June 11, 1969, Ser. No. 832,313

Int. Cl. B05c 11/00

U.S. Cl. 118-2

33 Claims



A machine for applying adhesive to one or both ends of an insole comprising an applicator roll having an adhesive-receiving surface of predetermined peripheral length, supported for rotation about a horizontal axis, a gauge stop supported at the upwardly moving side of the applicator roll, said gauge stop having a surface normal to a plane tangent to the top of the applicator roll and at a distance therefrom corresponding to the length at the end of the insole to which adhesive is to be applied, switch means for initiating rotation of the applicator roll when the insole is placed in engagement with the applicator roll with its end pressed against said gauge stop, and means for initially displacing the portion of said adhesive-receiving surface relative to the line of contact of said adhesive-applying roll with said plane of tangency.

3,593,680

AUTOMATIC AIR PAINTING APPARATUS

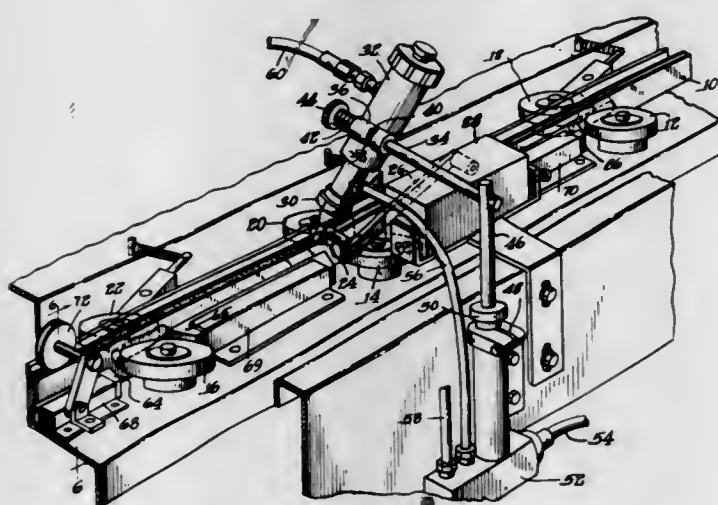
Jens A. Paasche, deceased, late of Wilmette, Ill., by Continental Illinois National Bank and Trust Company of Chicago, executor, 231 S. LaSalle St., Chicago, Ill.

Filed Sept. 5, 1969, Ser. No. 855,783

Int. Cl. B05c 11/00

U.S. Cl. 118-2

14 Claims



Automatic air painting apparatus for painting precision stripes on relatively large, elongated workpieces. The workpieces are moved past an airbrush assembly by a conveyor mechanism. As they pass under the airbrush, the workpieces contact a roller which lifts the airbrush nozzle above the surface of the workpiece and holds it at a predetermined spac-

ing in spite of variations in the height of the workpieces. When the roller is lifted by the leading edge of the workpiece, it actuates a microswitch that turns the airbrush on, and when the roller drops off the trailing edge of the workpiece, it automatically turns the airbrush off by releasing the same microswitch. To minimize inertia, the roller is positioned so as to contact the airbrush nozzle directly instead of being linked to the airbrush by a mechanical linkage, and the airbrush is mounted on a balanced, spring-loaded rotary mounting which enables it to respond very quickly to changes in the position of the roller. Two parallel airbrush assemblies and conveyor mechanisms are mounted on a common base and are driven by a single motor and supplied by a common source of paint and compressed air.

3,593,681

SIGNAL DEVICE

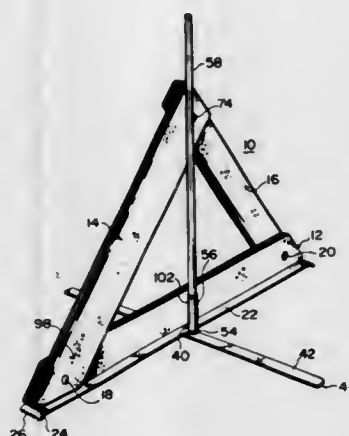
Sernovitz, Morton A., 8642 Keystone Ave., Skokie, Ill.

Filed Sept. 10, 1969, Ser. No. 856,704

Int. Cl. G08b

U.S. Cl. 116-63

8 Claims



A compact foldable signal having a flat triangular configuration in open position characterized by a base member having a pivotable fore and aft support arm retractable against stop members, means to support a warning flag or flare and oppositely pivoted signal arms which fold with the support arm to a compact essentially rectangular form and unfold to an apex for snap attachment at their ends to each other. In one embodiment, the base is provided with oppositely offset stop members so that the pivotable fore and aft support arm is rotatable in one direction for folding and in the other direction for unfolding. In another embodiment the rivets holding offset angle braces for the base form the stop members. Reflecting surfaces are provided which are retained by overlapping flanges of a backing member which provides both rigidity and permanence to the structure. In the folded condition the flag or flare stand holds one of the folding signal arms, while the hinge part on the opposite side has a snap fastening to engage the pivoting end of the other signal arm to unify the signal so that it does not unfold while handling.

3,593,682

COLLAPSIBLE GRAPNEL ANCHOR

Ewald L. Zitzow, Vergas, Minn.

Filed Aug. 18, 1969, Ser. No. 850,877

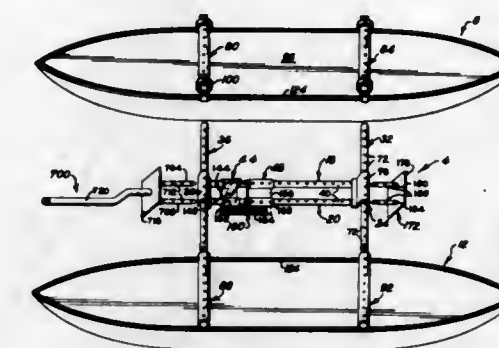
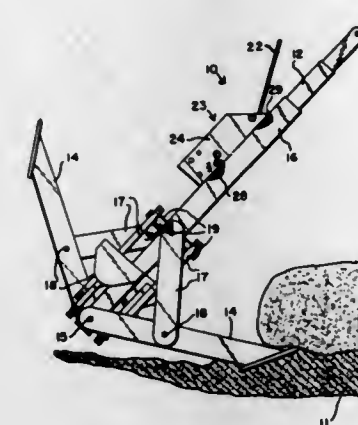
Int. Cl. B63b 21/44

U.S. Cl. 114-208

7 Claims

A longitudinally extended shaft is adapted to have one end thereof operatively secured to a watercraft, a plurality of flukes have one end of each thereof pivotally secured to the other end of the shaft with a tubular sleeve mounted on the shaft for sliding movements between the ends of the shaft, a link is pivotally secured to an intermediate portion of each of

the flukes and to the end of the tubular sleeve adjacent the other end of the shaft and releasable latch means, including a



iceboat, a ski vehicle, a snowmobile, a snow blower (vehicle), etc.

3,593,685

BOUNDARY LAYER CONTROL AND PROPULSION AUGMENTING SYSTEM

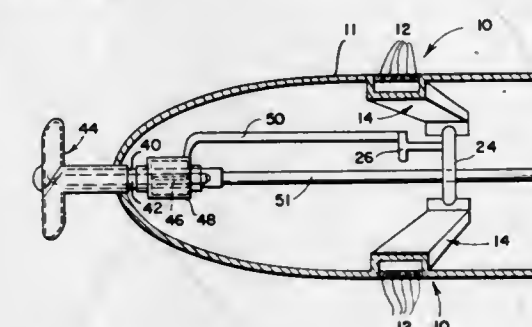
Walter C. Cowles, Stamford, Conn., assignor to Esso Research and Engineering Company

Filed Feb. 26, 1969, Ser. No. 802,341

Int. Cl. B63b 1/34

U.S. Cl. 114-67

3 Claims



3,593,683

SEWING MACHINE STITCHING MECHANISM

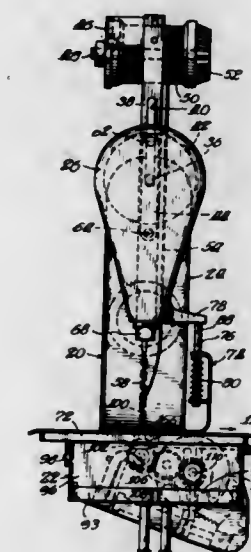
Bernard Saltz, 831 Bonnie Brae, River Forest, Ill.

Filed Jan. 21, 1969, Ser. No. 792,269

Int. Cl. D05b 1/06

U.S. Cl. 112-199

3 Claims



Boundary layer separation in surface ships is controlled by drawing in sea water through a plurality of openings in the shell of the ship. These openings are provided in a pair of perforated panel that extend vertically from the flat of the ship's bottom, to near the waterline and are located on opposite sides of the ship near the stern where boundary layer separation would otherwise occur. The sea water sucked in from the boundary layer can be utilized to augment the propulsive thrust of the ship's propellers by forcing the water through the propellers and discharging it from the trailing edge of the propellers' blades. In addition, or alternatively, the sea water can be used to for cooling in the ship's propulsion system.

3,593,686

SYSTEM FOR LATERALLY MANEUVERING A WATERCRAFT HULL

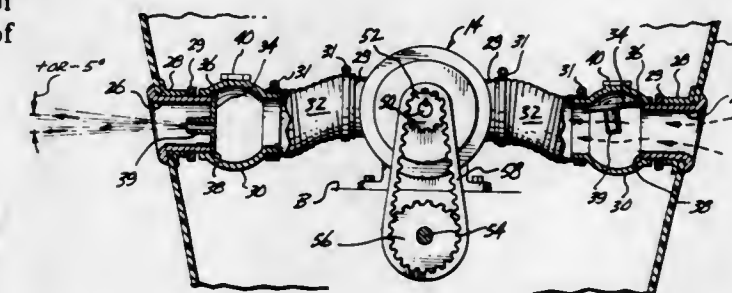
Euvoon G. Cooper, 1460 McLean Road, Mt. Vernon, Wash., and Thomas D. Perry, 1425 Country Club Drive, Burlington, Wash.

Filed Aug. 28, 1969, Ser. No. 853,887

Int. Cl. B63h 25/46

U.S. Cl. 114-151

4 Claims



A portable electric sewing machine for sewing material, buttons or the like with a chainstitch. The mechanism for looping the thread to form the chain of the stitch includes a reciprocating pair of spreadable, parallel arms positioned beneath the material and work surface. As the needle passes through the material, a loop of thread is retained by the parallel arms. The loop positioned by the arms for passage of the needle through the loop on the next successive stroke of the sewing needle.

3,593,684

COLLAPSIBLE CATAMARAN

Joseph A. Cogliano, 1268 Maple Ave., Baltimore, Md.

Continuation-in-part of application Ser. No. 775,703, Nov. 14, 1968, now abandoned. This application Sept. 5, 1969,

Ser. No. 856,525

Int. Cl. B63b 1/10

U.S. Cl. 114-61

18 Claims

A collapsible assembly is disclosed which can be made into sides of a hull in open-ended duct means located below the

waterline through which water flows in either direction. Closely adjacent the orifices of said duct means is a jet nozzle to emit a reaction jet of water substantially horizontally outward of the hull. The nozzles are mounted to move upon the occurrence of waterflow relative thereto. At such time one nozzle is in an operative position and restricts outward flow of water through its respective duct orifice while the other is in a nonrestricting position.

3,593,687

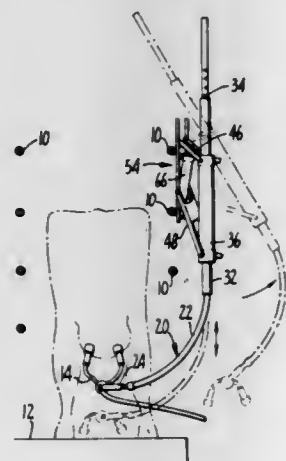
MILKING MACHINE SUPPORT STRUCTURE
Douglas Clegg, Calistoga, Calif., assignor to Holm Tractor & Equipment Company, Petaluma, Calif.

Filed Feb. 10, 1969, Ser. No. 797,857

Int. Cl. A01J 07/00

U.S. Cl. 119-14.1

6 Claims



A retraction device for automatic withdrawal of a milking claw from milking position in an automated system for the milking of cows. The device includes a support arm for a milking claw, a first adjustable connecting linkage for suspending the arm from the wall of a stall and swinging the arm from a milking position underneath the cow to a laterally withdrawn position outside of the stall. Second adjustable connecting means permit the arm to be moved vertically in the milking position, and a single control is provided to move the arm upwardly as it swings out of the stall. The suspension arm preferably provides for pivotal movement about three parallel vertical axes in the milking position so that the milking claw may move freely with the cow while it is vertically supported by the arm.

3,593,688

ROLLUP POULTRY CAGES AND METHOD OF MAKING SAME

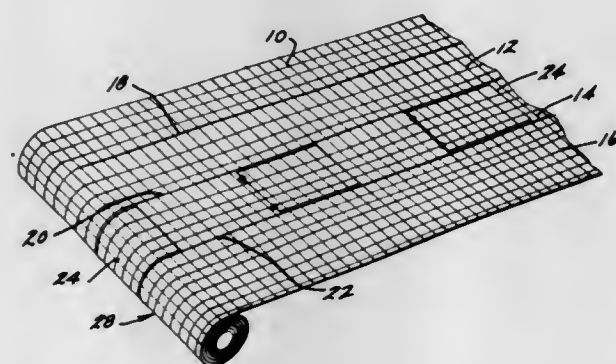
Voyd Lee Whitener, Indian River, Mich., assignor to U.S. Industries, Inc., New York, N.Y.

Filed Aug. 20, 1968, Ser. No. 753,994

Int. Cl. A01K 31/06, 31/08

U.S. Cl. 119-17

13 Claims



A poultry cage assembly made by arranging long panels or sections of cage wall stock as wire mesh or the like in flat planar form, with a side edge of each such section or panel directly adjacent that of another such panel, securing such panels together along such adjacent side edges, and rolling

the interconnected panels along an axis perpendicular to their length to form a generally cylindrical bundle for shipping, storage, and the like.

3,593,689

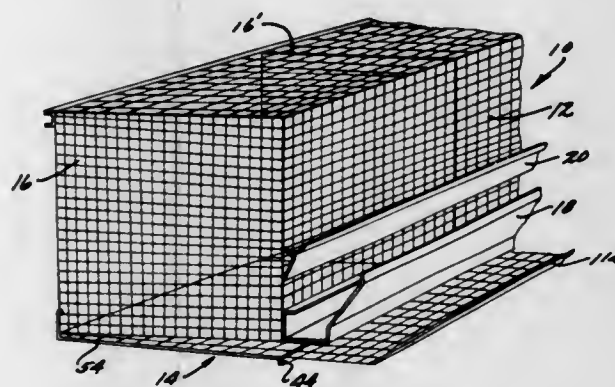
POULTRY CAGE WITH ADJUSTMENT APPARATUS
Robert L. Van Huls, Zeeland, Mich., assignor to U.S. Industries, Inc., New York, N.Y.

Filed Dec. 23, 1968, Ser. No. 786,177

Int. Cl. A01K 31/00, 31/14, 05/00

U.S. Cl. 119-18

20 Claims



A poultry cage having a movably mounted member across its front which forms an upper sidewall part of a feeder trough disposed along the front of the cage, such that the member when raised decreases the effective depth of the trough and allows feeding through the lower part of the front wall, and when lowered increases the effective depth of the trough while allowing feeding through a higher part of the front wall. Also, the cage enclosure includes a floor which is vertically movable and adjustable between predetermined heights.

3,593,690

DRUMLESS-TYPE VERTICAL WATER TUBE NATURAL CIRCULATION BOILER

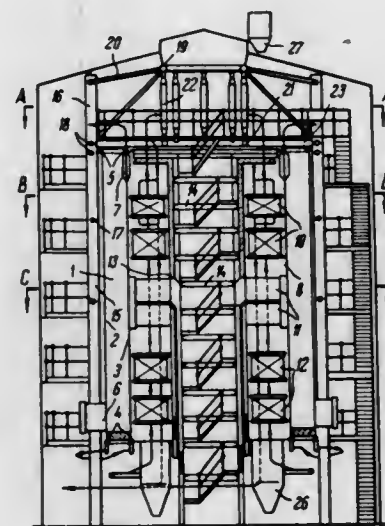
Anatoly Gavrilovich Serkov, Parkovaya ul., 3a, kv. 15, Belgorod; Dmitry Nikitovich Grinchenko, ul., Ya, Zhizhki, 9, kv. 5, Lvov; Vasily Sergeevich Moiseev, ul., Gagarina, 4, kv. 9, Belgorod; Gennady Vasilievich Maslovsky, ul., B Khmel'nitskogo, 50, kv. 34, Belgorod, and Igor Petrovich Alexeev, ul., Litvinova, 71, kv. 13, Belgorod, all of, U.S.S.R.

Filed June 27, 1969, Ser. No. 837,197

Int. Cl. F22b 21/00

U.S. Cl. 122-235 R

4 Claims



A drumless-type vertical water tube natural circulation boiler, whose convective shaft is annular in horizontal cross section and disposed in the space defined externally by the internal waterwall of the boiler furnace which is annular in its horizontal cross section, the space defined by the convective shaft accommodating platforms for servicing the boiler, this being instrumental for facilitating the servicing of convection

transfer surfaces, for arranging certain communication lines in the zone near to the servicing platforms and for simplifying the design of the bearing structure of the boiler.

3,593,691

WIDE JET SOOT BLOWER

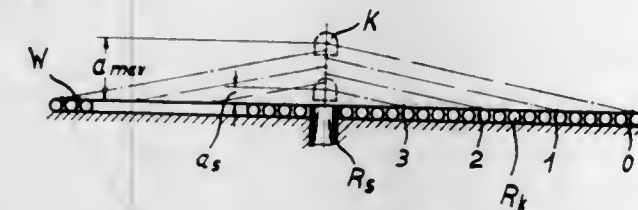
Herbert Wirths, Eckenhausen, and Hugo Caldewey, Hamm, both of, Germany, assignors to L. and C. Steinmuller G.m.b.H., Gummersbach, Rhineland, Germany

Filed Apr. 28, 1969, Ser. No. 819,755

Int. Cl. F22b 37/48

U.S. Cl. 122-390

2 Claims



A method of cleaning a cooling pipe wall in fire and radiation chambers of boilers by means of a steam-operated wide jet soot blower having rearwardly directed blow nozzle means. A blowpipe is adapted to be advanced away from and retracted into the cooling pipe wall linearly during rotation simultaneously occurring to direct the nozzle means along a rotating path. There are steps of moving the blower with the nozzle means thereof closed in a direction linearly away from the pipe wall to a location representing approximately the intended maximum distance of the blower from the pipe wall to be cleaned, opening the nozzle means only when the blower has reached the location, and subsequently moving the blower with the nozzle means open along linear distance during rotating that results in directing the nozzle means in a rotating path back toward and into said wall while closing the nozzle means when the blower during its simultaneous linear and rotating movement back toward the wall has reached a desired safety distance from the wall.

3,593,692

ELECTRICAL FUEL INJECTION ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES

Hermann Scholl, Stuttgart W; Norbert Rittmannsberger, Stuttgart I; Wolf Wessel, Stuttgart S; Wolfgang Rehmann, Stuttgart-Bad Cannstatt, and Josef Wahl, Stuttgart-Kalten- tal, all of, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

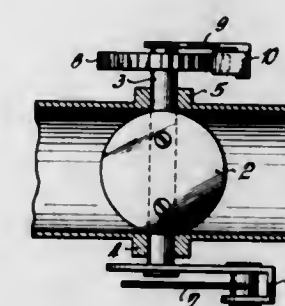
Filed May 9, 1969, Ser. No. 826,058

Claims priority, application Germany, May 11, 1968, P 17 51 330.3

Int. Cl. F02d 5/02

U.S. Cl. 123-32 EA

21 Claims



An electrically controlled fuel injection arrangement for internal combustion engines in which the fuel is injected through electromagnetically controlled valves. A control monostable multivibrator is actuated through a pulse emitter coupled directly to the crankshaft of the engine and emitting pulses synchronously with the speed of the engine. The pulse emitter actuates the monostable multivibrator which has a variable unstable state. A pulse generator coupled to the throttle of the engine emits a sequence of auxiliary control signals which extend the opening time interval of the injection valves during opening motion of the throttle, for pur-

3,593,693

SPARK TIMING CONTROL FOR VEHICLE ENGINES
Dietrich Seelmann-Eggebert, Wolfsburg, Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Ger- many

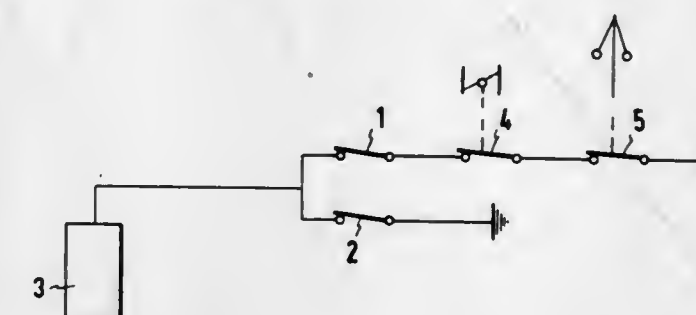
Filed Dec. 17, 1968, Ser. No. 784,347

Claims priority, application Germany, Dec. 23, 1967, P 15 76 693.5

Int. Cl. F02p 5/04; F02d 11/10

U.S. Cl. 123-117

2 Claims



Ignition distributor spark timing control having a common control disc mounting, a retarded spark interrupter connected in series with two series-connected switches, respectively operated by throttle valve position and engine speed, and an advanced spark second interrupter shunted across the first-mentioned interrupter and the two switches.

3,593,694

FUEL-COOLING SYSTEM

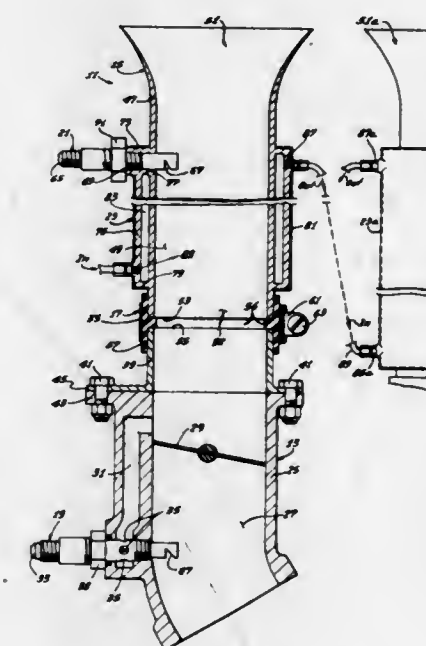
Hilborn, Stuart G., South Laguna, Calif., assignor to Fuel Injection Engineering Company, South Laguna, Calif.

Filed May 5, 1969, Ser. No. 821,913

Int. Cl. F02d 3/04

U.S. Cl. 123-119 R

24 Claims



This disclosure describes a fuel-cooling system for cooling the liquid fuel in the system to avoid vapor lock. According to the specific embodiment disclosed, a fuel injection nozzle injects fuel into an intake tube which is connected to an intake manifold. The fuel so injected vaporizes. A fuel-cooling jacket surrounds the intake tube and liquid fuel is passed therethrough. The liquid fuel passing through the cooling jacket is cooled by the latent heat of vaporization from the vaporized fuel within the intake tube.

3,593,695

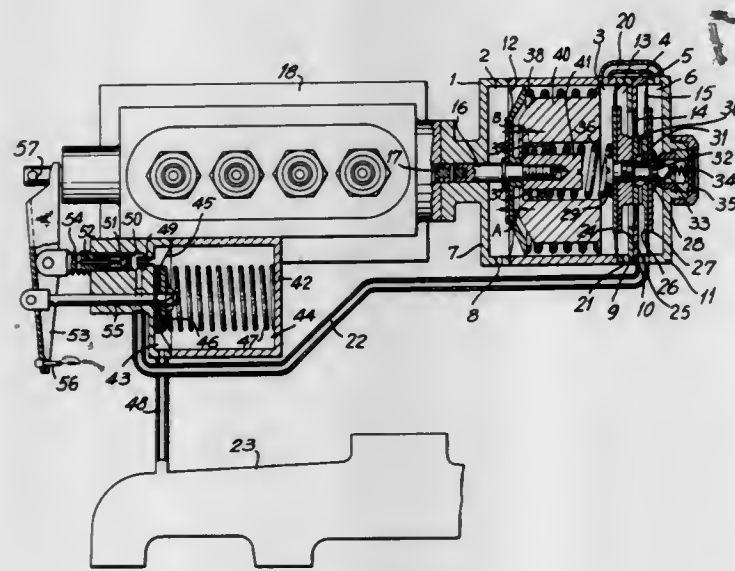
PNEUMATIC GOVERNOR FOR A FUEL INJECTION PUMP OF AN INTERNAL COMBUSTION ENGINE

Alexandr Kuzmich Avramenko, ulitsa Kultury, 11, kv. 89, Kharkov; Anatoly Iosifovich Vladimirovsky, pereulok Kulbitsky, 18, kv. 1, Kharkov; Neukh Nokhimovich Gidlin, ulitsa Tamboskaya, 75, kv. 91, Leningrad; Om Iosifovich Zaets, ulitsa Vorobexa, 11, kv. 8, Kharkov; Jury Mefodievich Korchin, ploschad Rozy Ljuksemburg, 2, kv. 9, Kharkov; Vladimir Yanovich Kulbashny, ulitsa Gubkomovskaya, 48, kv. 4, Kharkov; Konstantin Mikhailovich Maskenskov, ploschad Rozy Maksima Gorkogo, 5/76, kv. 33, Gorky; Nikolai Gavrilovich Mozokhin, ulitsa Avtomobilnaya, 16, kv. 16, Gorky; Nikolai Ivanovich Orlov, ulitsa Semigradskaya, 65, kv. 6, Kharkov, and Leonid Nikolaevich Popov, bulvar Novatorov, 110, kv. 80, Leningrad, all of, U.S.S.R.
Filed July 31, 1969, Ser. No. 846,464

Int. Cl. F02d 1/14

U.S. Cl. 123-140 MC

2 Claims



A pneumatic governor for a fuel injection pump of an internal combustion engine comprises a housing containing five chambers in a row with a plurality of diaphragms separating the chambers from each other. An output member of the governor is drivingly connected to the first diaphragm, the first chamber being disposed on the same side of said housing as the output member. The first and third chambers communicate with the ambient atmosphere and the second chamber communicates with the fifth chamber. A rigid central portion mechanically connects all the diaphragms except the first, and a nozzle member is connected with the rigid central portion to establish communication between the fourth and fifth chambers. A spring-biased valve is in the fifth chamber for controlling communication between the fifth chamber and ambient atmosphere, the nozzle being controlled by the operation of the valve. The fourth chamber communicates with the intake manifold of the engine. A plurality of springs of different stiffness selected in accordance with a desired mode of operation of the engine connect the rigid central portion with the first diaphragm in an arrangement such that the springs are operated in succession.

3,593,696

ELECTRONIC IGNITION SYSTEM FOR PRODUCING HIGH FREQUENCY SPARK TRAINS FOR INTERNAL COMBUSTION ENGINES

Angelo Raffaele Guido, Naples, Italy, assignor to Consiglio Nazionale Delle Ricerche (C.N.R.), Rome, Italy
Filed Dec. 27, 1968, Ser. No. 787,324

Claims priority, application Italy, Feb. 29, 1968, 35171/68

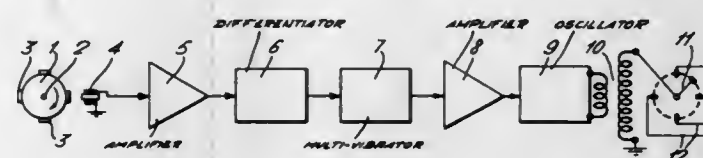
Int. Cl. F02p 3/02

U.S. Cl. 123-148 E

3 Claims

An electronic ignition system for internal combustion engines is disclosed, the ignition system comprising circuit

means controlled in synchronism with the engine for produc-



ing a high frequency spark train capable of ensuring a perfect ignition of the mixture into each cylinder of the engine.

3,593,697

ENGINE STARTING SYSTEM

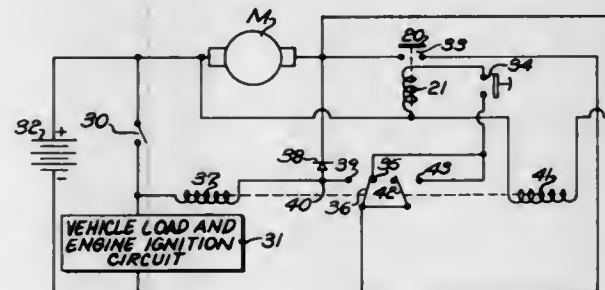
Donald A. Ciolli, Cleveland, Ohio, assignor to Victoreen Leece Neville, Inc., Cleveland, Ohio

Filed Nov. 12, 1968, Ser. No. 774,962

Int. Cl. F02n 17/00, 11/08

U.S. Cl. 123-179 BG

26 Claims



A vehicle engine starting system providing solenoid-operated positive engagement of the starting pinion with the ring gear on the engine flywheel before the starting motor is energized and inertia-operated disengagement of the pinion when the engine begins to overrun the starting motor. The system has an electrical lockout which positively prevents reengagement of the pinion as long as the engine ignition switch remains closed.

3,593,698

COMPRESSED AIR-OPERATED GUN

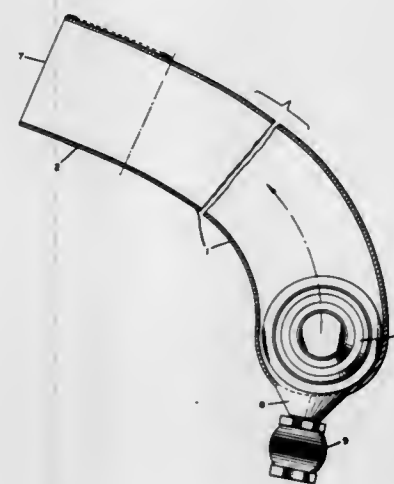
Pierre Culas, 152 Boulevard Poincare, Juan Les Pins, France
Filed July 29, 1968, Ser. No. 748,567

Claims priority, application France, Sept. 19, 1967, 21980

Int. Cl. F41b 11/00

U.S. Cl. 124-11

4 Claims



A launching device for clay pigeons and other projectiles comprising a tube preferably incurved over most of its length, the projectiles being forced through the tube by means of compressed gas, and one of the inner surfaces of the wall of the tube having a coefficient of friction greater than the others so that the projectile is caused to rotate thus imparting a more stable flight to it after it has left the tube.

3,593,699

APPARATUS FOR THROWING LIGHTWEIGHT BALLS AND THE LIKE

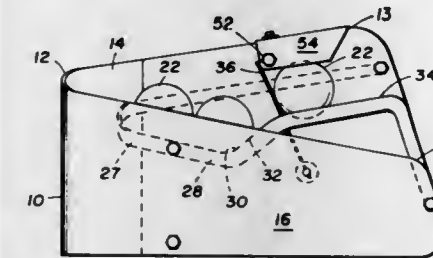
Clayton W. Chalupsky, Cedar Rapids, Iowa, assignor to Norman S. Wooldridge

Filed Jan. 16, 1969, Ser. No. 791,710

Int. Cl. F41b 7/00

U.S. Cl. 124-26

16 Claims



A machine for automatically feeding and continuously pitching lightweight balls at regular intervals in the same general direction. The machine utilizes the principle of a continuously revolving member that is temporarily restrained in its movement so that energy is built up and retained by said member, which energy is subsequently released to project the ball.

3,593,700

CHAIN SAW FOR SAWING VERY HARD MATERIAL AND METHOD OF SAWING

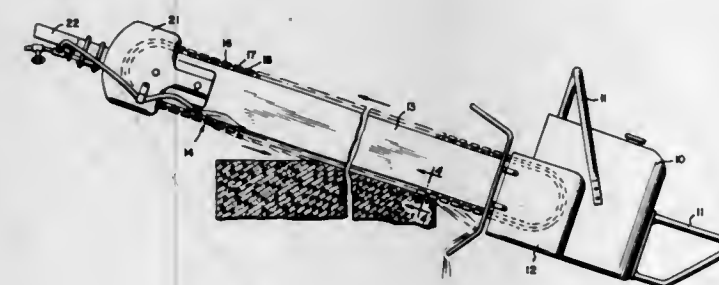
John V. McNulty, Norwich, N.Y., assignor to George P. Kingsley, Holland Patent, N.Y.

Continuation-in-part of application Ser. No. 568,854, July 29, 1966, now abandoned, and a continuation-in-part of 572,138, Aug. 12, 1966, now Patent No. 3,459,169. This application Oct. 3, 1968, Ser. No. 777,942

Int. Cl. B28d 1/08; B24b 55/02

U.S. Cl. 125-21

7 Claims



A method and apparatus for cutting very hard materials such as reinforced concrete. A chain saw has a chain formed of tooth members with very hard particles projecting from the teeth, the teeth running in a groove around a bar. As the chain is driven by a motor means, a low-pressure stream of liquid, such as water, is directed along a straight run of the chain. The liquid will cling to the chain and move at substantially the velocity of the chain, and will act to sweep particles of the material being sawed out of the kerf, as well as cool the chain and lubricate it. The saw can also have a nose wheel with circular blades on either side thereof for making plunge cuts.

3,593,701

COLLAPSIBLE BARBECUE GRILL

Bertram L. Youmans, 8544 Rascher Ave., Chicago, Ill.

Filed Sept. 8, 1969, Ser. No. 855,977

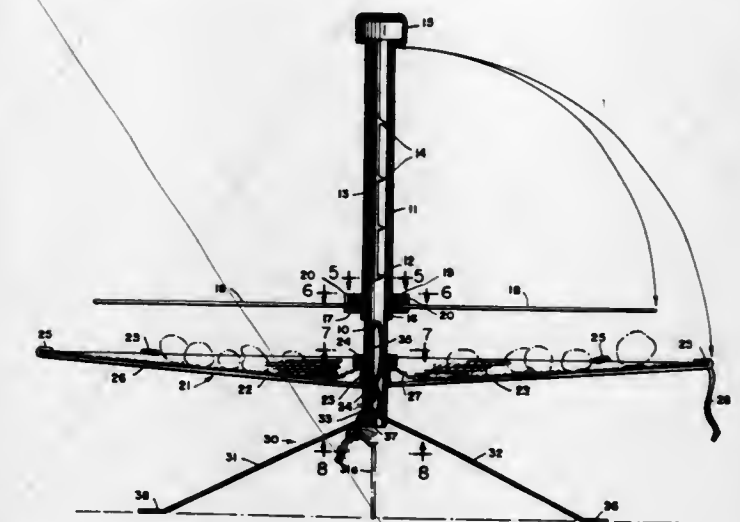
Int. Cl. A47j 37/00; F24b 3/00; F24c 1/16

U.S. Cl. 126-25 A

6 Claims

Collapsible and portable barbecue grills embodying a center post structure with a vertically adjustable grill composed of vertically pivotable radial arms and a collapsible fire

pan composed of vertically pivotable arms supporting a flexible, heat-resistant material, e.g., asbestos cloth, forming the



fire pan when open, and springable wire support legs slidable in the hollow post into a collapsed position.

3,593,702

NONSTICK RESIN-COATED COOKING UTENSILS

Emanuele Zigomalas, 20, Via Leonardo da Vinci, 20094 Corsico, Italy

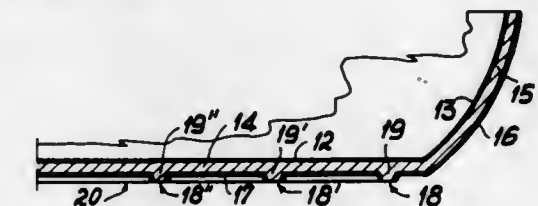
Filed Dec. 10, 1969, Ser. No. 883,779

Claims priority, application Italy, Dec. 19, 1968, 25,348 A/68

Int. Cl. A47j 27/00

U.S. Cl. 126-390

10 Claims



The disclosure describes a cooking utensil, such as a frying pan, comprising a vessel-forming aluminum body having one or more preferably annular protusions downwardly projecting from its planar bottom for abutment on the parts and surfaces whereon the utensil are superimposed and supported for use, said body having its inner and outer surfaces coated with polytetrafluoroethylene (or equivalent nonstick resin) in their entirety except at the tips of said protusions where said abutment actually occurs.

3,593,703

DIAGNOSTIC COUGH-MONITORING TECHNIQUES

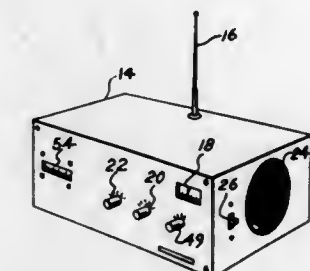
Leonard C. Gunn, Chicago, Ill., and Donald A. Burns, Kenosha, Wis., assignors to Abbott Laboratories

Filed July 7, 1969, Ser. No. 839,309

Int. Cl. A61b 5/00

U.S. Cl. 128-2 R

5 Claims



The rate at which a human subject coughs may be determined by providing a microphone, a transmitter connected to

the microphone, a receiver, a counter, and a conditioning circuit that enables the counter to advance in response to a cough sound.

3,593,704

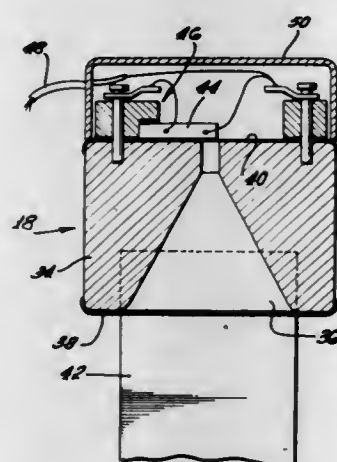
PULSE SENSOR FOR BODY PULSE RATE MEASURING MEANS

Ardath M. Schwab, 606 Camino Cerrado, South Pasadena, Calif.

Filed Dec. 11, 1967, Ser. No. 689,718

Int. Cl. A61b 5/02

U.S. Cl. 128-2.05



A measuring apparatus having a housing, an electric meter mounted therein and a temperature sensitive probe removably connected thereto and with an amplifier therein, and a source of electric power associated therewith to generate temperature responsive output signals which are received by the meter to thereby indicate the temperature of the body. A pulse sensitive element is connected to the housing, and the associated source of electric power, which generates pulse responsive output signals which are modified and fed to the meter for indicating the rate of the body's pulse. The electric circuits between the power source, the sensors and the meter are normally open and easily operated pushbutton switches are provided to temporarily close one or the other circuit when a reading on the meter is to be taken.

3,593,705

ARRHYTHMIA MONITORING INSTRUMENT AND METHOD USING "NORMAL" AND "TOTAL" COUNTING CHANNELS

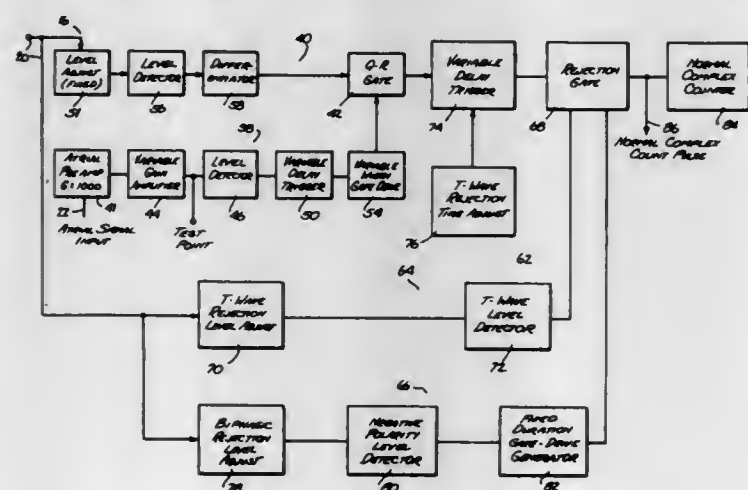
Randal Howard Thomas, Orelana, and Mary Louise Torchiana, Ambler, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Oct. 3, 1968, Ser. No. 766,034

Int. Cl. A61b 5/04

U.S. Cl. 128-2.06 A

14 Claims



Monitoring apparatus and method for determining the presence of cardiac arrhythmias by means of pattern recogni-

tion techniques applied to each successive electrical heart cycle as represented by derived electrocardiogram waves; the total number of electrical cycles undergone by the derived electrocardiogram waves is ascertained in a first circuit and the number of cycles having predetermined normal characteristics during the occurrence of the total number of electrical cycles is derived in a second circuit; the outputs of the first and second circuits are fed to an indicator which indicates the presence of the arrhythmia.

3,593,706

FLEXIBLE OR PARTLY FLEXIBLE GASTROSCOPE

Herbert Schubert, 7134 Knittlingen, Schillerstrasse 31, Germany

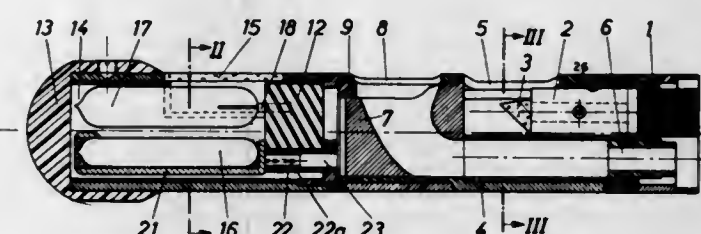
Filed Jan. 27, 1969, Ser. No. 793,992

Claims priority, application Germany, Feb. 20, 1968, W 41 688

Int. Cl. A61b 1/06

U.S. Cl. 128-8

7 Claims



A flexible gastroscope with a fiber-optical image conductor has a cylindrical distal head formed with a lateral viewing port next to an objective working into the image conductor, an adjoining lateral exit aperture for surgical implements, and a lateral illumination window just beyond that aperture. The illumination window leads into a chamber which contains two axially extending, laterally juxtaposed light sources, i.e. a U-shaped flash tube alongside the window and a lamp positioned to radiate through the flash tube and the window in series.

3,593,707

JET TOOTH BRUSH

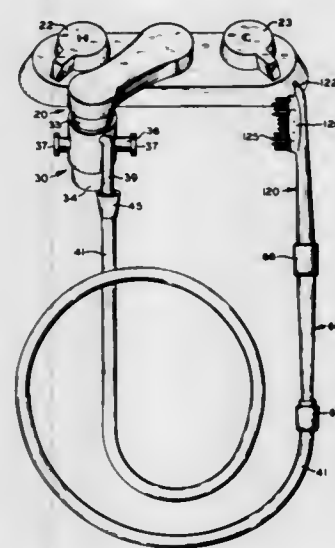
George William Pifer, 3149 West River Road, Maumee, Ohio

Filed Sept. 25, 1968, Ser. No. 762,397

Int. Cl. A61h 9/00

U.S. Cl. 128-66

23 Claims



A toothbrush with a jet nozzle at its end extending angularly toward the same side as the brush bristles and having a detachable handle, a flexible fluid duct from a fluid source, such as an adjustable hot and cold water spigot, and a valve for regulating the fluid for the jet, which valve may be at the source and/or in the handle. The handle may be hollow for connection to the flexible duct, or may be an electric or mechanical toothbrush handle, or a water jet or water pick handle. A source of dentrifice and/or disinfectant may be

provided either in the jet brush attachment, in its handle, or from a reservoir connected by a separate duct to the jet brush attachment.

3,593,708

BODY SUSPENSION DEVICE

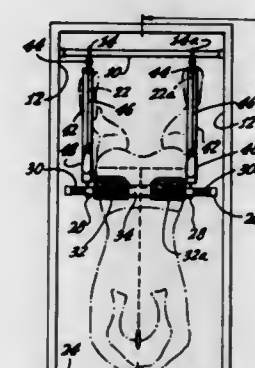
Victor Steele, 6311 Yucca, Hollywood, Calif.

Filed Aug. 11, 1969, Ser. No. 848,823

Int. Cl. A61h 1/02

U.S. Cl. 128-75

8 Claims



A device for suspending the portion of a human body above the pelvic region in an inverted position to provide a natural traction and to relieve the spinal column of gravitational compression which occurs when the body is in its normal upright position. The device includes a trapeze bar upon which is provided at least one rotatable platform having a padded face. When this face is initially disposed in a vertical position, the upper thighs of the legs may be pressed against it and if the upper part of the body is bent over the bar, the padded platform rotates on the bar to enable the person's body to be swung over the bar until the torso hangs downwardly, being supported by the thighs resting on the platform face. The legs of the body may be bent at the knees until the soles of the feet rest against vertical elements supporting the trapeze bar. Various other means are provided to facilitate the mounting and dismounting of the body for suspension and to render the latter more comfortable.

3,593,709

ANGULAR COMPRESSION PLATE FOR BONE FRACTURES

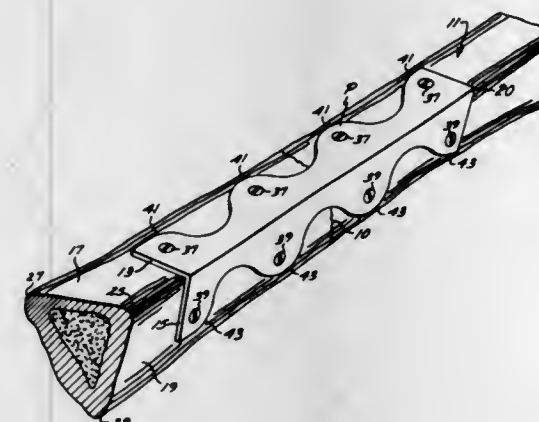
William X. Halloran, 440 Fair Drive, Costa Mesa, Calif.

Filed Oct. 28, 1968, Ser. No. 771,047

Int. Cl. A61f 5/04

U.S. Cl. 128-92

3 Claims



An angular compression plate for compressing a transverse fracture in a tibia bone, or the like, and including first and second flanges connected together along their adjacent edges. The flanges are slightly flexible with respect to one another for adjustment to accommodate varying angles between the first and second sides of the tibia. Thus, the plate may be placed across the fracture and secured to such adjacent sides of the tibia for maintaining the fracture in compression and will likewise provide support along two sides of the tibia.

3,593,710

ANESTHETIC APPARATUS

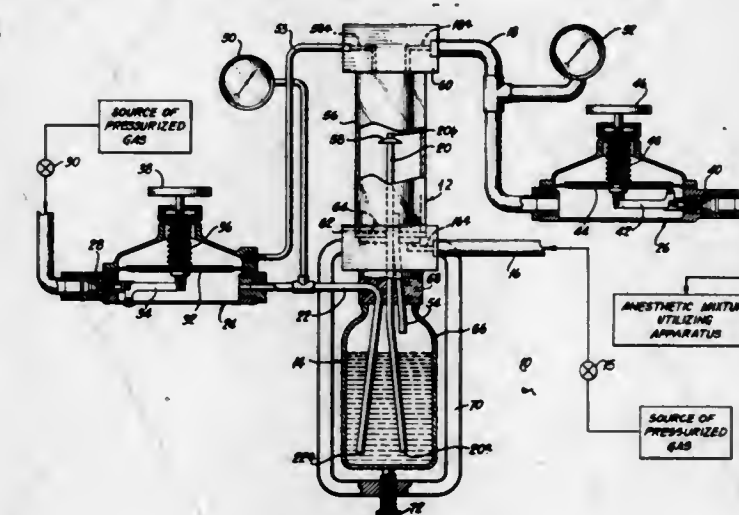
Francis J. Eichelman, La Grange Park, and Andrew A. Kenny, Chicago, both of Ill., assignors to Chemetron Corporation, Chicago, Ill.

Filed Jan. 27, 1969, Ser. No. 793,932

Int. Cl. A61m 17/00

U.S. Cl. 128-188

18 Claims



A closed reservoir charged with a supply of liquid anesthetic material communicates via a conduit with a vaporizer chamber through which a stream of gas flows. The reservoir is pressurized by a pressure line communicating with the reservoir at a region beneath the surface of the liquid, and a pressure head is maintained independently of the level of the anesthetic material in the reservoir. The rate of flow of liquid through the conduit to the vaporizer chamber is controlled by regulating the pressure within the pressure line relative to the pressure within the vaporizer chamber. The reservoir may be formed by an anesthetic containing bottle in sealing engagement with a support for the vaporizer to provide a compact assembly.

3,593,711

DUAL CANISTER CHEMICAL-TYPE LIFE SUPPORT SYSTEM

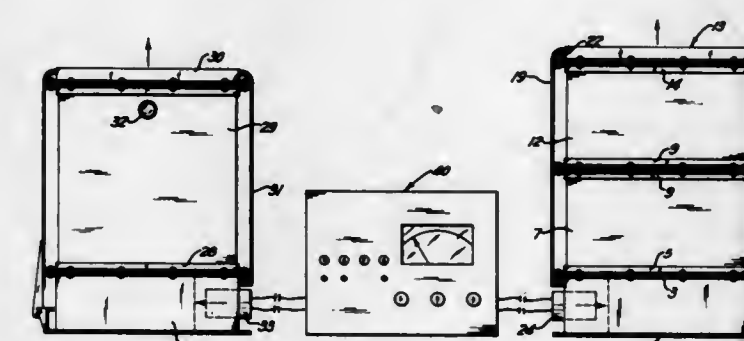
Charles H. Staub, Jr., Pittsburgh, and Miles J. McGoff, Warrendale, both of Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed Feb. 28, 1969, Ser. No. 803,172

Int. Cl. A61m 9/10

U.S. Cl. 128-191

7 Claims



In a sealed chamber or room there are means for circulating vitiated air, which is low in oxygen, through a first body of carbon dioxide absorbing and oxygen producing chemical to remove excess carbon dioxide and to add oxygen. When the oxygen concentration in the air in the chamber reaches a predetermined maximum, means responsive to the oxygen concentration stops delivery of the air to the chemical body and circulates it instead through a second chemical body that absorbs carbon dioxide until the consumption of oxygen from the air causes the oxygen concentration to fall to a predetermined minimum. Then the airflow is switched back to the first chemical body to replenish the oxygen. Consequently

excess carbon dioxide is removed from the air continuously and oxygen is added to the air periodically as needed.

3,593,712

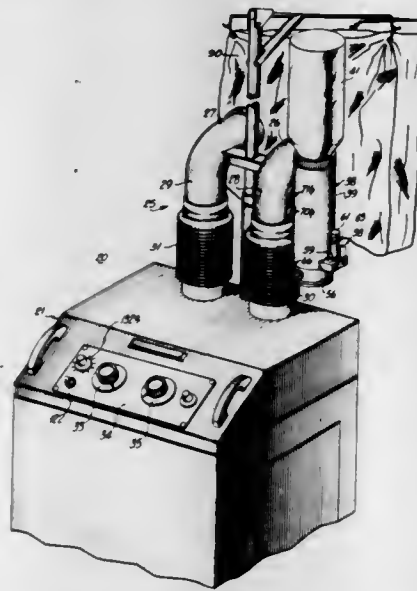
ULTRASONIC NEBULIZER

Robert L. Weaver, Toledo, and Frank D. Myrlice, Perrysburg, both of, Ohio, assignors to Chemetron Corporation, Chicago, Ill.

Filed July 1, 1968, Ser. No. 741,451
Int. Cl. A61m 16/02

U.S. Cl. 128-194

3 Claims



There is provided a nebulizer for use with oxygen tent equipment for controlled inhalation therapy. The nebulizer includes a vertical cylinder defining a liquid chamber with a piezoelectric transducer that closes the bottom of the chamber. A predetermined level of liquid is maintained in the chamber in direct contact with the transducer. A high frequency power source is connected to the transducer to provide ultrasonic vibrations thereof. The fluid in the chamber will be nebulized and suitable conduit means are provided for connecting the chamber to the gas flow from the oxygen tent equipment.

3,593,713

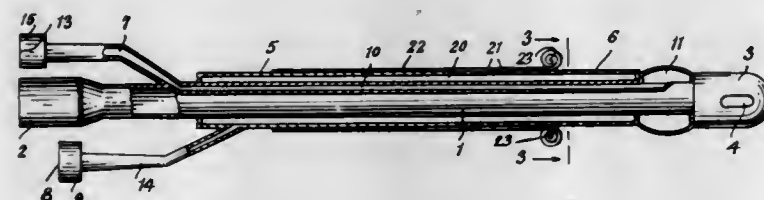
CATHETER COMBINATION

Stanley A. Bogoff, 20 Doctor Frank Rd., Spring Valley, N.Y., and Sheldon Rothenberg, 114 Monterey Drive, Manhasset Hills, N.Y.

Filed July 12, 1968, Ser. No. 744,380
Int. Cl. A61m 25/00

U.S. Cl. 128-246

3 Claims



The improved catheter has a tubular body or stem that is apertured at its forward end or tip and is surrounded by an encircling jacket for a substantial portion of its length. A fluid feed tube leads into the jacket for the supply of a fluid thereinto, the jacket having a foraminous area, controllable in size situated adjacent to its forward end and through which area the fluid is emitted for direct treatment at the walls of a body orifice, or any cavity or opening in which the catheter is inserted. A tube for transmission of liquid or air extends longitudinally of the catheter body under the jacket and is in communication with an inflatable chamber located beyond the foraminous area of the jacket and rearwardly of the forward tip of the catheter body, said inflatable body, when

filled with liquid furnished by said transmission tube, acting to retain the catheter in place in the body orifice or opening.

3,593,714

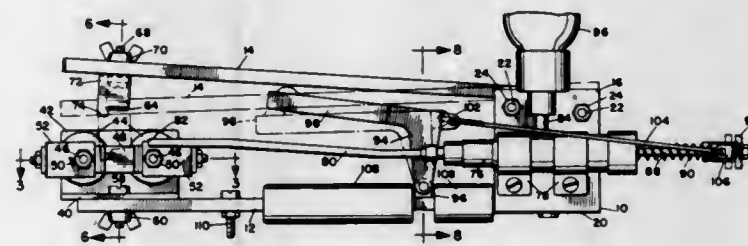
HAND-HELD BEAK TRIMMER AND VACCINATOR

James Lyon, 2922 Qualtrough St., San Diego, Calif.

Filed May 19, 1969, Ser. No. 825,750
Int. Cl. A61b 17/20; A61d 7/00

U.S. Cl. 128-253

4 Claims



A hand-held unit with which the beak of a chicken, or other such bird, can be trimmed and cauterized simultaneously with the application of a dose of vaccine, by a single squeezing action of the hand. The beak-trimming elements are adjustable to the most convenient position for a particular operator, and also to provide a choice of trimming or cutting actions. The vaccination apparatus is carried entirely on the hand-held unit and the only accessory equipment required is a low voltage power supply for the resistance-heated trimming blade.

3,593,715

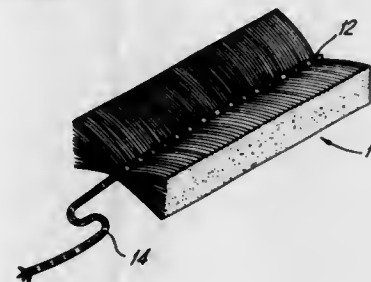
TAMPON

Kenneth S. Merrill, Wilbraham, Mass., assignor to Tampax Incorporated, Palmer, Mass.

Filed Nov. 5, 1968, Ser. No. 773,508
Int. Cl. A61f 13/20

U.S. Cl. 128-285

1 Claim



A compressed absorbent tampon is disclosed characterized by the fact that it is formed from a pad of synthetic organic fiber tow, preferably a bulked and crimped rayon tow, in which the fibers extend in continuous unbroken form from one side edge of the pad to the other side edge thereof. A method of making the tampon is also disclosed.

3,593,716

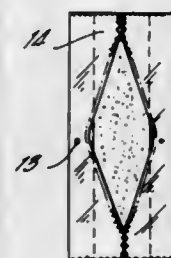
COMBINED DISPOSABLE DIAPER AND BABY PANTY

Anneliese E. Vogt, 272 Lakeview Ave., Paterson, N.J.

Filed Aug. 19, 1969, Ser. No. 851,332
Int. Cl. A61f 13/16

U.S. Cl. 128-287

6 Claims



A waterproof infant-conforming outer sheet of material partially encloses a multilayered strip of absorbent material.

The waterproof sheet is of a configuration and tacked at certain places so that upon application to the torso of an infant it forms a body-conforming panty.

3,593,717

RESERVOIR MENSTRUAL NAPKIN

John Leslie Jones, Sr., 1070 Glen Oaks Blvd., Pasadena, Calif.

Filed July 5, 1968, Ser. No. 742,922
Int. Cl. A61f 13/16

U.S. Cl. 128-290

7 Claims



This invention teaches a new menstrual napkin embodying multiple-ply tissue paper sheets lying coplanarly adjacent and forming an absorptive section. The absorptive section has a multiple, spaced pattern of coaxially concentric openings, in at least an appreciable fraction of the multiple plies of tissue paper, forming reservoir for the menstrual fluid volume prior to absorption of the fluid by the tissue paper. A pair of mounting and securing openings are provided, one at each opposed end of the napkin which pierces all layers of the napkin and is suitable for adaptively securing the napkin to a sanitary napkin support belt.

3,593,718

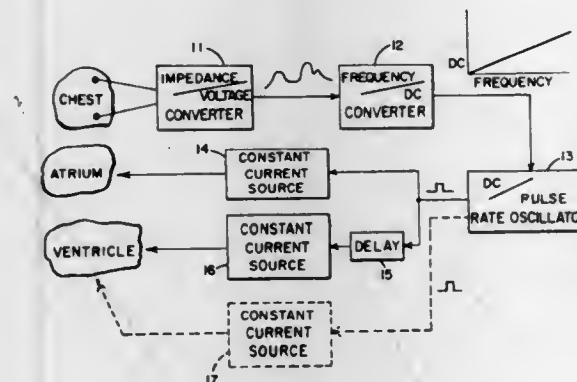
PHYSIOLOGICALLY CONTROLLED CARDIAC PACER

Jerome L. Krasner, Woburn, and Paul Nardella, Stoughton, both of, Mass., assignors to Biocybernetics, Inc., Watertown, Mass.

Filed July 13, 1967, Ser. No. 653,056
Int. Cl. A61n 1/36

U.S. Cl. 128-419 P

11 Claims



A cardiac pacer is described which uses a physiological function such as breathing rate, to vary the production of electronic pulses which are fed to a constant current source connected to the ventricle. A constant source compensates for the fibrotic growths that often occur around the electrodes implanted in the heart. In another variation, the pulses are fed to two separate constant current sources, one connected to the atrium and the other, with delay, to the ventricle.

3,593,719

COMBINE WITH THREE-STAGE SEPARATION

Robert Ashton, Islington, Ontario, and Jerry M. Brzustowski, Toronto, Ontario, both of, Canada, assignors to Massey-Ferguson Industries Limited, Toronto, Ontario, Canada

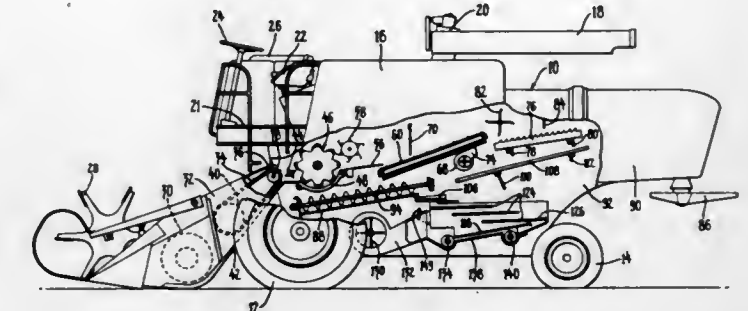
Filed Apr. 2, 1969, Ser. No. 812,750
Int. Cl. A01f 12/00

U.S. Cl. 130-21

9 Claims

A combine harvester thresher with three stages for the

separation of grain from the crop material. The three stages include a cylinder and open grate concave, a riddle and it forms a body-conforming panty.



fanning mill, and straw walkers. The grain separated in all three stages is conveyed to a shaker shoe for cleaning.

3,593,720

COMBINE GRAIN LOSS SIGNAL

John R. Botterill, Rugby; Kepkay: Leslie L., Leamington Spa; Philip L. Dodd, Coventry, and William J. Radburn, Kenilworth, all of, England, assignors to Massey-Ferguson Services N.V., Curacao, Netherlands

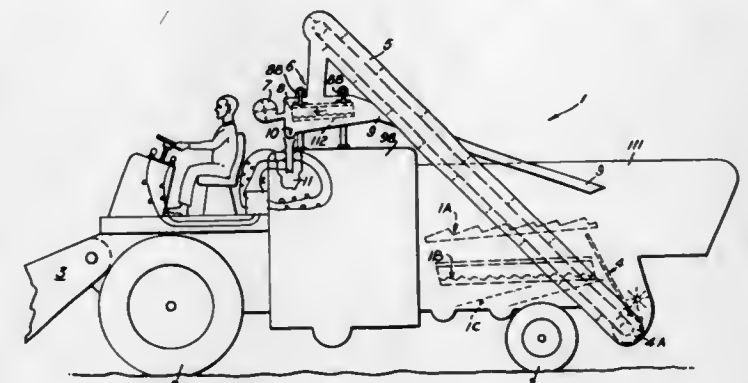
Filed Mar. 3, 1969, Ser. No. 803,791

Claims priority, application Great Britain, Mar. 6, 1965, 1077/68

Int. Cl. A01f 12/52

U.S. Cl. 130-27 W

4 Claims



A combine harvester thresher grain loss monitor which includes, a secondary grain separating and cleaning apparatus which receives at least part of the crop material expelled from the primary grain separating and cleaning apparatus and separates and cleans any grain still present in the crop material, an electronic apparatus to measure the flow rate of cleaned grain discharged from the secondary grain separating and cleaning apparatus, and an indicator which indicates the flow rate of the grain which the primary grain separating and cleaning apparatus failed to separate and clean.

3,593,721

PROCESS FOR THE PRODUCTION OF TOBACCO FOILS AND PRODUCTS THEREOF

Franz-Bernhard Knop, Monheim Rhineland, and Werner Scherff, Hilden Rhineland, both of, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen

Filed Nov. 12, 1969, Ser. No. 876,084

Claims priority, application Germany, Dec. 4, 1968, P 18 12 601.7

Int. Cl. A24b 03/14

U.S. Cl. 131-140

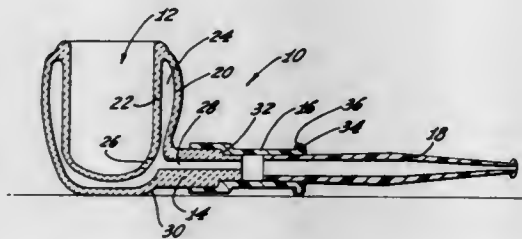
9 Claims

In the process of producing tobacco foils comprising the steps of mixing a slurry of tobacco dust with a water-soluble binder to form a moldable slurry, forming a tobacco foil or film and drying said tobacco foil or film, the improvement which consists of using as said water-soluble binder, a water-soluble methylcellulose containing from 0.05 to 0.25 carboxymethyl groups and also containing from 1.4 to 2.1 methoxy groups per anhydro glucose unit in said methylcellulose.

3,593,722 CERAMIC PIPE

Sydney R. Witz, Los Angeles, Calif., assignor to Cal-Witz Corporation, Los Angeles, Calif.
Filed Jan. 16, 1969, Ser. No. 791,569
Int. Cl. A24f 1/22, 1/32
U.S. Cl. 131-196

4 Claims

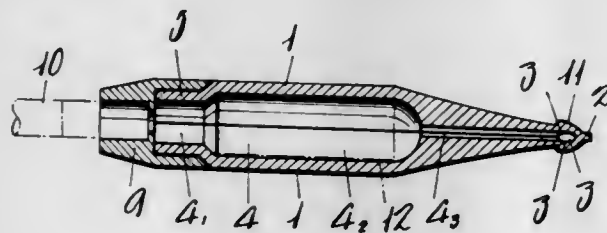


A double bowl ceramic pipe wherein the pipe is constructed from a low fire porcelain composed of various clays and including talc and ground tile so that the porcelain is more porous than many of the prior art high fired porcelains and so that the pipe does not conduct heat as quickly as the ordinary high fire porcelains. The present invention also includes the use of a hollow stem member that is offset from the bowl of the pipe so that the opening into the inner bowl from the stem is on a straight line to facilitate the cleaning or clearing of the opening even during smoking. Finally, the present invention is directed to a pipe having a bit made of a flexible plastic material which bit fits over and frictionally engages the stem.

3,593,723 CIGARETTE HOLDER

Yoshinori Nishida, 26 Hoshimoto okuno-cho, Yawatu-cho, Tsuzuki-gun, Kyoto-fu, Japan
Filed June 24, 1969, Ser. No. 836,116
Claims priority, application Japan, July 1, 1968, 43/55,849
Int. Cl. A24f 07/00, 13/02
U.S. Cl. 131-199

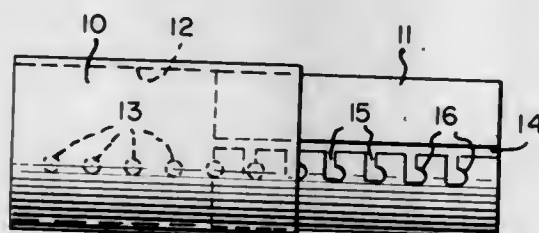
7 Claims



A cigarette holder having a pair of recesses formed in the sides of the holder at its mouthpiece end and the holder being divisible into separable upper and lower parts by a hinge at the mouthpiece end of the holder, thereby preventing direct striking of tobacco smoke against mouth tissues and permitting simple and positive cleaning of the holder.

3,593,724
LONGITUDINALLY ADJUSTABLE HAIR ROLLER
Antonio E. Leal, 1601 Pasadena St., San Antonio, Tex.
Filed Sept. 16, 1969, Ser. No. 858,281
Int. Cl. A45d 2/02
U.S. Cl. 132-39

3 Claims



This specification discloses a hair roller that is longitudinally adjustable. It comprises two plastic elements. These

are an outer cylindrical sleeve formed with a longitudinal row of aligned inwardly projecting teats and an inner sleeve that is snugly received in the outer sleeve. The inner sleeve is formed with a longitudinal slot in which the teats are received and movable therein. Opening into this slot are a series of equidistantly spaced circumferential slots in which the teats are also movable. Each circumferential slot terminates in a locking notch.

3,593,725
PORTABLE PROPHYLACTIC TOOTHBRUSH
Francisco Ortega, Etna No. 104, Mexico 20, City, and Pablo Ortega, Colon 2-208, Queretaro, both of, Mexico
Filed June 17, 1969, Ser. No. 834,025
Int. Cl. A45d 48/18
U.S. Cl. 132-84 B

1 Claim



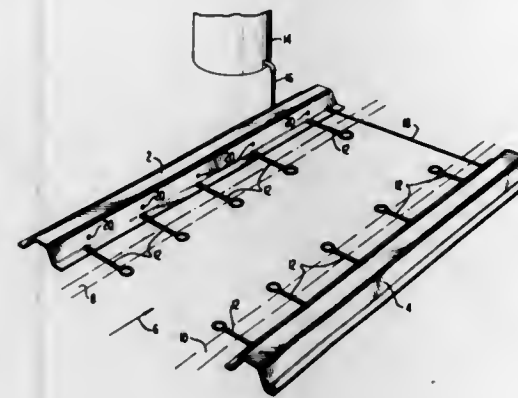
A portable prophylactic toothbrush has a hollow handle housing one or more dentifrice containers. A closure plug for the hollow handle may form the cap for a dentifrice container and the brush end is provided with a fountain-pen-type cap to protect and prevent contamination of the brush. It also operates to allow the toothbrush to be carried about in unobtrusive and fully protected manner. The brush cap may have lugs which provide for air circulation to the brush when the cap is in place. Various types of disposable dentifrice containers may be employed such as simple tubes having a double fold at one end and a single fold at the other end; closed envelopes provided with a rupturable end; and the like.

3,593,726
TIRE SPRAYING APPARATUS
Barton Lockhart, 905 Red Oak Lane, Corsicana, Tex., and Travis C. Harris, deceased, late of Ardmore, Okla. (by Edward Harris, administrator), said Harris assignor to said Lockhart
Filed Mar. 13, 1969, Ser. No. 807,133
Int. Cl. B60s 3/04
U.S. Cl. 134-45

11 Claims

Chemical cleaning solutions are sprayed on the sidewalls of a vehicle tire by spray nozzles which are spaced longitudinally along both sides of the vehicle's path. Looped resilient conduits in the track of the tires form a portion of a

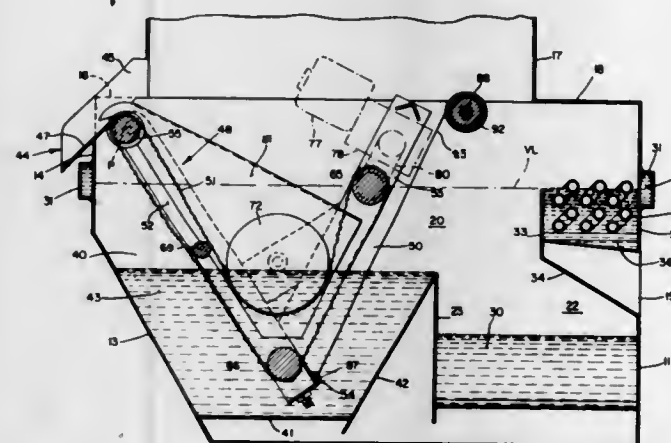
flow path leading from a source of cleaning solution to the wash liquid is fed to the nozzle from a wheeled tank to which the nozzles, and check valves are appropriately placed so that the spent liquid is returned via the drain; a dual pump in the



compression of the resilient conduits by a tire wall discharge the solution from the nozzles onto the tire sidewalls.

3,593,727
MOVING BELT-TYPE DEGREASER
Charles A. Black, Rockfield, Ky., assignor to Detrex Chemical Industries, Inc., Detroit, Mich.
Filed Sept. 4, 1968, Ser. No. 757,376
Int. Cl. B08b 3/06, 3/08
U.S. Cl. 134-57

15 Claims

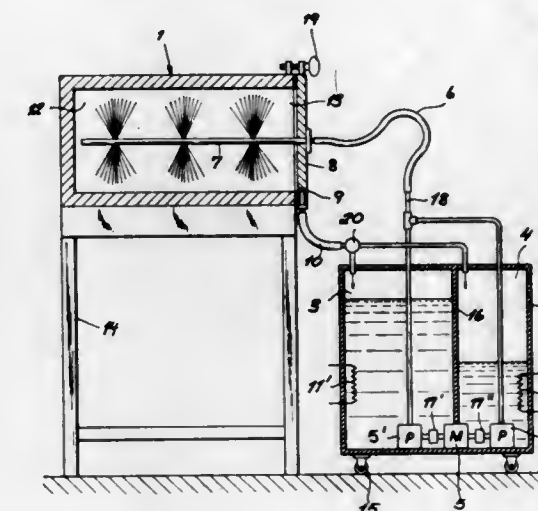


An apparatus is provided which utilizes solvent vapor-type degreasing, in combination with liquid bath degreasing techniques. The solvent vapor is achieved by heating a liquid solvent which is contained in a tank, with the vapor passing a zone wherein articles to be degreased are suspended, preferably in a tumbling action. The usual condenser type of safeguards are provided, for preventing the passage of solvent vapors outwardly of the machine, to the room wherein the machine is contained. A particularly novel apparatus is provided for conveying articles to be degreased into the solvent bath and for tumbling such articles within that bath.

3,593,728
CLEANING UNIT FOR FRYING, BROILING OR DEFROSTING CHAMBER
Paul Sauer, Burg, Germany, assignor to Burger Eisenwerke Aktiengesellschaft
Filed Oct. 6, 1969, Ser. No. 864,145
Claims priority, application Germany, Mar. 25, 1969, G 69 11 912.6-7401
Int. Cl. B08b 9/00, 3/02
U.S. Cl. 134-96

7 Claims

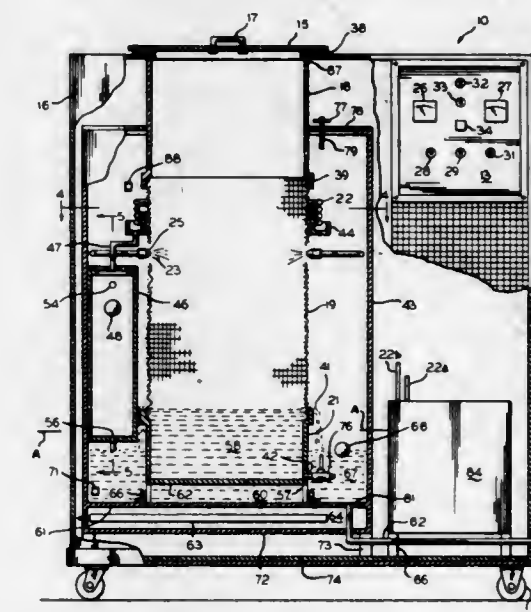
A portable cleaning unit for a frying, broiling or defrosting chamber, open to one side, has a lid emplaceable across the open side to leave only a drain aperture at the bottom, the lid carrying an elongate spray nozzle with ports for the discharge of a high-pressure wash liquid onto the chamber walls. The



tank and a set of valves enable a switchover from the wash liquid to a rinse liquid.

3,593,729
VAPOR DEGREASER
David Goldware, 3858 North Cicero Ave., Chicago, Ill.
Filed July 29, 1968, Ser. No. 754,140
Int. Cl. B08b 3/02, 3/08
U.S. Cl. 134-103

8 Claims



A portable degreaser comprising two concentric tanks separated by a perforated wall. The concentric tanks are an immersion tank located within a solvent-boiling tank which serves as an offset-vapor-generating sump. The rinse and spray area above the immersion tank is surrounded by a perforated wall. Boiling solvent is on the other side of the wall. Condensing coils encircle the perforated wall at the top of the spray area and thus, are exposed to the vapor on all sides. A gutter immediately below the condensing coils returns the condensed liquid into a separate distillate tank equipped with a water separator. The spray jets are supplied with the distilled solvent from the distillate tank. The distillate is kept hot since the lower portion of the tank is positioned within the boiling sump.

3,593,730

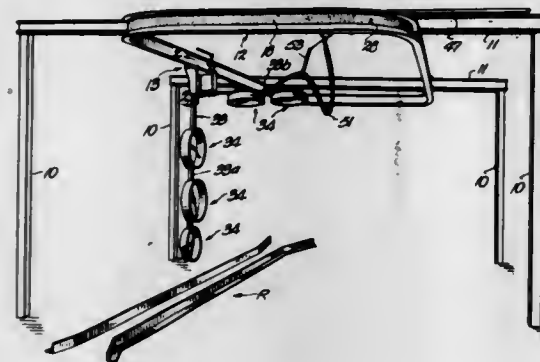
MECHANIZED CARWASHING APPARATUS

Lawrence R. Burchett, Leawood, Kans., assignor to Kwiki Systems, Inc.
Continuation of application Ser. No. 531,383, Mar. 3, 1966, now abandoned. This application Oct. 21, 1968, Ser. No. 769,436

Int. Cl. B60s 3/04

U.S. Cl. 134-123

16 Claims



A closed loop track is supported above an automobile, the track having mounted thereon a carriage which travels around the track and which carries a spray mechanism for spraying the vehicle during travel of the carriage around the track. The carriage is so mounted that the jet reaction from the spray assists in providing traction. The spray units are rotary jet-powered arms.

3,593,731

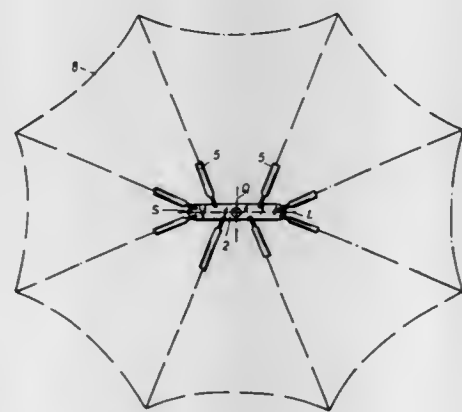
COLLAPSIBLE UMBRELLA LYING FLAT WHEN CLOSED

Tilman Schultes, Solingen-Weyer, Germany, assignor to Kortenbach & Rauh Kommanditgesellschaft, Solingen-Weyer, Germany
Filed Mar. 3, 1969, Ser. No. 803,869
Claims priority, application Germany, Mar. 2, 1968, K 60 463/33a Gbm

Int. Cl. A45b 19/10

U.S. Cl. 135-25

8 Claims



A collapsible umbrella frame lying flat when closed, which comprises a stick, a first member forming notch means connected to one end of said stick, a second member forming runner means displaceably mounted on said stick and movable toward and away from said first member, and umbrella-cover-supporting means pivotally connected to said members, at least one of said members when viewed in the axial direction of said stick having a relatively long and narrow shape, and pin means arranged in at least said one member and pivotally connecting the respective adjacent umbrella cover supporting means thereto.

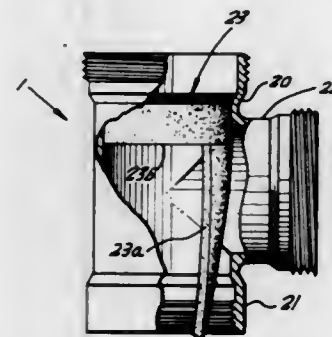
3,593,732

TEE JOINT WITH FLOW-DIVERTING VALVE

Ernest A. Holscher, 440 St. Katherine Drive, Pasadena, Calif.
Filed Mar. 12, 1969, Ser. No. 806,461
Int. Cl. F16k 15/00; E03c 1/18

U.S. Cl. 137-112

9 Claims



A tee joint is provided with a flexible elongated tongue that normally covers the transverse arm of the tee joint and is fixed inside the tee joint at a point near the junction of the transverse arm and one of the in-line arms. The flexible tongue is part of a rubber insert having two transverse tabs that are bonded to the interior surface around the perimeter the one in-line arm of the tee joint.

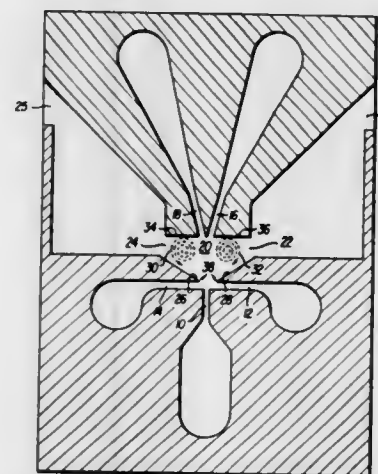
3,593,733

INTERNAL FEEDBACK PROPORTIONAL FLUERIC AMPLIFIER

Gary L. Roffman, and Richard Deadwyler, both of Washington, D.C., assignors to The United States of America as represented by the Secretary of the Navy
Filed May 27, 1969, Ser. No. 828,188
Int. Cl. F15c 1/14

U.S. Cl. 137-81.5

5 Claims



An internal feedback proportional flueric amplifier which includes a power jet input channel, a left control input channel, a right control input channel, a first output channel and a second output channel. Blunt splitters are provided such that flow from the power jet input channel when entering the interaction region within the amplifier will create internal feedback vortices therein. The effect of the vortices so created is to cause low-pressure areas along the sides of the power jet flow so that when a control signal is applied to one of the control input channels a high-pressure gain, stable, minimum noise amplifier will be obtained.

3,593,734

PRESSURE-RESPONSIVE ELEMENT

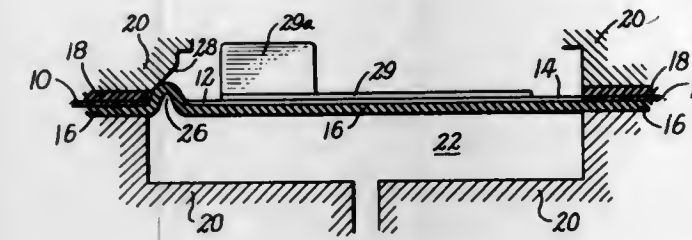
Phillip H. Sanford, Walpole, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Continuation-in-part of application Ser. No. 772,595, Nov. 1, 1968. This application Oct. 30, 1969, Ser. No. 872,720
Int. Cl. F15c 3/04, 1/10

U.S. Cl. 137-81.5

53 Claims

A pressure- and force-responsive element formed by etching a thin, flexible metal plate with a U-shaped cutout to

define a planar tongue-like element supported at one end in cantilever fashion for bending motions about a hinge axis at the region of support. The etched plate forms one part of a multilayer sandwich construction which in one embodiment



includes a thin layer of rubber to seal the periphery of the cantilever element so as to permit developing a differential pressure thereacross. Both force-balance and motion-balance configurations are included. The cantilever elements are used in an alarm device and a pneumatic timing unit.

3,593,735

METHOD AND APPARATUS FOR MAINTAINING A PRESELECTED PARTIAL PRESSURE

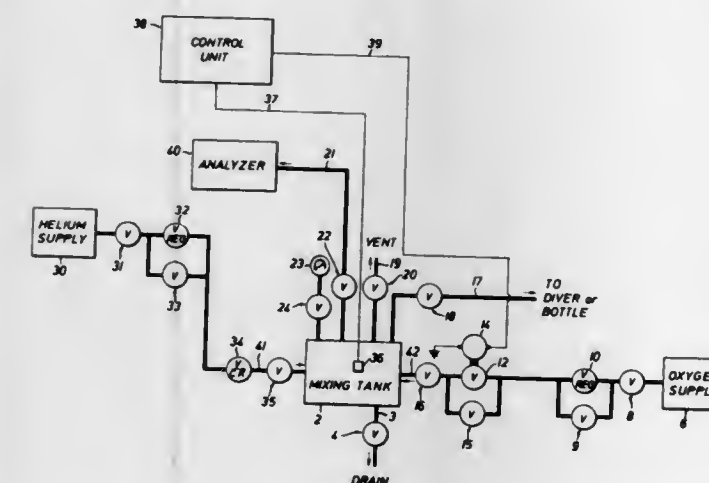
Max A. W. Reiher, Gretna, La., assignor to Dick Evans, Inc., Harvey, La.

Filed Sept. 4, 1968, Ser. No. 757,317

Int. Cl. A62b 7/02; G05d 11/035

U.S. Cl. 137-88

10 Claims



Improving gas-mixing methods and apparatus for maintaining a preselected oxygen partial pressure in breathing gas supplied to a diver under an abnormal pressure. A mixing tank with separate gas inputs is provided to receive and blend together oxygen and filler gas according to a preselected ratio as breathing gas is withdrawn from the tank by the diver. More particularly, a pair of helical tubing lengths or strings are arranged about the inside surface of the tank to receive and dispense filler gas and oxygen uniformly along the length of the tank. A control circuit is also provided to continually measure the molecular oxygen content of the tank, and to admit oxygen whenever the molecular oxygen content drops below a preselected level.

3,593,736

SLUG PUMP AND PRESSURIZING VALVE FOR FUEL CONTROL SYSTEM

Albert H. White, Wethersfield, assignor to Chandler Evans Inc., West Hartford, Conn.

Filed May 19, 1969, Ser. No. 825,818

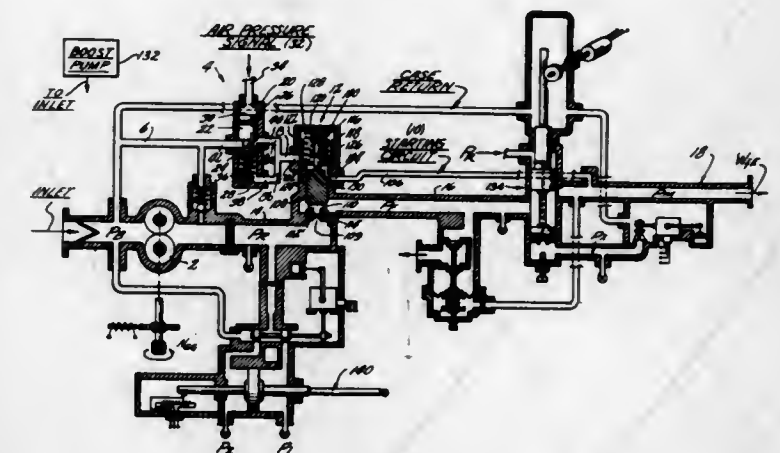
Int. Cl. F02c 7/26, 9/04

U.S. Cl. 137-110

13 Claims

A slug pump and pressurizing valve are fluidly interconnected in a starting circuit of a fuel control system for a gas turbine engine. The pressurizing valve fluidly interconnects two segments of the main fuel supply line for providing a regulated pressure in one of the segments. The slug pump is used in the starting operation to expel a volume of fuel con-

tained within the pump and thus momentarily propel a burst of fuel to the engine. The slug pump includes a chamber and either a piston or a diaphragm to expel the fuel. The pressurizing valve has two springs which bias a piston, the face of which is exposed to the segment of the main fuel supply line in which the fuel pressure is to be regulated. One spring always biases the piston, while the other spring biases the



piston only after the piston moves to a predetermined position. When a predetermined pressure is applied to the exposed face of the piston by the main fuel pump, the piston moves upwardly to close off the starting circuit. After a sufficient pressure is applied to the exposed face, the other spring causes the pressure adjacent the exposed face to be regulated.

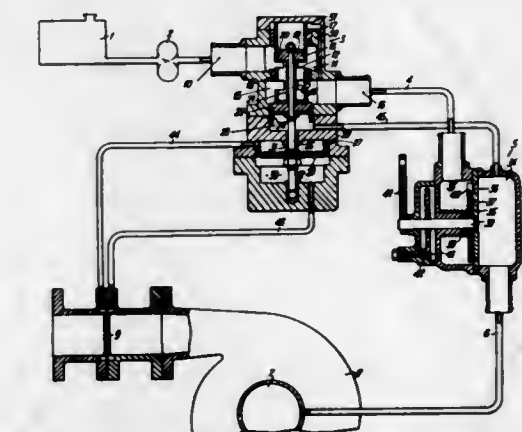
3,593,737

LIQUID-MIXING SYSTEMS

George H. Higgins, Leamington Spa, England, assignor to Coventry Climax Engines Limited, Coventry, England
Filed June 30, 1969, Ser. No. 837,686
Int. Cl. G05d 11/02

U.S. Cl. 137-100

8 Claims



A system is disclosed for the continuous mixing of two liquids in predetermined proportions. The system has a governor and a first orifice plate flow meter through both of which the first liquid flows to a point where it is mixed with the second liquid, the governor having a movable closure member which, as it moves from an open to a closed position progressively reduces the flow of the first liquid through the governor. A pressure difference developed across the first flow meter is conducted to a diaphragm in the governor which acts in response to the flow the first liquid to bias the closure member towards its closed position with a force which increases as the flow rate of the first liquid increases. The mixed liquids pass a second orifice plate flow meter across which a pressure difference is developed and is conducted to a second diaphragm in the closure member. The second diaphragm acts to bias the closure member towards its open position with a force which increases as the flow of the mixed liquids increases. The closure member adopts an equilibrium position under the influence of the two biasing forces.

3,593,738

ELECTROMAGNETIC INJECTION VALVE

Achilles Baerfuss, Oberwil, Switzerland, assignor to Aktiengesellschaft Fur Biologische Verfahrenstechnik, Basel, Switzerland

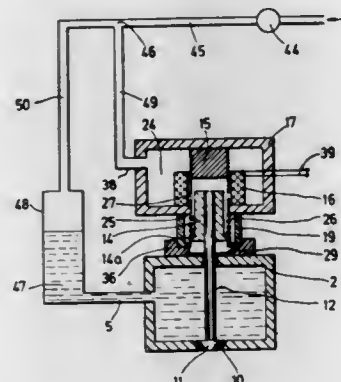
Filed Sept. 2, 1969, Ser. No. 854,690

Claims priority, application Switzerland, Sept. 5, 1968, 13348/68

Int. Cl. B67d 5/54; F16k 31/02

U.S. Cl. 137-209

5 Claims



An electromagnetic injection valve in which a valve in a valve chamber is connected to and actuated by movable parts located in a pressure housing. The movable parts include bias means to bias the valve in its closed position, and are all subject to the same pneumatic pressure. With this arrangement, electromagnetic means which actuate the valve are only required to exert the force necessary to overcome the bias applied by the bias means to open the valve, irrespective of the pressure subsisting in the valve chamber.

3,593,739

SPRINKLER REGULATOR VALVE AND GUARD THEREFOR

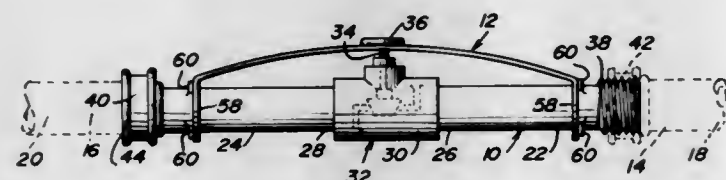
Ovill X. Mercier, 737 North Minnesota Ave., Hastings, Nebr.

Filed Nov. 28, 1969, Ser. No. 880,636

Int. Cl. F16k 35/00

U.S. Cl. 137-377

10 Claims



A rigid connecting-pipe section for connection between adjacent irrigation hose ends and including a flow control valve having a laterally outwardly projecting actuating stem. The outer end of the stem is provided with an operating handle and an outwardly convex arcuate plate extends lengthwise along the connecting pipe section with the valve stem passing through the plate centrally intermediate its opposite ends. The opposite ends of the plate are secured to the corresponding ends of the connecting pipe section and the width of the plate at the operating handle for the stem is such that the plate projects outwardly from opposite sides of the handle. Further, the opposite longitudinal edges of the plate are arcuate and outwardly convex so as to reduce the possibility of the guard plate catching on ground-supported objects as the irrigation hoses and rigid connecting pipe section are dragged along the ground.

3,593,740

CARBURETOR FLOAT BOWL FUEL INLET VALVE

Robert S. Harrison, Detroit, and Joseph F. Lopiccicola, Warren, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Nov. 25, 1968, Ser. No. 778,436

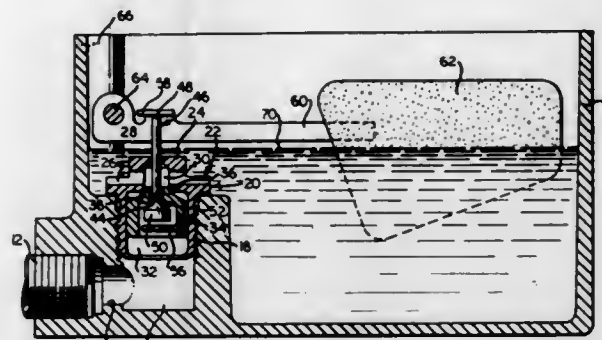
Int. Cl. F16k 31/18

U.S. Cl. 137-411

7 Claims

A carburetor float bowl has a two-stage fuel inlet valve consisting of a small valve providing finite control for low

rate of flow into the float bowl, and a larger valve actuated by the smaller valve to provide a relatively unrestricted open-



ing between the fuel inlet and float bowl interior to permit operation of the fuel pump essentially at its full capacity if desired.

3,593,741

COMPOUND RELIEF VALVE

Hubert Odenthal, Wombach; Eckard Auditor, Partenstein, and Max-Otto Winterlin, Lohr, all of Germany, assignors to G. L. Rexroth GmbH, Lohr am Main, Germany

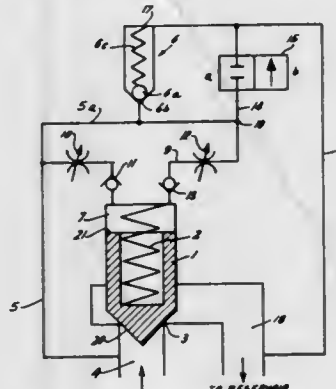
Filed July 14, 1969, Ser. No. 841,288

Claims priority, application Germany, July 13, 1968, P 17 75 178.9

Int. Cl. F16k 17/10

U.S. Cl. 137-495

7 Claims



A compound relief valve wherein the pilot valve is installed in a branch conduit connecting the high-pressure line with the reservoir and wherein the chamber of the main valve is connected with the branch conduit upstream of the pilot valve by two auxiliary conduits each of which contains an adjustable flow restrictor. The piston of the main valve opens at a speed which is determined by one of the flow restrictors and closes at a speed which is determined by the other flow restrictor.

3,593,742

FLUID FLOW REGULATOR

Julian S. Taylor, 8600 S.W. 8, Oklahoma City, Okla.

Filed June 24, 1969, Ser. No. 836,123

Int. Cl. F16k 1/44

U.S. Cl. 137-504

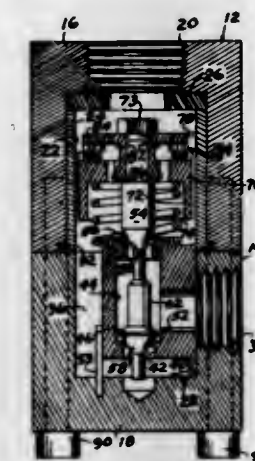
3 Claims

A hollow housing, having inlet and outlet ports, forms a fluid passageway. A piston, loosely received by the inlet end portion of the housing, is coaxially connected with a throttle comprising a poppet-type valve stem which extends through and seats on respective end portions of a cage positioned in the outlet end portion of the housing communicating with the outlet port. A spring, interposed between the piston and the

cage, normally urges the throttle toward an open position and equalizes fluid pressure against the throttle at the respec-

said tank between maximum and minimum pressures.

This invention also contemplates an air discharge valve in



tive ends of the cage in response to variations in fluid pressure across the piston.

3,593,743

FAUCET-COUPLING ASSEMBLY FOR A WASHING MACHINE

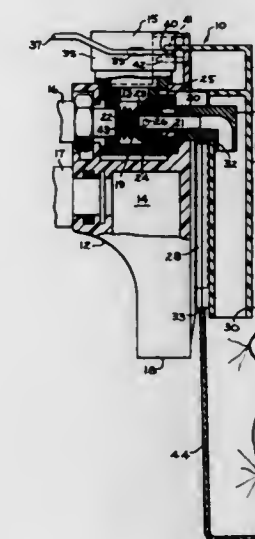
Lauren W. Guth, Louisville, Ky., assignor to General Electric Company

Filed Sept. 19, 1969, Ser. No. 859,440

Int. Cl. F16k 45/00

U.S. Cl. 137-562

10 Claims



A coupling assembly for connecting a washing machine to a water faucet having a handle member protruding from its body portion that serves as a spout for draining water from the assembly. The handle member is manually slidable to unseat a valve to thereby dispense the water therethrough. The handle member is linked to a quick-release connector that fastens the assembly to the faucet so that manipulation of the connector to release it is translated to the valve. Water pressure within the assembly is relieved as the release operation takes place.

3,593,744

PNEUMATICALLY CONTROLLED WATER STORAGE SYSTEM

Henry Leo Smith, Route 4, Box 63, Springfield, Tenn.

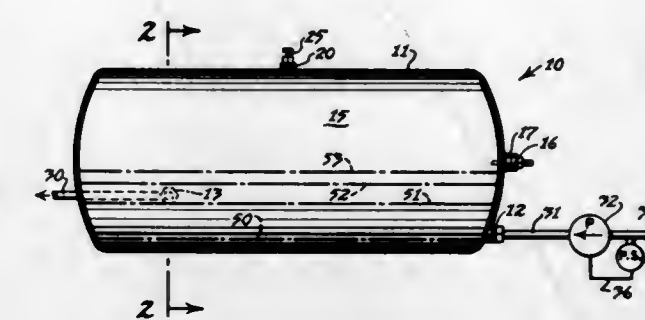
Filed Feb. 19, 1970, Ser. No. 12,764

Int. Cl. E03b 11/06

U.S. Cl. 137-568

8 Claims

A pneumatically controlled water storage system including a water tank having an inlet and an outlet at different water levels, and a precharged, expansible gas envelope within said tank to open and close the water outlet and the water inlet in response to changes in water pressure, and air volume control means for normally maintaining a water reservoir within



the top of the tank adapted to be normally closed by the pressurized gas envelope, for venting air or other gases trapped between the top of the tank and the gas envelope.

3,593,745

PNEUMATICALLY OPERATED VALVE MEANS AND PARTS THEREFOR OR THE LIKE

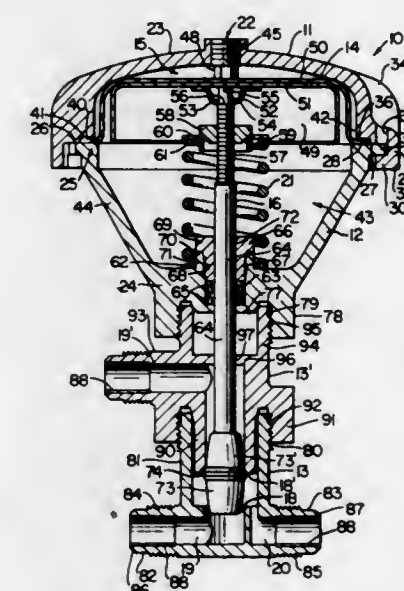
Ned C. Myers, Elkhart, Ind., assignor to Robershaw Controls Company, Richmond, Va.

Filed June 6, 1969, Ser. No. 831,044

Int. Cl. F16k 11/04

U.S. Cl. 137-625.4

5 Claims



A pneumatically operated valve means having a housing means provided with two separate inlets and one outlet, the housing means having two spaced-apart and axially aligned valve seats respectively leading from the inlets to the outlet. A valve member is carried by the housing means and is disposed between the valve seats to respectively open and close the same in an alternate manner as the valve member is axially moved between its operating positions by pneumatically operated actuator means carried by the housing means.

3,593,746

PRESSURE VESSEL

Murray Allewiltz, and Abdur Zahid, both of Los Angeles, Calif., assignors to Greer Hydraulics, Inc., Los Angeles, Calif.

Filed July 5, 1968, Ser. No. 742,596

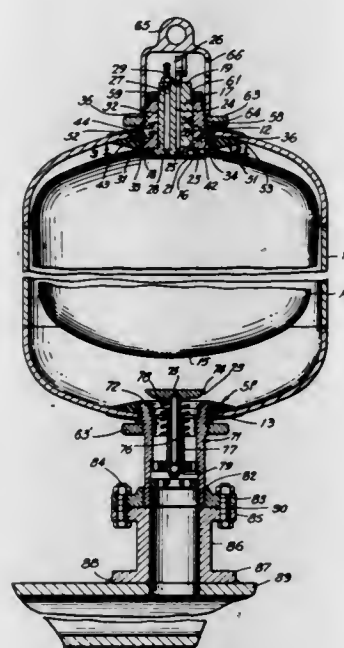
Int. Cl. F16l 55/04

U.S. Cl. 138-30

1 Claim

This invention relates to a pressure vessel of the type having a rigid container to be filled with fluid, usually oil and gas under pressure and having a deformable partition intervening between such fluids and more particularly relates to a pressure accumulator of relatively large size in the order of say 40-gallon capacity and which is extremely heavy and in the order of say 300 to 400 pounds. The partition is a bladder closed at one end and having an open mouth at its other end.

The container has longitudinally aligned ports at opposed ends and is designed to be mounted in vertical position with the upper port receiving a gas fitting to which the mouth of the bladder is secured, for charging of the bladder with gas under pressure and the lower port having an oil fitting for charging the container with a fluid such as oil under pressure. The oil fitting has a mounting flange associated therewith to



permit rigid mounting of the container in upright position on a suitable complementary flange that is connected to a source of oil under pressure such as an oil line. The gas fitting is mounted in the upper port so that it may readily be removed together with the bladder without need to disconnect the accumulator from the oil line and without need to handle the heavy accumulator.

3,593,747

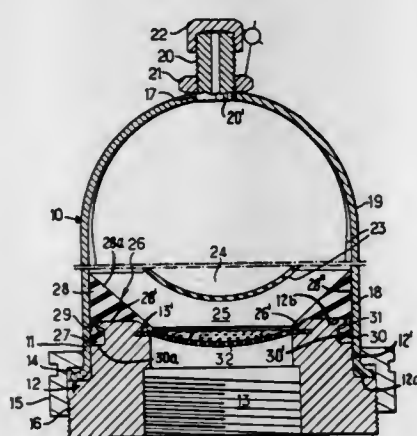
PRESSURE ACCUMULATOR

Jacques H. Mercier, 501 Bloomfield Ave., Caldwell, N.J.
Filed Sept. 17, 1968, Ser. No. 760,335

Int. Cl. F161 55/00

U.S. Cl. 138—30

4 Claims



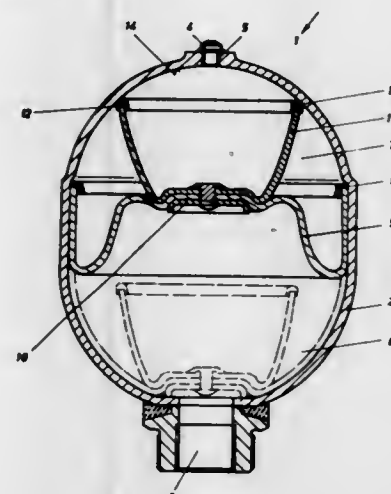
This invention relates to the art of pressure vessels and more particularly to a pressure accumulator of the type having a deformable bladder positioned in a container having a mouth with a closure plug positioned therein, the latter mounting an annular resilient member having a sealing portion integral with a supporting portion for the bladder, the latter being coaxial with the fluid port of the accumulator.

3,593,748
**PRESSURE RESERVOIR FOR HYDROPNEUMATIC
RESILIENT SUSPENSIONS FOR VEHICLES**
Helmut Teerling, Bad Godesberg, Germany, assignor to Lan-
gen & Company
Filed July 24, 1969, Ser. No. 844,292
Claims priority, application Germany, Aug. 1, 1968, P 17 80
103.5

U.S. Cl. 138—30

Int. Cl. F161 55/04

4 Claims



A pressure reservoir for hydropneumatic resilient suspensions for vehicles in which the interior of a housing constituting the reservoir is divided by a movable deflatable separating wall or partition into a gas chamber and a liquid chamber and a part of the gas volume present at a certain pressure is excluded for the attainment of a steeper characteristic resilient curve when the certain pressure is reached.

3,593,749

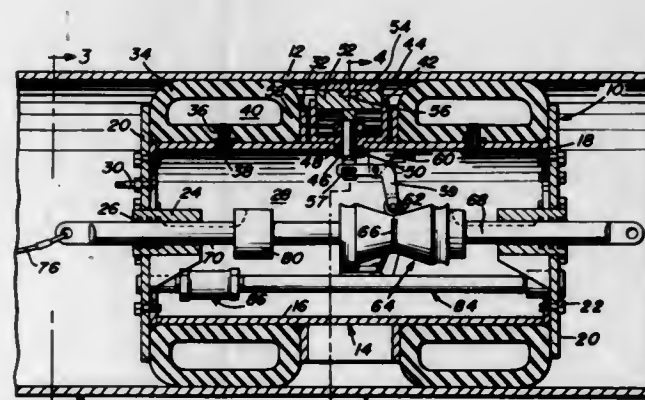
PIPELINE PIG STOPPER

Edwin E. Reardon, 2613 Lake Shore Drive, Mandeville, La.
Filed Aug. 4, 1969, Ser. No. 847,211

Int. Cl. F161 55/12

U.S. Cl. 138—93

11 Claims



A pipeline is internally engaged by mechanical grippers and expansible sealing rims on the cylindrical core of a plug or stopper from which an actuating shaft projects. Displacement of the actuating shaft relative to the stopper when axially fixed to the pipeline, vents the sealing rims and disengages the grippers against a spring bias to releasably hold them in a retracted position.

3,593,750

EXHAUST SYSTEM ASSEMBLY

Wilbert H. Zautner, Grass Lake, Mich., assignor to Tenneco
Inc., Houston, Tex.

Filed Dec. 20, 1968, Ser. No. 785,676

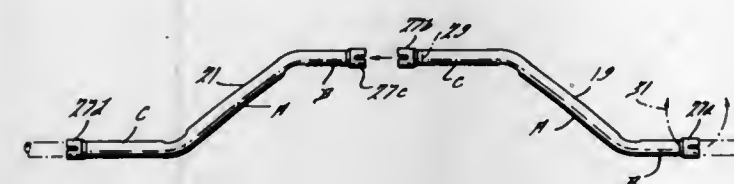
Int. Cl. F161 9/22

U.S. Cl. 138—109

6 Claims

An exhaust gas conduit assembly especially adapted for

use as replacement piping in internal combustion engine exhaust systems includes a kickup or overaxle section com-



posed of two members which prior to assembly are identical in construction, being preferably of a generally Z-shape.

3,593,751

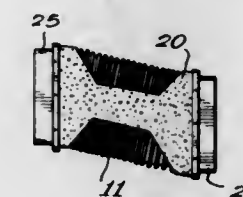
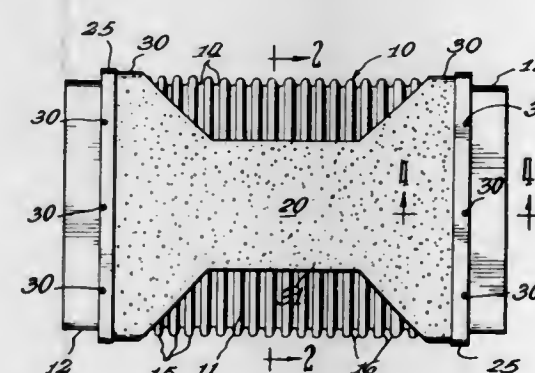
FLEXIBLE ELECTRICAL TRANSMISSION MEMBER
Donald L. Herling, Mundelein; Frank A. Larson, Lombard,
and George F. Kovar, Berwyn, all of, Ill.

Filed June 11, 1969, Ser. No. 832,238

Int. Cl. F161 11/00; H01p 3/12

U.S. Cl. 138—121

6 Claims



A flexible bellowslike electrical transmission member having rigid end sections is vibration damped by a jacket of resilient elastic material deposited on the bellows. The elastic jacket completely surrounds the ends of the bellows and has narrow strips extending along the middle of the bellows. The flexible bellows are joined to each rigid end section by a rigid face-to-face connection between a fin of the bellows and a surface of the rigid end section.

3,593,752

LOOM

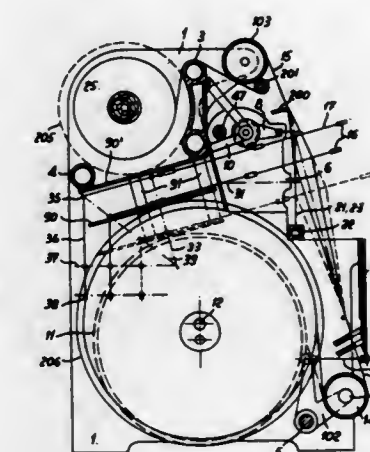
Albert Ernest Moessinger, Epalinges, Vaud, Switzerland, as-
signor to Moessinger S.A., Fribourg, Switzerland
Continuation-in-part of application Ser. No. 642,029, May 29,
1967, now abandoned. This application Sept. 10, 1969, Ser.
No. 856,860

Int. Cl. D03d 47/00

U.S. Cl. 139—18

4 Claims

A loom wherein one side of the machine is used for supplying the warp and weft material and removing the rolls of cloth while the details of the weaving operation are carried out on the other side. There is ready access to all parts of the loom, the complete weaving shed is readily visible and very little space is required compared to standard looms. The movements of the dobby are transmitted to the heald frames by means of interconnected links and levers and in a modification, cables and pulleys are substituted for intermediate links and levers. The movement of the frames and their



in juxtaposed vertical planes in a direction perpendicular to the movement of the frames.

3,593,753

FILLING YARN GUIDE CONTROL

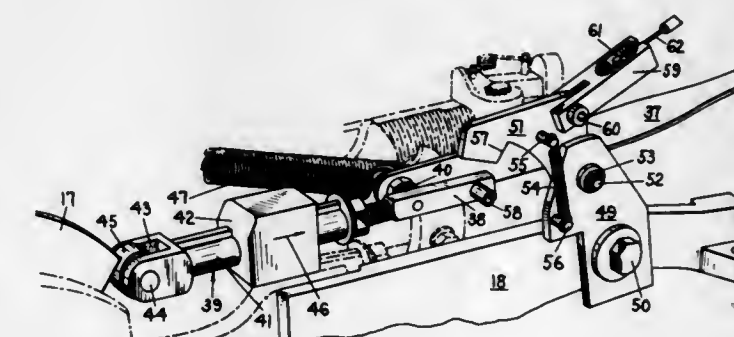
Albert H. Savoie, Slatersville, and Bertrand E. Guindon,
Cumberland, both of, R.I., assignors to North American
Rockwell Corporation, Pittsburgh, Pa.

Filed Nov. 19, 1969, Ser. No. 877,994

Int. Cl. D03d 47/34

U.S. Cl. 139—122

4 Claims



A control device for deactivating a normally pivotable filling yarn guide to prevent filling yarn from being presented to and wrapped on a continuously rotating filling storage cone during the formation of fringe on the shuttleless loom.

3,593,754

FILLING CONTROL MECHANISM

Anthony J. Tosches, Millford, Mass., assignor to North Amer-
ican Rockwell Corporation, Pittsburgh, Pa.

Filed July 3, 1969, Ser. No. 838,939

Int. Cl. D03d 47/38

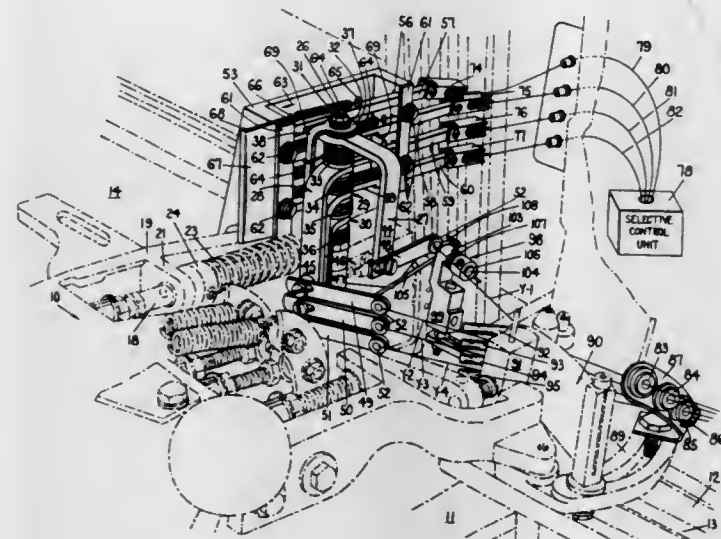
U.S. Cl. 139—122

5 Claims

A filling mechanism for shuttleless looms having a control unit and a mechanism functioning in cooperation therewith

for supporting and guiding at least two filling yarns from separate sources of supply and which are individually selecta-

fective to induce a signal in the fixed coil only when a circuit is completed through the shuttle coil by contacts which are



ble in accordance with a desired pattern for presentation into the warp sheds by the filling inserting means.

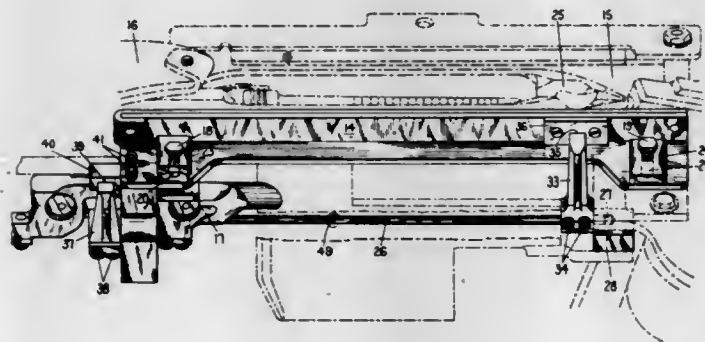
3,593,755

SHUTTLE-BINDER-ACTUATING MECHANISM

Joseph M. Budzyna, East Douglas, and Rocco H. Mucciarone, Franklin, both of, Mass., assignors to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Apr. 7, 1969, Ser. No. 814,049
Int. Cl. D03d 49/56

U.S. Cl. 139-187

1 Claim



A binder control device for fly shuttle looms including a bar member with binder-engaging fingers fixed thereon and lever means for applying and releasing pressure on the binder through said bar member in timed relation with the receiving and picking of a shuttle from the shuttle box.

3,593,756

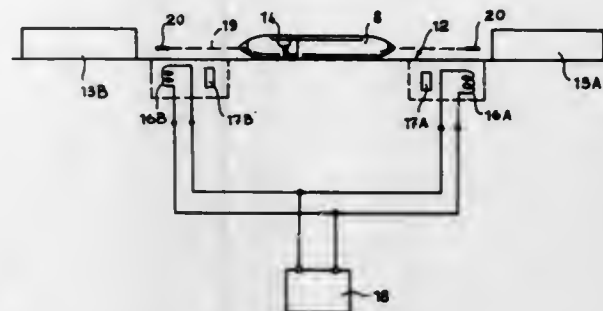
BROKEN WEFT THREAD DETECTOR

Sergio Vella, Biella, Italy, assignor to Roj Controlli Automatici Per L'Industria Tessile S.n.c., Biella, Italy
Filed Jan. 22, 1968, Ser. No. 699,720
Claims priority, application Italy, Dec. 14, 1967, 54111-A/67
Int. Cl. D03d 51/34

U.S. Cl. 139-371

6 Claims

A detector device for detecting breakage of a weft thread in a loom utilizes induction between a coil carried by the shuttle and a fixed coil on the thrashboard to provide a signal-indicating thread failure. The coil on the shuttle is ef-



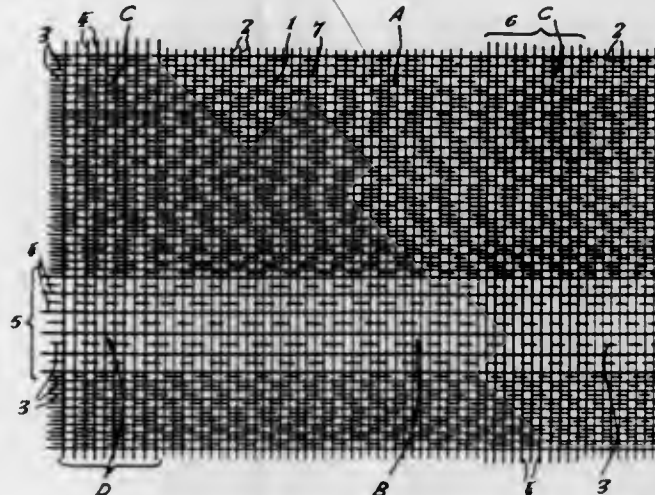
acted upon by the thread in the shuttle and which close when the tension in the thread relaxes.

3,593,757

COVERS PRIMARILY FOR OPEN AIR WATER CONTAINERS

Reginald W. Haynes, Walmgate Road, Perivale, Greenford, Middlesex, England
Filed Jan. 8, 1969, Ser. No. 790,895
Int. Cl. D03d 15/00; E04h 3/19
U.S. Cl. 139-383

5 Claims



A woven fabric material comprising a basic material consisting of fine open mesh synthetic monofilament threads and which is reinforced by rip-resisting spaced-apart weft bands and spaced-apart warp bands, said bands being composed of closely related multifilament synthetic threads and serving to arrest ripping of the unreinforced basic material in the areas bounded by the intersecting weft and warp bands.

3,593,758

MACHINE FOR MAKING SINGLE-TURN WIRE LOOP WINDING SECTIONS AND PLACING THEM INTO GROOVES OF AN ELECTRICAL MACHINE

Vladimir Grigorievich Sergiev, Ulitsa 4 Parkovaya, 26, Ku. 9, Moscow, U.S.S.R.

Filed Jan. 14, 1969, Ser. No. 791,053

Int. Cl. H02k 15/00

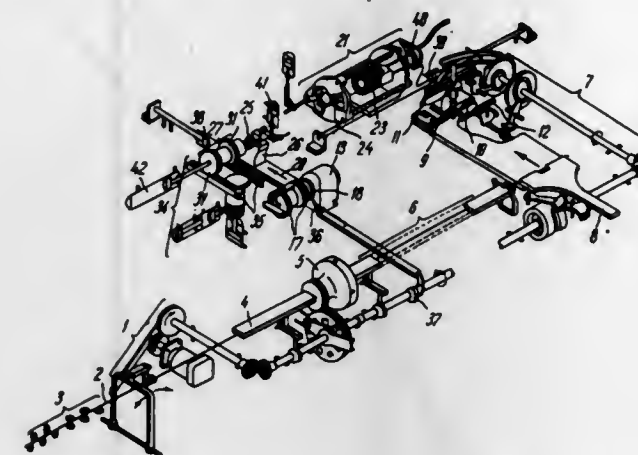
U.S. Cl. 140-1

1 Claim

A machine is provided for making single-turn wire loop sections of the windings of electrical machines and for placing these sections into the grooves of an armature part of an electrical machine. The machine comprises a mechanism for extending the sections and a mechanism for moving the end portions of the sections apart. Each of the mechanisms has an external cylinder and an internal cylinder disposed concentrically and mounted for rotation and axial displacement in relation to each other. The external cylinder of the mechanism which moves the end portions of the sections apart has an annular projection at the face end thereof

adapted, in the course of movement apart of the end portions, to enter between the external and internal layers of the

the container in its upright position to a filling platform adapted to support the container, and by introducing a



end portions of the sections placed into the grooves of the armature.

3,593,759

WIRE-TYING TOOL

Norman L. Wooge, R. R. 2, Ottawa, Kans.
Filed Oct. 29, 1969, Ser. No. 872,143
Int. Cl. B21f 9/02, 7/00, 15/02, 15/04
U.S. Cl. 140-93.6

11 Claims



A wire-tying tool for forming a wire loop around articles to be tied together and for twisting together side-by-side portions of the loop to form a wire tie wherein the tool has a handle mounted on an elongate shaft having a wire passage therethrough and a pair of opposed arcuate arms mounted on one end of the shaft and having the free ends of the arms in spaced-apart aligned relation with the spacing therebetween being greater than a transverse dimension of articles to be tied together. A finger is pivotally mounted on the free end of each of the arms and each of the fingers has a wire passage therethrough with the passages being alignable with a wire passage through one of the arms to receive a wire from the wire passage through the shaft and handle. The wire is fed into the fingers and the arms and fingers are rotated to twist together the wire tie by operation of the handle and movement of the fingers is operative to cut the wire after the tie has been made.

3,593,760

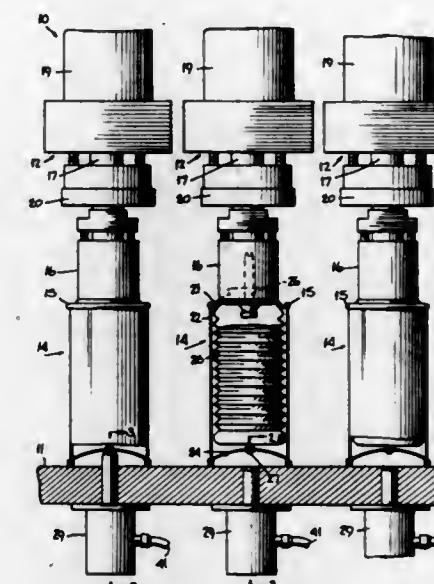
FILLING METHOD AND APPARATUS

Raymond W. Boffel, Racine, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.
Filed July 10, 1968, Ser. No. 743,745
Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141-3

12 Claims

Method of and apparatus for charging aerosol containers having a propellant-charging valve in the base by securing



predetermined quantity of propellant up through the filling platform and into the container.

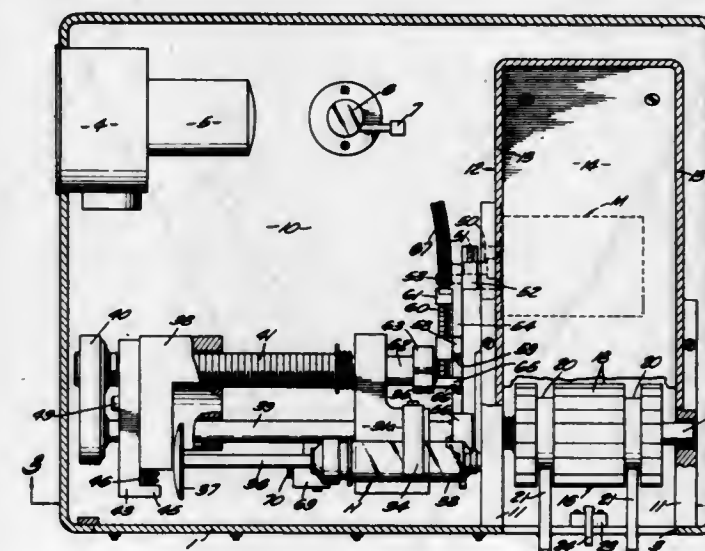
3,593,761

APPARATUS FOR PLACING FLUENT MATERIAL IN CARRIER DEVICES

Curtis L. Lorenz, 3437 Scenic Drive, Modesto, Calif.
Continuation-in-part of application Ser. No. 533,653, Mar. 11, 1966, now abandoned. This application Sept. 30, 1968, Ser. No. 763,847
Int. Cl. B65b 43/60

U.S. Cl. 141-155

12 Claims



Containers or carrier devices in the form of straws which rest in longitudinal peripheral recesses of a rotary feeder are moved successively to an injection station to be filled by intermittent operation of a hypodermic syringe. Eccentric driving means actuates the rotary feeder by steps and operates the syringe in timed sequence with the steps. Means is provided for stopping the mechanism when it accumulates a supply of the filled straws.

3,593,762

SAFETY FUELING NOZZLE

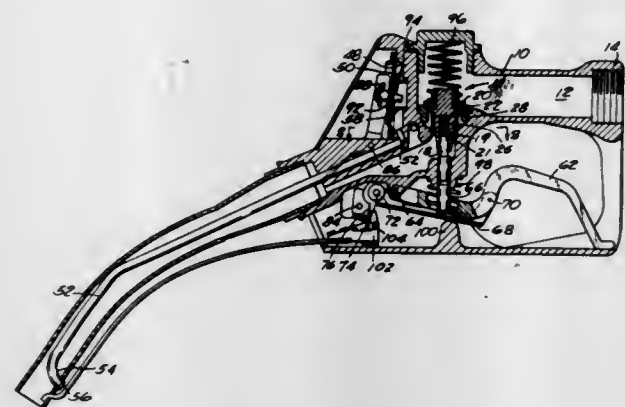
Roy W. Johnson, and Lourdes V. McCarty, both of Milwaukee, Wis., assignors to Milwaukee Valve Company, Inc., Milwaukee, Wis.
Filed Nov. 18, 1968, Ser. No. 776,686
Int. Cl. B67d 5/371

U.S. Cl. 141-207

5 Claims

To open the valve assembly in the aspirator-type gasoline-fueling nozzle the manually operated handle is moved up-

wardly but can act on the valve stem only if the actuating lever is resting on the end of the trip latch lever operated by the diaphragm. In order for the latch lever to be in the proper position the nozzle must be so positioned that the safety lever under the spout is actuated to a position in which



the spring-loaded bellcrank will permit the latch lever to move into position to be engaged by the actuating lever. Therefore, fuel will shut off either in response to liquid reaching the aspirator tip or in response to removal of the fuel nozzle from the tank to be filled.

3,593,763

SAW-STABILIZING PRESSURE GUIDE

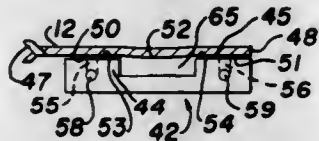
Peter J. Neild, North Vancouver, British Columbia, Canada, assignor to MacMillan Bloedel Limited, Vancouver, British Columbia, Canada

Filed Sept. 17, 1969, Ser. No. 858,629

Int. Cl. B23d 55/08

U.S. Cl. 143-160

11 Claims



One or more pressure guides for maintaining the blade of a band saw in the cutting area thereof in a predetermined path of travel. Fluid is directed by each guide against opposite side edges only of the blade to create a fluid pressure against said side edges. Means can be provided at the guide for relieving fluid pressure against the saw blade centrally between the portions thereof near said side edges.

3,593,764

TIRE MOUNT

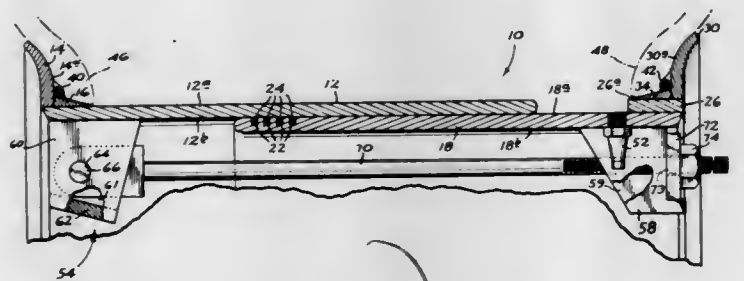
Claude Freeman Smith, 111 S.W. Harrison, Portland, Oreg.

Filed Apr. 1, 1968, Ser. No. 717,532

Int. Cl. B25h 5/00; B29h 5/18; B60b 25/22

U.S. Cl. 144-288 A

2 Claims



An adjustable tubeless tire mount including two hollow cylindrical rim sections with one section telescoping into the other section adjacent their one set of ends, laterally spaced-

apart flanges extending about the opposite set of ends of the rim sections and projecting radially outwardly therefrom, O-ring seals extending about the radially outward surface of the one rim section in the region of telescopic joinder between the two rim sections providing an airtight seal between the rim sections, and an O-ring seal extending about each rim section adjacent its associated flange, against which opposing beads of a tire abut to form airtight seals between the flanges and the tire beads. Adjustable securing means connect the sections preventing telescoping of the sections axially outwardly from each other.

3,593,765

DRAINAGE BAG

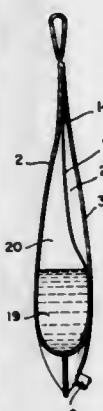
Martin Monestere, Jr., Lebanon, and Vincent L. Vaillancourt, Livingston, both of, N.J., assignors to C. R. Bard, Inc., Murray Hill, N.J.

Filed July 8, 1969, Ser. No. 839,975

Int. Cl. B65d 31/00

U.S. Cl. 150-1

4 Claims



A bag for use in a closed urinary drainage system in which one wall of the bag is faced inwardly with a thin liner sealed to said wall around its entire periphery, the space between the liner and the second wall of the bag being in communication with the drainage tube and unvented while the space between the liner and the first wall is freely vented to atmosphere.

3,593,766

GOLF BAG

Charles E. Harmon, and Ruth C. Harmon, both of Venice, Fla., assignors to Handcraft Company, Inc., Princeton, Wis.

Filed May 21, 1969, Ser. No. 826,343

Int. Cl. A63b 55/04

U.S. Cl. 150-1.5 B

20 Claims



A tubular handle having a pair of rings mounted in spaced relation thereon for detachably or permanently securing a

sleevelike golf club bag thereto. The bag includes ends which are folded back over the rings. The overlapped end portions of the bag have aligned eyelets to receive fastener elements for detachably securing the bag to the ring. A disc within the bag is supported by the lower ring and forms a bottom for the bag. A spike at the lower end of the handle can be pushed into the ground by foot pressure on a foot projection located at the lower end of the handle. The rings, spike, and foot projection are permanently anchored to the handle by lead or other fusible metal. Plugs within the handle form an obstruction to locate the fusible metal in the regions desired. Each ring has outwardly bent ends that are inserted into spaced openings in the handle by compressing the ring to slightly overlap its ends, inserting the ends in the openings, and then turning the ring through an angle of about 180° to mechanically lock the rings in place prior to permanently anchoring the same by the fusible metal. The opposite ends of the bag can be permanently secured to the rings by hollow rivets, stitching, etc..

3,593,767

BARRIER CONTAINER

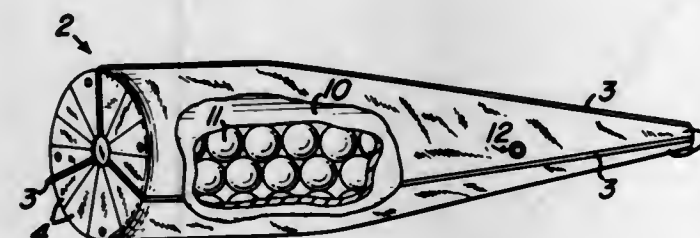
Donald E. Smith, Towson, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed Feb. 4, 1969, Ser. No. 796,367

Int. Cl. B65d 81/20, 89/22; G01m 3/00

U.S. Cl. 150-0.5

8 Claims



A container and method of containing, shipping, storing, and handling objects to prevent water vapor from entering the container atmosphere and to avoid toxic gas emission from the container atmosphere to the outside environment.

3,593,768

COLLAPSIBLE DISPLAY STAND

Ronald H. Taub, Highland Park, Ill., assignor to Charles Kirshbaum and Ethel Taub, as Trustees of the Taub Family Trust U/A, Sept. 1, 1967

Continuation-in-part of Ser. No. 645,438, June 12, 1967,

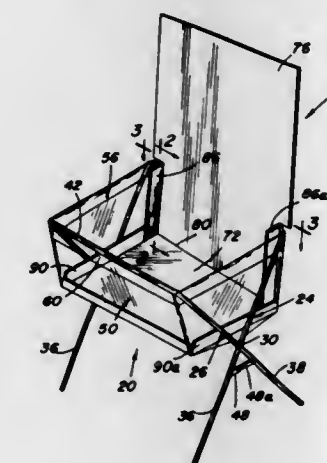
Pat. No. 3,471,960.

Filed June 11, 1969, Ser. No. 832,183

Int. Cl. G09f 3/00, 1/10

U.S. Cl. 150-49

5 Claims



In a collapsible display stand, including a transparent bag suspended from a standing frame, an improved, unitary article-supporting floor and header panel assembly carried in the bag, the header panel joined to and extending upwardly of the floor and provided with laterally projecting tabs posi-

tioned to abut and bear upon the floor to obviate pivotal forward collapse of the header panel.

3,593,769

GOLF CLUB IRON COVERS

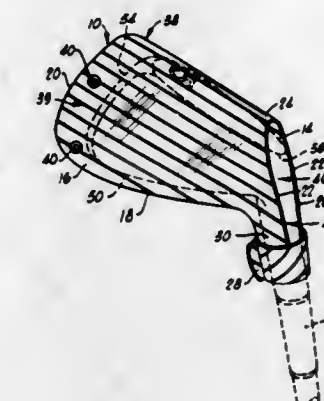
Billy Travis Spears, 717 S.W. 4th Place, Moore, Okla.

Filed Mar. 26, 1969, Ser. No. 810,551

Int. Cl. A63b 57/00; B65d 65/00

U.S. Cl. 150-52 G

6 Claims



A golf club iron cover formed from a one-piece blank foldable along a fold-line, thereby forming a pair of sides, each side having a front, a rear, a top and a bottom portion. The sides are joined generally adjacent the front portions thereof, and the unconnected top portions and the unconnected rear portions of each side cooperate to form a receiving opening shaped to receive a portion of a golf club head inserted between the sides. A tab is detachably secured to the rear portions of the sides to affix the cover to a golf club iron.

3,593,770

POSITION LOCKING DEVICE FOR A NUT

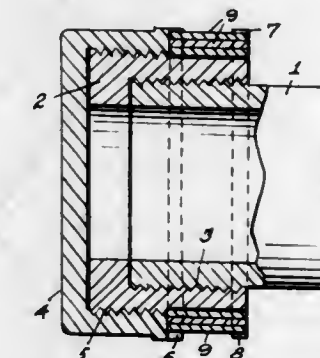
Donald M. Fraser, Sherman Oaks, Calif., assignor to The United States of America as represented by the Secretary of the Army

Filed Aug. 12, 1969, Ser. No. 849,408

Int. Cl. F16b 39/00

U.S. Cl. 151-2

6 Claims



A position-locking device for a nut in which a flexible steel strip having notches along its opposite edges is wound between the nut and a collar which also are provided with notches in their opposing faces and which mate with the notches in the strip.

3,593,771

TIRE STUD HAVING LIGHTWEIGHT WEAR-RESISTANT PIN

Ragnar L. Carlstedt, and Emlen N. Smith, both of Ligonier, Pa., assignors to Kennametal, Inc., Latrobe, Pa., by said Carlstedt

Filed Oct. 2, 1968, Ser. No. 764,541

Int. Cl. B60c 11/14

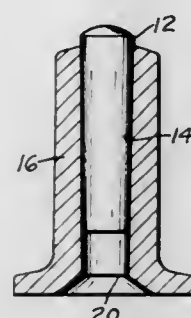
U.S. Cl. 152-210

1 Claim

The invention concerns the tire stud consisting of a metal body with a head at one end and having a hard wear-resistant

pin extending into the body from the other side. The invention is particularly characterized in that the pin is cemented

as they leave the die and the steam pressure is used as an indicator for the forming of cracks to control retarding or



titanium carbide while the body may be steel or a sintered metal powder. Of several powders that can be used stainless steel powder has certain advantages.

3,593,772

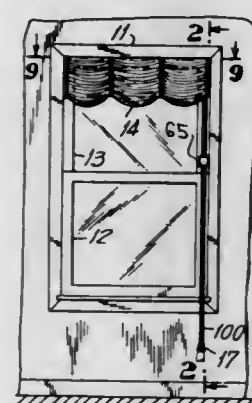
DRAW CURTAIN APPARATUS

Garnett Abraham, 215 Manor Road, Staten Island, N.Y.
Filed Feb. 11, 1970, Ser. No. 10,351

Int. Cl. A47h 5/14

U.S. Cl. 160-84

11 Claims



A window-covering apparatus which may include a stationary canopy fixed near the top of a window opening, and a movable shade or blind which is both adjustable in length and adjustable in height. Both of these adjustments are performed by the same control cords so that the window covering may be opened from the top or lifted from the bottom of the window while its length may be independently adjusted to completely cover, or partially cover the window opening.

3,593,773

METHOD AND APPARATUS FOR SUPERVISING CASTING OF STEEL TUBES

Gerd Vogt, Krefeld; Josef Glaser, Gelsenkirchen; Manfred Strohschein, Gelsenkirchen; Johannes Kurth, Gelsenkirchen, and Rudolf Schwitzgobel, Gelsenkirchen, all of Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed June 4, 1969, Ser. No. 830,296

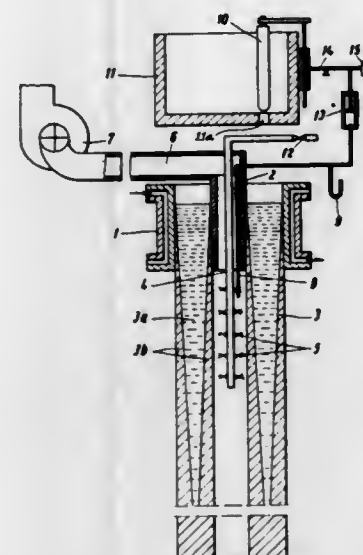
Claims priority, application Germany, June 7, 1968, P 17 58 466.6

Int. Cl. B22d 13/10

U.S. Cl. 164-4

11 Claims

Method and equipment for supervising the continuous casting of steel tubes is disclosed. The tubes are water cooled



3,593,774

METHOD OF MAKING NONAGING RIMMED STEEL

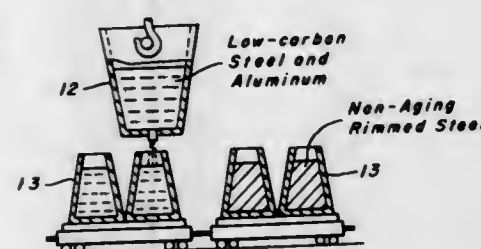
Frank E. Gribble, Munhall Borough, and William G. Walk, Churchill Borough, both of Pa., assignors to United States Steel Corporation

Filed Apr. 11, 1969, Ser. No. 815,332

Int. Cl. B22d 27/18, 27/20

U.S. Cl. 164-58

1 Claim



From a heat of rimming steel, a small portion is tapped off and killed by the addition of aluminum. The remainder of the heat is teemed into ingot molds so as to fill them only partially (e.g., to 85-90 percent of the height). The partially filled molds are allowed to rim for a limited time. The molds are then filled from the aluminum-killed portion of the heat in a manner such as to cause good distribution of the added metal throughout the still molten metal in the mold. The resulting ingots are then converted to flat-rolled product by conventional methods.

3,593,775

HEAT TRANSFER MEANS IN INVISCID MELT SPINNING APPARATUS

Wilbur J. Privott, Jr., Raleigh, and Wallace C. Lawrence, Durham, both of N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Apr. 11, 1969, Ser. No. 815,428

Int. Cl. B22d 27/02, 11/12

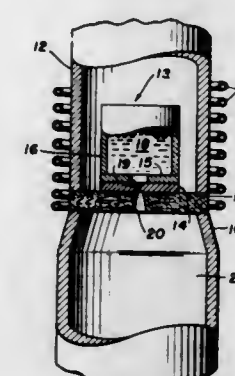
U.S. Cl. 164-251

14 Claims

The severe thermal gradients which are ordinarily present in the base of a crucible employed in high-temperature spinning operations are significantly reduced through utilization of a thermally anisotropic shelf. The bottom surface of the crucible base is positioned substantially parallel with the plane of high thermal conductivity of the shelf and in thermal conduction contact therewith. Concurrently, the crucible extrusion opening and an aperture within the shelf are aligned substantially coaxially. A means is employed for heating the outer periphery regions of the shelf, causing a heat flow toward the aperture. The substantially constant temperature

along the thermal plane of the shelf and at the region of the shelf adjacent to the aperture therein preclude the formation of significant lateral thermal gradients which are responsible

bottom of the mold, and a refractory block affixed to the plate and projecting into the mold. The block is friable or



readily deformable and has a transverse cross section which is smaller than the interior cross section of the mold.

3,593,778

CONTINUOUS CASTING APPARATUS

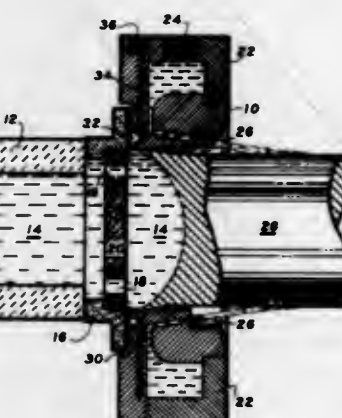
John J. Foye, Spokane, Wash., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed Mar. 7, 1968, Ser. No. 711,242

Int. Cl. B22d 11/10

U.S. Cl. 164-281

10 Claims



This specification relates to apparatus for continuous casting of molten metal. The apparatus comprises a hollow chilled mold assembly connected to a reservoir for molten metal via an orifice plate assembly. The orifice plate assembly has a perimeter at least equal to the perimeter to the hollow of the mold and is positioned between and contiguous to the chilled mold and the reservoir. The orifice plate assembly has a passageway therein for flow of molten metal from the reservoir into the mold. A substantially heat conductive segment is provided in the orifice plate and is positioned so as to permit heat flow therethrough into a peripheral section of the mold hollow. Due to the heat flow, solidification of the embryo shell of metal being cast in the mold adjacent to the orifice plate is retarded and the formation of cold shuts in the metal is reduced.

3,593,779

HEAT EXCHANGER FOR QUENCHING THERMALLY CRACKED GAS

Ichiro Tokumitsu, Tokyo; Minoru Sugiyama, Tokyo, and Souji Asano, Yamaguchiken, all of Japan, assignors to Idemitsu Petrochemical Co., Ltd., Tokyo, Japan

Filed Aug. 25, 1969, Ser. No. 852,731

Claims priority, application Japan, Sept. 12, 1968, 43/65238 Int. Cl. F28f 27/02

U.S. Cl. 165-1

10 Claims

Quenching of thermally cracked gas of hydrocarbons is carried out by the use of a first stage heat exchanger and one of two or more second stage heat exchangers which are arranged in parallel and connected to the first stage one and

ERRATUM

For Class 164-274 see:
Patent No. 3,593,792

3,593,776

STARTER BAR HAVING A FRANGIBLE COUPLING

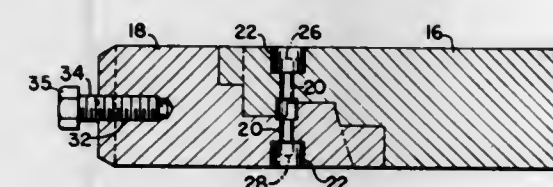
Calvin C. Williamson, Costa Mesa, Calif., assignor to Soule Steel Company, San Francisco, Calif.

Filed Oct. 30, 1968, Ser. No. 771,822

Int. Cl. B22d 11/08

U.S. Cl. 164-274

4 Claims



This is a detachable starter bar coupling in which a head member is detachably connected to one end of a continuous casting starter bar. The connection is made by means of a bolt having a reduced section near its midpoint so that the application of a preselected amount of force on the coupling will cause the bolt to break and the head to detach from the starter bar. The head is provided with a projecting bolt at one end thereof which is inserted in the continuous casting mold in order to be embedded within the cast strand as it solidifies.

3,593,777

LEADER FOR INGOT IN CONTINUOUS CASTING

Joseph Pietryka, Paris, France, assignor to Fives Lille-Cail, Paris, France and Konstruktionsburo fur Stahl und Walzwerke, Cologne, Germany

Filed July 14, 1969, Ser. No. 841,510

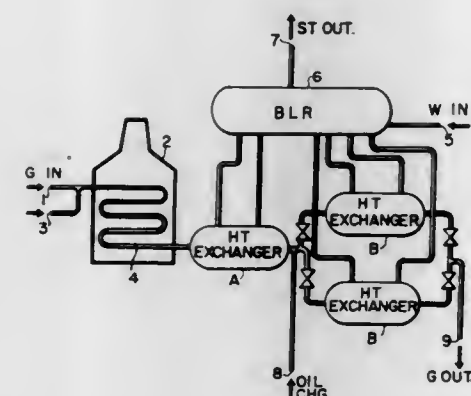
Claims priority, application France, July 17, 1968, 159,450 Int. Cl. B22d 11/08

U.S. Cl. 164-274

5 Claims

The leader for removing an ingot from a mold comprises a head including a readily deformable plate, which closes the

each of which is used alternately after removal of deposited coke, whereby the operation of a thermal cracking furnace



can be carried out continuously for much longer period than ever before.

3,593,780

HEATING AND COOLING SYSTEM

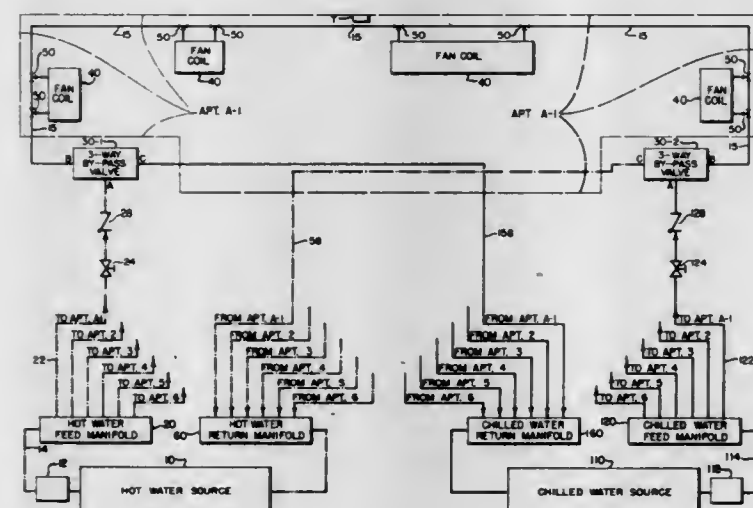
James Patrick Donnelly, 112 Hauerhill St., North Reading, Mass.

Filed May 7, 1969, Ser. No. 822,601

Int. Cl. F24f 3/00

U.S. Cl. 165-22

8 Claims



An air-conditioning system for multiple zone building units, including heating and cooling, in which the delivery of a heated or chilled liquid heat exchange medium (water) to heat exchange units (fan coils) in each zone to be conditioned, is individually controlled by a thermostat in each such zone, and which includes a single pipe closed distribution system for each individually controlled zone for circulating the heated or chilled water, to each zone separately and alternatively and in opposite directions through its single pipe closed distribution system, a heater adapted to supply heated water to the closed distribution system of each individually controlled zone, a chiller adapted to supply chilled water to the closed distribution system of each individually controlled zone, and valve means in the closed distribution system in each zone for controlling the supply of heated water to the closed distribution system in each zone, and for returning it to the heater, and for controlling the supply of chilled water to the closed distribution system in each zone, and for returning it to the chiller, the supply of such heated and chilled water to the closed distribution system in each zone being separately and alternatively controlled by the thermostat in each controlled zone.

3,593,781 DISTRIBUTING ARRANGEMENT FOR SHOT-FED SOOT CLEANING SYSTEMS

Borje Fransman, 4 Ljungvagen, Sollentuna, and Per Thorson, 38 Fyrverkarbacken, Stockholm, both of Sweden

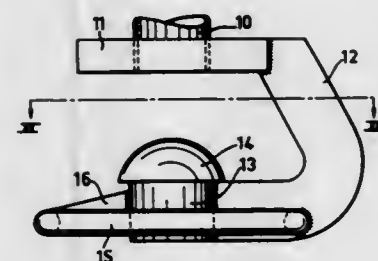
Filed Nov. 7, 1969, Ser. No. 874,942

Claims priority, application Sweden, Nov. 8, 1968, 15,175/68

Int. Cl. F28g 13/00

U.S. Cl. 165-95

3 Claims



The present invention relates to the cleaning of gas-swept beating surfaces in heat exchanging apparatus by the scouring action of cleaning particles, such as steel shot, which are scattered over the heating surfaces by a distributing member from which the cleaning particles rebound. The invention provides, in combination with a distributing member as already known in the art an annulus-shaped distributing element disposed below the said distributing member and substantially concentrically thereto. By this arrangement a more uniform distribution of the cleaning particles is attained, particularly when the intensity of cleaning is great, i.e. cleaning particles are cycled at a high rate through the heat exchanging apparatus.

3,593,782

HEAT EXCHANGER

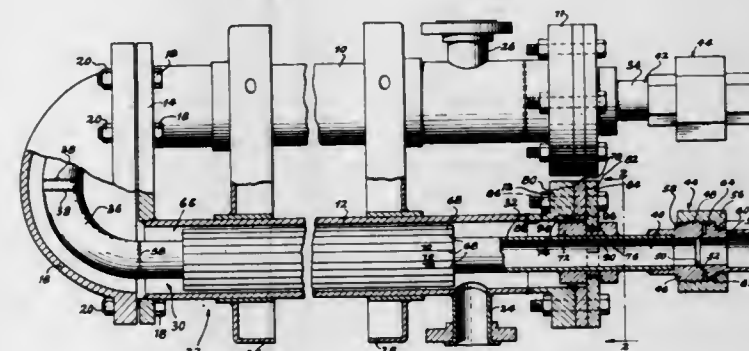
John G. Draves, Dunkirk; Maurice R. Garrison, Hamburg, and Edward J. Skiba, Williamsville, all of N.Y., assignors to American Precision Industries Inc., Buffalo, N.Y.

Filed Sept. 8, 1969, Ser. No. 855,857

Int. Cl. F28f 9/26

U.S. Cl. 165-143

9 Claims



A heat exchanger having a shell with a closure flange and an inner tube with an adapter having a peripheral sealing surface. The shell has an inner beveled sealing surface and a seal ring is pressed against the peripheral sealing surface and the beveled sealing surface by a compression ring carried by the shell flange. A retaining ring also carried by the shell flange extends into a peripheral groove in the adapter to limit axial movement between the inner tube and the shell.

3,593,783

HEAT EXCHANGER FOR MOTOR VEHICLE HEATERS

Gerhard Muller, Esslingen, and Fritz Mohring, Nellingen, both of Germany, assignors to J. Eberspacher, Esslingen, Neckar, Germany

Filed July 12, 1968, Ser. No. 744,427

Claims priority, application Germany, July 15, 1967, E 34397 1a/171

Int. Cl. F28d 7/02

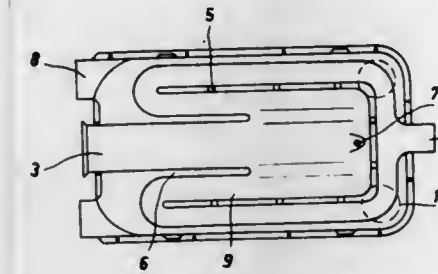
U.S. Cl. 165-164

7 Claims

A heat exchanger for motor vehicle heater comprises two mating outer half shells and two mating inner half shells, the

outer and inner half shells preferably being integral with each other. The shells are formed with stamped mating half ducts which, when the half shells are assembled in mating relation,

cluding a flexible plug member which can adapt itself to different diameters of well, and a suspension means for hanging



define respective separated flow paths for a heating medium and for a fluid heat exchange medium. The half shells may be stamped to conjointly define a combustion chamber on the axis of symmetry.

3,593,784

ANCHOR ASSEMBLY FOR WELL TOOLS SUCH AS PACKERS AND THE LIKE

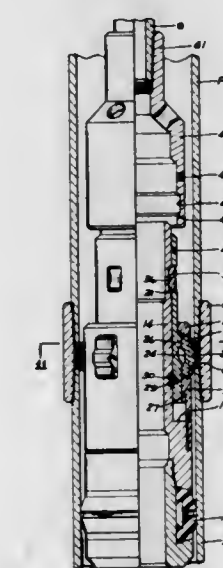
Cicero C. Brown, and Chudleigh B. Cochran, both of Houston, Tex., assignors to Brown Oil Tools, Inc., Houston, Tex., by said Cochran

Filed Sept. 11, 1969, Ser. No. 857,047

Int. Cl. E21b 23/02

U.S. Cl. 166-125

14 Claims



An anchor assembly for anchoring well tools such as packers and the like, inside a pipe string adapted particularly for running on a wire line tool string. The assembly includes safety latch means arranged to provide assurance against premature or accidental release of the assembly from the running string while being run but which is readily releasable upon actuation of the anchor elements.

3,593,785

SEISMIC DRILL HOLE RING PLUG

Peppino Bassani, 14248 Laurier Drive, Edmonton, Alberta, Canada

Filed Dec. 8, 1969, Ser. No. 882,850

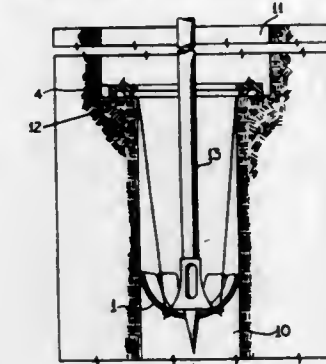
Claims priority, application Canada, Nov. 6, 1969, 066,900

Int. Cl. F21b 33/12

U.S. Cl. 166-202

7 Claims

There is disclosed a means for use in plugging a well in-



the plug member in the mouth of the well whereby concrete may be poured into the mouth of the well to provide a plug.

3,593,786

JET WALL CLEANER

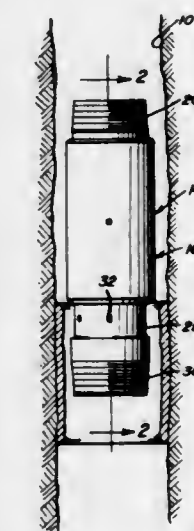
Farral F. Lewis, 170 Adger St., Shreveport, La.

Filed Sept. 10, 1969, Ser. No. 856,632

Int. Cl. F21b 21/00

U.S. Cl. 166-222

5 Claims



A cleaner for the wall of a well bore including a short full bore tube with a plurality of angulated jet orifices directing a high velocity stream of fluid against the wall of the well bore to effectively clean the wall. A sleeve is slidably mounted on the tube for closing the jet orifices with a locking device securing the sleeve in closed position and a shear pin holding the sleeve in open position until closed by a cement tap plug.

3,593,787

INTERFACE ADVANCE CONTROL IN SECONDARY RECOVERY PROGRAM BY USE OF GRADIENT BARRIER

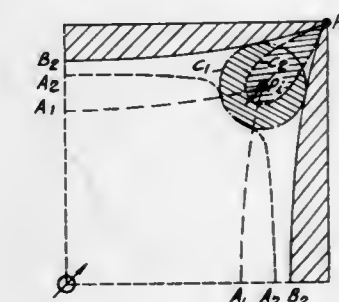
Donald L. Hoyt, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Dec. 24, 1968, Ser. No. 786,568

Int. Cl. E21b 43/20, 43/22

U.S. Cl. 166-245

23 Claims



The advance of the interface between driving and driven fluids in a secondary recovery operation toward a production

well is delayed by the imposition of a gradient barrier of produced hydrocarbon fluids injected into the formation via a control well in line between an injection well and a production well, the recirculation of the formation hydrocarbon fluids providing a dynamic barrier.

3,593,788

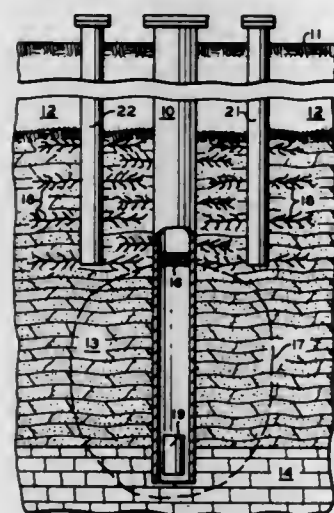
CRUSHING OIL SHALE WITH NUCLEAR EXPLOSIVES
Harry W. Parker, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Sept. 5, 1967, Ser. No. 665,529

Int. Cl. E21b 43/26

U.S. Cl. 166—247

5 Claims



The effectiveness of nuclear explosions in an oil shale stratum to create a mass of shale rubble, suitable for in situ retorting, is increased by hydraulically fracturing prior to the explosion a portion of the stratum above the level of the stratum which will be shattered by the explosion.

3,593,789

METHOD FOR PRODUCING SHALE OIL FROM AN OIL SHALE FORMATION

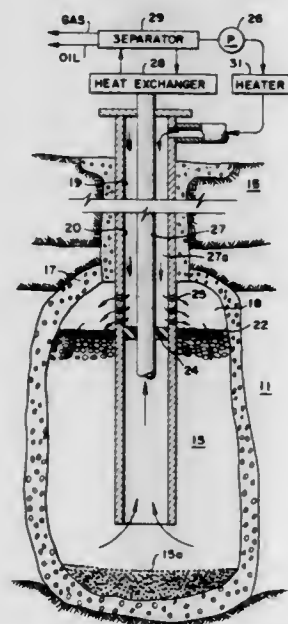
Michael Prats, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Oct. 18, 1968, Ser. No. 768,666

Int. Cl. E21b 43/24, 43/26

U.S. Cl. 166—259

11 Claims



A method for producing shale oil from a subterranean oil shale formation by controlled in situ combustion by exploding a relatively high energy device within an oil shale formation thereby forming a fragmented vertically extensive zone of rubble having a substantially void space at the top thereof. The zone is filled with a layer of granular material for permeability adjustment and a controlled combustion front is

initiated by injecting a fluid comprising a mixture of oxygen-containing gas and aqueous liquid substantially near the top of the granular-filled fragmented zone so as to advance a combustion front down the zone and produce oil shale pyrolysis products.

3,593,790

METHOD FOR PRODUCING SHALE OIL FROM AN OIL SHALE FORMATION

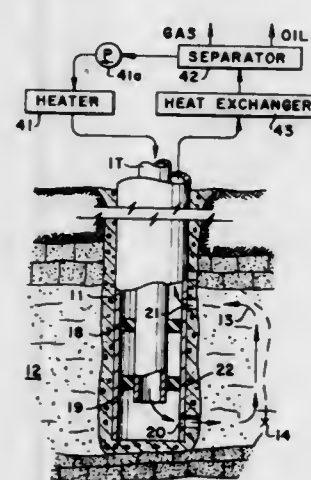
John A. Herce, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Jan. 2, 1969, Ser. No. 789,089

Int. Cl. E21b 43/22, 43/24

U.S. Cl. 166—267

6 Claims



A method for producing shale oil from a permeable zone formed within a subterranean oil shale formation by circulating through a well borehole in contact with said permeable zone a fluid containing at least one phenolic compound.

3,593,791

HORIZONTAL FRACTURING TECHNIQUES FOR BITUMEN RECOVERY

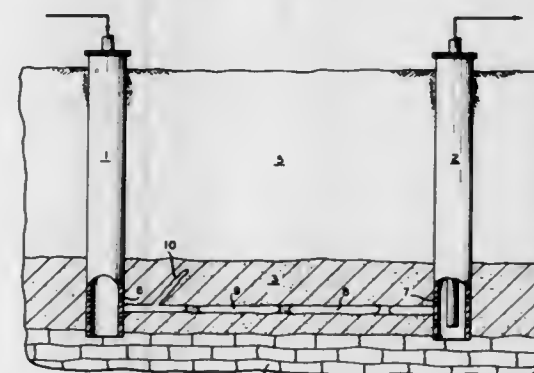
Harry W. Parker, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Sept. 15, 1969, Ser. No. 858,038

Int. Cl. E21b 43/24, 43/25

U.S. Cl. 166—271

7 Claims



A method is disclosed for forming a subterranean horizontal fracture while minimizing the formation of subterranean vertical fractures by employing a fracturing fluid having a specific gravity greater than the specific gravity of that stratum through which the horizontal fracture is to be formed.

3,593,792

DUMMY BAR FOR CONTINUOUS CASTING

Walter Hess, Dusseldorf, and Horst Grothe, Kaarst, both of Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany

Filed June 11, 1968, Ser. No. 736,095

Claims priority, application Germany, June 14, 1967, Sch 40,884

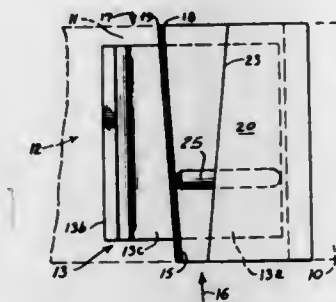
Int. Cl. B22d 11/08

U.S. Cl. 164—274

5 Claims

This dummy bar is adapted to be connected in axial end-to-end relation to a continuous casting and to be separated

therefrom by moving the dummy bar and casting relatively in opposite directions approximately at right angles to an axial line through the connection from the dummy bar to the casting. The end face of the dummy bar which is to be adjacent to the casting is slanted at an acute angle to the directions in which the adjacent ends are separated so as to slant outward toward a casting connected thereto, in the relative direction in which the dummy bar separates from the casting. An insert is slidable in a first slot across the face of the dummy bar in



the relative direction in which the dummy bar moves for the separation, and is normally held therein by a shear pin arranged substantially at right angles to the directions of separation and is adapted to shear at a pressure exceeding a predetermined pressure applied for separating the dummy bar and casting. The connection is made by a connecting member having one end adapted to be embedded in the casting and another end slidably received in a second slot which is across the insert in the relative direction in which pressure applies to the dummy bar for the separation.

3,593,793

STIMULATION OF RECOVERY FROM UNDERGROUND DEPOSITS

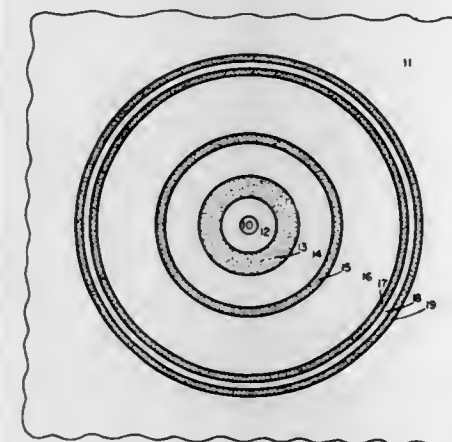
Ray M. Kelseaux, Tulsa, Okla., assignor to Cities Service Oil Company, Tulsa, Okla.

Filed Feb. 3, 1969, Ser. No. 796,230

Int. Cl. E21b 43/26

U.S. Cl. 166—280

20 Claims



Chemically stable liquid reactants capable of forming an explosive reaction mixture are injected into a fluid or mineral bearing formation, which may first be hydraulically fractured. An inert spacing medium is injected intermediate to the injection of the reactants so that the explosive mixture is formed at some desired radial distance from the wellbore. The reactants may be such that the explosive mixture autodecomposes with the passage of time or may be detonated by shock, as by the detonation of a conventional detonating device. The reactants may also be injected in cycles, each cycle comprising the reactants separated by a slug of inert spacing medium. The amount of spacer may be varied during the treating operation, as by decreasing the amount of spacing medium during the operation, so that the explosive reaction mixtures are formed in concentric regions of the formation surrounding the wellbore. The first reactant may be used as a hydraulic fracturing fluid, and contain conventional and/or shock-sensitive explosive propping agents. Upon detonation of the explosive reaction mixtures, the formation is fractured in a radial manner with the resulting fractures

propagated both outward into the formation and inward toward the wellbore so as to enhance the subsequent recovery of minerals or fluids from the formation.

3,593,794

METHOD AND COMPOSITION FOR TREATING LOW-TEMPERATURE SUBTERRANEAN FORMATIONS

Paul W. Fischer, Whittier, and John W. Scheffel, Fullerton, both of, Calif.

Filed Feb. 24, 1970, Ser. No. 13,864

Int. Cl. E21b 33/138, 43/26

U.S. Cl. 166—283

19 Claims

A water-insoluble particulate composition having controlled oil solubility is disclosed. This composition is comprised of solid particles of a homogenous mixture of (1) about 10 to 13 weight percent of an ethylene-vinyl acetate copolymer that contains about 23 to 30 weight percent vinyl acetate and exhibits a melt index of about 300 to 500 grams per 10 minutes and (2) a paraffin wax that contains at least 70 weight percent hydrocarbons having 25 to 32 carbon atoms per molecule. Also, a process employing this particulate composition in drilling wells into low-temperature subterranean formations, and in fracturing and treating such formations, is disclosed.

3,593,795

METHOD AND APPARATUS FOR DRILLING AND PRODUCING WELLS IN A FORMATION SUSCEPTIBLE TO COMPACTION

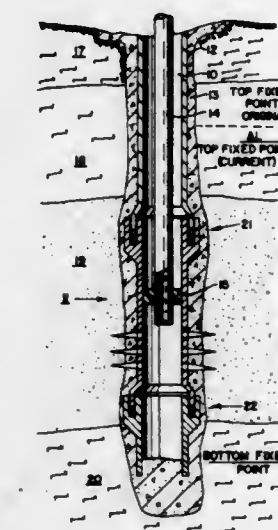
Leo P. Broussard, Sr., New Orleans, La., assignor to Shell Oil Company, New York, N.Y.

Filed May 19, 1969, Ser. No. 828,093

Int. Cl. E21b 33/14; F161 27/12

U.S. Cl. 166—285

7 Claims



Apparatus and method for completing a well in a subterranean oil-bearing formation wherein the well is adapted to traverse an area susceptible to compaction. A well is drilled and casing is installed in the well. The casing is provided with expansion joint means so as to prevent buckling of the casing when any compaction occurs in the area susceptible to compaction. The casing is then firmly fixed in position in the well.

3,593,796

METHOD OF CONTROLLING FINE SAND PARTICLES WITHIN A RELATIVELY CONSOLIDATED SAND FORMATION

Morgan Ashley Stainback, Evan Hoskins Street, Jr., and Robert Noel Tuttle, all of Houston, Tex., assignors to Shell Oil Company, New York, N.Y.

Filed June 27, 1969, Ser. No. 837,181

Int. Cl. E21b 33/138

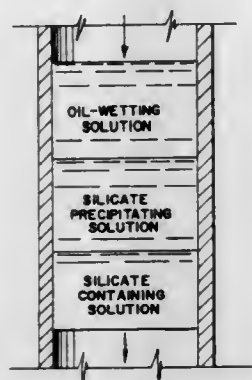
U.S. Cl. 166—288

8 Claims

A method of controlling movement or displacement of fine sand grain particles within a relatively consolidated sand formation by successive injections of (1) an aqueous solution containing a silicate adapted to wet the fine sand, (2) a sil-

icate-precipitating agent adapted to effect solidification of the silicates and (3) an oil-wetting agent so as to hold the

being injected into an interval of earth formation of nonuniform permeability by contacting the most permeable portions of the interval with a slurry containing a mixture of flex-



sand grain particles in situ during subsequent fluid flow through the formation.

3,593,797

METHOD AND APPARATUS FOR CONSOLIDATING A SUBSURFACE EARTH FORMATION

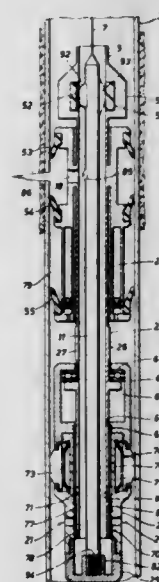
Maurice P. Lebourg, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.J.

Filed May 16, 1969, Ser. No. 825,314

Int. Cl. E21b 33/138

U.S. Cl. 166—290

29 Claims



Methods and apparatus are provided for treating an unconsolidated subsurface earth formation. Means are provided for isolating and perforating a preselected section of a wellbore, and thereafter sequentially introducing selected formation treating agents into the perforated formation. After these materials are in the formation, a suitable temporary plugging agent is deposited in the perforation, to prevent its collapse, as well as to block the entrance of wellbore fluids. In the apparatus, the plugging agent is held in the annulus defined by a pair of spaced-apart elastomeric packing cups, and the equipment is merely shifted to position the cups above and below the perforation to enable the plugging agent to flow into the perforated formation. The apparatus preferably includes provision for a closeable bypass around the plugging agent held between the cups, whereby the apparatus may be moved up or down a fluid-filled casing without disturbing the plugging agent.

3,593,798

METHOD OF REDUCING THE PERMEABILITY OF A THIEF ZONE

Henry C. H. Darley, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed May 9, 1969, Ser. No. 823,393

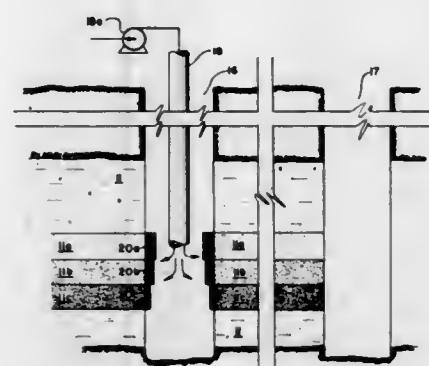
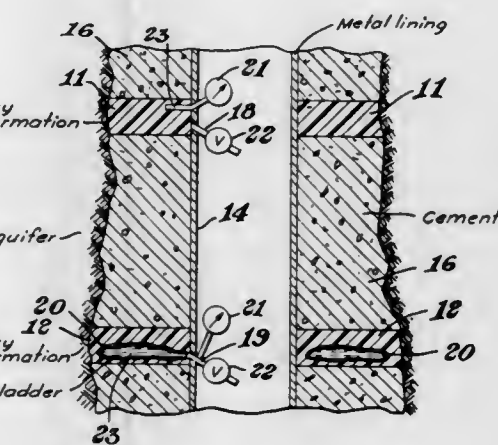
Int. Cl. E21b 33/138

U.S. Cl. 166—295

4 Claims

A method for obtaining a flat injection profile for a fluid, such as a drive fluid used in an oil recovery operation, that is

A technique is provided for forming watertight enclosed seals against solid surfaces in which sealing pressure is regulated in a moisture containing environment. The sealing materials utilized are hydrophilic solid gels prepared from water soluble polymers in a suitable solvent medium. Pressure on sealing interfaces is regulated by venting the enclosed mass of solid gel. In a preferred embodiment, a bladder containing a readily flowable liquid is incorporated into the solid gel. Venting of the bladder uniformly adjusts pressure throughout the entire seal. Optionally, means may be provided for continuous pressure readings in the solid gel.



3,593,799

METHOD OF SEALING A SPACE WITH A HYDROPHILIC SOLID GEL

Lowell D. Boughton; Samuel A. Pence, Jr.; Duane L. Stude, and Clare H. Kucera, all of Tulsa, Okla., assignors to The Dow Chemical Company, Midland, Mich.

Filed July 29, 1969, Ser. No. 845,838

Int. Cl. E04b 1/16; E21b 33/14; E21d 5/012

U.S. Cl. 166—295

3 Claims

3,593,800

APPARATUS FOR MAKING PREFORMED FOAM FOR USE IN WELLS

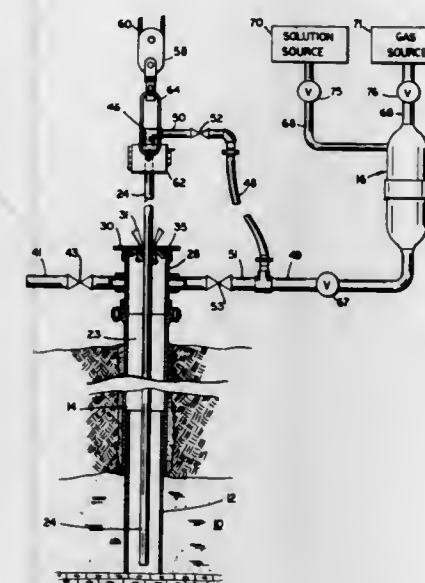
Stanley O. Hutchison, Bakersfield, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Aug. 25, 1969, Ser. No. 852,857

Int. Cl. E21b 21/00; E21c 7/06

U.S. Cl. 166—312

4 Claims



A foam generator for use in mixing gas and a foamable solution to preform a foam for use as a circulating fluid in a well.

3,593,801

FLUID-ACTUATED FIRE EXTINGUISHER

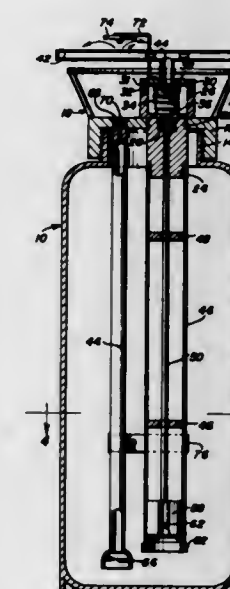
Joseph S. De Palma, 109 Carlson Court, Closter, N.J.

Continuation-in-part of application Ser. No. 746,978, July 23, 1968. This application Nov. 26, 1969, Ser. No. 880,183

Int. Cl. A62c 35/02

U.S. Cl. 169—27

5 Claims



A portable automatic fire extinguisher having a tubular member mounted exteriorly of the extinguisher housing and containing a fluid that expands significantly in response to an abnormal ambient temperature condition. A bellows is surrounded by the fluid and is displaced during fluid expansion. A push rod is connected to the bellows at a first end of the rod while the opposite end mounts a valve. When the bellows is displaced, the push rod is similarly moved thus causing the valve to open and free a stored reagent for mixing with a second reagent which results in the formation of a fire-extinguishing liquid. A discharge tube is disposed in the extinguisher housing and has a nozzle end extending outwardly from the housing so that the extinguishing fluid can be discharged omnidirectionally.

3,593,802

EDGING APPARATUS

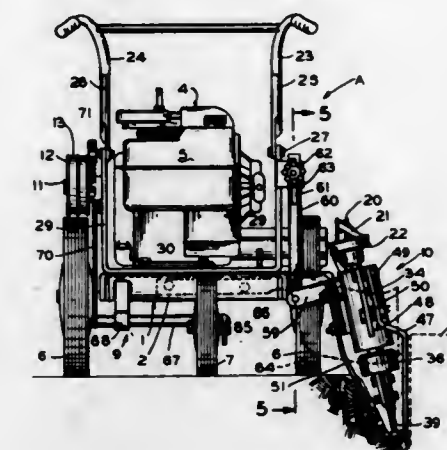
William De Lange, Jr., 2523 S. Prospect St., Springfield, Mo.

Filed Jan. 24, 1969, Ser. No. 793,728

Int. Cl. A01b 45/00

U.S. Cl. 172—15

8 Claims



An apparatus for edging or troughing a surface, such as the ground along a walkway, the apparatus including a supporting frame resting upon wheels and mounting a motor that interconnects through drive means to operate a cutter blade assembly, the blade of the assembly being disposed for rotation around a substantially vertical axis; the axis of rotation of said blade being changeable through adjustment of a bracket mounting the assembly to the frame, and the depth of penetration of said blade being controlled through regulatory means mounting the rearmost wheel to the supporting frame.

3,593,803

GARDENER'S GLOVE

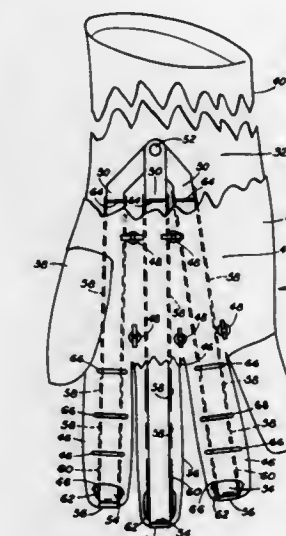
Charles W. Ibach, 7198 Versailles Road, Derby, N.Y.

Filed Dec. 27, 1968, Ser. No. 787,365

Int. Cl. A01b 1/00; A41d 19/00

U.S. Cl. 172—370

6 Claims



A gardener's glove formed of a thin, flexible tough material having finger members and an elongated sleeve. Tool elements are associated with one or more finger members and may be formed integral therewith or otherwise secured thereto. The tool elements extend beyond the tips of the finger members and are curved away therefrom toward the palm to form work engaging portions. Tool means in the form of claws can be provided adjacent the ends of the tool elements remote from the work engaging portions.

3,593,804

POWER CULTIVATOR

Roy S. Snider, 3950 Burke Ave. N.E., Louisville, Ohio

Filed Mar. 24, 1967, Ser. No. 625,699

Int. Cl. A01b 35/28

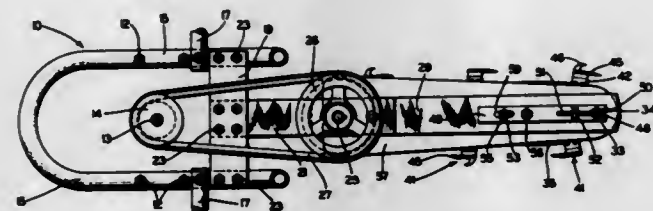
U.S. Cl. 172—100

1 Claim

A portable power operated cultivating and digging machine preferably incorporating a gasoline engine as the

prime mover. The engine drives a pulley and belt assembly which in turn drives a sprocket. An endless chain and second

controlled in accordance with a signal derived from the torque required to rotate the drill stem at a constant speed and a signal proportional to a desired drilling rate. Further



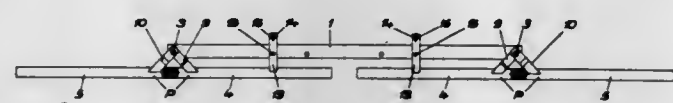
sprocket are driven by the first sprocket, the chain carrying a series of compound digging teeth. A backing and chain bearing assembly is mounted between the two sprockets.

3,593,805 CARRIER BEAM UNIT FOR AGRICULTURAL IMPLEMENTS

Willy Rau, Kirchheim/Teck, Germany, assignor to Maschin-fabrik Rau OHG, Kirchheim/Teck, Germany
Filed May 9, 1968, Ser. No. 727,958
Int. Cl. A01b 15/14

U.S. Cl. 172-776

14 Claims



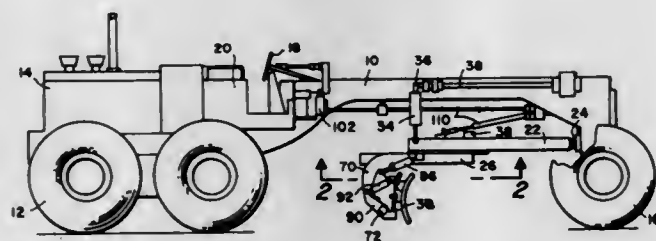
A carrier beam for carrying and loading agricultural implements and having a great length extending transverse to the direction of travel of a tractor to which it is connected is divided into several parts which are rigidly connected to each other in the working position so as to have a maximum working length and the outer parts of which may be pivoted toward each other to reduce this length at least to a size not exceeding the maximum width of a vehicle permitted to travel on a public road.

3,593,806 CLAMPING MECHANISM FOR ROAD BUILDING MACHINES OR THE LIKE

Raymond A. Gurries, San Jose, Calif., assignor to Gurries Manufacturing Co., San Jose, Calif.
Filed Aug. 25, 1969, Ser. No. 852,990
Int. Cl. A01b 35/22; E02f 3/76

U.S. Cl. 172-741

4 Claims



Hydraulic clamping mechanisms automatically operative in response to the completion of adjustment of the circle and supported blade or moldboard of a road grader to rigidly clamp such structures in their adjusted positions so as to reduce wear and consequent inaccuracies in operation.

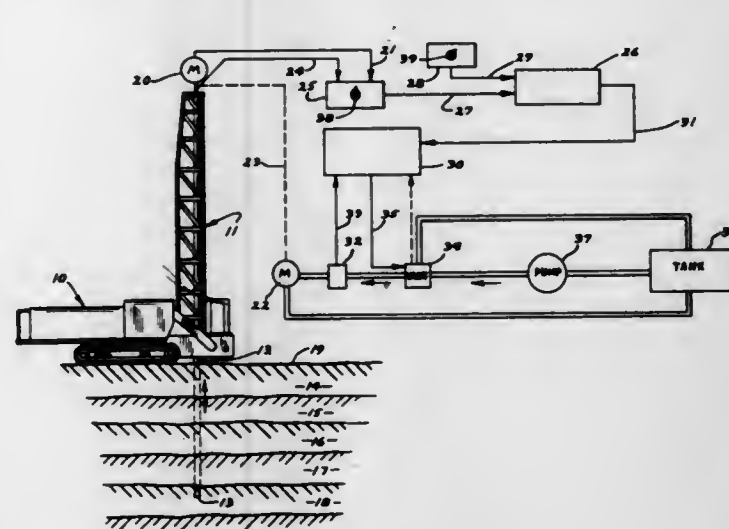
3,593,807 DRILLING APPARATUS

Frank J. Klima, P.O. Box 581, Virginia, Minn.
Filed Dec. 11, 1969, Ser. No. 884,276
Int. Cl. E21b 3/02

U.S. Cl. 173-6

10 Claims

A control system for hole-drilling equipment in which a rotary drill bit and stem is rotated at a predetermined speed and the downward force exerted upon the rotary drill bit is



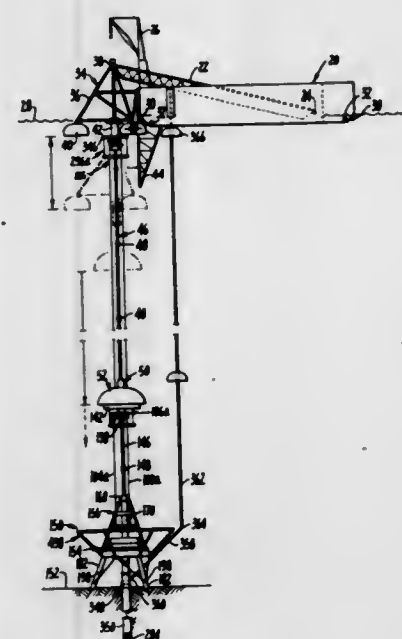
signals proportional to the actual drilling rate and the penetration rate of the drill stem may also be utilized in relative adjustable combinations so as to provide optimum efficiency of operation.

3,593,808 APPARATUS AND METHOD FOR DRILLING UNDERWATER

Arthur J. Nelson, 1998 Broadway, San Francisco, Calif.
Filed Jan. 7, 1969, Ser. No. 789,494
Int. Cl. E21b 3/04, 7/12

U.S. Cl. 175-6

37 Claims



A system for drilling into the floor of a body of water through the employment of a drilling station located on the floor and having a torque imparting mechanism submerged therewith to transmit drilling torque to a drill string extending through the station. In deep water environments, the drill string of the system is suspended from a buoyant support station submerged within the body of water above the drilling station and an untorqued drilling fluid conduit extends upwardly from communication with the drill string to a control station proximate the surface of the body of water. The support station is lowerable to provide for lowering of the drill string as drilling takes place. The control station is buoyant and the conduit is suspended therefrom. Control devices are provided to maintain the respective stations in substantially vertically aligned interrelationship and, thus, maintain the composite length of the drill string and conduit in a relatively straight condition. A service station at the surface of the body of water is provided to selectively add length to or take

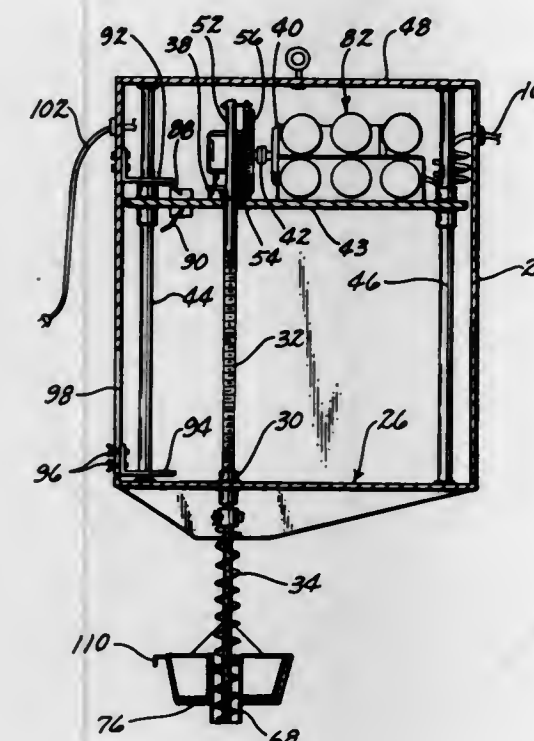
length from the drilling fluid conduit and the mechanism is provided to similarly vary the distance between the support and control stations to accommodate different composite lengths of the conduit.

3,593,809 SOIL SAMPLER DEVICE

William Chester Derry, Bayard, Iowa 50029
Filed Jan. 15, 1969, Ser. No. 791,425
Int. Cl. E21b 3/02

U.S. Cl. 175-51

13 Claims



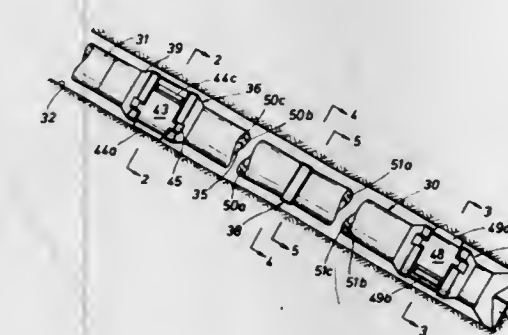
A device having an auger shaft connected to a frame. A motor platform is mounted on the threaded shaft and moves therewith while supporting a finger-shaped soil-sampling receptacle embracing the auger portion of the auger shaft. The soil-sampling receptacle is maintained in yieldable engagement against the ground around the auger shaft and receives the soil sample which moves through a sleeve extending through the space between the finger-shaped receptacle whereupon the soil sample empties downwardly into the receptacle. Limit switches are provided to stop the operation of the unit at predetermined points in its upward and downward travel. The soil-sampling unit is adjustably mounted on the side of a pickup truck and is powered by the truck battery.

3,593,810 METHODS AND APPARATUS FOR DIRECTIONAL DRILLING

Roger Q. Fields, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Oct. 13, 1969, Ser. No. 865,884
Int. Cl. E21b 7/08, 7/10

U.S. Cl. 175-61

37 Claims



In each of the several embodiments of the apparatus of the invention disclosed herein, a new and improved tool carrying

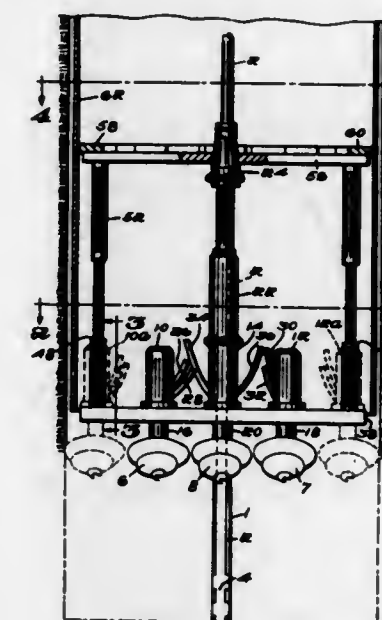
a drill bit is dependently coupled from a drill string and lowered into a borehole which is to be excavated in a desired direction. First and second sets of wall-engaging members are operatively arranged around the tool in such a manner that as the weight of the rotating tool is successively supported by each of the first members, commensurate outwardly directed forces will be successively imposed on each of the second members for urging the drill bit in a desired lateral direction. Various controls adapted for operation from the surface of the earth are disclosed for selectively interconnecting the first and second wall-engaging members so as to either maintain the course of the drill bit along a vertical axis or else to direct the drill bit in a selected azimuthal direction and inclination. In practicing the methods of the present invention, a tool arranged in accordance with the invention and having a drill bit connected thereto is coupled in a drill string and positioned in a borehole. Depending upon the particular tool, the controls on the directional drilling tool are then regulated from the surface to direct the drill bit along a selected source for continuing the excavation of the borehole.

3,593,811 APPARATUS FOR DRILLING LARGE DIAMETER HOLES

Jack V. Tedrow, c/o U.S. Army Terrestrial Science Center, P.O. Box 1601, Fairbanks, Alaska
Division of Ser. No. 812,165, Apr. 1, 1969. Filed Apr. 16, 1970, Ser. No. 29,192
Int. Cl. E21b 3/08, 7/00, 11/00

U.S. Cl. 175-91

8 Claims



Drilling of large diameter holes in the earth devices accomplished by means of a plurality of small drilling devices which move along a traversing bar to drill a number of small contiguous holes, said bar being rotatable about an anchored pilot shaft to complete the cylindrical cut, the force required to cut into the earth being provided by the weight of the hole casing which is borne by the traversing bar and by pressure exerted against the pilot shaft.

3,593,812 MEANS FOR CUTTING ROCK

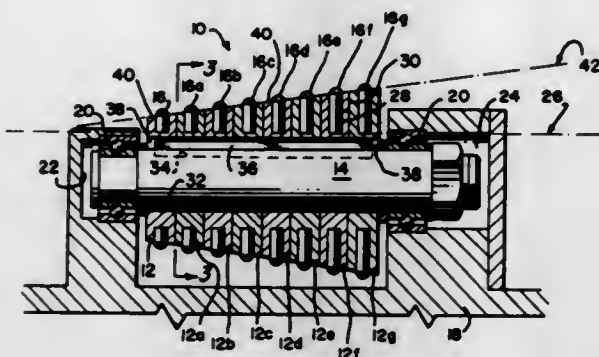
Carl R. Peterson, Princeton, N.J., assignor to Lawrence Manufacturing Company, Seattle, Wash.
Filed Jan. 27, 1969, Ser. No. 794,022
Int. Cl. E21b 9/10

U.S. Cl. 175-354

14 Claims

A rock cutter formed of a stack of juxtapositioned cutter discs, said discs each having projecting carbide bits and being mounted on a rotatable shaft for rotation therewith. All bits

have a common mounting plane, but extend therefrom in a graduated progression—from disc to disc. Also, each disc has



its own distinct proportions, being of only a graduated different size compared to a disc to either side thereof.

3,593,813

AUTOMATIC WEIGHING APPARATUS

Shigeru Kitaba; Shigeru Matsui, and Kiyooki Nakahara, all of Kyoto-shi, Japan, assignors to Kabushiki Kaisha Ishada Koki Seisakusho, Kyoto-shi, Japan

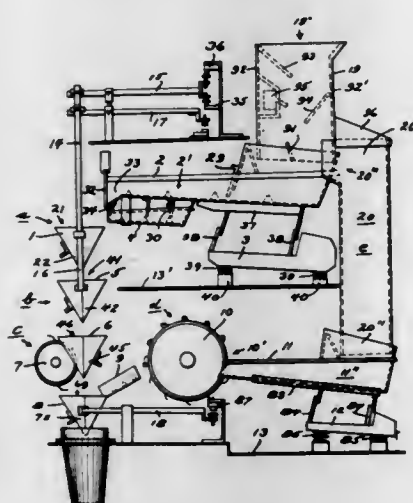
Filed Dec. 27, 1968, Ser. No. 787,429

Claims priority, application Japan, May 24, 1968, Sept. 11, 1968, Oct. 4, 1968, 43/35410; 43/65733; 43/72634

Int. Cl. G01g 13/04

U.S. Cl. 177—82

12 Claims



An apparatus for automatically weighing out material in desired weight quantities by roughly weighing a portion, gauging it for its weight relation to the desired quantity and adding or subtracting material if necessary to achieve the desired quantity.

3,593,814

SUPPORT AND RUNNING WHEELS FOR SNOWMOBILES

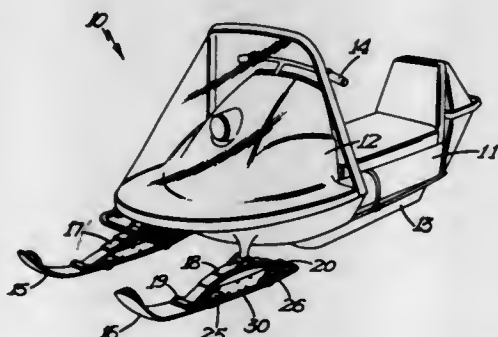
Fred W. Bauler, 6833 Creston Road, Minneapolis, Minn.

Filed May 21, 1969, Ser. No. 826,312

Int. Cl. B62m 27/00

U.S. Cl. 180—5

2 Claims



A running wheel for a vehicle having a steerable ski support runner, the running wheel being mounted adjacent the

upper surface of the ski support runner, and extending through the ski for a distance adequate to provide running support; the running wheel having a beveled circumferential edge surface providing a relatively sharp ground surface-engaging edge.

3,593,815

SYSTEM FOR AUTOMATICALLY OPERATING PARKING BRAKE FOR AUTOMOBILES

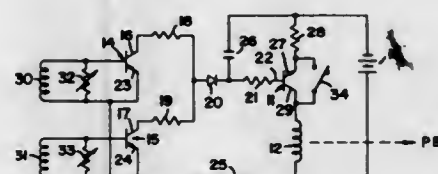
Kiyoshi Inoue, No. 16-8 3-chome, Kamiyoga, Setagaya-ku, Tokyo, Japan

Filed Oct. 7, 1968, Ser. No. 765,540

Int. Cl. B60t 7/12

U.S. Cl. 180—82

10 Claims



A system for automatically actuating and deactuating a parking brake for an acceleratable engine-driven vehicle whereby use is made of a "go" signal representing a vehicle operating mode, in which the vehicle is permitted to move or the vehicle is actually in movement, and a "stop" signal representing another mode in which the vehicle is brought to a stop or is stationary. A logic unit responds to these signals, discriminating between the corresponding modes, and transmits a control signal to a brake controller circuit.

3,593,816

AUTOMOTIVE DOOR LOCK

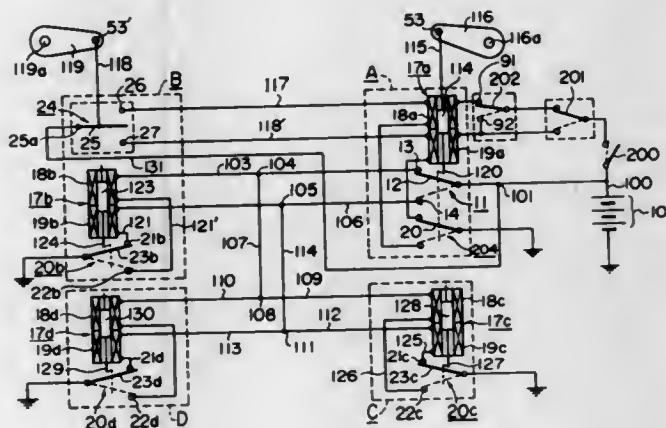
Kenichi Kazaoka, Kariya-shi, Japan, assignor to Aisin Seiki Company Limited, Kariya-shi, Aichi-ken, Japan

Filed Dec. 30, 1968, Ser. No. 787,439

Int. Cl. E05b 65/42, 65/36

U.S. Cl. 180—113

3 Claims



An automotive door lock arrangement comprising a door lock of latch type provided for each of all doors of an automotive vehicle, said arrangement being characterized by the provision of: a solenoid coil assembly comprising a locking coil means and an unlocking coil means provided for each of said doors, an automatic switch means connected with the driver's solenoid assembly for sensing starting of said vehicle, electric wiring means connecting all of said solenoid assemblies with each other, said door locks being actuated thereby into their locking position when the driver's locking coil means is energized for locking by receiving an electrical signal depending upon said energization.

3,593,817

AIR CUSHION LOAD-SUPPORTING DEVICES

Clive A. F. Hawkins, Yeovil, Somerset, England, assignor to British Hovercraft Corporation Limited, Yeovil, Somerset, England

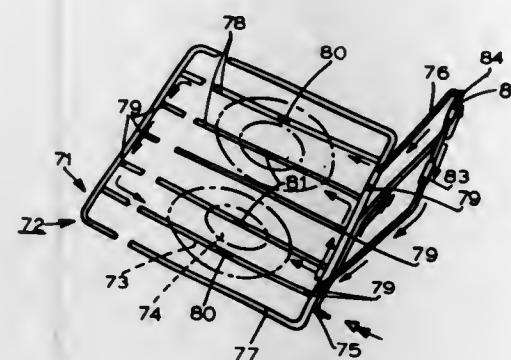
Filed Jan. 13, 1969, Ser. No. 790,719

Claims priority, application Great Britain, Nov. 11, 1968, 55452/68

Int. Cl. B60v 1/00, 1/18

U.S. Cl. 180—121

1 Claim



In an air cushion supported materials handling device of the type comprising a load-carrying platform carried by tubular support structure, part of which tubular structure also forms the handle for manual propulsion of the device, the platform has mounted on its underside a plurality of inflatable air pads, and the pressurized air is supplied to the inflatable air pads through the tubular support structure, and can be supplied also through the handle. Suitable control valves can be incorporated in the handle or in the tubular structure.

3,593,818

METHOD AND APPARATUS FOR ENERGY DENSITY MEASUREMENTS IN STANDING ULTRASONIC WAVE FIELDS

Reimar Pohlmann, Im Johannistal 33, 51 Aachen, and Joachim Herberich, Roermonder Strasse 2, 5105 Laurenberg, both of Germany

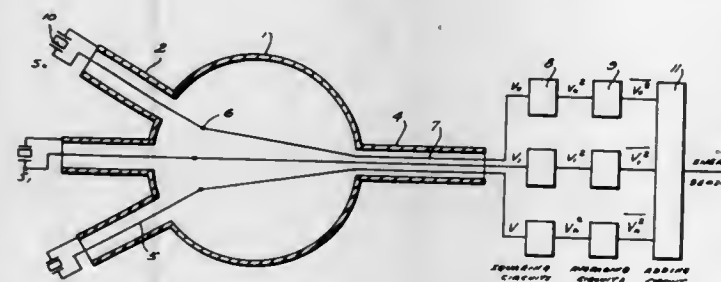
Filed Aug. 20, 1969, Ser. No. 851,691

Claims priority, application Germany, Jan. 22, 1969, P 19 02 907.3

Int. Cl. G10k 13/00

U.S. Cl. 181—.5 ED

19 Claims



A method and apparatus for measuring the energy density in confined fluids which are excited ultrasonically. A spherical probe is immersed into the fluid with ultrasonic sensors uniformly distributed over a spherical surface, so that the sensors are located at the vertices of regular polyhedrons. The sensors convert the measured parameters into corresponding electrical signals which are processed by squaring and averaging to provide an indication of the energy density. The sensors are imbedded within a substance having a substantially high capacity for sonic absorption.

3,593,819

ACOUSTIC SOUND-ATTENUATING PANELS

Andre Giraudeau, Montmorency (Val d'Oise), France, assignor to Les Isolants Français, Souge le Genelon Sarthe, France, a part interest to

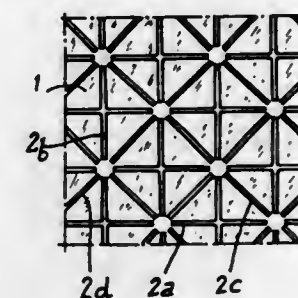
Filed Oct. 30, 1968, Ser. No. 771,742

Claims priority, application France, Nov. 7, 1967, 3,406

Int. Cl. E04b 1/86

U.S. Cl. 181—33

2 Claims



A sound-attenuating panel includes a base and at least one set of upstanding parallel fins. Another set of fins extend perpendicularly to the one set.

3,593,820

PIPELIKE MUFFLER WITH ZIGZAG SHAPE

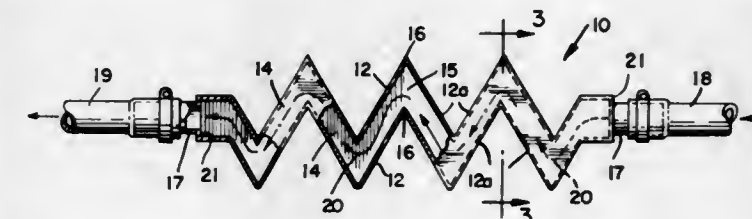
Horace A. Wright, Immokalee, Fla., assignor to William H. Doub, Immokalee, Fla., a part interest

Filed Apr. 30, 1970, Ser. No. 033,362

Int. Cl. F01n 1/08

U.S. Cl. 181—70

5 Claims



One pair of straplike sidewalls are zigzag bent so that flat sidewall members thereof meet at an acute angle. A second pair of flat sidewalls are secured to opposite edges of the first pair of walls to define a zigzag tortuous passage which is equipped at its opposite ends with tubular adapters. The zigzag bent walls of the first pair may be compressed or extended so as to preposition their wall members at a selected acute angle before the second pair of sidewalls are secured thereto.

3,593,821

ADJUSTABLE STAIRSTEP UNIT

Glenn F. Lister, Waterloo, Iowa, assignor to Unit Step Farm Company, Inc., Waterloo, Iowa

Filed Dec. 22, 1969, Ser. No. 887,191

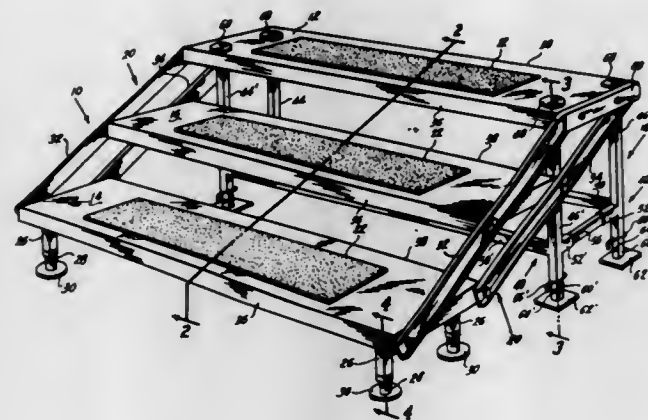
Int. Cl. E06c 1/383

U.S. Cl. 182—115

10 Claims

A stairstep unit which may be temporary or permanent with a top platform tread detachably mounted to a vertically adjustable base that may also be horizontally adjusted to accommodate platform extension panels. A plurality of treads in parallel stepped relationship are movably associated by appropriate linkage with the top platform tread so that for a predetermined number of treads, the vertical distance between the top surfaces of adjacent treads, which is known as the riser height, and an appropriate tread width can be adjusted within prescribed limits for adapting the stairstep unit to varying height conditions between ground level and floor level in the location in which the steps are to be used. Vertically adjustable supports are provided for the bottom tread and the entire structure is adaptable for quick assembly and

disassembly with major portions being foldable into a series of sprockets or wheels arranged at various locations on the knockdown condition for purposes of storage and transport- the load carriers. The reeving arrangement of the flexible

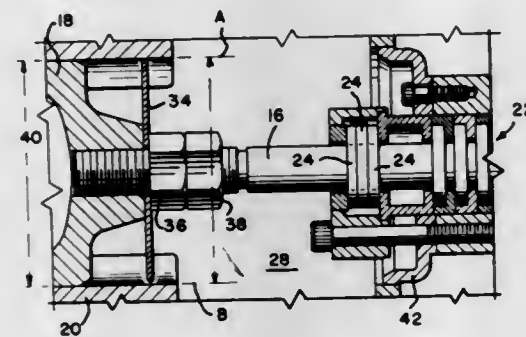


tion. An optical railing unit, if used, serves to secure the platform tread to the base.

3,593,822 A LUBRICANT BAFFLE ASSEMBLY FOR RECIPROCATING MEANS

Gordon L. Wilcox, Chateaugay, Quebec, Canada, assignor to Ingersoll-Rand Company, New York, N.Y.
Filed Mar. 17, 1969, Ser. No. 807,663

U.S. Cl. 184-6 J Int. Cl. F16n 31/02



A reciprocating piston rod, drivingly coupled to a lubricated crosshead, the rod having a disklike baffle plate mounted thereon. Lubricant thrown by the crosshead impinges against the baffle plate, and drains therefrom into an adjacent crankcase. The baffle plate is provisioned to interrupt the throw or pitch of the lubricant by the crosshead, both to avoid a lubricant loading or saturation of the piston rod stuffing box, and, consequently, to inhibit introduction of lubricant from the stuffing box into the chamber.

3,593,823 LOAD CARRIERS

Harry W. Thompson, Chicago, Ill., assignor to Interlake Steel Corporation, Chicago, Ill.
Continuation-in-part of application Ser. No. 737,199, June 14, 1968. This application Oct. 11, 1968, Ser. No. 766,673
Int. Cl. B66b 9/20

U.S. Cl. 187-11

Improved load carriers for transferring articles to and from storage bins including a trolley base having a pair of vertical masts and having a lift platform located between the masts for handling the articles. A hoisting arrangement vertically moves the platform between the masts and includes a plurality of flexible hoist means. A hoist lift motor exerts a substantially equal lift force on each end of the platform through the flexible hoist means, the flexible means being trained about a

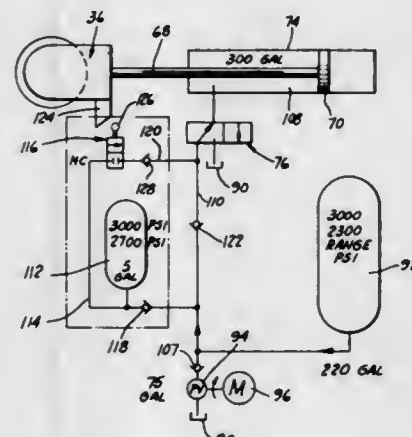
members is adjustable and an adjustable guard member is provided to prevent jumping of the flexible members.

3,593,824 VALVE CIRCUIT FOR CONTROLLING THE MOTION OF A DECK EDGE ELEVATOR

Charles E. Gregory, Anchorville, Mich., assignor to Jered Industries, Inc., Troy, Mich.
Filed Apr. 9, 1969, Ser. No. 814,671

U.S. Cl. 187-26 Int. Cl. B66b 11/04

8 Claims



A pressure intensifier valve circuit for controlling the motion of a deck edge elevator on a marine vessel, the elevator including a cable and pulley system for raising and lowering the elevator assembly and a hydrostatic engine for actuating the cable system, a valve mechanism in the circuit controlling pressure distribution to the hydrostatic engine wherein provision is made for instantaneously intensifying the working pressure of the hydrostatic engine when the elevator assembly has reached its uppermost limiting position thus providing an increased peak pressure for stabilizing the platform in a raised, clamping position, the intensified pressure being substantially in excess of the maximum operating pressure normally available during operation of the elevator assembly.

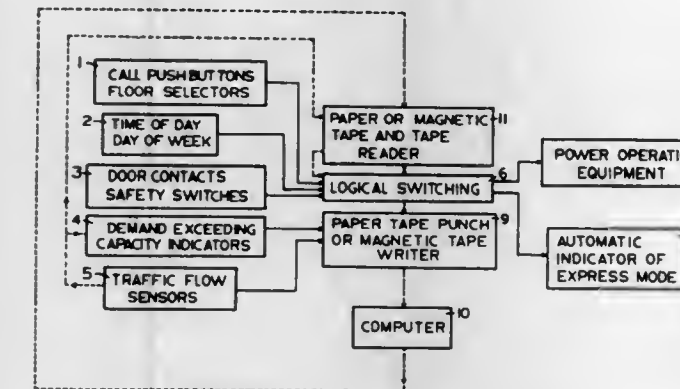
3,593,825 ADAPTIVE CONTROL SYSTEM EMPLOYING A DIGITAL COMPUTER AS A FEEDBACK ELEMENT

Luther Paul Gieseler, 2835 Brook Drive, Falls Church, Va.
Continuation-in-part of application Ser. No. 578,255, Sept. 9, 1966, now abandoned. This application May 13, 1969, Ser. No. 830,569

U.S. Cl. 187-29 R

Int. Cl. B66b 11/20

8 Claims



A control system for operating a transportation system including a plurality of vehicles, such as elevators, is disclosed wherein a history of the past performance of the transportation system is stored. This history is analyzed by a digital computer, and the operating mode of the transportation system is changed in accordance with the analysis in order to optimize the performance of the system.

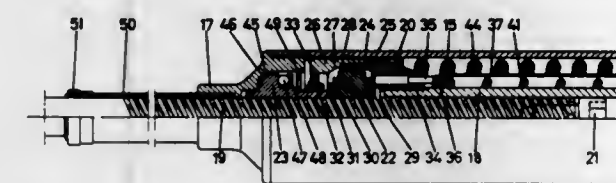
3,593,826 AUTOMATIC AXIALLY ACTING TWO-WAY SLACK ADJUSTER FOR A RAILWAY VEHICLE BRAKE RIGGING

Nils Borje Lennart Sander, Malmö, Sweden, assignor to Svenska Aktiebolaget Bromsregulator, Malmö, Sweden
Filed Sept. 2, 1969, Ser. No. 854,572

Claims priority, application Great Britain, Sept. 14, 1968, 43835/68

U.S. Cl. 188-196 D Int. Cl. F16d 65/66

4 Claims



There is disclosed an automatic axially acting two way slack adjuster which has two telescopically displaceable rod parts one of which is a threaded spindle with a non-self-locking pitch. A barrel about the rod parts encloses a spring engaging a nut on the other rod part which engages the threaded spindle. To produce a shortened length, a second nut is provided with a toothed surface engaging a corresponding toothed surface on the barrel and is spring biased by the barrel spring.

3,593,827 RAILWAY VEHICLE BRAKE RIGGING AND ADJUSTING MEANS

Nils Borje Lennart Sander, Malmö, Sweden, assignor to Svenska Aktiebolaget Bromsregulator, Malmö, Sweden
Filed Apr. 1, 1969, Ser. No. 811,942

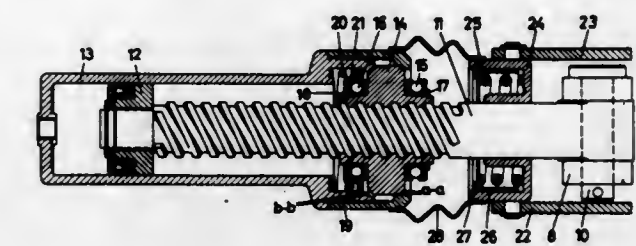
Claims priority, application Great Britain, Apr. 2, 1968, 15897/68

U.S. Cl. 188-203 Int. Cl. F16d 65/66

3 Claims

A railway brake rigging has a live brake lever moved by a piston and a dead brake lever pivoted on a fixed position relative to the bogie frame through a linkage coupled to the live brake lever. The fixed position is a movable slack ad-

juster spindle with a mechanism operable through a linkage to the piston to rotate a nut between two clutch surfaces so



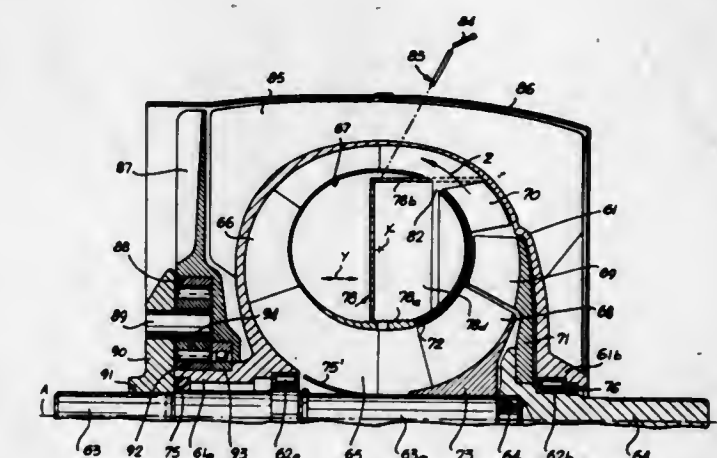
that the spindle moves axially to take up or release slack in the rigging.

3,593,828 HYDRODYNAMIC BRAKE

Hans-Christof Klein, Hattersheim, and Wilhelm Kanpp, Bad Homburg vorder Hoehe, both of Germany, assignors to Alfred Teves G.m.b.H., Frankfurt am Main, Germany
Division of Ser. No. 688,139, Dec. 5, 1967, Pat. No. 3,489,252.
Filed Sept. 15, 1969, Ser. No. 857,708

U.S. Cl. 188-274 Int. Cl. F16d 57/04

3 Claims



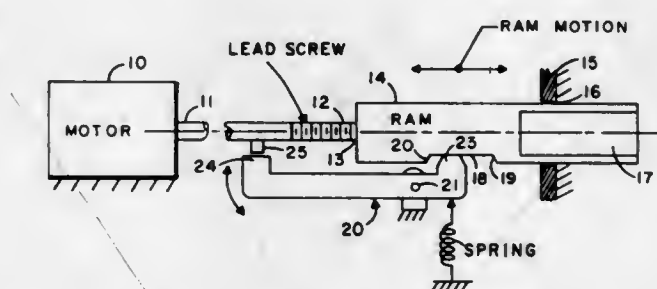
A hydrodynamic brake connected with the power train or wheels of an automatic vehicle in which confronting rotors are driven in opposite senses and have interleaved arrays of axially extending vanes circulating the hydrodynamic brake fluid along a closed path in heat-transferring relationship with air induced to flow along the outer wall of the pump housing by blowers connected with the rotor shafts. The decelerator effectiveness is controlled by intercepting in a stepless manner the pumped liquid.

3,593,829 MECHANICAL STOP LIMIT MEANS FOR LEAD SCREW- DRIVEN RAM

Winston F. Williams, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed Apr. 3, 1970, Ser. No. 33,420

U.S. Cl. 192-141 Int. Cl. F16d 71/00

5 Claims



A positive mechanical stop for position limits of a lead-screw-driven ram is provided by a ram-motion-actuated stop

pawl which is pivoted to engageable relationship with a transverse stop pin carried on the lead screw. By stopping lead screw rotation to effect the ram position limits, high frictional forces between the screw and ram, which might prevent backoff from the limit positions, are avoided.

3,593,830

AUTOMATIC THROTTLE TORQUE-RESPONSIVE POWER TOOL

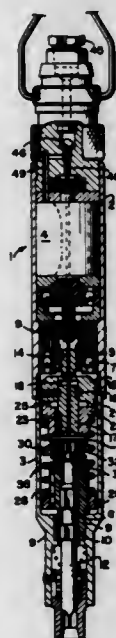
John M. Clapp, and John P. Krouse, both of Athens, Pa., assignors to Ingersoll-Rand Company, New York, N.Y.

Filed May 1, 1969, Ser. No. 820,940

Int. Cl. F16d 43/20

U.S. Cl. 192-150

14 Claims



A fluid-operated power screwdriver having a torque-opening clutch and a throttle which is opened by the operator pressing the screwdriver against a fastener and closed in response to the opening of the clutch. The opening of the clutch moves a control sleeve to a locking position whereby the throttle is allowed to close.

3,593,831

WIDE PRICE RANGE CHANGE MAKING COIN MECHANISM

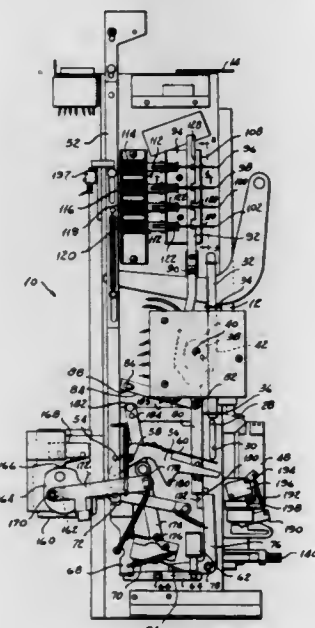
William Rosenhagen, Ossining, N.Y., and Albert Kurimsky, Rockaway, N.J., assignors to Rows International, Inc., Whippany, N.J.

Filed May 20, 1969, Ser. No. 826,091

Int. Cl. G07f 11/00

U.S. Cl. 194-10

13 Claims



A wide price range, coin mechanism for a merchandising machine in which an electromechanical coin totalizer system

responsive to the deposit of coins establishes credit and sets up change making circuits for giving up to four nickels in change over a range of prices from 5¢ to \$1.00 in 5 steps while doing away with base price and price differential cam mechanisms of the prior art in which the range of prices is limited to the narrow range of differentials from the base price.

3,593,832

KEYBOARD INPUT DISPLAY DEVICE

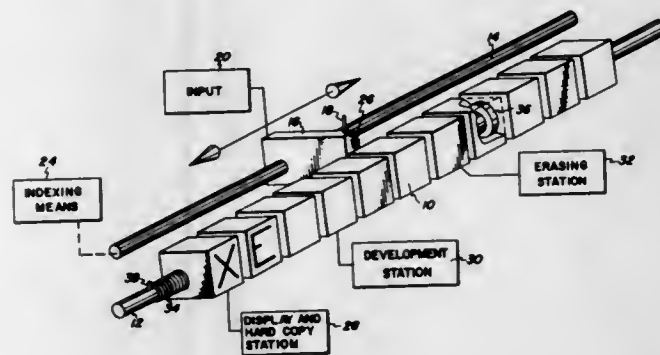
David E. Damouth, Rochester, N.Y., and Wilbur G. Hespeneide, Westlake Village, Calif., assignors to Xerox Corporation, Rochester, N.Y.

Filed Mar. 6, 1970, Ser. No. 17,093

Int. Cl. B41j 3/00

U.S. Cl. 197-1 R

4 Claims



A plurality of multifaceted single character display elements, each of which is independently rotatable to printing, development, display-hard copy, and erasure stations in response to a keyboard input, is disclosed. The use of single character display elements together with resilient spacing means between each element makes possible line justification prior to making a hard copy.

3,593,833

DEVICE FOR SUPPORTING AND GUIDING A ROLL OF PAPER IN A CALCULATING, ACCOUNTING OR LIKE MACHINE

Franco Bretti, Are'di Caluso, Italy, assignor to Ing. C. Olivetti & Co., S.p.A., Ivrea, Turin, Italy

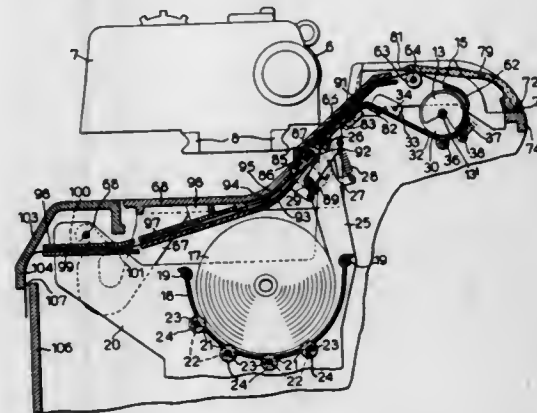
Filed Apr. 2, 1968, Ser. No. 718,133

Claims priority, application Italy, Apr. 3, 1967, 51177A/67

Int. Cl. B41j 15/22

U.S. Cl. 197-132

4 Claims



In an accounting machine having an alphanumeric printing mechanism and a numeric printing mechanism the paper carriage for the alphanumeric mechanism is guided by a rail located to the rear of the numeric mechanism. This latter is adapted to print on a tally roll adapted to be housed in a substantially semicylindrical plate located under the guiding rail and provided with a set of parallel apertures for a set of rotatable rollers supporting the tally roll. The paper of the roll is so guided as to pass after printing along a path beneath said guide rail, a slit on the rear wall of said cover being provided for the exit of the printed paper of said roll.

3,593,834

CONVEYOR FOR HANDLING FROZEN PRODUCTS

Zbigniew Zygmunt Klos, and Lech Stanislaw Bialkowski, both of Warsaw, Poland, assignors to Biuro Studiow i Projektow Konstrukcji Stalowych Mostostal, Warsaw, Poland

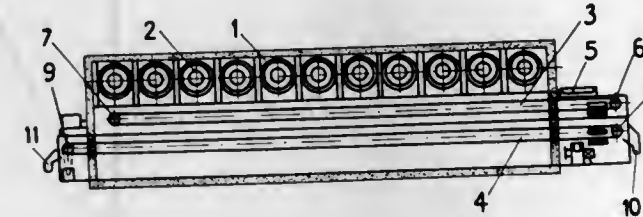
Filed Oct. 3, 1969, Ser. No. 864,305

Claims priority, application Poland, Oct. 4, 1968, P. 129366

Int. Cl. B65g 1/100

U.S. Cl. 198-1

4 Claims



The invention concerns a conveyor for handling food products which utilizes vertical, alternately disposed, stationary and vertically moving bars. The ends of the stationary moving bars are secured to vertical plates which in turn are secured to a Gall-type power transmission chain driven by a gear wheel. The moving bars pass through vertical plates and are received on either side in the slots of guides which are moved in vertical directions by a multiple-lob cam which cam is mounted on the same shaft on which the gear wheel driven by the power transmission chain is mounted.

3,593,835

BALE LOADING MACHINE

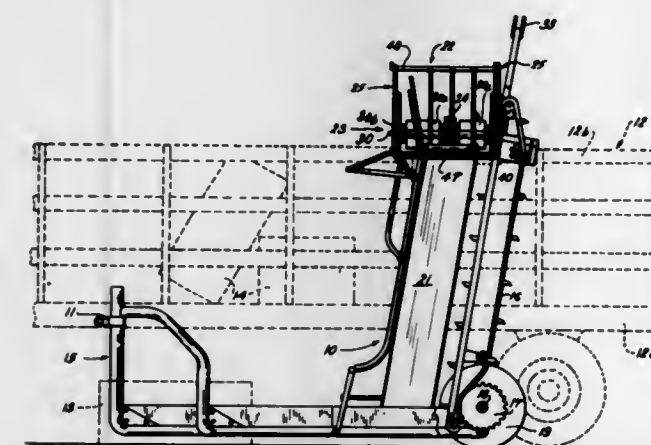
Vincent Kneib, and Earl G. Kneib, c/o Kneib Mfg. Co., 6 Highway, both of St. Joseph, Mo.

Filed May 8, 1969, Ser. No. 822,948

Int. Cl. B65b 65/02; B65g 37/00

U.S. Cl. 198-7

9 Claims



A field bale-loading machine having an upright mobile frame and an elevating conveyor for elevating bales to a level above an associated vehicle bed and including a bale discharge means connected to the frame and supportable at different angles of inclination with respect to the frame, for receiving bales from the elevating conveyor for laterally transporting bales away from the elevating conveyor and for discharging bales onto the bed.

3,593,836

TRANSFER APPARATUS

William J. Hill, Holden, Mass., assignor to Morgan Construction Company, Worcester, Mass.

Filed June 9, 1969, Ser. No. 831,678

Int. Cl. B65g 47/26, 47/52

U.S. Cl. 198-25

9 Claims

An apparatus for axially receiving and laterally transferring successive elongated elements. A plurality of element receiving channels are mounted for lateral movement across a

given path along which the said elements are delivered to the apparatus. Adjustable switch pipes axially deliver one elongated element to one of said channels while simultaneously directing the leading end of the next subsequent element to another adjacent channel. The element receiving channels



and the switch pipes are intermittently operated to transfer the elongated elements sliding in said channels laterally from the said path while permitting uninterrupted axial movement of at least one elongated element from one of said switch pipes into one of said channels.

3,593,837

PACKAGING MACHINE

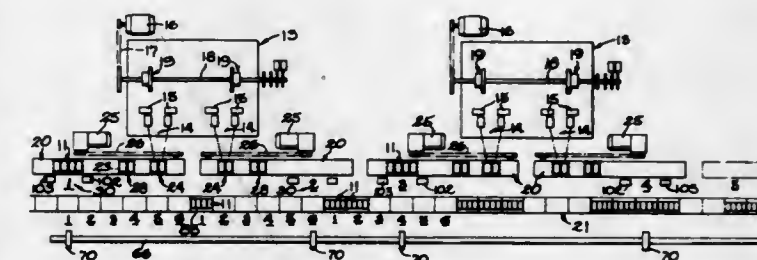
Clifford R. Loomis, Jr., Beloit, Wis., assignor to Riegel Paper Corporation

Filed Feb. 6, 1969, Ser. No. 797,104

Int. Cl. B65b 35/30; B65g 47/52, 57/10

U.S. Cl. 198-35

3 Claims



Stationed adjacent a packaging machine with two points for feeding out lines of filled packages are two receiving conveyors positioned end-to-end for movement in opposite directions. One end of each conveyor is adjacent a respective one of the feed-out points for receiving the line of packages. After being collected in groups of a predetermined size on each receiving conveyor, the packages are automatically placed on a transferring conveyor by a transferring mechanism for movement to a cartoner. The transferring mechanisms are located at each receiving conveyor and are activated in sequence with one another and with the movement of the transferring conveyor.

3,593,838

CONVEYOR BELT

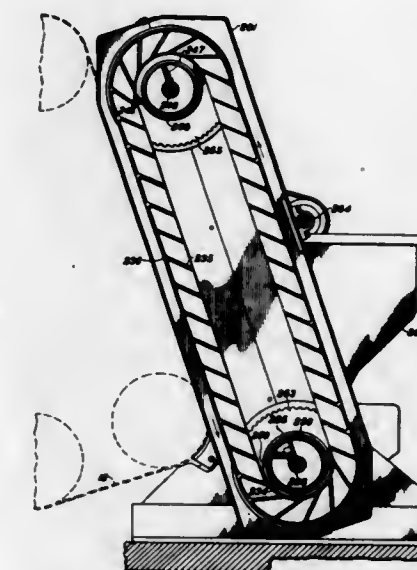
Salvatore Latone, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed May 24, 1968, Ser. No. 731,898

Int. Cl. B65g 17/12

U.S. Cl. 198-140

1 Claim



A conveyor belt for vertically lifting particulate material from a lower receiving point and depositing it at a higher

point, both points being located totally within the confines of the belt as are the openings for the buckets that make up the belt.

3,593,839

CONVEYORS

Edward Peter Smith, London, England, assignor to BTR Industries Limited, London, England

Filed July 23, 1969, Ser. No. 844,078

Claims priority, application Great Britain, July 23, 1968, 35,152/68

Int. Cl. B65g 15/60

U.S. Cl. 198—184

9 Claims



A conveyor having a belt and continuous bearing elements near the lateral edges of the belt to support the belt, in which there is means to supply fluid under pressure to the gaps between the bearing elements and the belt to form a fluid bearing for the belt. The bearing elements may have convex surfaces, and the belt may have cooperating concave surfaces of very slightly smaller concavity, whereby the gaps are narrowest at the edges of the bearing elements. Preferably, the bearing elements are hollow and there is means to supply pressurized fluid to the hollow elements, and thence to the gaps between the bearing elements and the belt.

3,593,840

CONVEYOR BELT FOR HOT MATERIAL

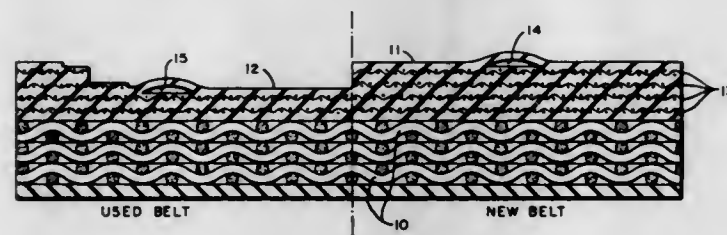
Nathan E. Guyer, Stoneham, Mass., assignor to American Bitrite Rubber Co., Inc., Chelsea, Mass.

Filed Apr. 23, 1969, Ser. No. 818,656

Int. Cl. B65g 15/30; E06b 3/12

U.S. Cl. 198—193

5 Claims



A belt for conveying hot material, comprising a laminated carcass of rubberized fabric and an enclosing cover consisting of thin layers of rubber interleaved and bonded together with fabric plies and thus presenting a plurality of contiguous interfaces all at different depths within the cover itself tending to distribute areas of blister separation where they have the effect of heat-insulating the carcass of the belting.

3,593,841

IDLER ROLLER ACTUATING DEVICE

Carl D. Leow, Rogers Township, Presque Isle County, Mich., assignor to United States Steel Corporation

Filed Nov. 3, 1969, Ser. No. 873,360

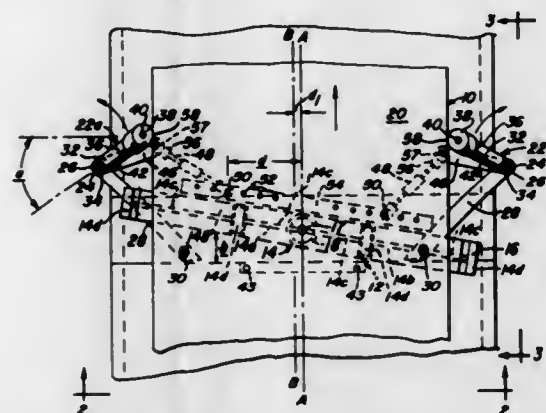
Int. Cl. B65g 15/62

U.S. Cl. 198—202

35 Claims

An idler roller actuating device for a conveyor having a conveyor frame, an idler roller having a roller frame pivotable on the conveyor frame, and a belt passing over the idler roller and having a normal operating position is disclosed. The idler roller actuating device is disposed adjacent one side of the belt and has a pivot member pivotable on the conveyor frame; a sensing arm affixed to the pivot member having a sensing arm free end; a sensing member mounted on the sensing arm free end of the sensing arm adjacent the one side of the belt; a first tension member affixed to the pivot member and having a first tension member free end; and a

second tension member affixed to the roller frame and having a second tension member free end pivotably connected to the first tension member free end. The sensing member is engageable with the one side of the belt when the belt moves away from the normal operating position and toward the one side of the belt to rotate the sensing member and the sensing arm in one direction of a counterclockwise direction and a



clockwise direction. The first tension member and the second tension member are operable by the rotation of the sensing member and the sensing arm to rotate the roller frame and the idler roller in the other direction of the counterclockwise direction and the clockwise direction so that the idler roller reverses the movement of the belt away from the normal operating position and returns the belt to the normal operating position.

3,593,842

POWDER LEVEL SENSING

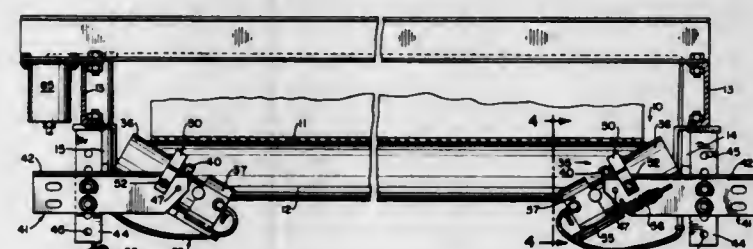
Richard C. Berg, Bloomington, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 20, 1969, Ser. No. 867,495

Int. Cl. G08b 21/00

U.S. Cl. 340—246

7 Claims



Apparatus for sensing and externally signalling the diminution of a supply of developer powder in a tray in which a blunt edged conductive bar is supported by resilient members from a rotating shaft to drag the powder toward a discharge opening and which completes an electrical circuit by touching contacts in the bottom wall of the tray upon diminution of the supply of developer powder to close a circuit and externally signal the diminution of the powder.

3,593,843

CONVEYING SCREW

Alan Harvey Hill, Darlington, England, assignor to General Engineering Company (Radcliffe) Limited

Filed Mar. 18, 1969, Ser. No. 808,104

Claims priority, application Great Britain, Mar. 21, 1968, 13656/68

Int. Cl. B65g 33/30

U.S. Cl. 198—213

6 Claims

An extruder conveying screw comprising a core having two helical flights thereon, the first of which extends between opposite ends of the screw to define a helical channel and the second of which extends generally across the channel over a portion intermediate the length of the screw, and a casing around said screw characterized in that said second flight is terminated at its upstream end in spaced relationship to the

wall of the first flight and further in that the second flight is provided with a groove across its peripheral surface adjacent bottom of each recess. The ribbon is of a length to extend and parallel to a line of junction between the first and second



flights at the downstream end of the latter, said groove having a depth such as to provide a clearance of between 0.060 and 0.090 inches between the base of the groove and the casing.

3,593,844

CONVEYOR

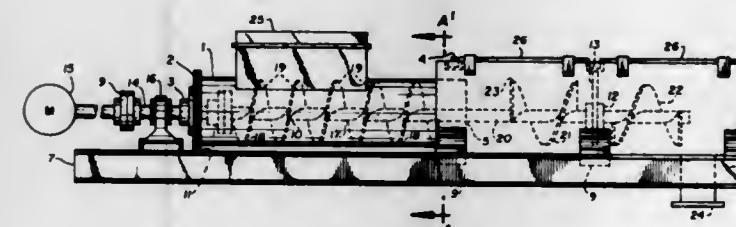
John W. Barclay, Green River, Wyo., and Francis R. Evans, Jordan, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Oct. 30, 1969, Ser. No. 872,626

Int. Cl. B65g 33/00

U.S. Cl. 198—214

10 Claims



A conveyor for moving solids comprising an elongated shell mounted in a horizontal position, said shell being divided in two distinct shell sections, the first section having a shell diameter less than the second section, inlet means in said first shell section, and outlet means in said second section, a helical flight assembly on a shaft rotatably and coaxially mounted within said shell, means for rotating said shaft about its major axis, said flights in the first shell section having a pitch equal to about one-half the diameter of said flight in said first shell section and said flights in the second shell section having a pitch equal to about the diameter of said flight in said second shell section, said first and second shell sections having a flightless section therein on said rotating shaft, said flightless section beginning within said first shell section and continuing into and terminating in said second shell section, said second set of helical flights having its leading edge out of phase of the trailing edge of said first set of helical flights.

3,593,845

TAPE CASSETTE ALBUM

Louis E. Schwartz, New York Law School, 57 Worth St., New York, N.Y.

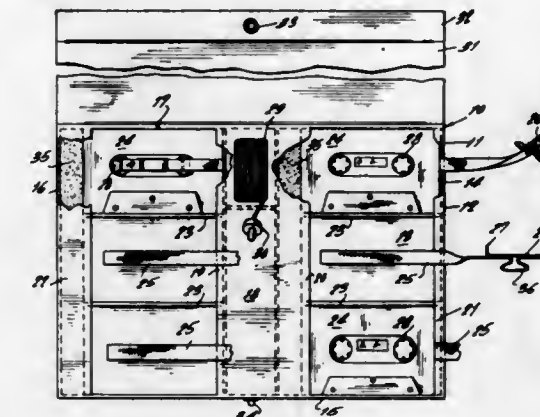
Filed Aug. 19, 1969, Ser. No. 851,333

Int. Cl. B65d 85/67

U.S. Cl. 206—1

5 Claims

A container for a plurality of audio tape cassettes in which a plurality of tape cassette-receiving recesses are provided



part way around the cassette and is provided with a clip at the free end thereof to engage and lock the tape cassette reels.

3,593,846

DISPLAY CARTON

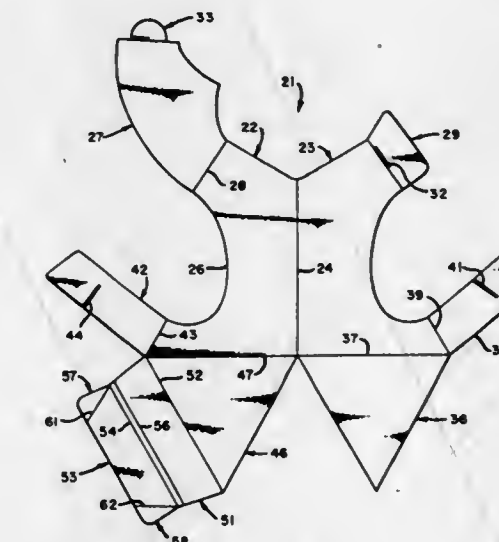
Michael Dolas, Santa Barbara, Calif., assignor to Recorder Printing and Publishing Company, San Francisco, Calif.

Filed Oct. 27, 1969, Ser. No. 869,607

Int. Cl. B65d 5/50

U.S. Cl. 206—45.14

5 Claims



A carton folded together and interlocked from a flat sheet of cardboard or the like and including openings for the display of a sales item disposed therein. A particularly structured folded floor and front wall provides exceptional carton strength and permanency of carton contour.

3,593,847

PILE FABRIC REEL AND END FRAME THEREFOR

Theodore P. Kessler, Rancocas, N.J., assignor to Timron, Inc., Moorestown, N.J.

Filed July 31, 1968, Ser. No. 749,012

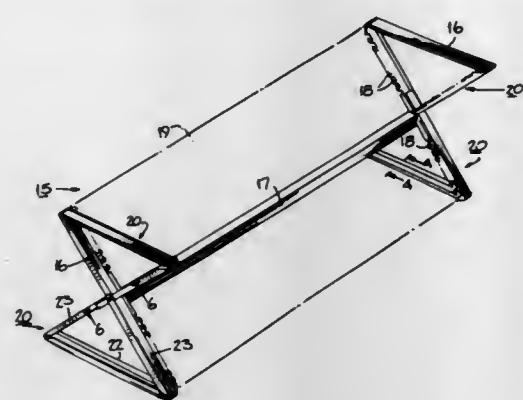
Int. Cl. B65d 85/66

U.S. Cl. 206—51

23 Claims

The end frame of the reel is made up of pairs of reel arms which are secured by a centrally located pin. The pin projects from the end frame so as to be slidably mounted in the spacer bar. The hook-containing sections radiate from the pin while the corrugated ribs of each section abut the pin so as to create a rigid structure against bending and skewing.

The reel arms can be made of one piece or of three separate pieces coined together. The pin can be circular so as to



rotate the frame in the spacer bar or square so as to prevent rotation.

3,593,848 FOAM-COVERED COIL AND METHODS OF MANUFACTURING THE SAME

Arthur H. Landau, Katonah, N.Y., assignor to Atlas Coatings Corporation, Long Island City, N.Y.
Filed Feb. 26, 1968, Ser. No. 708,269
Int. Cl. B65h 75/00; B32b 1/00

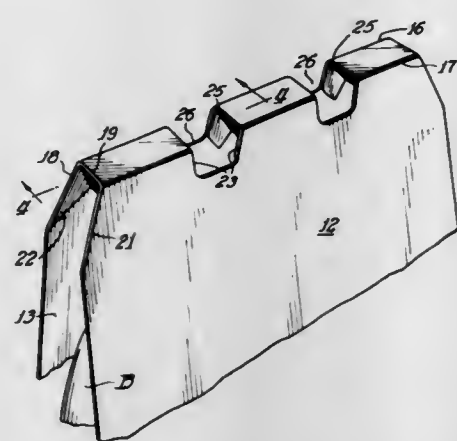
U.S. Cl. 206—59 12 Claims
The present invention relates to methods, particularly suited for the coil-coating industry, for continuously covering and permanently bonding a heat stable plastic foam to a metal web traveling at comparatively high speeds of up to 300 feet per minute through coil-baking ovens having ambient atmospheres above 400° F. The metal web may be an unwound coil of steel or aluminum, and the foam may be expanded polyvinyl chloride. The foam-covered metal coil product of the invention, which may include a plastic film laminated thereto, is suited for postforming by stamping, bending, crimping, roll forming, or the like.

3,593,849 WRAPAROUND CARRIER

Charles R. Helms, Barto Road, and Richard T. Walter, Norristown, both of, Pa., assignors to Container Corporation of America, Chicago, Ill.
Continuation-in-part of application Ser. No. 781,005, Dec. 4, 1968, now abandoned. This application Aug. 28, 1969, Ser. No. 857,285
Int. Cl. B65d 75/00

U.S. Cl. 206—65

5 Claims



A wraparound carrier formed from a unitary paperboard blank and particularly adapted for the transport of large glass bottles, the carrier consisting of a bottom panel and side panels extending upward therefrom and inclined toward each other to conform generally to the neck portions of the bottles, the side panels being joined by a narrow panel overlying the tops of said bottles, the narrow panel being scored and slit between the ends thereof to provide a pair of finger holes

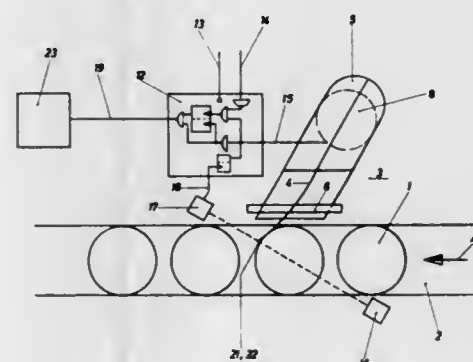
on each side of an intermediate of such necked bottles and to provide confronting gusset folds to reinforce the carrier in the area of said finger holes and to stabilize said intermediate bottles. Desirably, the ends of the narrow and side panels may be scored to define end gusset folds extending toward the endmost of the bottles to hold them against endwise displacement.

3,593,850
DETECTING OF LABELS ON DISCRETE ARTICLES
Josef Denk, Waiblingen, and Otto Ingelfinger, Ludwigsburg, both of, Germany, assignors to Hoffler & Karg, Waiblingen near Stuttgart, Germany
Filed June 4, 1969, Ser. No. 830,327
Claims priority, application Germany, June 8, 1968, P 17 74 394.1

U.S. Cl. 209—80

Int. Cl. B07c 5/00

12 Claims



Method and apparatus for checking discrete articles for the presence of applied labels. The articles are advanced past a control station where their presence is detected and a scanning device activated in response to such detection. The scanning device mechanically scans the detected article for the presence of a label and generates, in the absence thereof, an indication of such absence.

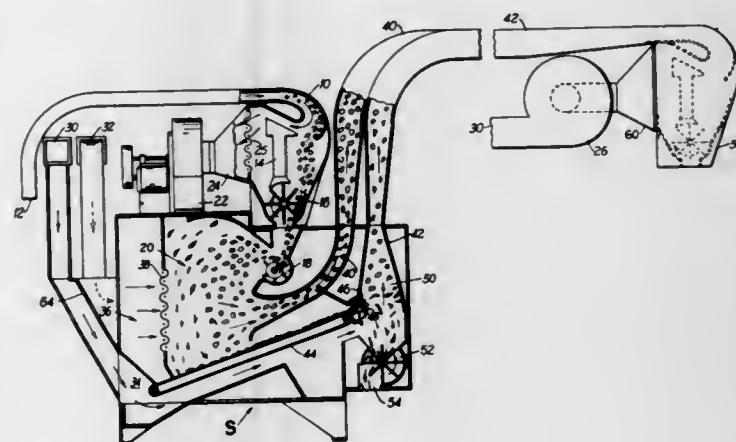
3,593,851 TOBACCO LEAF CLASSIFIER

Joseph William Davidson, Richmond, Va., assignor to AMF Incorporated
Continuation of application Ser. No. 760,122, Sept. 12, 1968, now abandoned, which is a continuation of application Ser. No. 535,562, Mar. 18, 1966, now abandoned. This application Sept. 11, 1969, Ser. No. 860,465
Int. Cl. B07b 3/00

U.S. Cl. 209—133

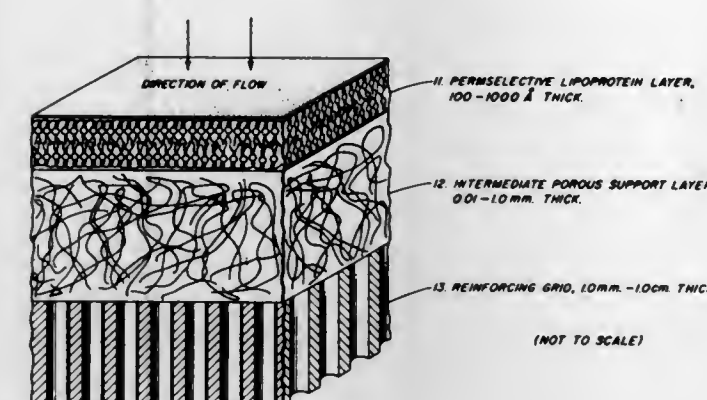
Int. Cl. B07b 3/00

3 Claims



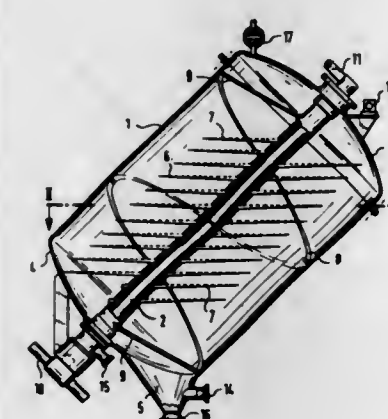
A tobacco leaf classifier including a primary separation chamber and a secondary separation chamber, said secondary chamber receiving middlings from said first chamber and each of said chambers operating in independent air circuits.

3,593,852
REVERSE OSMOTIC WATER PURIFICATION
Lewis Smith Meriwether, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.
Filed Aug. 8, 1969, Ser. No. 848,475
Int. Cl. B01d 39/00, 31/00
U.S. Cl. 210—321 3 Claims



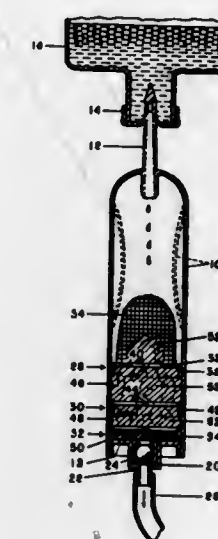
Brackish or saline water may be purified by forcing the water under comparatively high pressure through a reverse osmotic membrane consisting of the reconstituted membranes derived from living cells such as red blood cells, which reconstituted membranes themselves are in the order of 50 to 150 Angstroms thick with at least one and perhaps several layers of such reconstituted membranes supported on a support layer which may be of a water permeable cellulose which in turn is mechanically reinforced by a grid, porous plate or ceramic-type plate which has high mechanical strength. The membrane is formed by ultrasonic rupturing of the cell membranes followed by the reaggregation of the resulting lipoprotein subunits into a continuous membrane having a thickness and composition similar to that of the intact cell membrane but of much greater size.

3,593,853
INCLINED FILTER ASSEMBLY
Hermann Koethke, Hagen, Germany, assignor to H. Putsch & Company
Filed Aug. 26, 1969, Ser. No. 853,024
Claims priority, application Germany, Aug. 26, 1968, P 17 86 168.6
Int. Cl. B01d 29/34, 29/02
U.S. Cl. 210—330 6 Claims



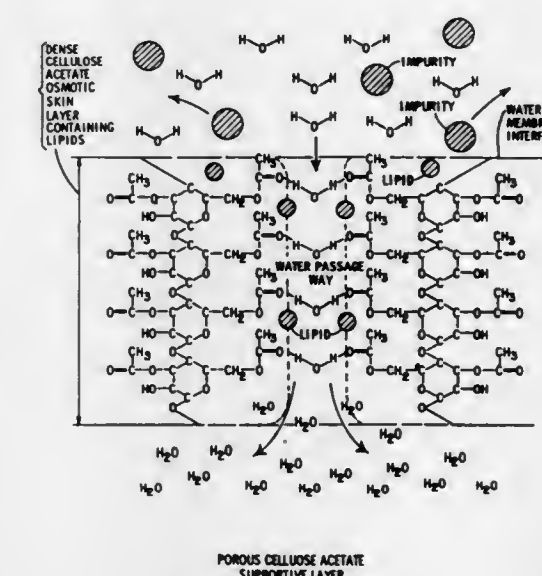
A disc-type filter comprises discs set on a shaft which is inclined to the horizontal. The discs are set obliquely on the shaft.

3,593,854
BLOOD TREATING AND FILTERING APPARATUS
Roy Laver Swank, 4400 S. W. Scholls Ferry Road, Portland, Oreg.
Continuation-in-part of application Ser. No. 826,480, May 21, 1969, now abandoned. This application Dec. 5, 1969, Ser. No. 882,663
Int. Cl. B01d 29/08 14 Claims
U.S. Cl. 210—436



Stored human blood is treated preliminary to blood transfusions by passing it through a mat of glass wool or other fibrous material which removes from the blood the storage-generated platelet leukocyte aggregates present therein. It is filtered during open heart surgery by passing it through the same material for removal of aggregates and leukocytes and separation of entrained air.

3,593,855
HIGH FLOW POROUS REVERSE OSMOSIS
MEMBRANES CONTAINING LIPIDS
Regis R. Stana, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 13, 1969, Ser. No. 824,115
Int. Cl. B01d 39/00, 13/00 5 Claims
U.S. Cl. 210—500



A semipermeable membrane containing a supportive layer and a lipid containing osmotic skin layer of polymeric film forming cellulosic material is made by (1) admixing film forming cellulosic material, solvent, swelling additive and lipid to provide a casting solution (2) casting a film from the solution (3) drying the film (4) leaching the film to form a semipermeable osmotic skin membrane containing a residue of lipid, and (5) optionally curing the membrane.

3,593,856

STAND FOR HOLDING WRITING IMPLEMENTS
Olaf Zander, Haus am Wald, Germany, assignor to Olaf Zander Kommandit-Gesellschaft, Königstein (Taunus), Germany

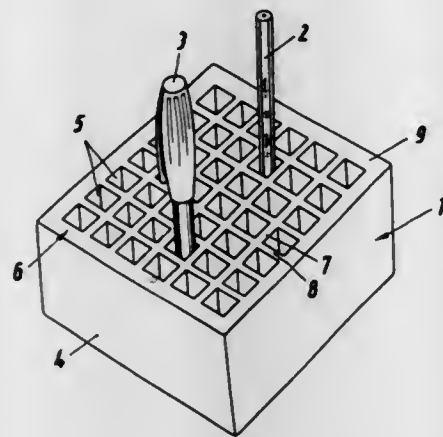
Filed Oct. 29, 1969, Ser. No. 872,055

Claims priority, application Germany, Nov. 8, 1968, P 18 07 757.1

Int. Cl. A47f 7/00

U.S. Cl. 211-69.5

1 Claim



The invention relates to a stand made of a ceramic material for holding writing instruments such as pencils or the like. The stand has rows of holes for receiving the instruments and may have a rectangular shape or other shapes. The stand has a large capacity for holding writing instruments despite having a relatively small base area.

3,593,857

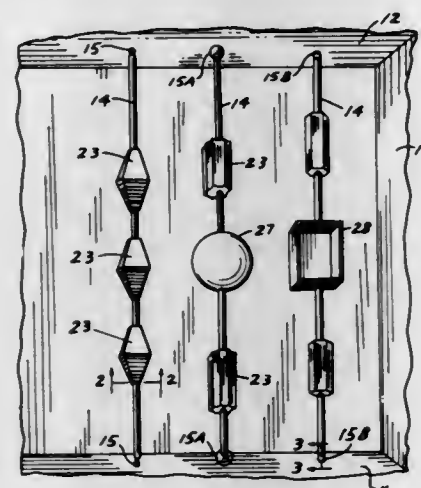
POLE DECORATION

Gordon J. Hernes, 7645 Orchard, Dearborn, Mich.
Filed Nov. 3, 1969, Ser. No. 873,218

Int. Cl. A47f 5/00

U.S. Cl. 211-86

1 Claim



This application discloses the art of decorating with poles and miscellaneous pieces of geometric configuration. The invention resides in the means and method of assembling the elements and in the particular construction and arrangement of certain of the components.

3,593,858

HEAVY DUTY LIFT

Shelton Ruffin, Rte. 1, Oak Grove, La.

Filed Feb. 23, 1968, Ser. No. 707,825

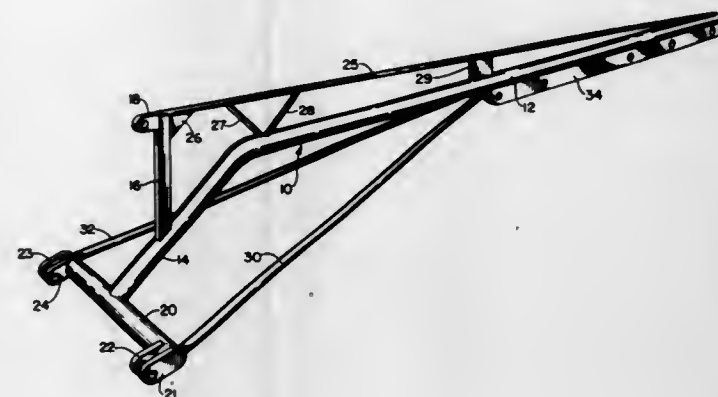
Int. Cl. B66c 23/00

U.S. Cl. 212-8

9 Claims

A lift device for use with farm tractors and similar mechanisms is described. Preferably the lift is used with and attached to the rear of farm tractors equipped both with conventional lifting arms and a conventional remote controlled double-acting hydraulic cylinder. The lift is capable of raising

heavy loads to high elevations, is light weight, and can be installed and used by one operator. In addition the lift can



readily be fabricated from low cost, readily available component parts.

3,593,859

CONVERTER-CARRYING TRANSFER AND POSITIONING VEHICLE

Ronald Spannlang, Linz-Ebelsberg, and Karl Morhart, Linz, both of, Austria, assignors to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria

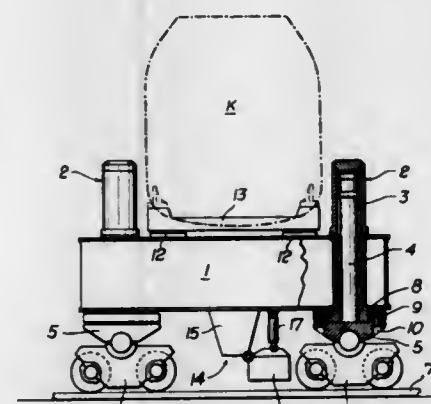
Filed Feb. 5, 1969, Ser. No. 796,656

Claims priority, application Austria, July 16, 1968, A 6839

Int. Cl. B25j 5/02; B61f 5/00; B65g 63/02

U.S. Cl. 214-1 D

4 Claims



The invention relates to a track-engaging transfer and positioning vehicle for refining vessels enabling a simple transposition at rail crossings. The vehicle of invention comprises a carrying structure having a square ground plan, trucks rotatable in relation to said carrying structure and supporting extensible lifting means serving for lifting and lowering said carrying structure, as well as additional support means arranged centrally between two lifting means on the lower surface of the carrying structure and serving for supporting said carrying structure on the ground while the trucks are rotated through the angle of intersection of the tracks.

3,593,860

STACKING DEVICE FOR BOOK PADS

Hermann Brenner, Kocherstetten, Germany, assignor to Walter Sigloch Grossbuchbinderel, Kunzelsau, Germany

Filed Mar. 20, 1969, Ser. No. 808,730

Claims priority, application Germany, Sept. 7, 1968, P 17 86 261.2

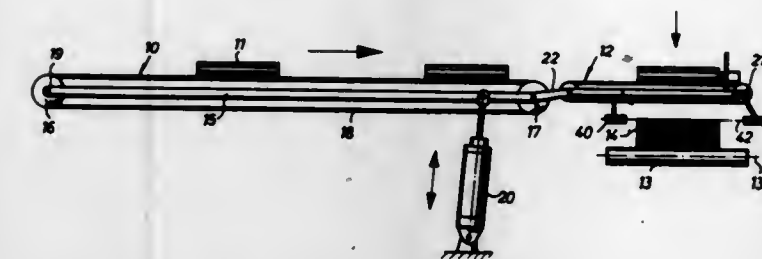
Int. Cl. B65g 57/112

U.S. Cl. 214-6

4 Claims

A device for the stacking of flat books or book pads in which a pivotally mounted conveyor transports the books or pads to an associated, work-actuated unloading mechanism which consecutively drops the books or pads from a constant

height to form a stack of predetermined height on a table or pallet. The conveyor is driven by a piston-cylinder power



means which is actuated in response to a stack height scanning device.

3,593,861

PACKAGE ASSEMBLY

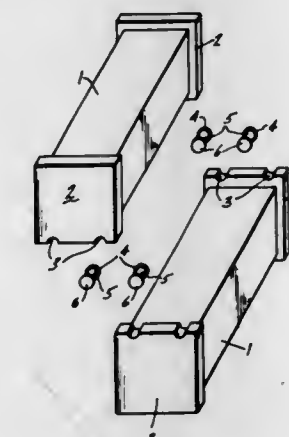
Walter C. Holland, Jr., Brevard, N.C., assignor to Olin Mathieson Chemical Corporation

Filed Feb. 3, 1969, Ser. No. 795,914

Int. Cl. B65g 1/14

U.S. Cl. 214-10.5 R

7 Claims



Novel assembly means are provided for aligning and unifying a plurality of similar packages, as of rolls of cellophane. Each package has end sections, which extend somewhat beyond the sidewalls and which have a plurality of suitably shaped notches. Spools, having hub portions adapted to engage the mating surface of the notches, and having flanges at each end adapted to engage end section walls around the notches, firmly retain the assembly together by preventing horizontal movement of the packages relative to each other. A curved or tapered surface is provided on one or both of the mating spool and end support notches in order to facilitate the desired alignment of the packages into a unitary assembly, from which the individual packages are easily and rapidly removable when desired.

3,593,862

INTERFINGERING ENDLESS ELEVATOR AND CONVEYOR APPARATUS

Edward D. Pierson, Denver, and James C. Wright, Arapahoe, both of, Colo., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed June 27, 1968, Ser. No. 740,553

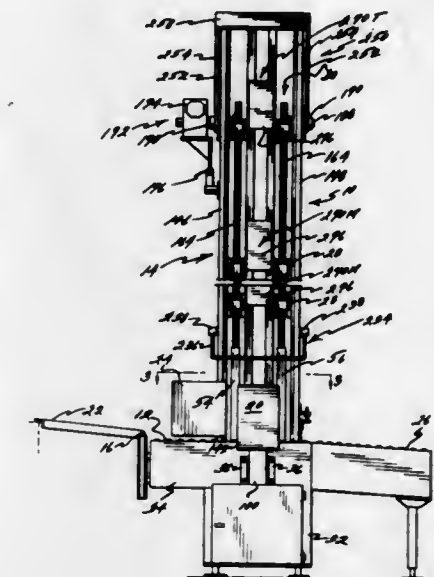
Int. Cl. B65g 43/00

U.S. Cl. 214-11 R

19 Claims

This invention relates to an automatic bundle-elevating apparatus of a type especially adapted to raise newspaper bundles transversely a conveyor at one level and discharge same on a conveyor at another level. The unit includes a specially designed roller conveyor section equipped with a retractable bundle stop that can be inserted into a standard roller conveyor and used to divert bundles to the elevator. Mounted alongside the roller conveyor section immediately ahead of the retractable stop is a pneumatic pusher that cooperates with said stop to square up the bundle preparatory to lifting same free of the conveyor surface. The elevating mechanism comprises a plurality of horizontal, transversely spaced pairs

of double-tined arms that move up between the rollers of the conveyor on a sprocket chain and lift the bundle free thereof. As the bundle moves up the elevator, it either passes through or strikes a bail pivotally mounted on the elevator column and extending out over the conveyor section. If the bundle is misaligned to the degree where it strikes the bail, the latter will actuate to shut down the elevator until the condition is



remedied. At least one, and usually several, locations on the elevator column, a discharge station is provided that is equipped with a pneumatic pusher operative upon actuation to push the bundle off of the arms supporting same and onto a second elevated roller conveyor running past the unit. A safety-gate at the upper extremity of the elevator column will actuate to shut down the unit if a misaligned bundle strikes same or personnel attempt to ride up the elevator.

3,593,863

INTEGRATED CIRCUIT COURIER SYSTEM WITH SLOW REVERSE MOVEMENTS FOR CENTERING AT BIN

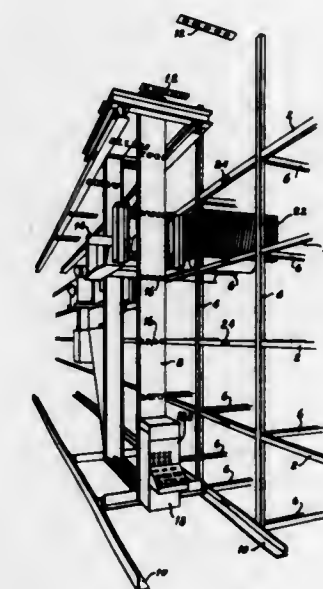
Paul M. Kintner, Bayside, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Aug. 20, 1969, Ser. No. 851,667

Int. Cl. B65g 1/06

U.S. Cl. 214-16.4 A

10 Claims



In a warehouse having horizontal rows and vertical columns of bins in which packages are stored by a code-controlled courier, problems of alignment occur particularly when the bin columns are quite high. Horizontal and vertical movements bring the courier in front of a bin and left or right movements of the package supporting table move the

package into or out of left and right bins, respectively. Since horizontal movement is controlled by a single series of code bars mounted along the top or bottom of the bin columns, any misalignment of the bins in a column from the vertical will cause a problem in stopping the courier at the middle of the bin particularly with respect to those bins spaced farthest from such series of code bars. To solve this problem, the code bars are arranged to stop the courier beyond the center of the bin and an integrated circuit logic system automatically causes slow reverse movement of the courier to "fine position," that is, photocells detect reflective tape at the center of the bin and stop the courier thereat. After the tape has been extended and retracted, this integrated circuit logic system automatically controls return of the courier to the former code reading position to provide a read code for comparison with the input code for control of the next movement. This movement of the courier to fine position is an optional feature, requiring only simple jumper connections for use of the system without it where the columns are not high. In such case, the code reader or code bars may be positioned to stop the courier at the center of the bin under control of the code bars.

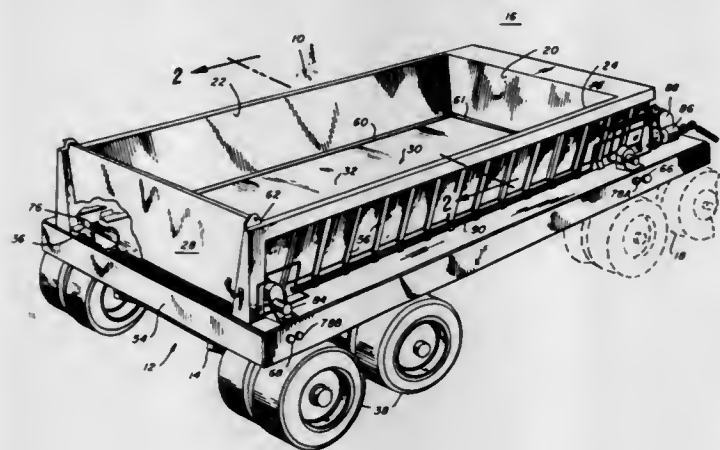
3,593,864

SELF-UNLOADING TRAILER

William H. Moser, Paris, Tex., assignor to CCI Corporation, Tulsa, Okla.
Continuation-in-part of application Ser. No. 673,043, Oct. 5, 1967, now Patent No. 3,482,717. This application Dec. 4, 1969, Ser. No. 881,989
Int. Cl. B60p 1/38

U.S. Cl. 214-83.36

3 Claims



A trailer having upstanding side and front walls includes directly over the top of the floor thereof a first endless conveyor belt, the actuation of which moves the material received thereon rearwardly from the trailer during unloading. In one embodiment of the invention, a second belt is interposed between the floor and the first conveyor belt for reducing friction between thereby increasing the load capabilities of the trailer. In a second embodiment of the invention, pressurized air is forced upwardly through the floor to raise the endless belt therefrom in order to increase the load capabilities of the trailer.

3,593,865

LIFT MOUNTABLE TO THE BED OF A PICK-UP TRUCK

Herman L. Moor, Chicago; Harold R. Braner, River Grove, and Irwin L. Salk, Skokie, all of, Ill., assignors to Braner Engineering, Inc., Chicago, Ill.

Filed Dec. 8, 1969, Ser. No. 882,839

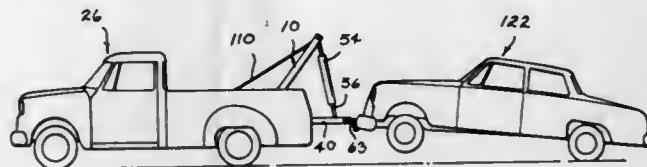
Int. Cl. B60p 3/12

U.S. Cl. 214-86 A

8 Claims

A lift mountable to the bed of a pickup truck including an inverted V-shaped frame member having leg parts each pivotally connected at the free end thereof to the truck bed adjacent and substantially parallel to the rear edge of the bed so as to be pivotal in a fore and aft direction relative to the truck. A second V-shaped frame member extends rearwardly of the truck over the rear edge of the bed thereof and has leg parts each pivotally connected at the free end thereof to a leg

part of the inverted V-shaped member. A hydraulic piston and cylinder power unit has one end pivotally connected to the apex of the inverted V-shaped frame member and its other end pivotally connected to the second V-shaped



member, adjacent the apex thereof. A tow bar is mounted to the apex of the second V-shaped member. Means are provided for actuating the hydraulic power unit to cause pivotal movement of the second V-shaped member and a shifting of the tow bar.

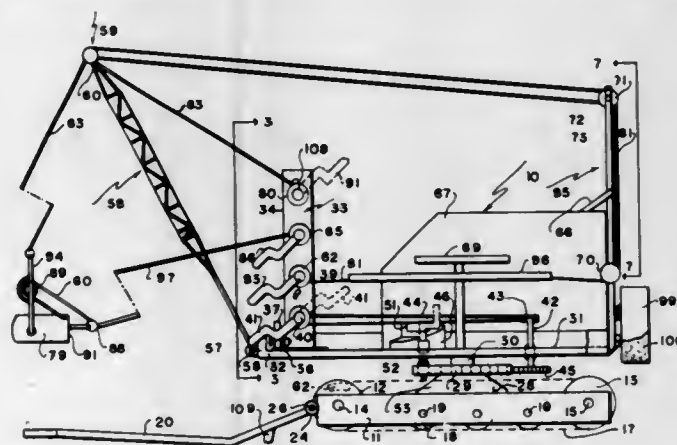
3,593,866

CARRIAGE MOUNTED SWIVELING TOY CRANE WITH BOLT FOR PREVENTING SWIVELING

Cyril Gazdarica, General Delivery, Tilley, Alberta, Canada
Filed Sept. 15, 1969, Ser. No. 857,878
Int. Cl. B66b 17/00

U.S. Cl. 214-92

4 Claims



A carriage has a boom mounted on a turntable. The boom, bucket and turntable are all operable by foot and hand controls mounted on a common pedestal so that the bucket can be activated, the boom can be raised and lowered, and the turntable can be rotated and locked.

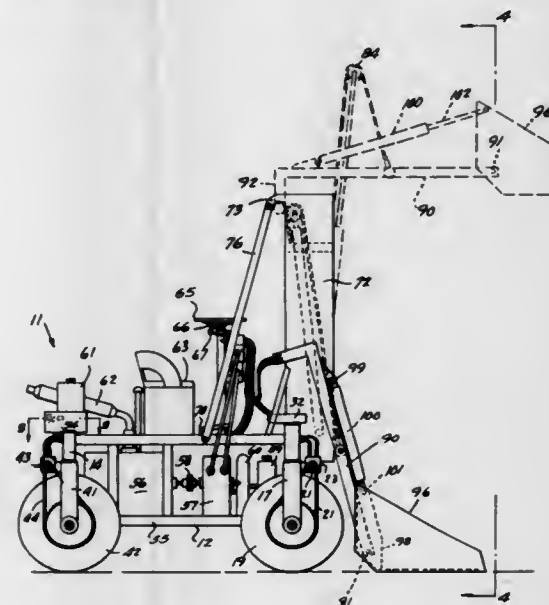
3,593,867

HYDRAULIC LOADER UNIT

Walter W. Moe, 502 S. 12th St., Montevideo, Minn.
Filed Apr. 25, 1969, Ser. No. 819,398
Int. Cl. B66f 9/00, 9/10

U.S. Cl. 214-146.5

16 Claims



A hydraulic loader vehicle having a liftable front bucket. The vehicle is driven by a gasoline or electric motor which drives a hydraulic pump, which, in turn, delivers pressure fluid to respective hydraulic motors connected to the vehicle

wheels. The pump also delivers pressure fluid to respective front and rear wheel hydraulic motors, and to a hydraulic cylinder employed to raise and lower the bucket of the vehicle. The bucket-supporting arms are guided upwardly along vertical frame channels until the top rollers on the arms engage limiting abutments at the top ends of the frame channels, causing the arms and bucket to be swung outwardly and forwardly so as to be able to dump a load well forwardly of the vehicle. The vehicle has reversible positive drive at all four wheels and the wheels can be steered a full 180°, enabling the vehicle to be moved in any desired direction, or to be rotated in a very small area.

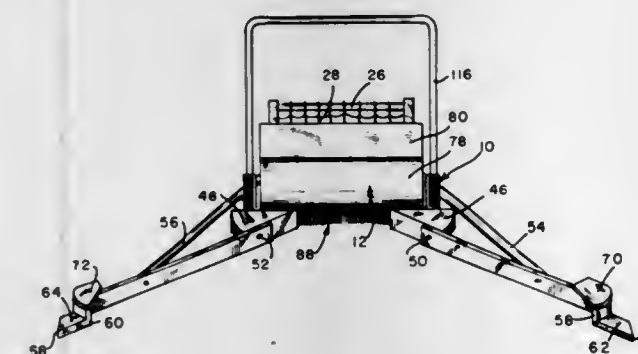
3,593,868

TENNIS BALL RETRIEVER

George W. Folz, 124 E. 57th Place, Tulsa, Okla.
Filed Jan. 8, 1969, Ser. No. 789,688
Int. Cl. B60p 3/00

U.S. Cl. 214-356

3 Claims



An apparatus for retrieving tennis balls which may be widely scattered on a court or field which comprises a brush element journaled for rotation in a direction whereby the balls are picked up and swept into a receiving chamber as the apparatus is rolled or moved over the field. An arcuate ramp is provided for cooperation with the brush for assuring that the balls will be efficiently picked up and directed toward the receiving chamber, and a deflector plate is provided for moving the balls directly into the receiving chamber in a manner substantially precluding accidental loss of the balls therefrom. In addition, oppositely disposed retriever arm members are provided for dislodging balls from a position adjacent a wall, fence, or the like, and for directing the balls thus dislodged into the path of the brush for sweeping thereof into the storage or receiving chamber.

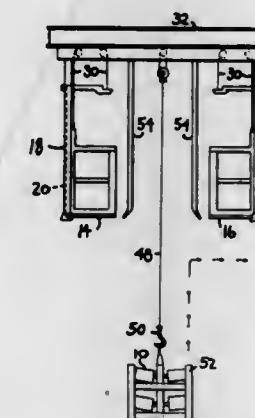
3,593,869

CRANE APPARATUS WITH HOIST MEANS LOCATED BETWEEN SPACED PLATFORMS

George B. Zurheide, Upper St. Clair, and Frank E. Harvey, Pittsburgh, both of, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.
Division of Ser. No. 672,211, Oct. 2, 1967, Pat. No. 3,468,434.
Filed Mar. 6, 1969, Ser. No. 804,941
Int. Cl. B65g 47/00

U.S. Cl. 214-658

1 Claim



A crane movable along selected paths and with platforms is used to pull up storage racks on which are stored tubular

fiber packages and to convey the racks to twist frames for loading with the packages. The platforms are movable vertically, adjustably and independently to positions for use of handling the packages from the storage rack to the twist frame spindles.

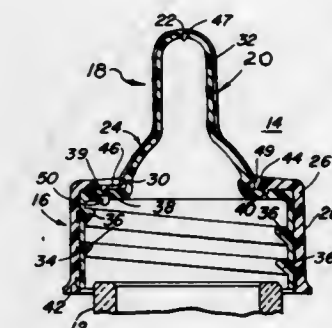
3,593,870

CLOSURE FOR FLUID CONTAINER

Douglas W. Anderson, Palatine, Ill., assignor to Dave Chapman, Goldsmith & Yamasaki, Inc., Chicago, Ill.
Filed Feb. 3, 1969, Ser. No. 795,891
Int. Cl. A61j 11/02

U.S. Cl. 215-11 B

4 Claims



The closure for the liquid container is formed by injection molding a first layer of a hard plastic having first and second inwardly projecting cones, and after it sets, injection molding a second layer of an elastomeric plastic directly against the first layer so that the first layer forms a replaceable cap for the second layer after being removed from the mold. The second layer is molded about a male mold part having screw threads about its shank and a boss abutting the first cone with an elongated crevice adjacent thereto. The screw thread of the second layer deforms to permit the closure to be pulled free from the mold. The crevice and first cone form an elastomeric flap and valve opening comprising a check valve and the second cone forms a liquid outlet.

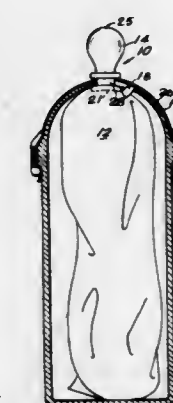
3,593,871

NURSING BOTTLE WITH DISPOSABLE INSERT

Larry P. Bundy, 866 Stetson Ave., Kent, Wash., and Edward E. McCullough, Box 46, Brigham City, Utah
Filed June 9, 1969, Ser. No. 831,441
Int. Cl. A61j 9/00

U.S. Cl. 215-11 R

17 Claims

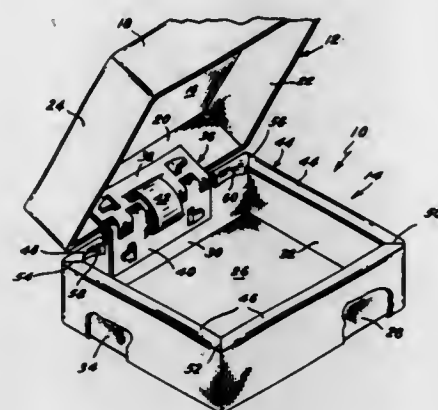


A liquidtight, flexible, disposable container having a nipple surrounded by a flexible flange is supported in a rigid enclosure by clamping the flange thereto. Until used, the flange is folded over the nipple and its edges lightly fastened together to protect the sterile condition thereof.

3,593,872

ORNAMENTAL RIM FOR BOX CONSTRUCTION
Alexander MacDonald, Ayrshire, Scotland, assignor to International Packaging Corporation, Central Falls, R.I.
Filed Nov. 24, 1969, Ser. No. 879,370
Int. Cl. B65d 7/12, 43/16
U.S. Cl. 220-4 R

5 Claims

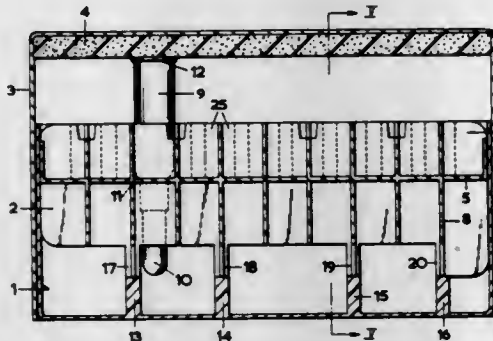


An ornamental rim for attachment to the walls of the bottom section of a display box, the rim being formed in a one-piece construction with free ends, one of which has a tongue joined thereto and the other of which has a slit formed therein, the tongue being received in the slit for securing the rim on the walls of the box section.

3,593,873

CONTAINER FOR CYLINDRICAL ARTICLES
Johnny Vonk, Hertogenbosch, Netherlands, assignor to Nederlandsche Wapen-en Muntfabriek
Filed Sept. 24, 1968, Ser. No. 761,941
Claims priority, application Netherlands, May 22, 1968, 68,0725
Int. Cl. B65d 25/06
U.S. Cl. 220-21

3 Claims



A container for elongated articles such as cartridges, ampullae, and bottles, comprising a box having detachably inserted therein, a partition carrier with holes in at least one of the partitions for receiving the said articles and, if desired, also said carrier being provided with at least two series of abutment means different lengths arranged in such a way as to respectively become effective depending on whether the carrier is inserted into said box with one or the other side thereof, forming the bottom of said container.

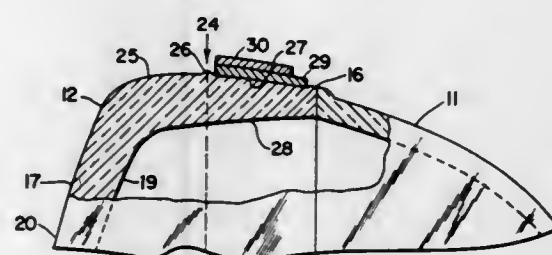
3,593,874

RESISTANT CATHODE-RAY TUBE
Daryl E. Powell, Toledo, Ohio, assignor to Owens-Illinois, Inc.
Filed Apr. 23, 1969, Ser. No. 818,747
Int. Cl. H01J 61/30
U.S. Cl. 220-2.1 A

6 Claims

A direct-viewing implosion-resistant cathode-ray television picture tube comprising a glass envelope manufactured from a frustoconical funnel portion and a flanged faceplate portion. An annular reinforcing member closely fitted around the peripheral external surface of the faceplate flange and

positioned rearwardly of the mold-match line. The faceplate flange having a thickened portion to compensate for the rear-

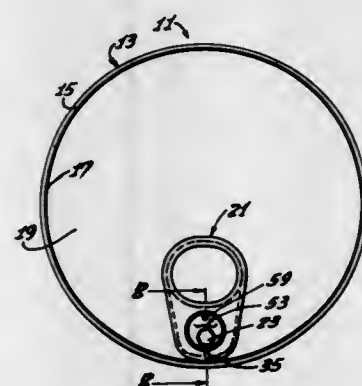


wardly positioned reinforcing member. The thickened portion being placed so as to minimize the reduction of the viewing area of the television picture tube.

3,593,875

TAB FOR TEAR STRIP OF CONTAINER WALL
Ermal C. Frazee, 355 W. Stroop Road, Dayton, Ohio
Filed Jan. 9, 1969, Ser. No. 790,029
Int. Cl. B65d 17/24
U.S. Cl. 220-54

22 Claims

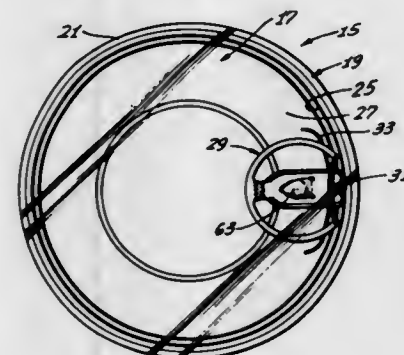


This disclosure describes a tab of sheet material for attachment to an easy-opening container wall. The tab may include a weakened zone positioned to allow limited flexing of the tab to permit raising of the handle end of the tab sufficiently to get the finger between the handle end of the tab and the container wall. The weakened zone is configured and oriented so that the tab has substantial resistance to tearing between the weakened zone and the nose end thereof during use of the tab. The tab has a bead at the nose end thereof which is deformed into a relatively pointed rupturing nose for applying a concentrated force to the container wall.

3,593,876

EASY OPENING CONTAINER WALL WITH VENT OPENING
Ermal C. Frazee, 355 W. Stroop Road, Dayton, Ohio
Filed Nov. 6, 1969, Ser. No. 874,622
Int. Cl. B65d 17/24
U.S. Cl. 220-54

15 Claims

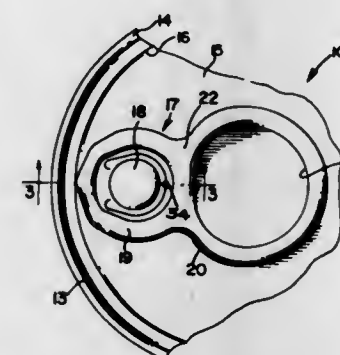


An easy opening container wall including a container wall having a line of weakness therein defining a tear portion. The container wall has a rupturable region other than the line of weakness. A tab is attached to the container wall and mov-

3,593,877

PULL TAB MOUNTING ARRANGEMENT FOR EASY OPENING CAN END
Nick S. Khoury, Worth, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Sept. 29, 1969, Ser. No. 861,650
Int. Cl. B65d 17/24
U.S. Cl. 220-54

3 Claims

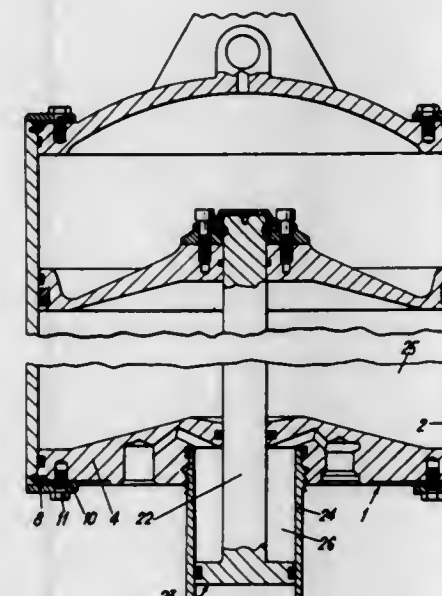


A pull tab mounting arrangement for an easy opening container of the type having a tear-out or removable panel portion defined by a score line. The pull tab includes a score line penetrating nose and is mounted for tilting movement on the removable panel portion about a rivet receiving attaching ear defined by a U-shaped lance. A dimple is formed in the removable panel portion and is disposed within opposing open end slots formed in the attaching ear and tab body on opposite sides of the lance whereby the dimple prevents rotation of the pull tab about the rivet so as to maintain the tab nose aligned with the score line.

3,593,878

CYLINDRICAL PRESSURE VESSEL AND COVER
Siegfried Hertel, Kelsterbach, Germany, assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Oct. 14, 1969, Ser. No. 866,296
Claims priority, application Germany, Oct. 19, 1968, P 18 04 036.3
Int. Cl. A47J 27/08, 36/10; B65d 45/00
U.S. Cl. 220-55

7 Claims

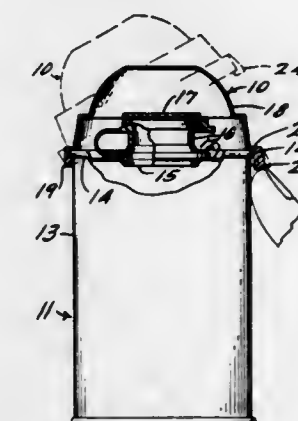


A cover for cylindrical pressure vessels wherein the cylindrical cover having a reduced diameter section at the end extends into the cylinder. A prop ring having a tubular section is positioned between the reduced diameter part of the cover

3,593,879

CHILDPROOF COVER FOR A DISPENSING CAN
Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.
Filed Dec. 1, 1969, Ser. No. 881,082
Int. Cl. B65d 43/10
U.S. Cl. 220-60

4 Claims

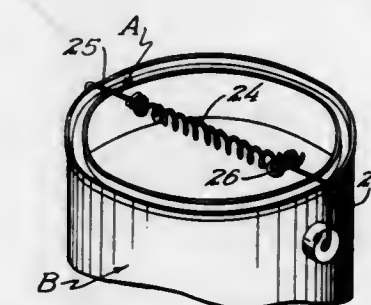


A protective, childproof cover for a dispensing can. The can has an end seam where the top is joined to the sidewall and a dispensing opening in the top. The cover has an inverted cup-shaped body and an annular skirt which fits over the end seam. The inner side of the skirt has an inwardly extending lip of lesser diameter than the seam so that the cover snaps downwardly over the seam. The lip is eccentric relative to the skirt, protruding inwardly a greater distance beneath the seam at one side of the skirt than at the other. There is an annular shoulder joining the cup-shaped body to the skirt which shoulder engages the top of the seam when the cover is in place.

3,593,880

PAINT BRUSH SUPPORTS
John P. Kulbacki, 650 Blair Ave., Saint Paul, Minn.
Filed Oct. 28, 1968, Ser. No. 771,114
Int. Cl. B65d 25/00
U.S. Cl. 220-90

3 Claims



A paint brush support is provided for use with a paint pail having an open top and a pair of diametrically opposed hollow bosses axially apertured to accommodate the hook ends of a substantially semicircular handle. The holder extends across the top of the pail and downwardly along opposite sides thereof, and is provided with hook ends engageable in the hollow bosses. At least the central portion of the holder is preferably a helical spring.

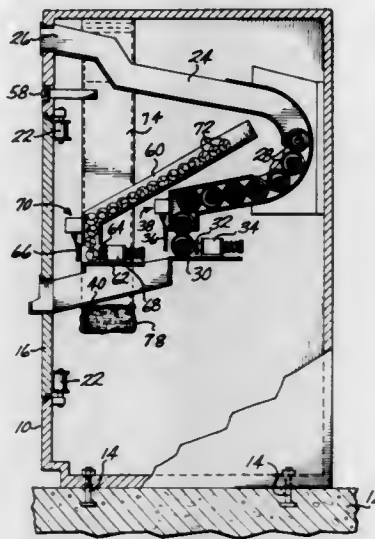
3,593,881

TIME AND MONEY CONTROLLED MONEY VENDING-DEPOSITORY

Alton E. Paap, 4434 S. Eddy, Seattle, Wash.
 Filed May 7, 1969, Ser. No. 822,432
 Int. Cl. G071 11/00

U.S. Cl. 221-3

10 Claims



This invention relates to a money vending-depository device which will vend packages of money, as coins in rolls or paper currency in containers, in combination with an integrated alarm means. Merchants may thus maintain a minimum amount of cash in their cash registers to make change in carrying on normal business but will have additional sums available in the currency vending-depository so that said sums can be obtained when needed for unusual business transactions. The device will vend money only in predetermined value amounts and with predetermined intervals between each vending and thus substantial time periods or delay will be required to deliver or vend a substantial amount of currency. Generally, the last thing a robber or larcenist wishes to do is spend a substantial period of time at the scene of the crime. Also, alarms or signal means are associated with structure of this invention so that any operation of the money vending apparatus, not following a predetermined sequence or time delay, will operate such alarms or signal means.

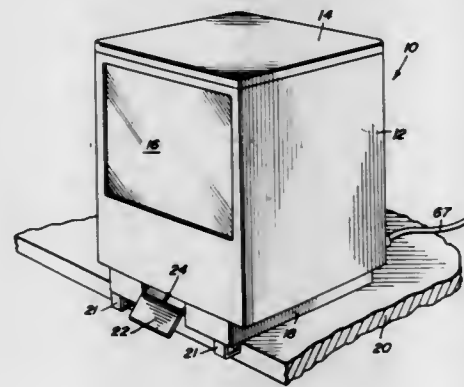
3,593,882

FOOD ARTICLE DISPENSER HAVING SPRING BIASED COVER FOR SINGLE-ARTICLE DISPENSING

Walter H. Rhindress, 64 N. Harbor Drive, Ocean Ridge, Fla.
 Filed May 23, 1969, Ser. No. 827,204
 Int. Cl. A24f 27/14

U.S. Cl. 221-150 A

4 Claims



A food dispenser including a circular distributor having radial vanes for storing food articles. The distributor is rotatably fixed to a shaft which is caused to rotate in fixed increments by a solenoid controlled pawl and ratchet assembly. A chute is disposed underneath the distributor so that a single food article positioned between adjacent radial vanes is dispensed to the chute when the article is disposed above the

chute opening. A chute cover is freely mounted to the shaft and insures that only one food article is dispensed at a time. A heating assembly is located beneath the distributor which heats the articles in the dispenser.

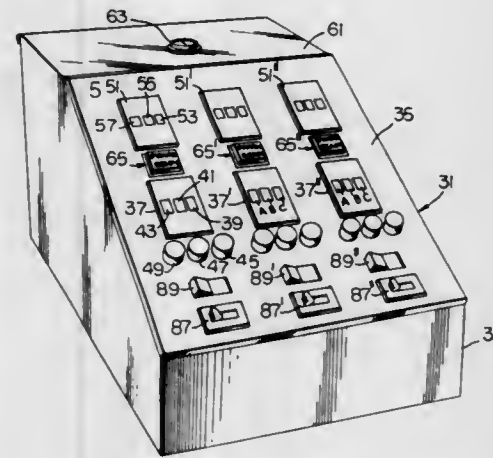
3,593,883

AUTOMATIC DISPENSING APPARATUS

Elmer A. Robbins, Fort Wayne, Ind., assignor to Tokheim Corporation
 Filed Mar. 28, 1969, Ser. No. 811,422
 Int. Cl. B67d 5/30

U.S. Cl. 222-16

41 Claims



A gasoline dispensing system comprising a dispenser and a remote console which are operable in several modes, said dispenser comprising registers, zeroizing means pulsing means, "ON-OFF" lever and nozzle; said console comprising a transaction counter, zeroizing means, presettable downcount predeterminer, mode selector and actuator. When selector is set to "predetermine," presetting of the register and operation of the actuator result in zeroizing the counter and enabling of the dispenser so that when the lever is turned on, the dispenser resets and then fuel will flow upon opening the nozzle. The console predeterminer and counter are actuated by the pulsing means. With the selector set to "fill-up" the operations are the same except that the dispenser is enabled without presetting. Another console control, when set, enables the dispenser to be operated independently of the console. The attendant is provided with means to suspend dispensing at any time.

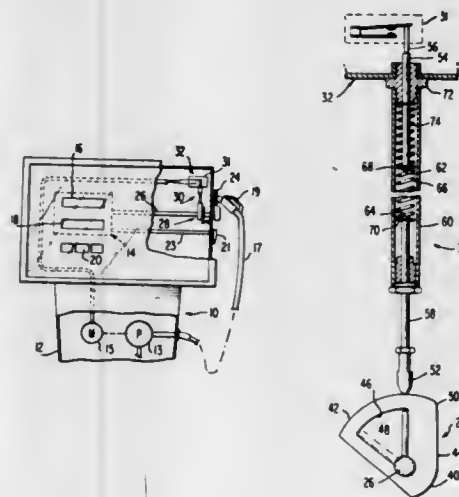
3,593,884

FLUID DISPENSING APPARATUS

Bolling H. Sasnett, Jr., 775 Douglas Road N.E., Atlanta, Ga.
 Filed Oct. 10, 1968, Ser. No. 766,395
 Int. Cl. B67d 5/26

U.S. Cl. 222-35

1 Claim



A gasoline pump is provided with a lost motion cam and a compressible linkage operating between the cam and the pump motor control microswitch so that the shaft carrying

the cam must reach a predetermined operative position before the switch is closed. This prevents malfunctioning of the system. It also protects the microswitch from damage and allows for positive operation of the microswitch by permitting the cam to have a very much larger throw than is required to operate the microswitch.

3,593,885

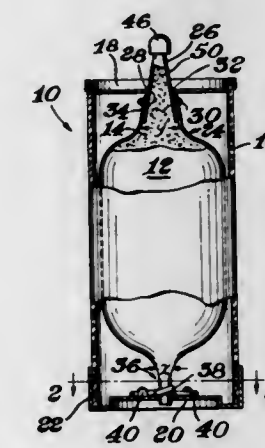
TORSION DISPENSER FOR DISPENSING FLOWABLE MATERIAL

Glenn C. Wiggins, and John A. Radford, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 2, 1969, Ser. No. 821,261
 Int. Cl. B65d 35/28

U.S. Cl. 222-104

5 Claims



A dispenser for controllably dispensing flowable material comprising a tubular pouch containing such material, a hollow cylinder in which the pouch is interiorly mounted, and a spout means associated with the pouch and extending outwardly from the cylinder. The cylinder rotatably carries a part or member such as an end cap which is, in turn, fixedly secured to the pouch. Hand rotation of the end cap twists the pouch and thereby urges the flowable material toward the spout means for dispensing.

3,593,886

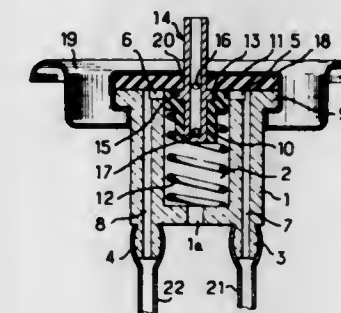
VALVE FOR SIMULTANEOUSLY DISPENSING A PLURALITY OF FLUIDS

Bruno Pierre Morane, Paris, France, assignor to L'Oreal, Paris, France

Filed July 8, 1969, Ser. No. 839,842
 Claims priority, application France, July 9, 1968, 158,414
 Int. Cl. B67d 5/52

U.S. Cl. 222-136

6 Claims



Valve for simultaneously dispensing two pressurized fluids comprising a spout slidable in an annular seal which covers the top of a cylindrical cup. Separate passageways in the walls of the cup lead to separate containers for the fluids and sliding movement of the spout shifts it between a position in which said passageways are blocked and one in which they communicate with the interior of the spout.

3,593,887

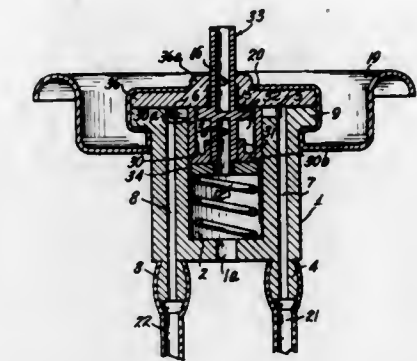
VALVE FOR DISPENSING A PLURALITY OF PRODUCTS PACKAGED UNDER PRESSURE

Bruno P. Morane, Paris, France, assignor to L'Oreal, Paris, France

Filed July 25, 1969, Ser. No. 844,840
 Claims priority, application France, July 3, 1969, 6,922,462
 Int. Cl. B67d 5/52

U.S. Cl. 222-136

4 Claims



Valve for dispensing at least one of a plurality of fluids and movable between a closed position, an intermediate position releasing only one of said fluids which serves to cleanse the valve, and an open position in which it releases only the other of said fluids. Alternatively, the valve may release both fluids when open.

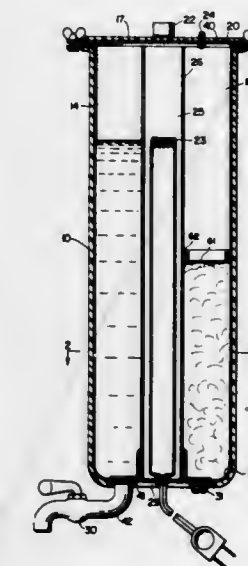
3,593,888

PORTABLE FOOD DISPENSER

Earl R. Brown, 717 Court St., Utica, N.Y.
 Filed June 30, 1969, Ser. No. 837,444
 Int. Cl. B67d 5/62

U.S. Cl. 222-146

11 Claims



A portable food dispenser is disclosed with one or more compartments which can hold different foods or beverages about a common temperature regulating section. The products are dispensed by internal pressure through a valve in each compartment and the pressure may be produced from a steam hose or the use of a cylinder of sterile, inert gas.

3,593,889

HIGH VOLUME CLEANING AEROSOL DISPENSING VALVE

Samuel B. Prusslin, Los Angeles, and Jimmie L. Mason, Hacienda Heights, both of Calif., assignors to Dart Industries Inc., Los Angeles, Calif.

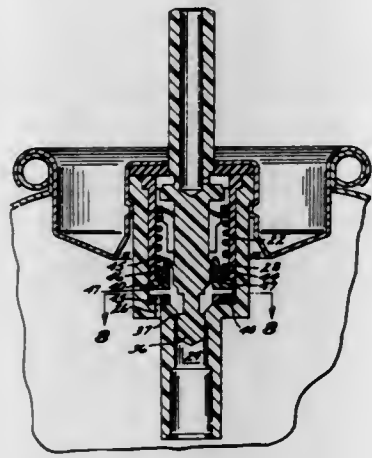
Filed June 11, 1969, Ser. No. 832,329
 Int. Cl. B65d 83/14

U.S. Cl. 222-148

11 Claims

A sequentially operable aerosol dispensing valve whose cycle of operation involves a dispensing cycle followed by a

purging cycle. The valve is provided with a valve means and an operator means, slidably mounted in the bore of a housing. The operator means cooperates with the valve means to open a purging (cleaning) port, after the product dispensing



cycle, for a longer period of time than is possible with existing valves. The longer purging cycle permits a greater volume of purging substance to pass through the valve during this cycle and effects a thorough cleaning of the valve in preparation for its next dispensing cycle.

3,593,890

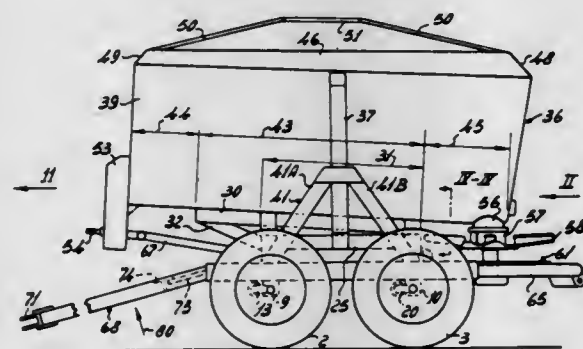
AGRICULTURAL MACHINE WITH SPREADER

Ian Archie MacKinnon, Burlington, Ontario, Canada, assignor to Lely Ltd., Burlington, Ontario, Canada
Filed June 10, 1968, Ser. No. 735,761

Claims priority, application Netherlands, June 16, 1967, Jan. 15, 1968, 67,08369; 68,00580
Int. Cl. A01c 19/00

U.S. Cl. 222-176

19 Claims



The invention relates to an agricultural machine having a frame and a supply hopper mounted on the frame. The frame has four ground wheels and a resiliently mounted drawbar which is vertically adjustable relative to the frame. The frame includes a plurality of support beams and struts so that a heavy load can be carried in the hopper. Resilient elements are associated with the ground wheels and frame to absorb shocks when the machine is moved over uneven ground.

3,593,891

STAR FEEDERS

Archibald Watson Kidd, Seend, Melksham, England, assignor to Archie Kidd (Designs) Limited, Melksham, England
Division of Ser. No. 610,999, Jan. 23, 1967, Pat. No. 3,515,315,
Filed July 30, 1968, Ser. No. 748,774

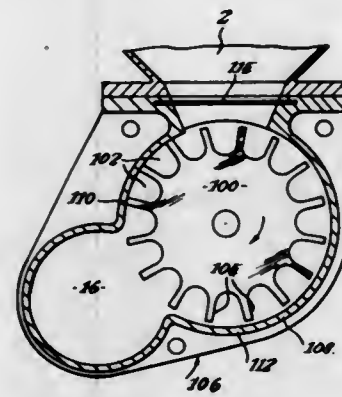
Int. Cl. B65g 29/00; G01f 11/24

U.S. Cl. 222-194

1 Claim

A star feeder for introducing granular material into an airstream, in which the star wheel rotates in a housing with

its teeth on the feed side being clear of the housing wall and



the teeth on the reverse or going up side being in contact with the housing wall to form an air seal.

3,593,892

CONSTRUCTION OF SILOS

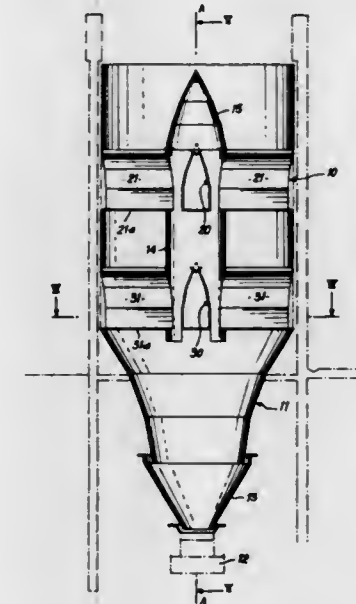
Georges Leon Henri Petit, 10 Avenue de Salonique, Paris, France

Filed Feb. 24, 1969, Ser. No. 801,402
Claims priority, application France, Feb. 26, 1968, 141,187

Int. Cl. E04h 7/22; B65g 3/12, 65/70

U.S. Cl. 222-200

17 Claims



Silo includes interior radially extending hollow bodies each having an ogival cross-sectional shape. Inclination of walls of each body increases from its apex to its base. Interiors of bodies may be accessible from outside the silo. Hollow tubular element, terminating at its upper end in an ogival member, may be arranged along axis of silo and supported by the bodies. Each hollow body may carry an ogival roof capable of movement, e.g. vibration, with respect to the body. The sides of the bodies may be defined by distinct planes, each having a slope greater than the one above it. The tubular element may terminate at its bottom in telescopic elements which extend into a hopper.

3,593,893

PUMP UNIT

Carl Oscar Torsten Montellus, Djursholm, Sweden, assignor to Aktiebolaget Imo-Industri, Stockholm, Sweden

Filed July 24, 1969, Ser. No. 844,395

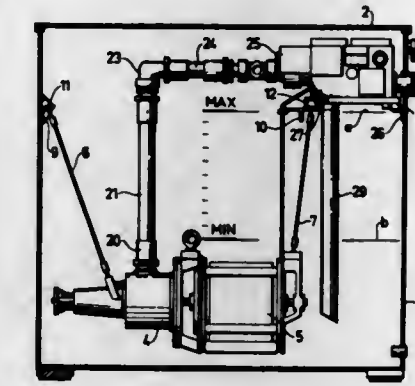
Int. Cl. F04d 13/02; F04c 15/00

U.S. Cl. 222-333

4 Claims

A pump unit for use in a tank adapted to be filled with a hydraulic fluid to a predetermined fluid level is provided and members suspend the pump and motor assembly in the fluid tank normally below the fluid level. These suspending mem-

bers are attached at spaced points to means carried by the walls of the tank and the attachment means include vibration dampening members. A valve unit is provided in the tank below a removable tank cover and above the predetermined fluid level for the tank.



3,593,894

AEROSOL DISPENSER ATTACHMENT FOR INCORPORATING ADDITIVES INTO SPRAY COMPOSITIONS

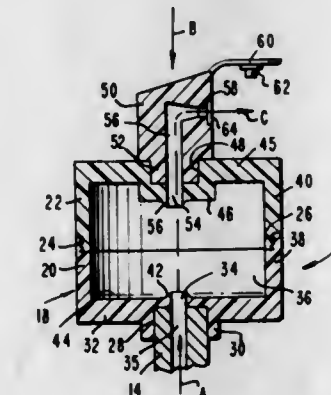
John James Kehoe, Highland Park; Ralph Spencer Leonard, Berkeley Heights, N.J., and Alexander Livingstone, Washington, D.C., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation of application Ser. No. 685,383, Nov. 24, 1967, now abandoned. This application Aug. 13, 1969, Ser. No. 849,931

Int. Cl. B65d 83/06

U.S. Cl. 222-402.1

7 Claims



An adapter for use in combination with an aerosol dispenser containing a first material to be dispensed and having a valve stem. The adapter comprises a container having a lower section provided with a recess therein for receiving the valve stem and an upper section detachably secured to the lower section and having a spray button. A second material to be mixed with the first material is disposed in the container for scenting, coloring, treating, or exothermic reaction with the first material.

3,593,895

NON-CLOGGING AEROSOL VALVE

Derek Bernard Green, Bedford, and Joseph L. Clarke, Jr., Manchester, both of, N.H., assignors to Scovill Manufacturing Company, Waterbury, Conn.

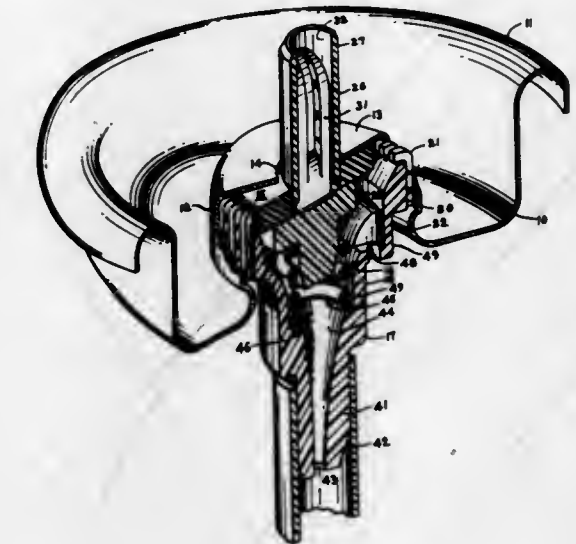
Filed Oct. 30, 1968, Ser. No. 782,787

Int. Cl. B65d 5/58

U.S. Cl. 222-402.24

4 Claims

An improved aerosol valve intended to prevent clogging with salt crystals provides a high velocity turbulent flow through the stem with interior channels gradually increasing in size. The stem orifices break through into a rectangular portion of the stem flow passage which is the same width as the orifices. The capillary attraction of residue fluid by the narrowly spaced walls prevent clogging of the orifices. The



3,593,896

BOBBIN HANDLING APPARATUS

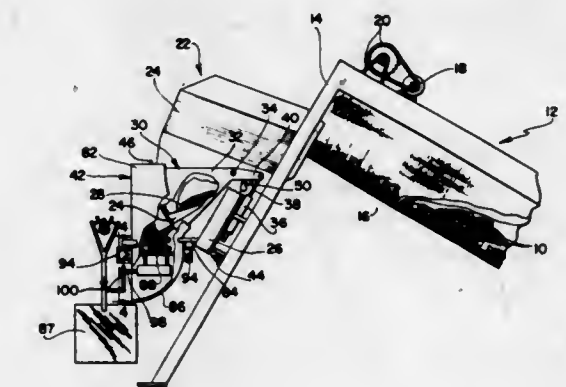
Charles W. Brouwer, East Greenwich; Henry C. Bucheister, Providence, and Raymond V. Tata, Warwick, all of, R.I., assignors to Leesona Corporation, Warwick, R.I.

Filed June 27, 1969, Ser. No. 837,050

Int. Cl. G01f 11/28; B67b 7/24; G01g 13/02

U.S. Cl. 222-450

2 Claims



A bobbin handling apparatus in which filled bobbins are stored in a storage-conveyor bin and discharged through a chute and into a hopper. The bin continues to feed bobbins until a predetermined weight of bobbins is in the hopper whereupon a control system stops operation of the bin and concurrently closes a closure associated with the chute to prevent any bobbins subsequently passing from the bin from entering the weighing hopper. Strands of yarn extending from the bobbins are severed by a cutter mounted on the closure. As a container of an overhead conveyor passes the hopper a sliding trap door of the hopper opens thereby discharging the bobbins in the hopper into the container.

3,593,897

HAND OPERATED TROUSER HANGER

William Bill Knox, 522 N. Harth Ave., Madison, S. Dak.

Filed Oct. 29, 1969, Ser. No. 872,218

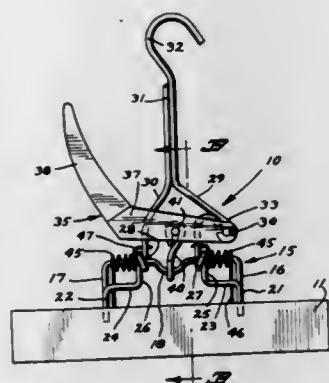
Int. Cl. A47j 51/14

U.S. Cl. 223-96

5 Claims

A trouser hanger which embodies a pair of shiftable trouser contacting members arranged to contact and hold the cuff of the trousers which members are spring-loaded into normal trouser retaining position by lever means associated

therewith to spread the members apart to receive the trousers therein which lever member is arranged in association with a process of producing a score in a glass sheet by directing the fissure pressure from a multipoint pressure source and



focusing the pressure so as to reinforce the pressure action in a preselected direction.

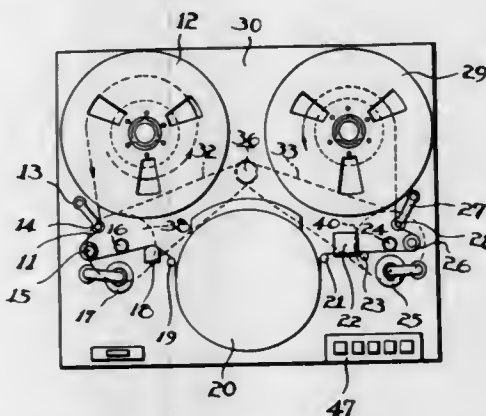
3,593,900

DEVICE FOR STABILIZING THE OPERATION OF MAGNETIC TAPE

Toshio Doi, Hamamatsu, Japan, assignor to Victor Company of Japan Limited, Yokohama, Japan
Filed June 9, 1969, Ser. No. 831,531
Claims priority, application Japan, June 11, 1968, July 5, 1968, 43/39682; 43/46541
Int. Cl. B65h 17/20

U.S. Cl. 226—51

10 Claims



tion to the hanger portion or hook portion of the device to permit singlehanded operation thereof.

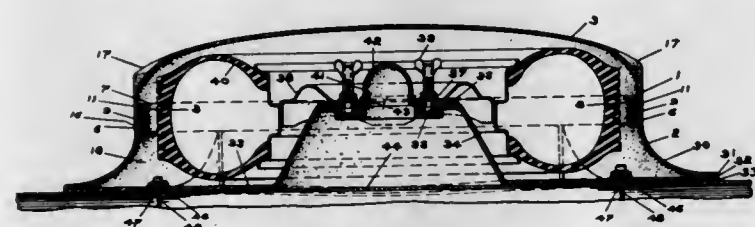
3,593,898

SPARE TIRE AND WHEEL CARRIER

Paul A. Diforte, 2615 Pelham Ave., Baltimore, Md.
Filed Oct. 16, 1968, Ser. No. 768,078
Int. Cl. B60r 9/04

U.S. Cl. 224—42.1

4 Claims



A spare tire and wheel carrier adapted to be carried on the roof structure of an automobile. The carrier comprising a base having a chamber for the tire and wheel with a cover therefor and means for locking the cover to the base. The cover and base having interengaging latchlike extensions positioned about the respective joining peripheries of the base and cover for latching and pulling the cover down to the base member when the cover is partially rotated and in engaged position with the base member. For positioning the tire and wheel within the chamber of the base in a positive manner the base is provided with an upwardly extending frustoconical shaped structure having bolts and nuts positioned at the top thereof for fastening the tire and wheel to the said structure. The top center of the cone structure is provided with an upwardly extending projection over which the center hole of the wheel is threaded for positioning and centering the tire and wheel to the cone support. The spare tire and wheel carrier having means for fastening the same to the roof structure of an automobile.

3,593,899

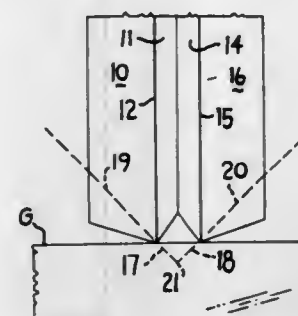
GLASS-SCORING PROCESS

Robert P. DeTorre, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Division of Ser. No. 732,564, May 28, 1968, abandoned.
Filed Oct. 2, 1969, Ser. No. 863,269
Int. Cl. B26f 3/00

U.S. Cl. 225—2

2 Claims

An improved wheel for scoring glass having dual scoring edges spaced in close proximity and a pair of sloping faces intersecting at an angle of 120°.



The invention relates to a device for stabilizing the operation of magnetic tape for a magnetic recording and reproducing apparatus, of the so-called dual capstan type. A magnetic tape is operated by two capstans driven by a single capstan motor, acting through two belts. When the rate of rotation of the capstan motor is varied so as to vary the rate of movement of the magnetic tape, pinch rollers are caused to move apart from the respective capstans until the rate of rotation of each capstan is stabilized, whereby loosening of the magnetic tape can be prevented.

3,593,901

ROLLER-LOCK FOR THE CONTINUOUS TRANSPORTATION OF TEXTILE MATERIALS INTO OR OUT OF AUTOCLAVES

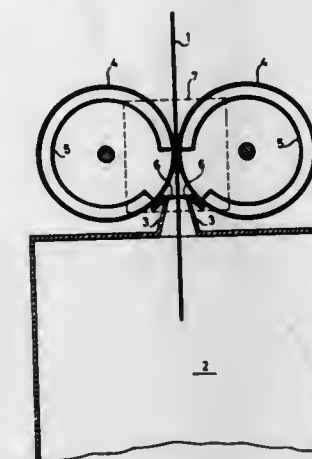
Hans-Ulrich Von der Eltz, Frankfurt am Main; Richard Gross, Munchen, and Albert Reuther, Frankfurt am Main, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
Filed June 20, 1969, Ser. No. 834,958
Claims priority, application Germany, June 25, 1968, P 17 60 732.8

Int. Cl. B65h 17/30
U.S. Cl. 226—95

5 Claims

A roller-lock has been provided for sealing autoclaves during introduction and withdrawal of a textile material in the same. The roller-lock consists of a pair of perforated drums rotated around the axis which form a squeezing slit over the width of the rolls. During operation, the interior of the drum is being evacuated and, if desired, the evacuated gaseous medium reintroduced into the autoclave. The part of the

roller drum under suction may be restricted to be no greater than one quarter of the total surface of the drum. A lip-lock



may be placed behind the nip of the drums to improve the sealing. The perforated drums may also be covered with one or more layers of a sieve fabric.

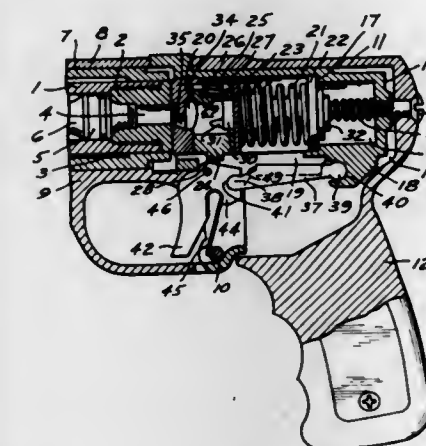
3,593,902

DEVICE FOR NAILING GUN

Erhard Rudolph Boye, Gunnebobruk, Sweden, assignor to Gunnebo Bruks Aktiebolag, Gunnebobruk, Sweden
Filed Dec. 9, 1968, Ser. No. 782,273
Claims priority, application Sweden, Dec. 11, 1967, 16953/67
Int. Cl. B25c 1/14

U.S. Cl. 227—10

2 Claims



A nail-driving gun comprises a bolt mounting the striker pin and retractable jointly with the barrel of the gun relative to the casing of the gun. The striker pin is actuated by pulling the trigger of the gun but is normally held by the bolt in a position in which it cannot be actuated by the trigger. Retraction of the barrel for purpose of driving a nail places the bolt and thus the striker pin into a position in which the pin can be actuated by the trigger. For this purpose, a rigid link bar is hinged at one end to the casing of the gun and at the other end to the trigger. The link bar is positioned opposite to the bolt when the latter is retracted. Pulling of the trigger pivots the link bar into pressure engagement with the bolt thereby displacing the same transverse of the barrel axis into a position in which the striker pin is positioned for effecting firing of the gun by pulling of the trigger.

3,593,903

SURGICAL INSTRUMENT FOR SUTURING HOLLOW ORGANS IN INFANTS

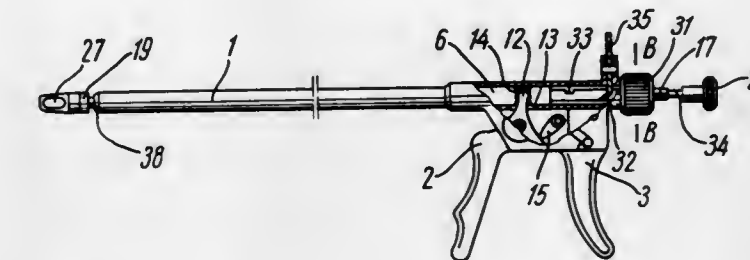
Georgy Vasilievich Astafiev; Anatoly Nikolaevich Ozhgikhin; Tatiana Lukianovna Ivanova; Vitaly Rafailovich Belkin, and Elena Georgievna Kryazheva, all of Moscow, U.S.S.R., assignors to Vsesojuzny nauchno-issledovatel'sky institut khirurgicheskoi apparatury i instrumentov, Moscow, U.S.S.R.
Filed July 12, 1968, Ser. No. 744,518
Int. Cl. B25c 5/02

U.S. Cl. 227—76

8 Claims

A surgical instrument is provided for suturing hollow organs in infants and comprises an oblong tubular body with an

open tapered front end with staple slots spaced around the periphery thereof and an oblong hollow rod passes inside the body and is capable of axial movement therealong. A cylindrical staple ejector is loosely mounted on the rod and is provided with toothlike pins spaced around its periphery to fit into the slots in the body. An elastic member is mounted between the rod and the ejector so that a constant travel rate



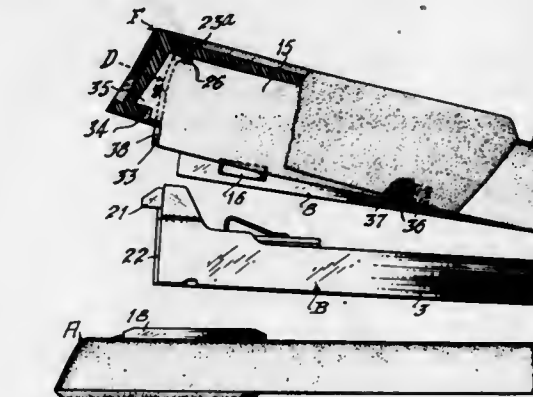
3,593,904

SPRING LATCH FOR STAPLER MAGAZINE AND COVER

William Leon Gaya, Summit, N.J., assignor to The Bates Manufacturing Company, Orange, N.J.
Filed Aug. 14, 1969, Ser. No. 850,111
Int. Cl. B25c 5/02

U.S. Cl. 227—128

6 Claims



For separably holding against relative swinging movement, two elements hingedly connected at one end, for example, the staple magazine and combined cover and staple driver of a stapler, a normally spring closed, manually openable latch includes keeper lugs projecting from the swinging end of the staple magazine and a latch lever hingedly mounted on the swinging end of the cover. A two-armed leaf spring has one arm secured on said cover adjacent said driver and its other end biasing said latch lever to interlock with said lugs, and said latch lever has finger tabs grippable between an operator's thumb and forefinger for releasing the latch and so located as to reduce possibility of inadvertent manipulation.

3,593,905

APPARATUS FOR FORMING CHORD ASSEMBLIES HAVING TWO PARALLEL, LATERALLY SPACED MEMBERS

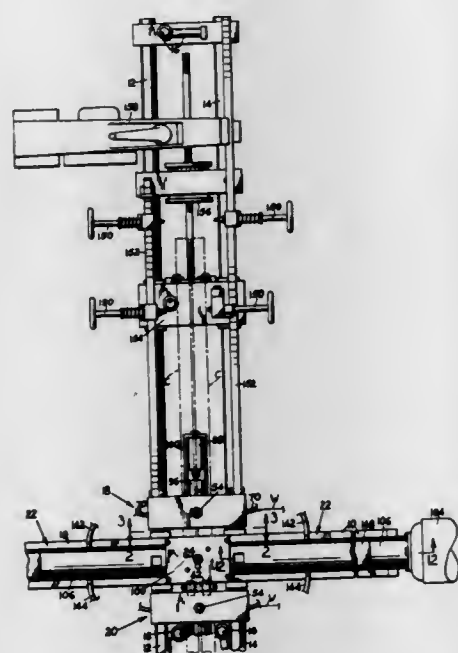
Arthur L. Troutner, Skyline Drive, Boise, Idaho
Filed July 31, 1969, Ser. No. 846,531
Int. Cl. B27f 7/14

U.S. Cl. 227—152

12 Claims

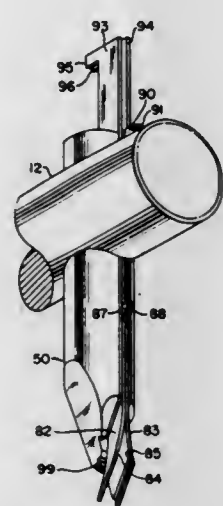
An elongated framework has upper and lower clamps for holding a pair of chord members in parallel, laterally spaced relation. Stapler mechanism is provided on the framework for driving staples into the upper and lower edge surfaces of the two chord members while the latter are held by the clamps for connecting them in their laterally spaced relation

for subsequent construction into truss joists. Two of the stapling mechanisms are provided for applying upper and lower staples at two longitudinal points along the chord



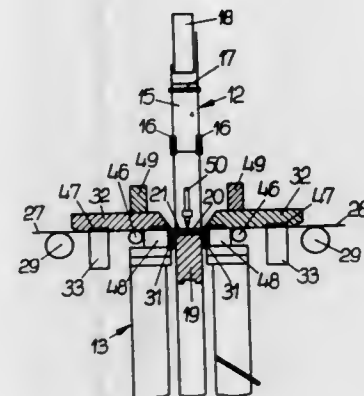
members, and drilling mechanism is provided on the framework between the two stapling mechanisms for providing lateral drilled holes in the chord members.

3,593,906
CONDUCTOR HANDLING AND BONDING SYSTEM
Paul Hug, Mountain View, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 20, 1969, Ser. No. 801,081
Int. Cl. B23k 1/06, 5/20
U.S. Cl. 228-1
9 Claims



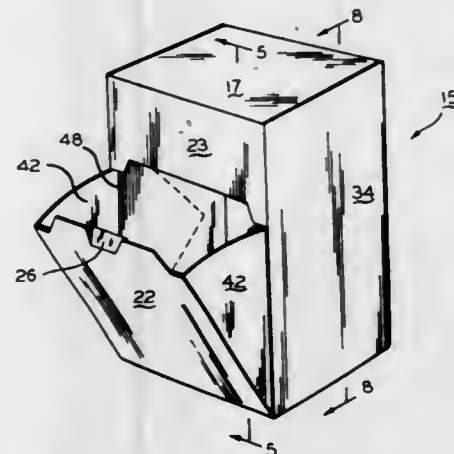
A system for positioning and attaching small conductors to precise locations on a densely packed circuit board utilizes an ultrasonic-bonding element, within the tip of which are incorporated elements of very small mass for manipulating and controlling the conductor without affecting the bonding operation. Such elements comprise a pair of slidable grippers and a pair of slidable wedge elements disposed within an elongated recess extending along one side of the bonding element. Dependent upon the relative positions of the gripper elements and the wedge members to each other in the bonding tip, as externally controlled, the gripper members may be extended outwardly to secure a conductor, retract the conductor for bonding, and then release the conductor.

3,593,907
DEVICE FOR WELDING BAND ENDS
Siegfried Hahne, Rheinkamp-Baerl, Germany, assignor to Messer Griesheim G.m.b.H., Frankfurt am Main, Germany
Filed July 12, 1968, Ser. No. 744,524
Claims priority, application Germany, July 19, 1967, P 16 27 555.1
Int. Cl. B23k 1/20
U.S. Cl. 228-4
8 Claims



A device for welding band ends together includes a shear at the upper crossbeam of its frame to trim the band ends and a lower crossbeam which is constructed to function as the bearing surface area for the welding pool.

3,593,908
DISPENSER BIN CARTON
John D. Desmond, and Joseph J. Hart, both of Philadelphia, Pa., assignors to Container Corporation of America, Chicago, Ill.
Filed Jan. 17, 1969, Ser. No. 792,052
Int. Cl. B65d 1/22, 5/42
U.S. Cl. 229-17
5 Claims



A dispenser bin carton formed from a cut and scored blank and characterized by front, back, top, bottom and opposed side panels, the front panel being separable into a fixed portion and a movable bin front portion, the latter being reinforced by a locking panel glued thereto and having bin side panels extending therefrom movable between reinforcing flaps extending from the top and bottom panels to prevent product interference with opening and closing.

3,593,909
REACTION VESSEL CLOSURE
Wilhelm Bergmann, Hamburg, Germany, assignor to Eppendorf Geraetebau Netheler & Hinz G.m.b.H., Hamburg, Germany
Filed Apr. 29, 1969, Ser. No. 820,232
Claims priority, application Germany, May 2, 1968, P 17 73 331.2
Int. Cl. B65d 5/64, 43/00
U.S. Cl. 229-43
12 Claims

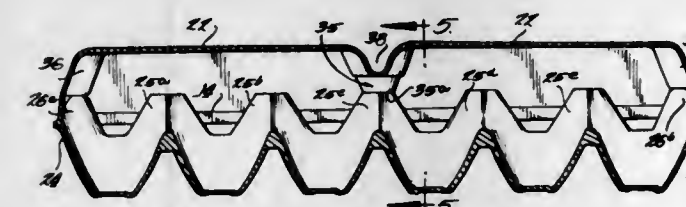
A vessel for small quantities of liquid including a top closure

sure comprising a pierceable foil responsive to puncture by tape is adhesively secured over the cut line and is adapted to be removed to permit at least a portion of the end panel to be opened to expose the carton contents.



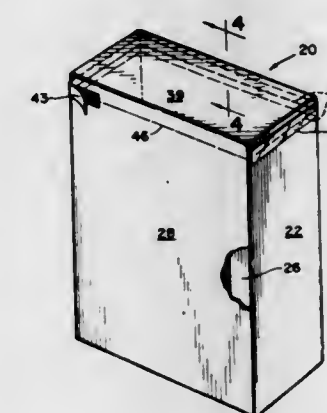
an obliquely sharpened cannula by elastic deformation of the prick hole into close bearing contact with the cannula.

3,593,910
CARTON FOR FRAGILE ARTICLES
Clifford H. Bessett, South Holland, Ill., and James W. Boyd, Crown Point, Ind., assignors to Packaging Corporation of America, Evanston, Ill.
Filed July 10, 1969, Ser. No. 840,799
Int. Cl. B65d 85/32
U.S. Cl. 229-44 R
5 Claims



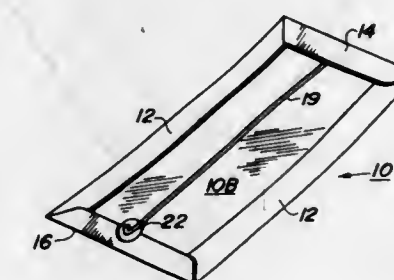
A carton for accommodating a plurality of fragile articles is provided which includes a tray section, a cover section, and a hinge section interconnecting the backwalls of the cover and tray sections. The tray section is provided with upwardly extending members disposed adjacent the ends thereof; said members engage the interior surfaces of the end walls of the cover section and guide the latter into proper superposed relation with respect to the tray section when said cover section is moved to its closed position.

3,593,911
REMOVABLE TAPE FOR RECLOSABLE CARTON
Ernest C. Pellaton, Larkspur, Calif., assignor to Fibreboard Corporation, San Francisco, Calif.
Filed May 14, 1969, Ser. No. 824,554
Int. Cl. B65d 45/00
U.S. Cl. 229-45
4 Claims



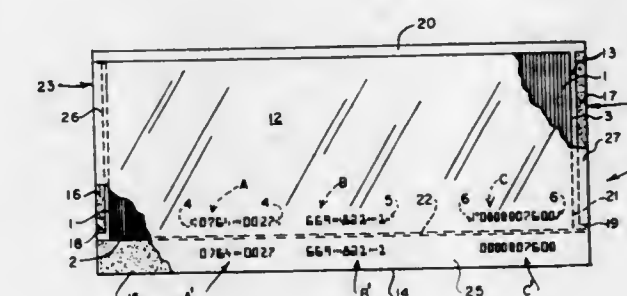
An erected frozen food carton comprises top and bottom closures connected together by vertically disposed front, back and side panels. The sealed top closure has a continuous cut line formed completely through at least a portion of three of the panels to form a recloseable cover. A removable

3,593,912
ENVELOPE WITH LIGHT-TRANSMITTING WINDOW AND TEAR STRIP
Peter C. Collura, Stamford, Conn., and William P. Pintsak, Pottstown, Pa., assignors to Container Corporation of America, Chicago, Ill.
Filed Oct. 20, 1969, Ser. No. 867,569
Int. Cl. B65d 27/04, 27/32
U.S. Cl. 229-71
4 Claims



An envelope having a light-transmitting window therein, the envelope being formed from a cut and scored blank with the window superimposed thereon and adhered thereto, the blank having opposed side and end flaps folded over the window and adhered thereto. The side flaps are folded along curved fold lines, so that when they are adhered to the window, the latter is raised from the central panel to permit the envelope contents to be readily accommodated therein. The window has a tear strip extending beyond one end thereof, the tear strip terminating in a pull tab which is folded to a position to be engaged, the end flap closure thereat being notched to uncover the pull tab.

3,593,913
DOCUMENT CARRIER CONSTRUCTION
Fred C. Bremer, 4740 Rica Road, Saginaw, Mich.
Filed Apr. 29, 1969, Ser. No. 820,090
Int. Cl. B65d 27/00, 27/08
U.S. Cl. 229-72
10 Claims



A carrier adapted to contain a document provided adjacent its bottom edge with magnetic ink characters capable of use with automatic sorting machinery, the carrier having a compartment in which such a document may be accommodated and having an extension below the compartment which supports the document at such level as to render the magnetic ink characters thereon ineffective and on which may be provided magnetic ink characters corresponding to those on the document. The compartment has at least one open side through which the document may be inserted and air passages in communication with the interior of the compartment to prevent the accumulation of air within the receptacle. The walls of the receptacle preferably are relatively transparent, but the extension at the bottom of the compartment is relatively opaque.

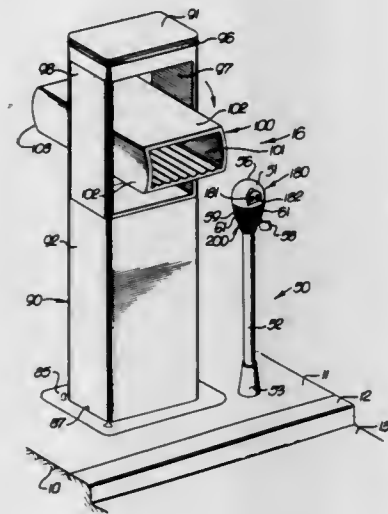
3,593,914 RETRACTABLE MAILBOX ASSEMBLY

John J. Van Orden, 10226 Tunney Ave., Northridge, Calif.
Filed Nov. 20, 1969, Ser. No. 878,308

Int. Cl. A47g 29/12

U.S. Cl. 232-17

24 Claims



A retractable mailbox assembly includes an open-topped casing recessed into the ground adjacent the curb, an open upper-ended hollow housing mounted within and to the casing, with a housing sleeve assembly therein mounting a supporting pedestal vertically movable between a lower or retracted position completely within the housing with the upper end thereof flush with the top of the housing and the surrounding surface area, and a raised or operative position extending upwardly to a selected height above the ground level where postal delivery may be made into a receptacle carried by the pedestal adjacent the upper end thereof. The receptacle pivots through an angle of 90° between closed and open positions during the travel of the pedestal adjacent its raised position. Moving means is provided for the pedestal including drive means with an electric motor and sprockets, driven means with chains, sprockets, and counterweights, and pivoting means with gears, chains, and springs to move the pedestal and the receptacle between the two positions. Key-controlled switch means in a control post are provided to selectively operate the moving means. Vent means is provided to supply air from the control post into the interior of the housing during movement of the pedestal between its two positions, and the vent means includes flapper valves and piston rings enabling the moving pedestal to force air out of a restricted opening between the moving pedestal and the housing in order to blow out any foreign material therein. Heating means including a housing heater, a top heater, and intake air heaters are provided to prevent the assembly from freezing during cold weather. Drainage means including gutters, a settling tank, a standpipe, a pump, and a flushing pipe are provided to clean out the drainage means and to exhaust the excess water therein into the ground. Service means is provided to facilitate periodic maintenance of the assembly.

3,593,915 CONTROLLED DESLUDGING OF CENTRIFUGAL SEPARATORS

Peter Steinacker, Oelde, Westphalia, Germany, assignor to Westphalia Separator AG., Oelde, Westphalia, Germany
Filed Apr. 30, 1969, Ser. No. 820,421

Claims priority, application Germany, Sept. 25, 1968, P 17 82 612.9

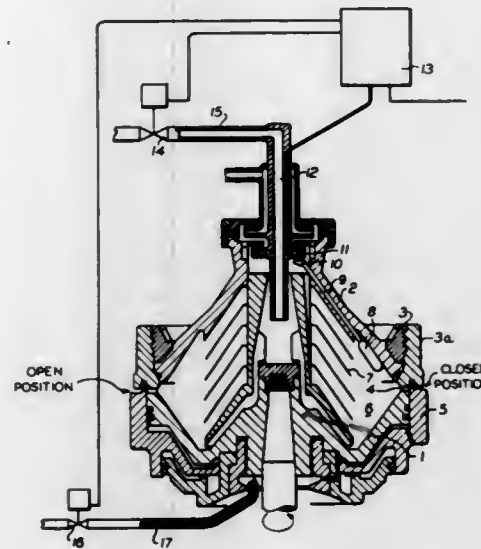
Int. Cl. B04b 11/00

U.S. Cl. 233-20

4 Claims

A self-cleaning liquid-solids separator with valve means, such as a controllable sliding-ring valve, for discharging sludge through the periphery of the bowl is equipped with a float that will sense the liquid-solids interface in the bowl during operation. A sensing device, e.g. an electric coil, is attached to the shaft of the drum and senses the position of an elongated member or rod attached to the float and extending inwardly towards the shaft. When the end of the rod ap-

proaches close enough to the shaft, which indicates the sludge has built up to a predetermined level, the sensing



device activates opening of the sludge discharge valve means, and if desired, after a certain amount of sludge has been discharged, the closing of the valve means.

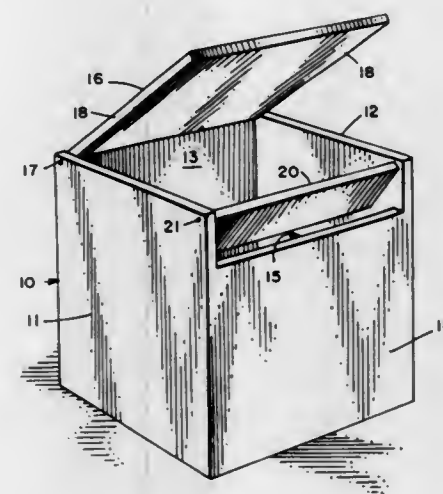
3,593,916 SWING DOOR RECEPTACLES

Robert A. O'Neil, 728 Lennox, Glen Ellyn, Ill.
Filed Jan. 13, 1969, Ser. No. 790,739

Int. Cl. B65f 1/00

U.S. Cl. 232-43.1

8 Claims



Swing door receptacles having a pivotable or removable top wall, an opening in one or more sidewalls preferably intersecting the top wall, and a swing door in each opening supportable for pivotable movement about an axis along its upper edge. The swing door can be pivotably supported by the sidewalls or, more preferably, by the top wall.

3,593,917 THERMOSTATIC TAP

Andre Sebastien Joseph Buisson, Montbéliard, France, assignor to Automobiles Peugeot, Paris and Regie Nationale des Usines Renault, Billancourt, France
Filed Feb. 24, 1969, Ser. No. 801,545

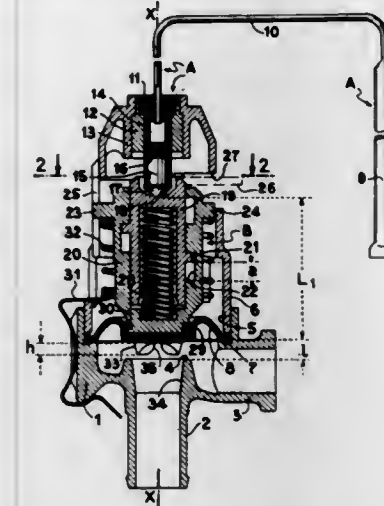
Claims priority, application France, Mar. 1, 1968, 141962
Int. Cl. G05d 23/02; F16k 31/00

U.S. Cl. 236-98

8 Claims

Thermostatic tap of the type comprising an automatically operating thermostatic device having a bulb and a capillary tube and a manually controlled regulating device. This tap has the feature that the end of the receiving element of the thermostatic device has a position which is fixed relative to the body of the tap and to the bulb. The manually controlled

regulating device is coaxial with the receiving element and interposed between the latter and a valve seat and carries a metallic plates, and fulfills its primary function of becoming a load bearing member of the rail joint.



valve which cooperates with the seat and modifies the section of the passage for the heating fluid in the tap body.

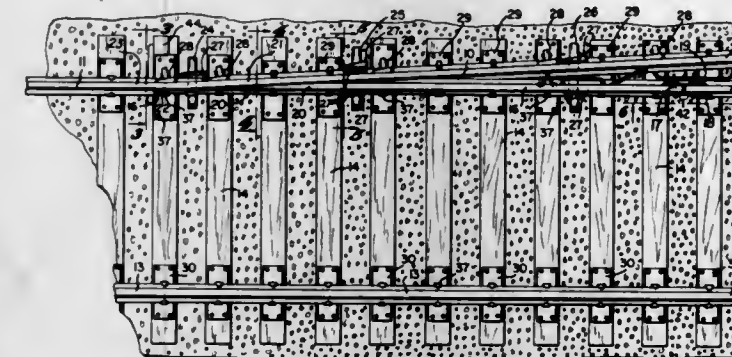
3,593,918 APPARATUS FOR TEMPORARILY CONNECTING A CONVENTIONAL BOLTED RAIL TO A LAID PORTION OF A CONTINUOUS WELDED RAIL OF A RAILWAY TRACK

Henry V. Borst, Box 266, Waymart, Pa.
Filed Mar. 28, 1968, Ser. No. 716,799

Int. Cl. E01b 5/18, 11/08, 29/40

U.S. Cl. 238-21

3 Claims



Apparatus for use in temporarily operationally connecting one or both rails of bolted railway track to a laid portion of continuous welded rail or rails of railway track, without permanently bending or cutting the welded rail, during the course of removal of bolted or jointed rails and replacement thereof with continuous welded rail, when it is desired to connect a bolted rail and a welded rail to enable train traffic thereover.

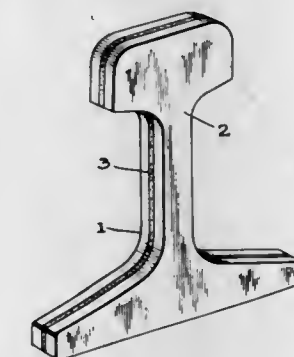
3,593,919 STRUCTURAL END POST UNIT FOR RAILWAY TRACK

William R. Hamilton, Jr., Naperville, Ill., assignor to Portec, Inc., Chicago, Ill.
Filed Mar. 28, 1969, Ser. No. 811,479

Int. Cl. E01b 11/00, 11/32, 26/00

U.S. Cl. 238-152

5 Claims



A structural end post unit for insulating railway track rails which reduces the insulation medium to a minimum between

3,593,920 SPRAY HEAD

Harold S. Watson, Rainhill, near Liverpool, England, assignor to Delavan Manufacturing Company

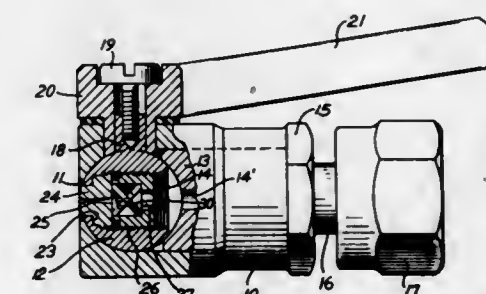
Filed Jan. 10, 1969, Ser. No. 790,213

Claims priority, application Great Britain, May 31, 1968, 26095/68

Int. Cl. B05b 15/02

U.S. Cl. 239-119

10 Claims



A spray head having a spray tip carrying holder which is rotatable between a spraying position and a spray tip cleaning position, includes a deflection member which breaks up the needlelike jet issuing from the spray tip when the tip is in issuing cleaning position.

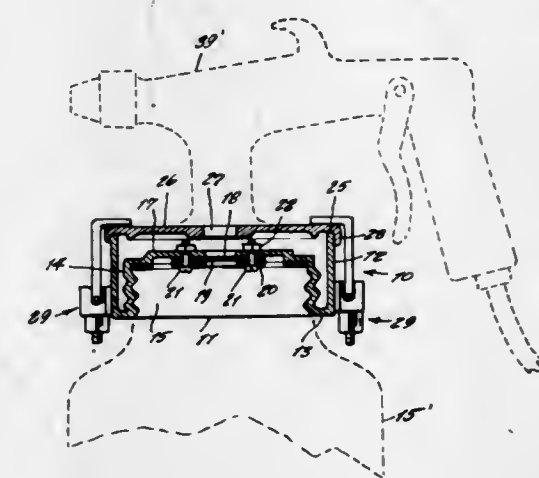
3,593,921 SPRAY GUN ATTACHMENT

Charles Boltic, 746 Lemington St., Greensburg, Pa.
Filed Aug. 18, 1969, Ser. No. 850,988

Int. Cl. B65d 41/34, 51/20

U.S. Cl. 239-318

2 Claims



An attachment for a spray gun so that it may be readily attached directly to a disposable paint container within which the paint is purchased, the attachment comprising an adapted that is threadingly secured over the paint container and which includes a pair of hold down clamps for securing a lower end of the spray gun thereto.

3,593,922 SPRINKLER

George M. Standal, 1916 San Fernando Place, Victoria British Columbia, Canada
Filed Feb. 27, 1970, Ser. No. 15,129

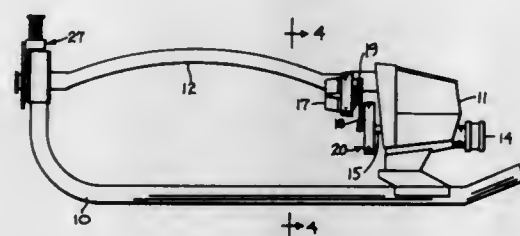
Int. Cl. B05b 3/16

U.S. Cl. 239-242

8 Claims

A lawn sprinkler of the oscillating type modified from the conventional structure to even water distribution over the area covered thereby. A spring-loaded crank is interposed between the motor drive shaft and the oscillating spray pipe to accelerate movement of the spray pipe as the driving crank

arm assembly moves overcenter. A controllable friction brake is provided to retard movement of the spray pipe in a predetermined pattern so as to insure more even distribution of water during movement of the spray pipe.

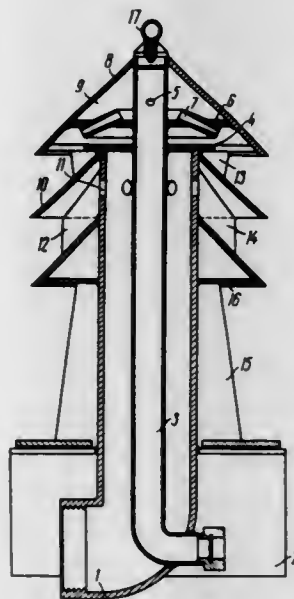


3,593,923 GAS BURNER

Natan Davydovich Solterman, Chinabadskaia ulitsa, 19, kv. 3; Boris Izrailovich Nudelman, Chilanar, kvartal 8, 27, kv. 44; Valentin Ivanovich Ustinov, ulitsa Takhiatashskaya, 9, kv. 2; Vakhid Kakharovich Kakharov, Chilanar, proezd Zharky, 1, kv. 3, and Petr Mikhailovich Filippov, Chilanar, ulitsa Volgogradskaya, 44, all of Tashkent, U.S.S.R.
Filed Jan. 26, 1970, Ser. No. 5,474
Int. Cl. F23d 15/02

U.S. Cl. 239-418

2 Claims



A gas burner for a shaft kiln having a hollow body, into the lower portion of which a nonflammable gas can be supplied for flowing upwardly therethrough, a tubular member extending coaxially within this hollow body, into which a fuel gas can be supplied for flowing also upwardly therethrough, the tubular member having an outlet head portion received thereabout adjacent to the upper end thereof, a plurality of cone-shaped deflectors are received about the body and the tubular member, these deflectors tapering upwardly and being vertically spaced from one another, whereby at least two chambers are formed therebetween for the nonflammable gas and fuel gas to issue into these chambers, respectively, from the body and from the tubular member.

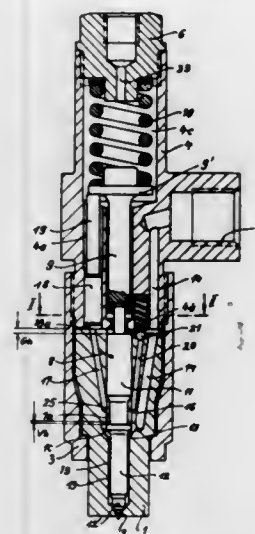
3,593,924 VALVE FOR THE ADVANCE AND MAIN INJECTION OF FUEL

Konrad Eckert, Stuttgart-Bad Cannstatt, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Feb. 11, 1970, Ser. No. 10,447
Claims priority, application Germany, Feb. 14, 1969, P 19 07 340.6
Int. Cl. B05b 1/30

U.S. Cl. 239-533

5 Claims

In a fuel injection valve, the initial opening motion of the valve needle (advance injection) is effected by the fuel pressure exerting a force directly on the valve needle and also on



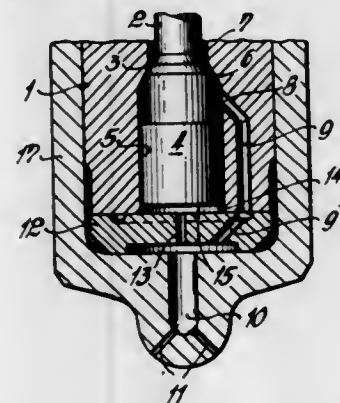
vided therein, cuts off the pressure supply to said pistons so that an elevated pressure level is required to cause further displacement (main injection) of the valve needle.

3,593,925 FUEL INJECTION VALVE FOR INTERNAL COMBUSTION ENGINES

Konrad Eckert, and Heinz Links, both of Stuttgart, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Feb. 11, 1970, Ser. No. 10,459
Claims priority, application Germany, Feb. 14, 1969, P 19 07 341.7
Int. Cl. B05b 1/30

U.S. Cl. 239-533

7 Claims



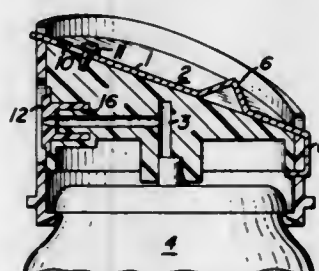
In a fuel injection valve, in order to ensure that minimal or no fuel pressure is exerted in a closing direction on the valve needle when the latter is in an open position, the supply channel leading from the downstream side of the valve seat to the nozzle openings circumvents the valve needle and the latter, in said open position, hermetically engages with its base face a stationary frontal plate held in the valve.

3,593,926 APPARATUS FOR DISSEMINATING LACHRYMATORY MATERIAL

Joseph Kozub, Abingdon, Md., assignor to The United States of America as represented by the Secretary of the Army
Filed Oct. 2, 1969, Ser. No. 863,170
Int. Cl. B05b 11/00

U.S. Cl. 239-579

8 Claims



An apparatus and method for disseminating lachrymatory material having a safety means to prevent premature dissemination and a variable spray nozzle means.

3,593,927 PROCESS OF COMMINUTION OF AN AQUEOUS SUSPENSION OF COPPER PHTHALOCYANINE

Kelth G. Neill, Kew, Australia, assignor to Imperial Chemical Industries of Australia and New Zealand Limited, Melbourne, Victoria, Australia

Filed June 20, 1968, Ser. No. 738,405

Claims priority, application Australia, July 12, 1967,

24,497/67

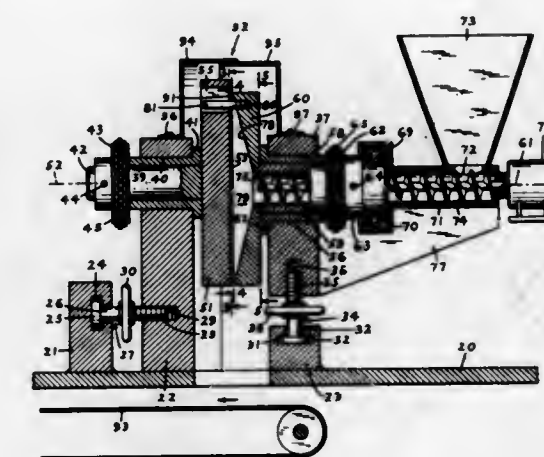
Int. Cl. B02c 19/00

U.S. Cl. 241-16

8 Claims

A process of comminution of an aqueous suspension of beta copper phthalocyanine, by vigorous agitation in a grinding mill, with a particulate grinding aid such as sand or beads of porcelain, glass or insoluble plastic material, the improvement which comprises milling in the presence of an alkyl glycol ether having at least one ethylene glycol unit in the molecule and of one or more amine salts bearing at least one alkyl substituent having 12 or more carbon atoms in the chain.

centrically located axes. The discs are rotated at exactly the same speeds and in the same rotational direction. The mill



3,593,928 SYSTEM FOR PRODUCING PRINTING INKS

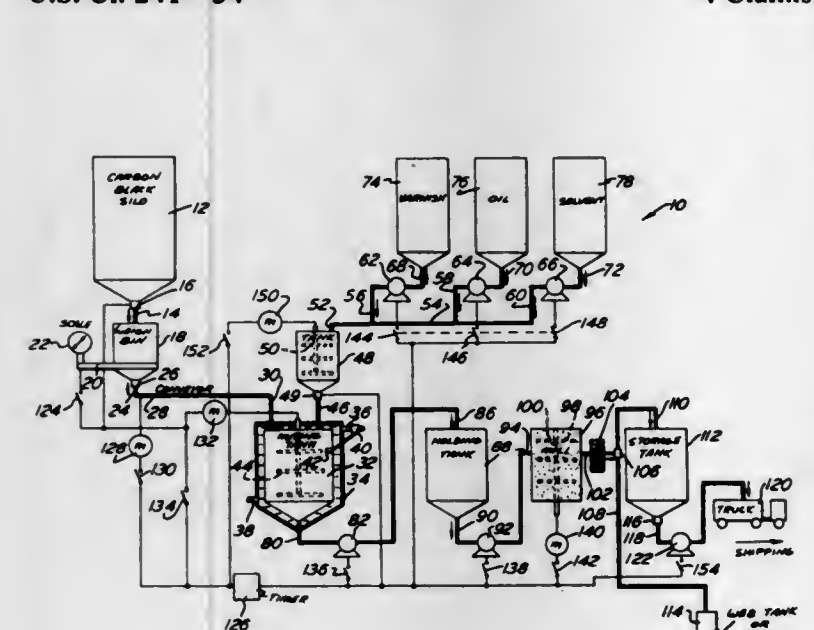
Morris Friedland, New York, N.Y., assignor to Millmaster Onyx Corporation, New York, N.Y.

Filed Aug. 20, 1969, Ser. No. 851,564

Int. Cl. B02c 17/16, 25/00

U.S. Cl. 241-34

4 Claims



A system for manufacturing printing inks and the like which includes a weighing bin for the solids material, such as carbon black, this bin being operatively connected to a scale which trips a timer mechanism when the material in the bin reaches a predetermined weight. The timer mechanism actuates a release valve in the bin as well as a conveyor which moves the released solids to a mixing tank. The timer also releases a predetermined amount of liquid materials, such as varnish, oils, and solvents, into the mixing tank. The timer causes agitation of the materials in the mixing tank for a predetermined time, after which the mixture is passed to a holding tank and then to a ball mill or the like where it is finally ground. It is then passed through screens of predetermined mesh to storage and dispensing tank. All these steps take place in a timed, continuous manner.

structure is such that a piece of wood entrapped between the discs will be subjected to epicyclic abrasion.

3,593,930 SHREDDER

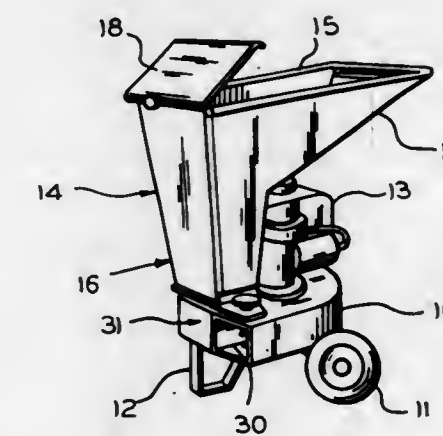
Robert D. Lautzenheiser, Bluffton, Ind., assignor to The Red Cross Manufacturing Corp.

Filed Sept. 11, 1970, Ser. No. 71,425

Int. Cl. B02c 18/06, 13/18, 13/382

U.S. Cl. 241-188 R

9 Claims



A shredding machine having knives rotating about a vertical axis in a shredding housing. A hopper is positioned atop the housing and delivers material through an inlet to the shredding space. An outlet from the space is adjacent the inlet. Stationary baffles interfit with the rotating knives to cut and tear material within the housing.

3,593,931 ROTARY CRUSHER HAMMERS

William F. Hahn, Devon, Pa., assignor to Pennsylvania Crusher Corporation, Broomall, Pa.

Filed Mar. 28, 1969, Ser. No. 811,541

Int. Cl. B02c 13/04, 13/28

U.S. Cl. 241-194

11 Claims

In a rotary hammer crusher, at least two hammers are employed at each hammer position, each hammer being independently pivotally suspended from the rotor disc. The front hammer (as determined by the direction of rotation of the rotor shaft) functions as the wear hammer and is made of manganese or other steel having good wear-resistant properties. This hammer is usually light in weight and thin in thickness compared with the rear or backup hammer. The front hammer is so shaped and so pivotally suspended relative to the backup hammer than when the rotary crusher is rotating at operating speed, the front hammer maintains an abutting relationship against the heavy mass backup hammer,

3,593,929 ECCENTRIC ROTARY GROUNDWOOD MILL

Frank P. Hughes, Hawkesbury, Ontario, Canada, assignor to Canadian International Paper Company, Montreal, Quebec, Canada

Filed July 5, 1968, Ser. No. 742,667

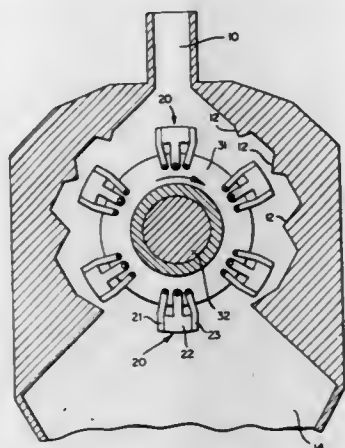
Int. Cl. B02c 7/10

U.S. Cl. 241-146

17 Claims

A rotary groundwood mill comprising two discs arranged to face each other and rotated in their major planes about ec-

and the two hammers function as a single unit. If the rotary crusher is a reversible crusher, three hammers are usually



used at each position, the middle hammer being the backup hammer.

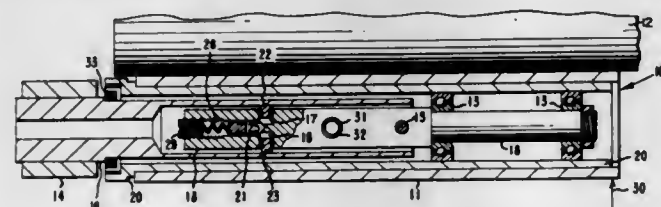
3,593,932

BOBBIN CHUCK

Maryland Virginia Altice, New Castle, and William David Walker, Wilmington, both of Del., assignors to E.I. du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 17, 1969, Ser. No. 885,855
Int. Cl. B65h 54/02, 75/18

U.S. Cl. 242-18

6 Claims



A self-aligning bobbin chuck for use with a yarn winding apparatus of the type that includes a drive roll and means for moving a bobbin carried by the chuck into surface driven engagement with the drive roll. The chuck includes concentrically arranged and radially spaced, first and second shafts and a sleeve telescoped over the shafts. The second shaft has a portion that extends beyond one end of the first shaft and is pivotally mounted at a point between its ends to the first shaft for swinging movement in a plane inclusive of the longitudinal axes of both the chuck and the drive roll. The sleeve is rotatably mounted to one end of the second shaft while a damping means is coupled between the other end of the second shaft and the first shaft to dampen out rapidly applied shock loads.

3,593,933

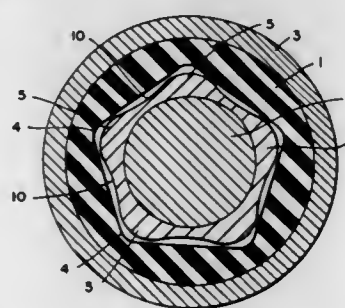
DEVICE FOR THE SLIP-FREE COUPLING OF A DRIVE SHAFT TO A WINDING SLEEVE

Ingo Grashorn, Wuppertal-Langerfeld, Germany, assignor to J. P. Bemberg Aktiengesellschaft, Wuppertal, Germany
Filed Aug. 6, 1968, Ser. No. 750,655
Claims priority, application Germany, Aug. 14, 1967, P 15 74 310.9

Int. Cl. B65h 17/02, 75/30

U.S. Cl. 242-46.4

10 Claims



A device for the slip-free coupling of a drive shaft to the winding sleeve of a takeup spool, e.g. in the winging collec-

tion of filaments, threads, yarns, foils and the like onto a cylindrical spool or roller, the coupling means consisting essentially of a hollow tubular resilient elastic casing drawn loosely onto a cam- or gear-shaped collar having radially projecting arcuate cogs adapted to engage a polygonal inner periphery of the hollow tubular casing.

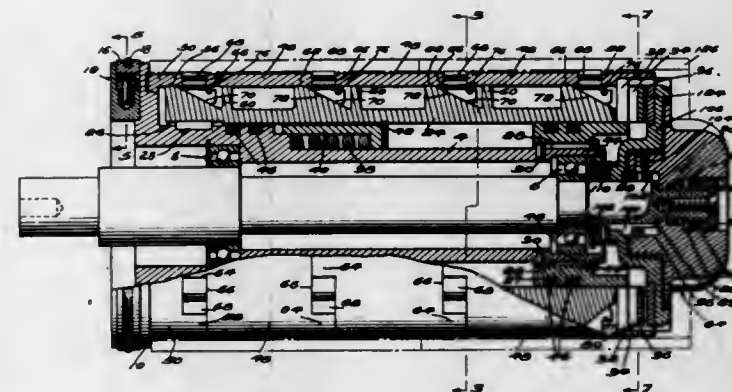
3,593,934

HIGH SPEED BOBBIN CHUCK

Peter Conrad, Charlotte; Thomas E. Morris, Concord, and Frank W. Taylor, Matthews, all of, N.C., assignors to Celanese Corporation, New York, N.Y.
Filed July 29, 1968, Ser. No. 748,354
Int. Cl. B65h 75/30

U.S. Cl. 242-46.5

9 Claims



A bobbin chuck for releasably gripping one or more bobbins while yarn is being wound on the bobbin. The bobbins are mounted in coaxial relation on the exterior cylindrical surface of the chuck and are held in place by a plurality of jaws which are movable outwardly to grip the interior surface of the bobbins. The jaws are spaced around the circumference of the chuck in a plurality of rows. The rows are spaced longitudinally on the chuck surface. In the interior of the chuck, a mandrel having a plurality of conical cam surfaces is spring biased axially to urge the jaws outwardly to grip the bobbins securely on the chuck. Displacement of the mandrel is controlled by a brake and release mechanism in the end of the chuck. This mechanism includes a knob and concentric ring which are exposed. By rotating the knob relative to the ring, the ring is displaced axially into engagement with a braking surface on the mandrel. Further rotation of the knob transmits an axial force through the concentric ring to the mandrel in opposition to the mandrel spring. As the mandrel is displaced by rotation of the knob, the cam surfaces move relative to the jaws, thereby allowing the jaws to be retracted by springs attached to the jaws. When the jaws are retracted, the bobbins are released. The bobbins then may be readily removed from the chuck and replaced with empty bobbins.

3,593,935

ENDLESS LOOP TAPE CARTRIDGE

Theodore Ritz, Jr., 3691 Whitfield, Waterford, Mich., and Joseph M. Richtarcik, 20021 Avalon, St. Clair Shores, Mich.

Filed Nov. 20, 1967, Ser. No. 684,373

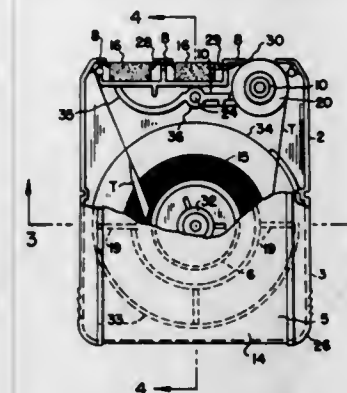
Int. Cl. B65h 17/48

U.S. Cl. 242-55.19

8 Claims

A magnetic tape cartridge houses an endless coiled tape with an exterior loop of tape extending from the inside convolution of the coil, past suitable guide means, over tape head pads and a pressure member disposed adjacent to openings in the front of the cartridge, to then return to the outer convolution of the coil. The coil is supported on a spool composed of a resilient washer or flange snapped over a series of annular projections on the lower portion of a concentric hub. A resilient plastic pressure means is pivotally mounted inside the cartridge and in one embodiment carries a pressure roller to engage and press the tape loop against a driven capstan to feed the tape. An alternate embodiment uses a reversely curved compression arm to press the tape

against the capstan. When the cartridge is removed from the capstan the pressure roller or compression arm is arranged so



as to press the tape against the edges of the adjacent cartridge opening.

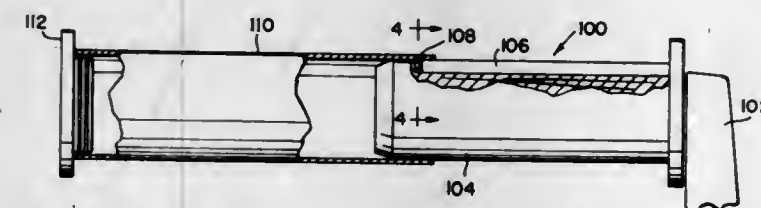
3,593,936

DISPENSING HOLDER FOR PAPER ROLLS AND THE LIKE

James G. Davis, 41 Lincoln Ave., Yeadon, Pa.
Filed Aug. 28, 1969, Ser. No. 853,787
Int. Cl. A47k 10/22, 10/40; B65h 19/00

U.S. Cl. 242-55.2

2 Claims



A holder and dispensing means for rolls of paper and the like which comprises a support at one end and a sleeve rotatably connected to the support and constructed to snugly receive the core of the roll. The roll rotates together with the sleeve without bouncing or wobbling on the sleeve. The sleeve also acts as an anchor when a piece of the paper strip is pulled off the roll at one of the score lines. The sleeve slidably supports an extension sleeve in adjusted positions thereon whereby rolls of different lengths may be accommodated.

3,593,937

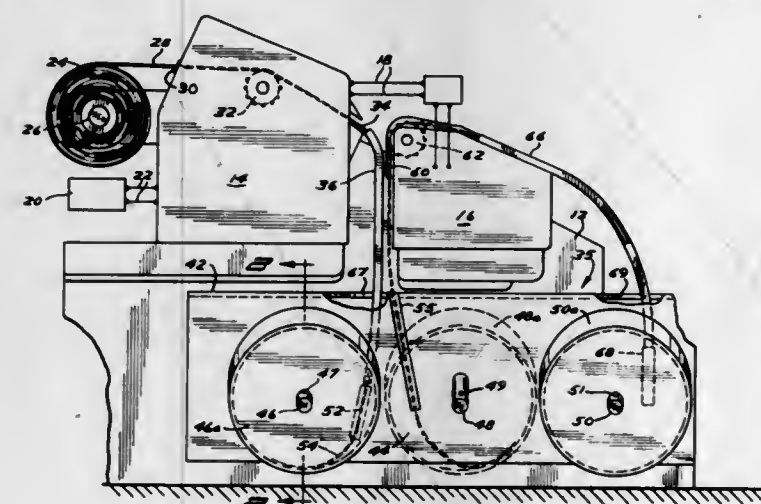
TAPE HANDLING APPARATUS

Jack J. Rejsa, Minneapolis, and Roy L. Swanson, Richfield, both of, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.
Continuation of application Ser. No. 653,547, July 14, 1967, now abandoned. This application Sept. 12, 1969, Ser. No. 857,530

Int. Cl. B65h 17/48

U.S. Cl. 242-55.21

2 Claims



A winding, storing and unwinding device for paper tape including three support pins mounted in horizontal alignment. A cup-shaped, cylindrical container is mounted for free rota-

tion and quick removal upon each of the pins. A tape punch and tape reader are located adjacent to the pins. During operation tape passes from the punch through a guide into the container on the first pin and frictional engagement between the tape and the wall of the container causes the container to rotate on the pin. When the container is filled in this manner, it is transferred to the second pin and its leading edge is withdrawn and introduced to the reader from which it passes into a similar freely rotating storage container on the third pin.

3,593,938

METHOD AND APPARATUS FOR PROCESSING STRIP

Craig B. Watt, Portage, Ind., assignor to United States Steel Corporation
Filed Oct. 8, 1969, Ser. No. 864,744
Int. Cl. B65h 75/24; B21c 47/02

U.S. Cl. 242-72

5 Claims



In the continuous processing of strip in which the expandable uncoiler mandrel at the entry end of the processing line has a larger diameter than the expandable coiler mandrel at the exit end of the line a resilient sleeve is provided to permit reuse of a leader strip which pulls prime strip through the line after shut downs. The resilient sleeve has a slot extending across its width, an internal diameter greater than the unexpanded diameter of the coiler mandrel and an external diameter greater than the unexpanded diameter of the uncoiler diameter. The sleeve is placed on the uncoiler mandrel prior to coiling the leader strip and then removed from the coiled leader strip to permit placing the coil on the uncoiler mandrel.

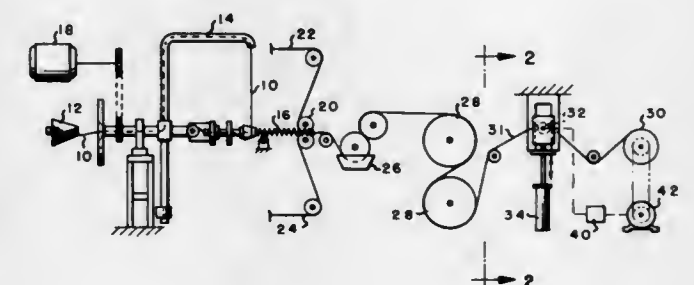
3,593,939

APPARATUS FOR PROCESSING SHEET MATERIAL

Milton M. Bolles, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed Sept. 10, 1969, Ser. No. 856,734
Int. Cl. B65h 51/20, 59/38

U.S. Cl. 242-75.5

4 Claims



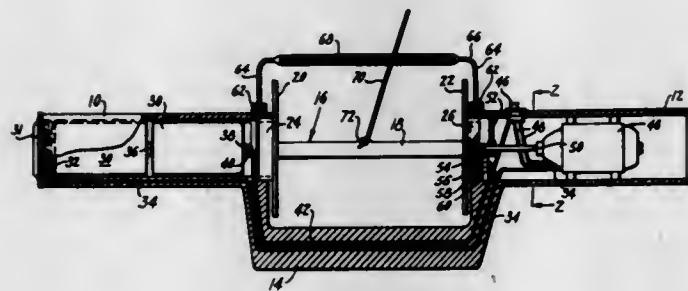
Apparatus for processing sheet material of continuous length including a rotatable collection roll for accumulating the material and a compensating roll operatively associated therewith for influencing the takeup of the sheet material by displacement of the axis of the compensating roll to vary the length of the path of travel of the sheet material to the collection roll, and wherein means are provided for fixing the axial position of the compensating roll to prevent its causing backwinding of sheet material from the collection roll when the collection roll is temporarily stopped.

3,593,940

POWER-DRIVEN KITE STRING REEL
 Elbert Stanton, 18039 Hubbell, Detroit, Mich.
 Filed Oct. 21, 1969, Ser. No. 868,077
 Int. Cl. B65h 75/40

U.S. Cl. 242—96

10 Claims



A reel on which a kite string is adapted to be wound and from which it may be unwound is journaled at its ends in axially aligned hollow handles one of which houses dry cell batteries and the other of which houses a motor having gear connection with the adjacent end of the reel, the latter handle having a reversing switch for rotating the motor to wind or unwind the string.

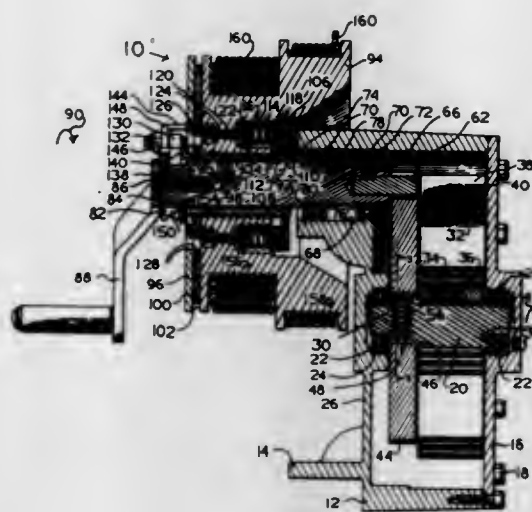
3,593,941

CABLE RETRIEVER

Samuel H. Smith, Oklahoma City, Okla., assignor to Drillograph Company, Inc., Oklahoma City, Okla.
 Filed May 2, 1969, Ser. No. 821,304
 Int. Cl. B65h 75/48

U.S. Cl. 242—107

7 Claims



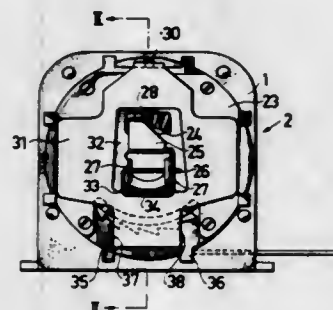
A cable retriever particularly useful with cable-operated recorders employed in recording various oil and gas well drilling operations. The device utilizes a flat spiral-type tension spring which is wound as cable is pulled from the device, and the spring rewinds the cable when the cable is released. The spring drives the cable reel through the medium of a ring gear and pinion wherein the ring gear is mounted by means of what might be characterized as an overriding clutch which functions to drive the ring gear to retrieve the cable, but which allows the ring gear to continue rotation in the event the cable breaks, to eliminate the imposition of incorrect forces on the spring and protect the spring from breakage. The reel is mounted on the device through the medium of a friction clutch which permits slippage of the reel with respect to the spring drive system in the event an excessive pulling force is imposed on the cable to protect the spring from being over-loaded.

3,593,942

AUTOMATIC LOCKING DEVICE FOR SAFETY BELTS
 Gert Ingmar Rex, Halmstad, Sweden, assignor to AB Autolind, Halmstad, Sweden
 Filed Apr. 29, 1969, Ser. No. 820,052
 Claims priority, application Sweden, Nov. 5, 1968, 14965/68
 Int. Cl. B65h 75/48

U.S. Cl. 242—107.4

8 Claims



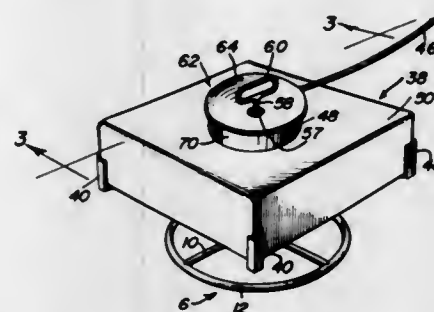
This automatic locking device for a vehicle safety belt has a shaft rotatably mounted within a casing for reeling up the belt. A rotor, which is secured to the shaft, carries a pivotal locking pawl normally held in an inoperative position by an inertia-responsive member which is spring-loaded to rotate with the rotor. Should the wearer be thrown suddenly forward, the acceleration causes the inertia-responsive member to rotate relative to the rotor, and to pivot the pawl into locking engagement with a locking tooth in the casing, thus to stop further withdrawal of the belt from the casing.

3,593,943

ELECTRIC WIRE DISPENSING APPARATUS
 Ralph H. Collmann, Hartley, Iowa 51346
 Filed Nov. 4, 1969, Ser. No. 873,913
 Int. Cl. B65h 49/00

U.S. Cl. 242—129

9 Claims



A portable supporting apparatus for systematically unwinding conduit wire (Romex for example) protectively coiled for use in cardboard cartons of various sizes. It permits the wire to be pulled out and dispensed smoothly without twisting. One man can pull the wire up through walls and wherever else necessary without having to return to the carton to untwist kinks and unmanageable deformations. It comprises a pedestal-type stand, a rotatable carton supporting platform, and piloting and guard means on the post above the platform which guides the free end of the wire to govern it and minimize dispensing difficulties.

3,593,944

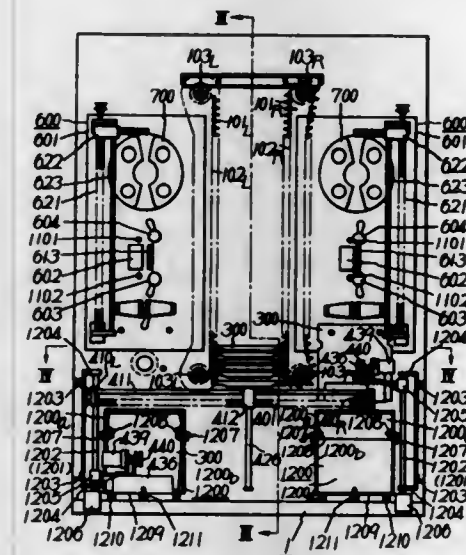
AUTOMATIC TAPE PLAYBACK APPARATUS

Saburo Umeda; Tokio Kizuka; Kiyoshi Iwai; Susumu Tsunoda, and Hideaki Hayashi, all of Tokyo, Japan, assignors to Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.), Tokyo, Japan
 Filed Jan. 18, 1968, Ser. No. 698,773
 Claims priority, application Japan, Jan. 23, 1967, 42/4490
 Int. Cl. G03b 1/04; G11b 15/32

U.S. Cl. 242—181
 10 Claims

An automatic tape playback apparatus comprising a plurality of cartridges each having incorporated therein a reel with a recorded magnetic tape wound thereon and means for fastening one end portion of the tape to one sidewall of the cartridge, means for arranging the plurality of cartridges in

order of a program, means for automatically bringing the cartridges to right and left playback positions, means for draw-



ing out the tape from the cartridge to a takeup reel, and means for playing back signals recorded on the tape.

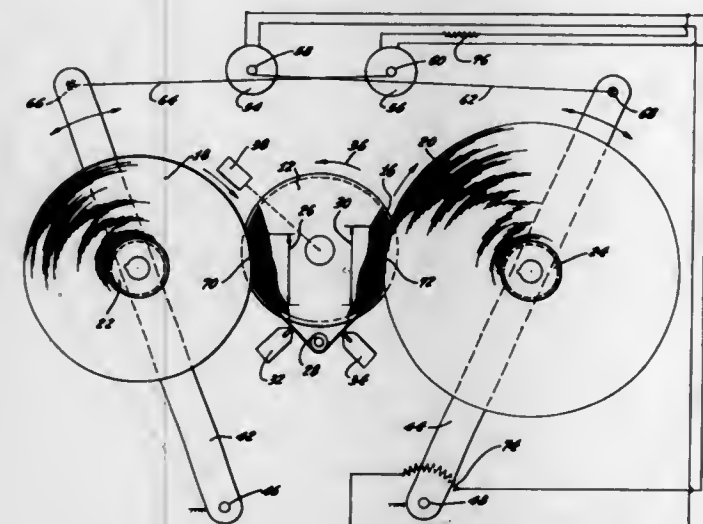
3,593,945

CAPSTAN ASSEMBLY

Harvey J. Richardson, Ventura, and Dean L. De Moss, Camarillo, both of Calif., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Filed May 1, 1968, Ser. No. 725,808
 Int. Cl. G03b 1/04; G11b 15/32

U.S. Cl. 242—192

8 Claims

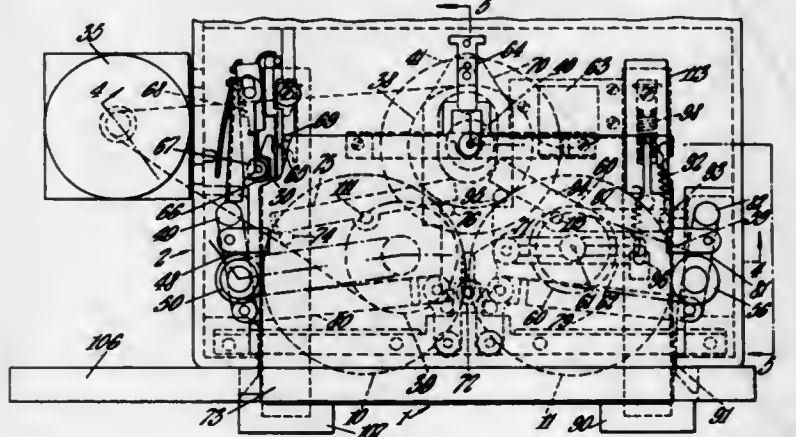


The present invention relates to a tape transport mechanism including a rotatable capstan having at least an outer layer of an elastomeric material and with magnetic tape formed in first and second rolls and with a tape path between the first and second rolls. A tape guiding member is positioned adjacent to the rotatable capstan and the tape path between the first and second rolls passes over a first circumferential portion of the capstan, over the tape guiding member and then back to and over a second circumferential portion of the capstan. The magnetic tape is driven between the first and second rolls by directly maintaining the rolls in engagement with the outer layer of the capstan. The invention also includes providing a rotatable helical magnetic transducing head as the tape guiding member so as to provide for a helical recording of information on the magnetic tape as it is driven between the first and second rolls. In addition, the invention includes maintaining one of the rolls of magnetic tape in engagement with the capstan with a greater force than is used to maintain the other of the rolls so as to provide for a tension in the tape path. The present invention may also be incorporated in a tape cartridge by including at least the first and second rolls in a common outer housing.

3,593,946

TAPE RECORDING AND/OR REPLAY MACHINE AND CASSETTE AND CARTRIDGE FOR USE THEREWITH
 Peter R. D. Shardlow, Egham, Surrey, England, assignor to Tape Systems Limited, Egham, Surrey, England
 Filed July 9, 1969, Ser. No. 840,430
 Claims priority, application Great Britain, July 10, 1968, 32995/68

Int. Cl. B65h 17/48; G03b 1/04; G11b 15/32
 U.S. Cl. 242—192
 20 Claims



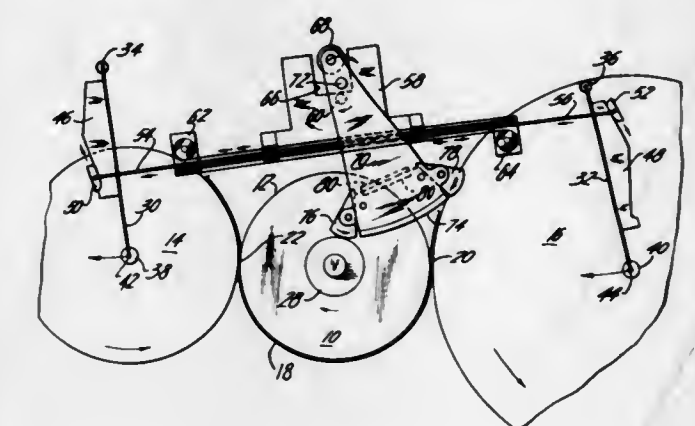
A tape recording and/or replay machine having a slot into which a cassette or cartridge can be inserted. The cassette has two spools, flanges of which project through opposite sidewalls of the cassette whereas the cartridge has a single spool a flange of which projects through a sidewall of the cartridge. Both the cassette and the cartridge have a tape guidance system including a spring pinch wheel. The machine has a motor driven capstan, a continuously driven first drive wheel which engages the projecting flange of one spool when a cassette is inserted into the slot and the projecting flange of the spool when a cartridge is inserted into the slot. A second drive wheel of the machine engages the projecting flange of the other spool when the cassette is inserted into the slot. For rewind the first drive wheel is moved out of engagement with the flange it normally engages and the second drive wheel is coupled to the motor and drives the tape in the reverse direction.

3,593,947

TAPE TRANSPORT APPARATUS

Ralph Johnson, Huntington, N.Y., assignor to Sylvania Electric Products, Inc.
 Filed Dec. 8, 1969, Ser. No. 882,959
 Int. Cl. G03b 1/04; G11b 15/32

U.S. Cl. 242—192
 5 Claims



A tape transport utilizes a reversible rotatable capstan interposed between two spaced tape wound spools and making resilient peripheral contact with a selected point on each spool. The direction of rotation of the capstan determines which spool acts as a supply spool and which spool acts as a takeup spool.

Cams, cam followers, first means coupled to and extending between the followers, and second means cooperating with

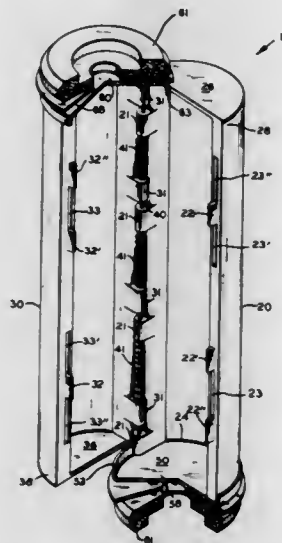
the first means and coupled to the drive shaft of the capstan establish a first pressure urging the takeup spool toward the capstan and applied at the point of arrival which is larger than and oppositely directed to a second pressure urging the supply spool toward the capstan and applied at the point of departure.

3,593,948

CONTAINER FOR PNEUMATIC CARRIER SYSTEMS

Ralph E. McClellan, Toledo, Ohio, assignor to Meilink Steel Safe Company, Toledo, Ohio
Filed May 1, 1969, Ser. No. 820,855
Int. Cl. B65g 51/06

U.S. Cl. 243—34



An elongated container for holding articles having two symmetrical semicylindrical body sections which are hinged together along one of their adjacent longitudinal edges for movement thereabout. A cup-shaped cap is attached to one end of each body section with the open face of each cap adapted to move axially toward and away from the end of at least one of the body sections. Thus these caps when moved toward each other lock the two body sections together, and when moved away from each other permit the body sections to open about their hinge. These caps may be axially movable relative to the ends of both body sections by cam means against the bias of springs or magnets, or the body sections may move axially relative to each other to move the caps away from one body section. The outer faces of the caps may be provided with buffer pads to protect the container during handling and use thereof.

3,593,949
POLE HOLDER

Henry J. Fliege, 1618 W. Margaret Ave., Peoria, Ill.
Filed Aug. 22, 1969, Ser. No. 852,367
Int. Cl. F16m 13/00; A01k 97/10

U.S. Cl. 248—42



A fishing pole or rod holding device formed with a wire framework suitably shaped to provide a pair of parallel spaced legs clamped by adjustable fasteners to a rigid mount-

ing member adapted to be anchored in the ground or secured to the side of a boat, for example. Adjustment of the fasteners regulates rotational freedom of the legs relative to the mounting member, permitting the pole, held in the framework, to pivot arcuately relative to the stationary mounting member. During such pivoting action portions of the framework are torsionally loaded to resiliently resist the pivoting action and thereby urge the pole toward a central or neutral position. A generally U-shaped arm having a looped portion and an open throat receive the handle or butt end of the pole for maintaining the latter in the holding device.

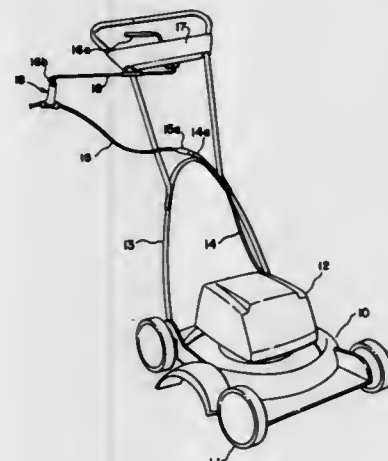
3,593,950

CORD STRAIN RELIEF DEVICE

Heinrich F. Tetzlaff, St. Paul, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Oct. 15, 1968, Ser. No. 767,783
Int. Cl. F16l 3/14

U.S. Cl. 248—52

4 Claims



A device for suspending a cord such as an electric cord from a support to prevent straining and premature failure of the cord. The device consists of a flat elongate flexible member which is wrapped around the cord and secured thereto so as to prevent relative movement therebetween by means of a slot formed in one end thereof, which slot receives the other end of the member, with detent means formed in the member so that when the member is in enclosing supporting relationship with the cord, the detent means engages the portion of the member defining said slot to hold the member on the cord. The outer end portion of the end which is inserted in the slot is provided with an opening for connection to the cord supporting member.

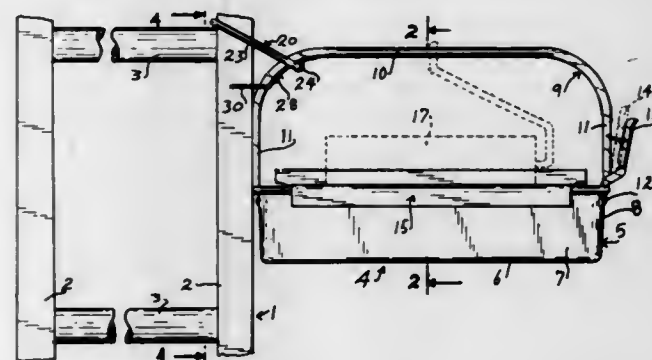
3,593,951

PAINT TRAY AND MOUNTING MEANS THEREFOR

Frederick P. Warner, Eden Prairie, and Yoshimi Matsuura, Minneapolis, both of, Minn., assignors to Warner Manufacturing Company, Minneapolis, Minn.
Filed Mar. 16, 1970, Ser. No. 19,661
Int. Cl. E06c 7/14

U.S. Cl. 248—210

5 Claims



An open topped tray having means for supporting the same in a generally horizontal position on a ladder and including a generally U-shaped member having a pair of parallel legs and

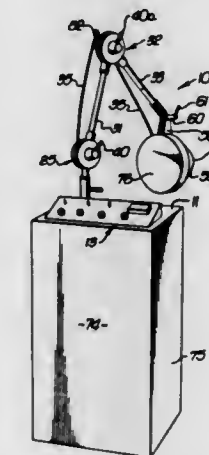
an intermediate connecting portion. The U-shaped member is adapted to straddle a ladder side rail with one of the legs being disposed in overlying engagement with a ladder rung and having an angularly displaced foot for hooking engagement with the ladder side rail.

3,593,952
SPRING BIASED SUPPORT FOR ELECTROTHERAPEUTIC APPARATUS ARTICULATED ARM STRUCTURE

James Robert Smith, Granada Hills, Calif., assignor to Dynapower Systems Corporation of California, Santa Monica, Calif.

Filed Nov. 13, 1969, Ser. No. 876,343
Int. Cl. F16l 27/00

U.S. Cl. 248—284



An articulated arm structure is supported by a cabinet and supports an electrotherapeutic treatment head; the arm structure includes first and second cup-shaped joint members interconnected to define a horizontal axis of relative rotation; a first torsion spring extends within the members to yieldably resist arm structure articulation while blocking collapse of the arm structure and head when projecting generally horizontally; and there may be third and fourth cup-shaped joint members connected to define another horizontal axis of rotation, and containing a second torsion spring connected to yieldably resist arm structure articulation while blocking collapse of the arm structure and head when projecting generally horizontally.

3,593,953

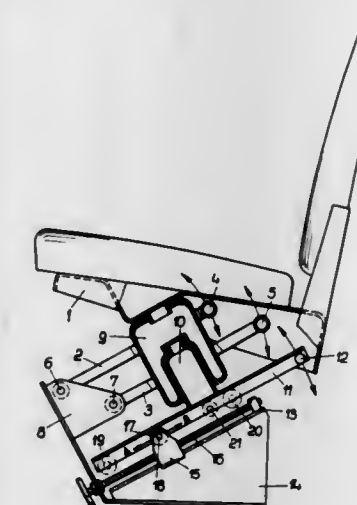
VEHICLE SEATS WITH AIR-SPRING SUPPORTS

Adolf Auer, Munich, Germany, assignor to Bremshey & Co., Solingen-Ohligs, Germany

Filed Jan. 8, 1969, Ser. No. 789,696
Int. Cl. F16m 13/00

U.S. Cl. 248—400

7 Claims



A vehicle seat and a support therefor. The vehicle seat is supported by an air-spring assembly which yields when the

driver or a passenger occupies the seat. The air-spring is capable of having its natural frequency adjusted, and this adjustment is brought about by way of swing-lever which is pivotally connected at one end to the frame of the seat and which is directly connected to the air-spring at a location situated at a distance from the pivotal connection to the seat which determines the length of one lever arm. A fulcrum member is shiftable along the swing-lever to a selected location which will determine a second lever arm. The ratio of the first to the second lever arm determines the natural frequency of the air-spring.

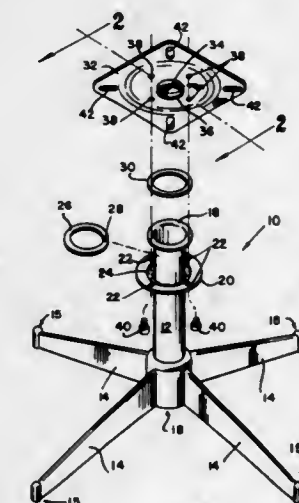
3,593,954

SWIVEL CONNECTION FOR A CHAIR

Francis W. Ritchie, and Connie W. Garber, both of Peru, Ind., assignors to Kofabco, Inc., Peru, Ind.
Filed June 4, 1970, Ser. No. 43,409
Int. Cl. F16m 13/00

U.S. Cl. 248—425

9 Claims



A base for a swivel chair comprising an upstanding hollow support column providing, at its upper extent, a peripherally and outwardly extending lip, a retainer ring mounted on the column for movement upwardly toward the lip, a pair of lubricous bearing rings, one ring being disposed concentrically about the column to engage the underneath surface of the lip and the other ring resting concentrically on the upper surface of the lip, a seat mounting plate providing a generally centrally disposed locator portion extending downwardly through the upper bearing ring and into the upper portion of the column, and fastening means for connecting the retainer ring and the mounting plate together to hold the bearing rings respectively against the lower and upper surfaces of the lip.

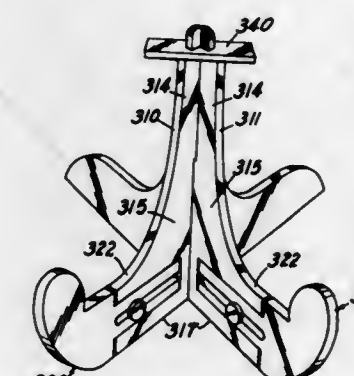
3,593,955

BOOK HOLDER

Hobart M. Hind, 122 Court Ave., Albany, Ga.
Filed May 29, 1968, Ser. No. 733,025
Int. Cl. A47b 19/00

U.S. Cl. 248—448

5 Claims



A book holder formed of intersecting support members having upper surfaces for supporting one or a plurality of

books in opened upright position for reading. The modifications include extensions for receiving a larger book and a pivot table on which the book holder rests.

3,593,956

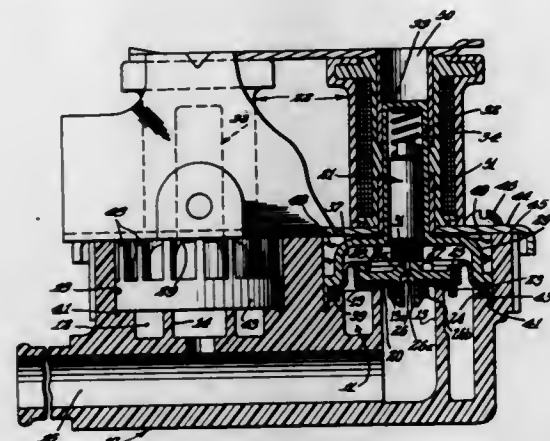
SHUTOFF VALVE AND ARMATURE GUIDE THEREFOR
William R. McCarty, Jr., Skokie, Ill., assignor to The Dole Valve Company, Morton Grove, Ill.

Filed Apr. 16, 1969, Ser. No. 816,714

Int. Cl. F16k 31/385, 7/12

U.S. Cl. 251-30

8 Claims



Thermoplastic armature guide for the spring and armature of a solenoid controlled pressure operated diaphragm valve, for retaining and sealing the diaphragm to the body of the valve. The guide comprises an elongated cylindrical guide part having one closed end and an opposite inverted bowl-like base. The bowl-like base has an inner radially outwardly extending shoulder and an annular guide leg extending axially from the outer margin of the shoulder. The shoulder and guide leg form a sealing and guide for the peripheral portion of the diaphragm. The guide leg guides the diaphragm to its cavity in the valve body and accommodates the shoulder to compress and seal the peripheral portion of the diaphragm to the valve body, as the cover plate for the valve body is tightened into position. The top wall of the inverted bowl-like base is abutted by the cover of the valve body, as the shoulder maintains the diaphragm in sealing engagement with the valve body. The solenoid coil for the valve has sleeve-like poles pieces fitting along the plastic armature guide to reinforce and prevent distortion of the guide by the heat of the water or the heat generated by the coil.

3,593,957

DIAPHRAGM ASSEMBLY FOR PRESSURE OPERATED PILOT CONTROLLED SHUTOFF VALVE

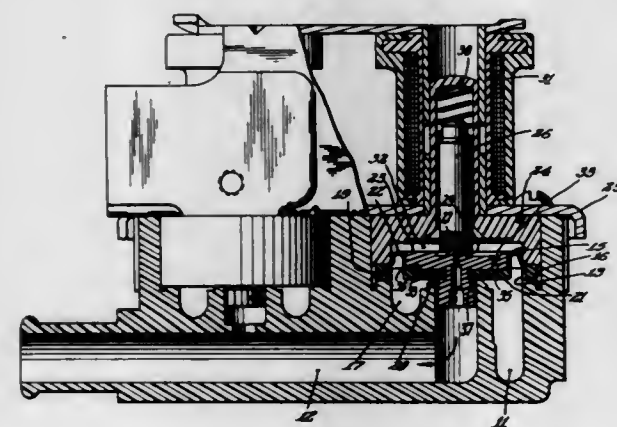
Paul A. Dolter, Roselle; William R. McCarty, Jr., Skokie, and Wesley S. Swanson, Elk Grove Village, Ill., assignors to Eaton Yale & Towne, Inc., Cleveland, Ohio

Filed Aug. 15, 1969, Ser. No. 850,572

Int. Cl. F16k 31/385, 31/40

U.S. Cl. 251-30

10 Claims



Fluid pressure operated pilot controlled diaphragm valve. The diaphragm forming the valve has a marginal sealing portion, an annular thin-walled bellowslike portion extending radially inwardly of the sealing portion and a disclike central

portion extending inwardly of the thin-walled bellowslike portion. A plastic insert rigidly backs up the disclike portion of the diaphragm and has a guide boss leading through the disclike portion of the diaphragm, having a central pilot orifice leading therethrough. The insert has a bleed hole of smaller cross-sectional area than the cross-sectional area of the pilot orifice leading therethrough. The diaphragm has a series of bleed holes leading therethrough. A communicating passageway is provided between the bleed holes in the disclike portion of the diaphragm and the bleed hole leading through the plastic insert. The bleed holes leading through the diaphragm serve as a screen to prevent dirt from clogging the bleed hole leading through the plastic insert.

3,593,958

PNEUMATICALLY OPERATED VALVE MEANS AND PARTS THEREFOR OR THE LIKE

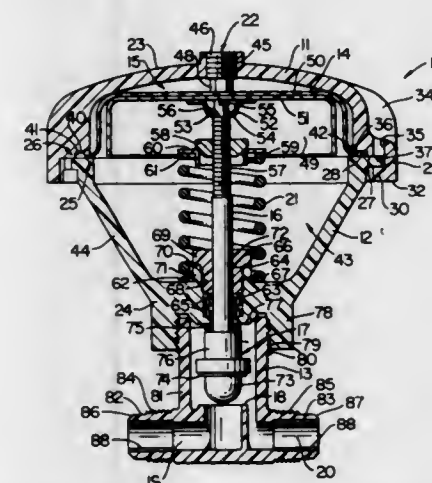
Klaus P. Mueller, Goshen, Ind., assignor to Robertshaw Controls Company, Richmond, Va.

Filed June 6, 1969, Ser. No. 831,043

Int. Cl. F16k 31/12; F16i 3/00

U.S. Cl. 251-61.4

12 Claims



A pneumatically operated device having a pair of cup-shaped housing members provided with cam-locking means at the respective open end of the housing members to secure the open ends together in compressed relation therebetween, a flexible diaphragm having an outer peripheral means disposed between the compressed-together open ends of the housing members so that the diaphragm means is sealed thereto and cooperates with one of the housing members to define a chamber therebetween. The flexible diaphragm is operatively associated with a valve member for controlling the opening and closing of a valve seat means detachably carried by one of the housing members.

3,593,959

POCKET UNLOADER VALVE OPERATOR

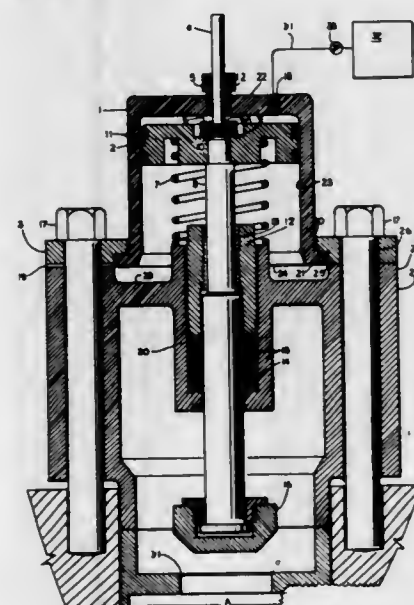
Bobby Howard Greene, Rte. 2, Malvern, Pa.

Filed July 23, 1969, Ser. No. 852,527

Int. Cl. F16k 31/143

U.S. Cl. 251-63.6

1 Claim



A simplified, compact, inexpensive, add-on pneumatic operator with cylinder and piston for pneumatically opening

and closing pocket unloading valves on reciprocating gas compressors. Provision is made for utilizing existing stems, packing, and valves of hand-operated units, existing attachment bolt locations. Simplified self-alignment is built in, and provision included for venting any compressed gas and/or operating air leakage.

3,593,960

DISC VALVE WITH UPSTREAM AND DOWNSTREAM SEATS

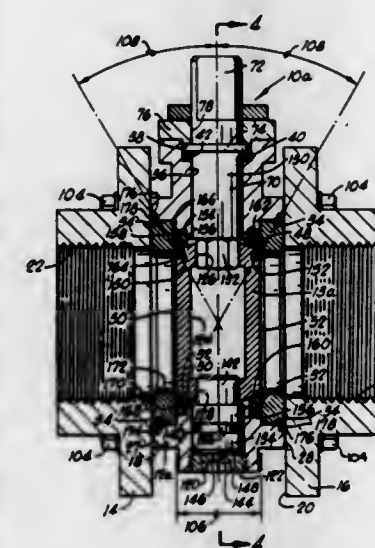
Domer Scaramucci, 3245 S. Hattie, Oklahoma City, Okla.

Filed May 9, 1969, Ser. No. 823,378

Int. Cl. F16k 1/226

U.S. Cl. 251-306

8 Claims



A disc valve having seating surfaces formed on both the upstream and the downstream faces of the disc which sealingly mate with respective upstream and downstream seats disposed in the valve body when the valve is in a closed position. Various forms of valve seats are disclosed. Various methods of supporting and rotating the disc in the valve body are also disclosed.

3,593,961

FAUCET FOR PRESSURIZED FLUIDS

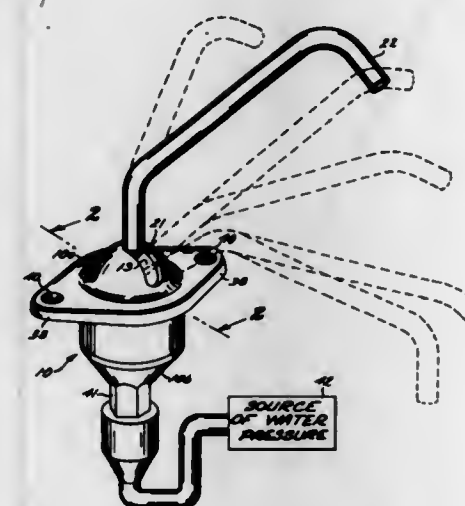
Anthony F. Stewart, 12091 Nieta Drive, Garden Grove, Calif.

Filed May 21, 1969, Ser. No. 826,386

Int. Cl. F16k 31/58

U.S. Cl. 251-349

11 Claims



A faucet which comprises a valve and a spout, the spout being adapted to be shifted to different positions effecting opening and closing of the valve. The spout is connected to the ball portion of a ball-and-socket joint, and in communication with a diametrical passage or canal through the ball. A spherical plug is mounted in a cage adjacent the inlet end of the canal, so that the inlet fluid pressure may force the plug against the inlet to block the same when the ball is in a shut

3,593,962

VALVE-CONTROLLED ROTARY NOZZLE

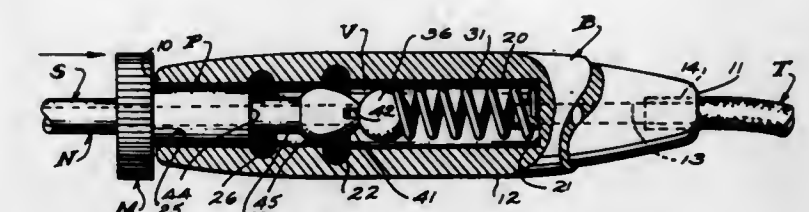
Gerald L. Sullivan, c/o D. L. Crawford, D.D.S. 213 E. Las Tunas Drive, San Gabriel, Calif. 91775

Filed Nov. 4, 1968, Ser. No. 772,945

Int. Cl. F16k 31/58

U.S. Cl. 251-353

3 Claims



A manually operable valve-controlled fluid applicator with an elongate fluid-conducting handle fixed to a flexible fluid supply tube, and an elongate fluid-conducting stem with an outer, laterally disposed nozzle end, an inner plunger portion, the plunger portion and an intermediate laterally projecting finger-engaging portion, the plunger portion engaged in a bore in the body for free rotation and axial shifting, valve means in the body controlling the flow of fluid therethrough and into the stem and adapted to be opened and closed by axial shifting of the stem relative to the handle and sealing and retaining means in the bore to seal with the stem and normally yieldingly retaining the stem engaged in the bore.

3,593,963

MOUNTING MEANS

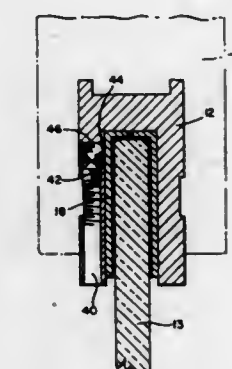
William J. Horgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

Filed Apr. 16, 1970, Ser. No. 28,999

Int. Cl. E04h 17/16

U.S. Cl. 256-24

9 Claims



Means for attaching the handrail portion of a combined handrail and glass panel unit to the glass panel. The handrail overlies and embraces the glass and said means are actuated from beneath the handrail portion so that they would not be apparent to the eye of one observing or using the railing unit.

3,593,964

MIXING AND DISPENSING CAP

Bruno Morane, Paris, France, assignor to L'Oreal, Paris, France

Filed Nov. 21, 1968, Ser. No. 777,598

Claims priority, application France, May 7, 1968, 150,763

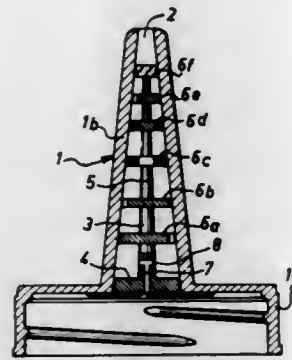
Int. Cl. B01f 15/00

U.S. Cl. 259-4

5 Claims

Cap for mixing and dispensing a plurality of liquids, com-

prising a conical casing and a succession of transverse discs spaced axially of the casing, the spaces between the discs



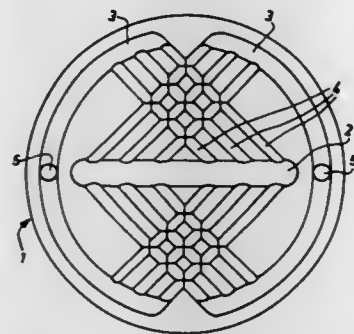
being connected by angularly spaced peripheral notches in the discs.

3,593,965
DEVICE FOR MIXING A PLURALITY OF FLUIDS WHICH ARE TO BE SIMULTANEOUSLY DISPENSED
Bruno Morane, Paris, France, assignor to L'Oreal, Paris, France

Filed Nov. 21, 1968, Ser. No. 777,602
Claims priority, application France, May 8, 1968, 150,909
Int. Cl. B01f 15/02

U.S. Cl. 259-4

6 Claims

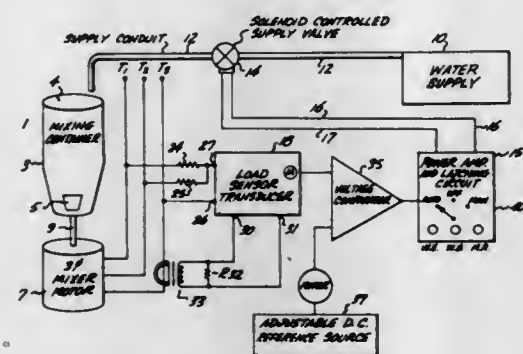


A mixer for a plurality of fluids comprising a disc sandwiched between two flat surfaces, said disc being provided on both sides with a network of intersecting grooves passageways through said disc connecting the two networks of grooves, an inlet in one of said flat surfaces affording access to one network, and an outlet in the other surface connected to the other network.

3,593,966
ADDED-FLUID-METERING SYSTEM
Lonnie E. Munroe, Mississauga, Ontario, Canada, assignor to Columbia Machine, Inc., Vancouver, Wash.
Filed Sept. 24, 1969, Ser. No. 860,637
Int. Cl. B28c 7/14

U.S. Cl. 259-168

9 Claims



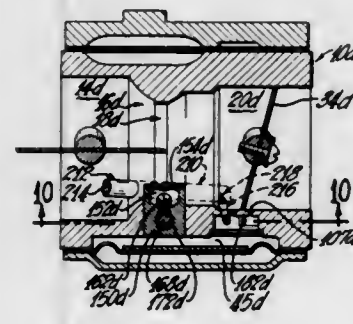
A system for monitoring and controlling the addition of water to dry concrete mix. The water is added through a solenoid-controlled supply valve to a truck-mounted mixing container rotatable by a three-phase AC motor. The power

consumption of the motor, which decreases as water is added to the mix, is monitored by a load sensor transducer which produces a related DC control signal. A voltage comparator and latching circuit are provided to deenergize the solenoid and stop water flow when the DC control signal voltage equals a precalibrated DC reference voltage.

3,593,967
DIAPHRAGM CARBURETOR HAVING FUEL CHANNEL SYSTEM FOR ENGINE IDLING AND ACCELERATION
Warren D. Nutton, Toledo, Ohio, assignor to Borg-Warner Corporation, Chicago, Ill.
Continuation of application Ser. No. 636,966, May 8, 1967, now abandoned. This application Nov. 28, 1969, Ser. No. 876,188

Int. Cl. F02m 3/02, 17/04, 7/06
U.S. Cl. 261-41

4 Claims

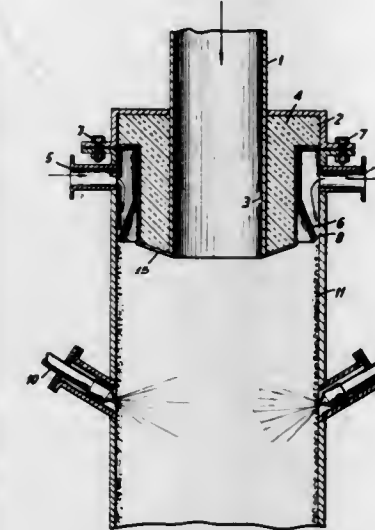


An aspirated type of diaphragm carburetor embodying a channel system accommodating fuel for delivery into the mixing passage for engine-idling purposes and for engine acceleration wherein upon closing of the throttle valve to engine-idling position, delivery of fuel for engine-idling purposes is delayed whereby the engine operates for a short period of time on residual fuel in the crankcase before the idling system delivers fuel for engine idling, and upon opening of the throttle valve, the fuel in the idling channel system is delivered into the mixing passage through a main orifice for accelerating engine operation. The carburetor includes an unvented fuel chamber with a flexible diaphragm forming a wall of the fuel chamber. The chamber includes a valved fuel inlet with a lever transmitting movement of the diaphragm to the inlet valve. A fuel passage is disposed between the fuel chamber and the region of the main orifice. A fitting is disposed in an opening of the carburetor adjacent the mixing passage. A transverse passage is positioned in the fitting and a restricted passage between the transverse passage and the fuel chamber. An adjustable valve member having a portion projecting through the passage in the fitting and a needle valve portion cooperates with the restricted passage to regulate fuel flow from the chamber into the fitting and main orifice. A counter bore in the fitting has communication with the transverse passage. The counter bore opens into the mixing passage and provides the main fuel delivery orifice. A fuel channel conveys fuel from the transverse passage to an engine-idling orifice. A vent admits air directly into the fuel channel for delaying delivery of fuel from the fuel channel through the engine-idling orifice upon movement of the throttle valve to engine-idling position. The vent is effective upon opening movement of the throttle valve to promote rapid delivery of fuel from the fuel channel through the main orifice for engine acceleration. A supplemental chamber is located in the carburetor adjacent the idling orifice. The fuel channel includes a bore and an elongated channel is disposed normal to the bore. The elongated channel comprises a recess in an exterior surface region of the carburetor. A gasket covers the recess forming a wall of the elongated channel. One end region of the elongated channel opens into the bore. An angularly arranged channel connects the elongated channel and the supplemental chamber. The air vent admits air to the angularly arranged channel to delay delivery of fuel through the idling orifice upon movement of the throttle valve to engine-idling position.

3,593,968
RAPID COOLING FOR HIGH-TEMPERATURE GAS STREAMS
Ray L. Geddes, Waban, Mass., assignor to Stone & Webster Engineering Corp., Boston, Mass.
Filed Sept. 26, 1968, Ser. No. 762,871
Int. Cl. B01d 5/00

U.S. Cl. 261-118

2 Claims

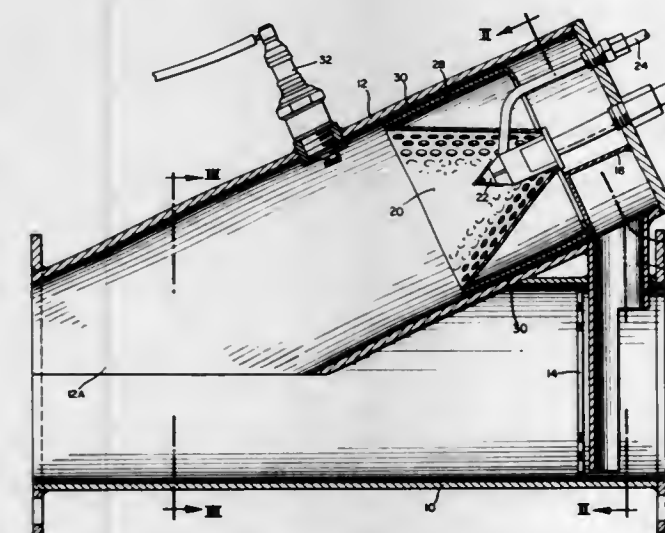


An improved method and apparatus for cooling a hot pyrolysis exit gas stream by flowing the gas stream downwardly through a quench zone, the walls of which are covered by a film of quench oil while spraying quench oil into the gas stream.

3,593,969
GAS STREAM HEATER
Harold R. Smithson, West Town, and John M. Hansen, Malvern, both of, Pa., assignors to Oxy-Catalyst, Inc., West Chester, Pa.
Filed Oct. 9, 1969, Ser. No. 865,074
Int. Cl. F23l 9/04

U.S. Cl. 263-19 A

6 Claims



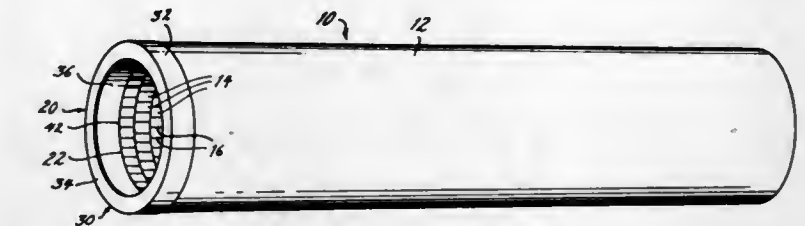
Burner for heating a gas stream wherein a portion of the gas is diverted from the main conduit to a burner tube into which fuel and air are injected and burned and from which the heated diverted gas and combustion products are reintroduced into the main conduit approximately concurrently with the stream therein. For this purpose the burner tube is disposed generally at an acute angle with respect to the axis of the main conduit and the burner tube outlet extends into said conduit. In the burner tube a baffle is provided to impart a swirling motion to the diverted gas as it enters the burner tube. The injection nozzle is surrounded by a perforated cone which is in turn surrounded by a cylindrical member with a smaller annular passageway therearound.

888 O.G.-32

3,593,970
MONOLITHIC PLASTIC NOSERING
John Williams Seebald, Cranbury, N.J., assignor to General Refractories Company, Philadelphia, Pa.
Filed June 25, 1969, Ser. No. 836,373
Int. Cl. F27b 7/00

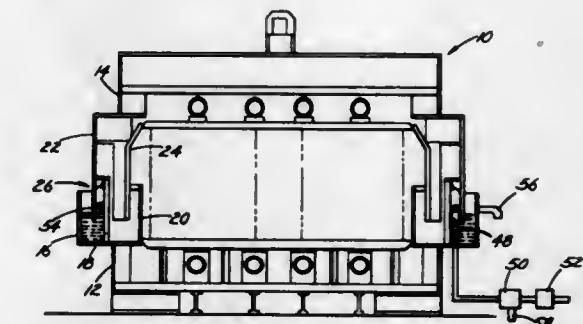
U.S. Cl. 263-33

12 Claims



A refractory lining wall for a rotary kiln made of conventional firebrick which terminates adjacent the nosering or discharge end of a the kiln forming a trough into which a plastic refractory is rammed which, when subjected to setting conditions, develops a strong ceramic bond and also bonds against the brick, thus providing a nonjointed monolithic nosering having high resistance to mechanical and thermal spalling.

3,593,971
FLUID INFLATABLE SEAL
Calvin C. Blackman, 24272 W. Lake Road, Bay Village, Ohio
Filed July 16, 1969, Ser. No. 842,208
Int. Cl. F26b 25/00; F27d 23/00; C21d 1/12; F16j 15/46
U.S. Cl. 263-49

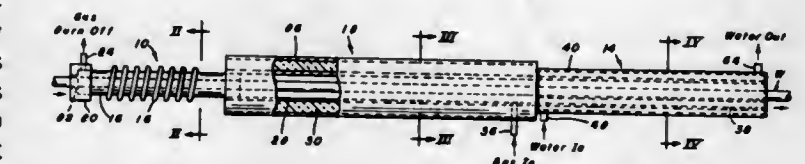


A fluid inflatable seal for use between the cover and base of a heat treating furnace. The seal includes an annular fluid-impervious member mounted on the base. Valves are provided to inflate and deflate the annular member. In the inflated position, the annular member extends between the cover and the base to provide a fluidtight seal. The casing of the member is made of a nonelastomeric material, and optionally strips of relatively yieldable material are secured to the casing to abut against both the cover and the base for good sealing characteristics.

3,593,972
ANNEALING APPARATUS
John Louis Wehrle, East Troy, and Kenneth William Robinson, Lake Geneva, both of, Wis., assignors to Crucible Steel Corporation, Pittsburgh, Pa.
Filed Feb. 25, 1969, Ser. No. 802,060
Int. Cl. C21d 9/56

U.S. Cl. 266-3

13 Claims



This relates to apparatus for the continuous, in-line annealing of elongated metal workpieces, particularly stainless steel

tubing, which apparatus includes an induction-heating zone, wherein a workpiece is heated to a predetermined temperature, a soaking zone, wherein said workpiece is held at temperature and a cooling zone, wherein said workpiece is cooled to a temperature below its oxidation temperature. This apparatus provides advantages with respect to product quality and economy of operation.

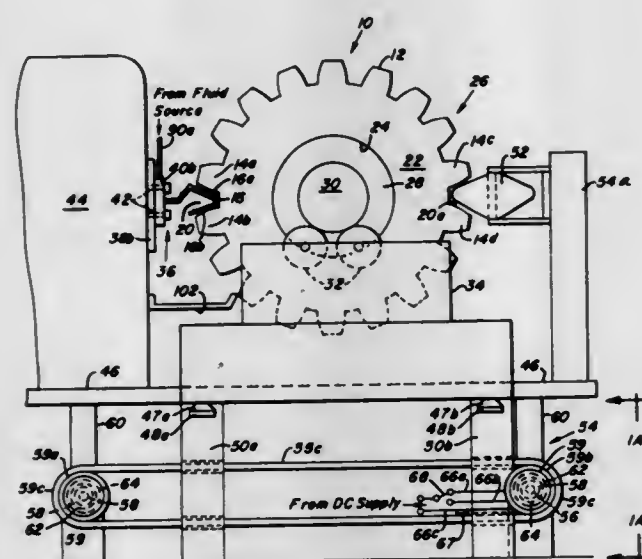
3,593,973

APPARATUS FOR CASEHARDENING A TOOTHED ARCUATE MEMBER

Edward H. Dehn, 235 Bissell Ave., Oil City, Pa.
Filed June 26, 1968, Ser. No. 740,131
Int. Cl. C21d 1/10, 1/66

U.S. Cl. 266—4

12 Claims



This disclosure relates to the surface hardening of arcuate members and, more particularly, to an improved apparatus for and method of surface hardening an arcuate member, such as a large pitch gear, having a first tooth and a second tooth, each tooth having opposed flanks and a root section which define a valley. The apparatus has supporting means for supporting the arcuate member, casehardening means mounted in registry with the valley for casehardening the flanks and the root section, and drive means connected to one of the supporting means and the casehardening means to cause relative movement between the valley and the casehardening means so that the casehardening means passes through the valley. The casehardening means has preheating means generally contoured to the valley for producing a moving preheated area on the flanks and the root section, heating means adjacent the preheating means for raising the temperature of the arcuate member without burning the moving heated area, and quenching means connected to a fluid source and adjacent the heating means for quenching and casehardening the moving heated area.

3,593,974

HOOD CONSTRUCTION

Albert B. Reid, Glenshaw, Pa., assignor to Dravo Corporation, Pittsburgh, Pa.

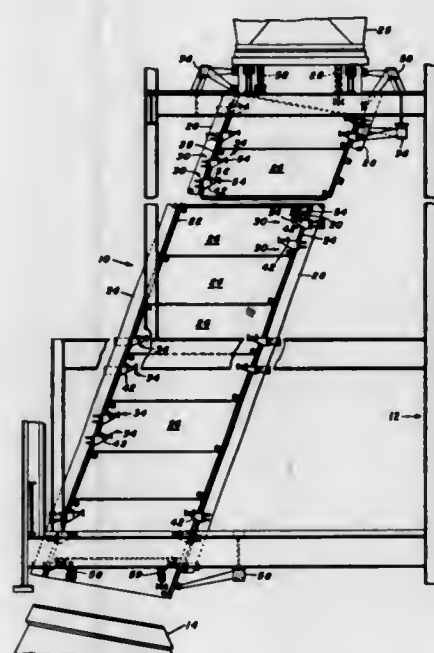
Filed Jan. 10, 1969, Ser. No. 790,375
Int. Cl. C21b 7/08

U.S. Cl. 266—31

8 Claims

A hood for use over a basic oxygen furnace is disclosed. The hood is adapted to be supported in a structural frame between the furnace and an exhaust stack. The sidewalls of the hood are made up of a series of panels arranged one atop another. The panels are supported on support columns in such a manner that the weight of any one panel is not imposed on another and each panel is thereby removable for replacement or repair without disturbing any of the others. Provision is also made in the manner of supporting the panels to allow for expansion and contraction of the panels without

the imposition of any stresses on the supporting means which secure the panels to the support columns. The panels are



water cooled and each is constructed to maintain a generally back and forth flow of water therethrough.

3,593,975

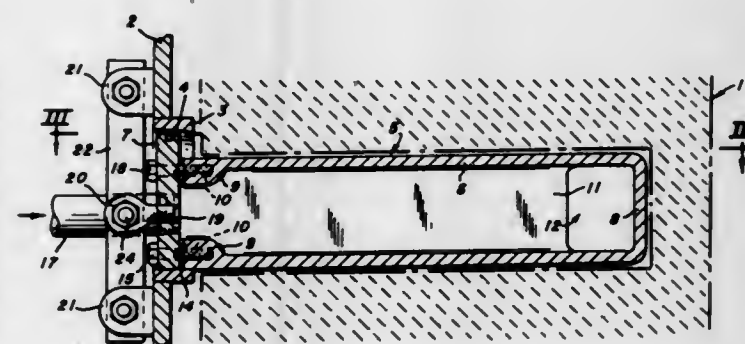
COOLING PLATES FOR A FURNACE

Herbert A. White, Jr., 2516 Collins Road, Pittsburgh, Pa.
Filed July 12, 1968, Ser. No. 744,494

Int. Cl. C21b 7/10; F27b 1/24

U.S. Cl. 266—32

7 Claims



A cooling plate for a furnace wall including a front plate secured to an outer steel shell and a watertight box detachably secured to the front plate and extending into the furnace wall, the box being open at the front end and the front plate closing the opening with means for feeding water through said front plate into said box and also removing water from the box.

3,593,976

APPARATUS FOR CARRYING OUT SPRAY STEELMAKING PROCESSES

Alois Hager, Linz, Austria, assignor to Vereinigte Österreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

Filed Apr. 15, 1969, Ser. No. 816,241

Claims priority, application Austria, May 13, 1968, A 4,568/68

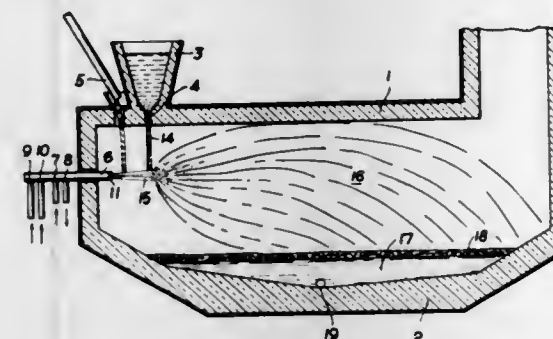
Int. Cl. C21c 7/00

U.S. Cl. 266—35

9 Claims

A spray apparatus is provided comprising a collecting vessel having a vertical inlet passage through which a stream of pig iron is fed by a free fall and a multihole blow pipe arranged inclined towards the axis of said vertical inlet passage, pressurized refining gas being supplied through the outlets of said blow pipe, said outlets being arranged in V- or U-fashion

so as to form a gas jet with a channel like cross section owing to which fact the swaying flow of the pig iron stream does not (11): THROUGH -N OPENING (20) unblocked by the other piston head (18').



3,593,978

HYDRO-PNEUMATIC SPRING SYSTEM, ESPECIALLY FOR MOTOR VEHICLES

Manfred Lohr, Letmathe, Germany, assignor to Hoesch Aktiengesellschaft, Dortmund, Germany

Filed Apr. 15, 1969, Ser. No. 816,344

Claims priority, application Germany, Apr. 17, 1968, P 17 55 237.3

Int. Cl. B60c 9/08

U.S. Cl. 267—64

16 Claims

impair the spraying effect as the pig iron stream is perfectly caught by the refining gas.

3,593,977

SELF-LEVELING HYDROPNEUMATIC SHOCK ABSORBER

Erich Hahn, Ennepetal-Buttenberg, Germany, assignor to Firma August Bilslein, Ennepetal-Altenvoerde, Germany

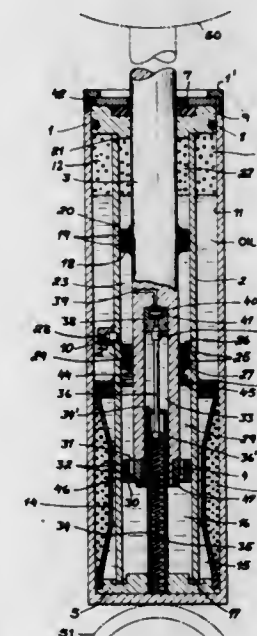
Filed Feb. 24, 1969, Ser. No. 801,469

Claims priority, application Germany, Feb. 22, 1968, P 16 55 983.4

Int. Cl. F16f 5/00

U.S. Cl. 267—64

10 Claims



A shock absorbing and automatic level control operating cylinder with a hollow piston rod reciprocable therein and having a high-pressure storage and an operating chamber. A hollow pump rod is axially movable in said hollow piston and a pump piston is carried by a free end of the hollow pump rod. A valve body is slidably guided with respect to the pump rod and has an abutment engageable upon the pump piston. An insert member has a surface liftable with respect to a valve seat provided by the valve body and a throttle-forming bore means makes possible passage of hydraulic medium from the high-pressure storage into the operating chamber. A preloaded tension spring means presses upon a surface of the insert member for interrupting pump operation. Additional check valves are provided for opening of high-pressure storage and for making possible pump operation.

3,593,979

EDGE SPRING ARRANGEMENT

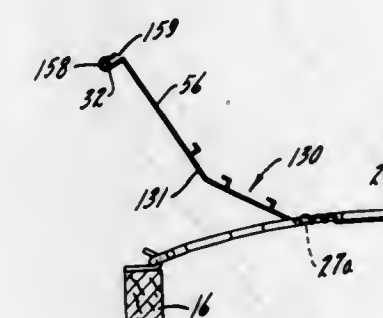
Lawton H. Crosby, Lake Bluff, Ill., assignor to Morley Furniture Company Inc., Chicago, Ill.

Continuation-in-part of application Ser. No. 697,868, Jan. 15, 1968, now abandoned. This application Aug. 13, 1969, Ser. No. 858,240

Int. Cl. A47c 23/16, 23/24

U.S. Cl. 267—102

15 Claims



A spring edge arrangement for a seat assembly where the seat assembly includes a sinuous spring band. A cantilever

Shock absorber with a dashpot assembly whose piston (3) carries two axially spaced heads (4, 18) cooperating with an interposed annular partition (24) on the inner wall of its cylinder (2) and with the two cylinder end walls (5, 9) to form four chambers of variable volume, i.e. a first damping chamber (22) partly filled with air and communicating with a surrounding oil reservoir (11), a pumping chamber (23) connected with an inlet (10) from the oil reservoir containing a check valve, an intermediate chamber (29) receiving oil from the pumping chamber through one-way orifices (26) of the partition (24), and a second damping chamber (16) receiving oil from the intermediate chamber through one-way passages (31) in the adjoining piston head (4) while also communicating with a fluid space (15) under pressure from a surrounding air cushion (13), the latter chamber having an exit to the pumping chamber blocked by a regulating valve (38) in a contracted position of the assembly. In an extended position, in which a tube (34) rigid with the cylinder (2) opens the regulating valve (38), the pumping chamber (23) is in two-way communication with the reservoir (11) through an opening (20) unblocked by the other piston head (18). an extended position, in which a tube (34) rigid with the cylinder (2) opens the regulating valve (38), the pumping chamber (23) is in two-way communication with the reservoir

arm member has an attachment section which anchors at its inner end onto at least two linear wire segments of the band and a cantilever section which extends away from the attachment section to terminate in a border wire-retaining mouth plumbed over the front rail of the seat assembly.

3,593,980

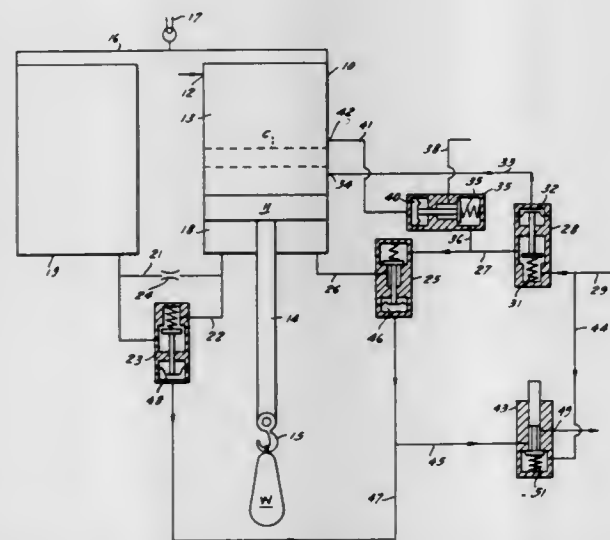
PNEUMATIC BALANCER

Kenneth A. McHenry, Clinton, N.Y., assignor to Chicago Pneumatic Tool Company, New York, N.Y.
Filed Apr. 21, 1969, Ser. No. 817,764

Int. Cl. F16f 9/32

U.S. Cl. 267-126

8 Claims



A pneumatic load-balancing unit capable of automatically balancing pneumatically at a specific level any weight within the capacity of the unit following manual actuation of a control valve connected with a pressure air supply; and to allow this weight to be manually moved or floated with predetermined ease above and below the balance level within the stroke range of a piston carrying the weight. The unit includes a cylinder containing the piston upon the rod of which the weight is attachable. Air pressure in a reservoir connected in a closed circuit with the cylinder functions to counterbalance the weight-loaded piston. Since the level of the piston will change with a change in the weight load, then in order to return the work-loaded piston to its normal level, the control valve is manually opened. A system of valves automatically responds to pressure air flowing through the control valve to either admit increased pressure air or to relieve pressure air from the closed circuit as needed to return the piston to its normal balance level. The pressure in the closed circuit remains constant following restoration of the piston to its normal balance level and release of the control valve.

The closed circuit normally permits free airflow between the cylinder and the reservoir except when the system of valves is caused to function, then it provides a restricted flow. The restricted flow develops back pressure which functions to snub movement of the piston so as to aid in bringing the piston to a stabilized condition.

In a modified form, an arrangement between the control valve and the system of valves requires only a momentary opening of the control valve so as to initiate operation of the system of valves, after which the control valve may be released. The system of valves then functions automatically until the work-loaded piston is restored to its normal level.

3,593,981

RUBBER COMPRESSION SPRINGS

Joachim Tank, Paris, France, and Pneumatiques, Caoutchouc Manufacture Et Plastiques Kleber-Colombes, Colombes, France

Filed Mar. 21, 1969, Ser. No. 809,193

Claims priority, application France, Mar. 26, 1968, 145,514.

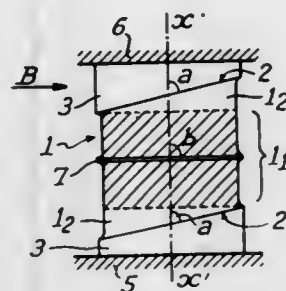
Int. Cl. F16f 1/40

U.S. Cl. 267-153

7 Claims

This invention relates to rubber compression springs, of the kind in which at least one rubber block is fixed at its ends

to bearing surfaces which are inclined with respect to the longitudinal axis of the block so that the block supports the load whilst functioning primarily in compression. In accordance with the invention, the block is subdivided by one



or more intermediate plates which are inclined to the axis of the block at an angle greater than that of the bearing surfaces. This arrangement allows the lateral rigidity of the spring to increase when the spring is compressed, at least in a transverse direction.

3,593,982

CLAMPING APPARATUS AND METHOD OF USE THEREOF

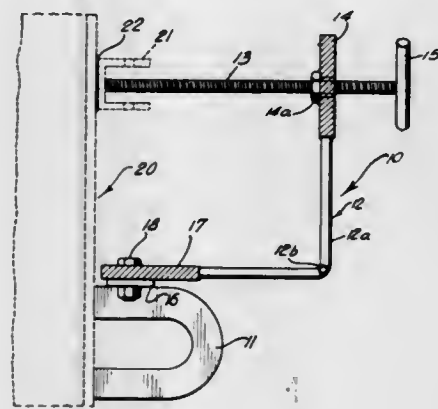
Walter Doll Price, Port Arthur, Tex., assignor to Texaco Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 634,381, Apr. 27, 1967, now abandoned. This application July 11, 1969, Ser. No. 843,287

Int. Cl. B25b 11/02

U.S. Cl. 269-8

5 Claims



An L-shape clamping apparatus with magnetic means for attachment to a magnetizable structure at one end thereof and a tension member at the other end thereof for holding an object against the structure to which it is to be fastened by adhesive means, and method of use thereof.

3,593,983

DEVICE FOR HOLDING FITTINGS ON CONCRETE FORMWORK

Zoltan Csenyi, Bahnhofstrasse 161, 8902 Urdorf, Switzerland
Filed Apr. 7, 1969, Ser. No. 813,972

Claims priority, application Switzerland, May 22, 1968, 7793/68

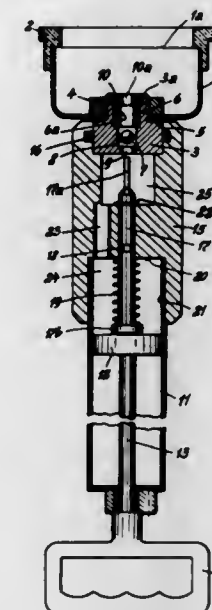
Int. Cl. B25b 11/00

U.S. Cl. 269-21

17 Claims

A system for mounting cup-shaped holders for fittings to be built into concrete bodies along the internal surface of concrete formwork. The device comprises an opening in the mounting shell in which a valve body is frictionally received, the valve body being thrust in place by a plunger and tappet

on a device applied over the opening. The device may be connected with a suction pump by a hose or the like or may



employ a piston pump for operating the tappet and providing suction.

3,593,984

WORK-POSITIONING DEVICES

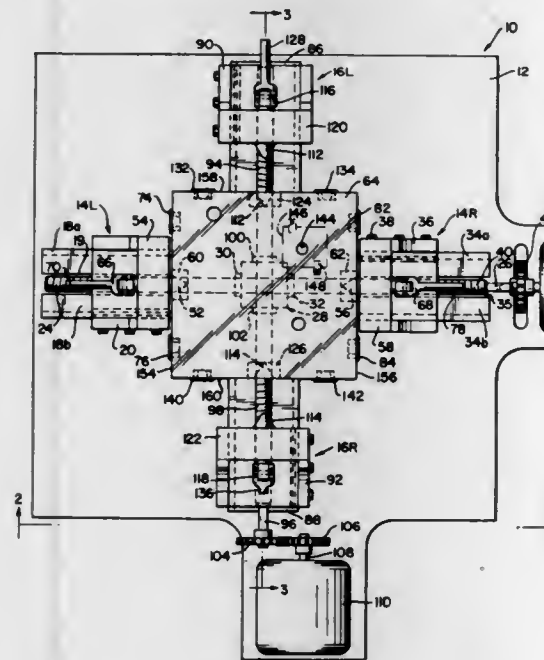
Jerry K. Carman, 444 S. Monroe St., Xenia, Ohio, and Ronald E. Meredith, 4360 Lower Valley Pike, Springfield, Ohio

Filed Aug. 25, 1969, Ser. No. 852,763

Int. Cl. B23q 1/04

U.S. Cl. 269-71

14 Claims



A work-positioning device which enables a workpiece supported thereon to be universally accessible to a working tool. First and second pairs of slide units are slidably mounted on a base of the device, and the slide units of each pair are moved towards and away from each other by threaded screws. A work table, to which a workpiece is secured, has locating holes thereon which cooperate with pivot pins and locking pins on each of the slide units, enabling the workpiece to be held in various positions relative to a working tool. A workpiece, like a cube, may have machining work done on its six faces by the tool without being removed from the device.

3,593,985

CARRIER FOR A SKIN GRAFT PATCH

James C. Tanner, Jr., c/o Atlanta Research Institute, Suite 705, 384 Peachtree St. N.E., Atlanta, Ga.

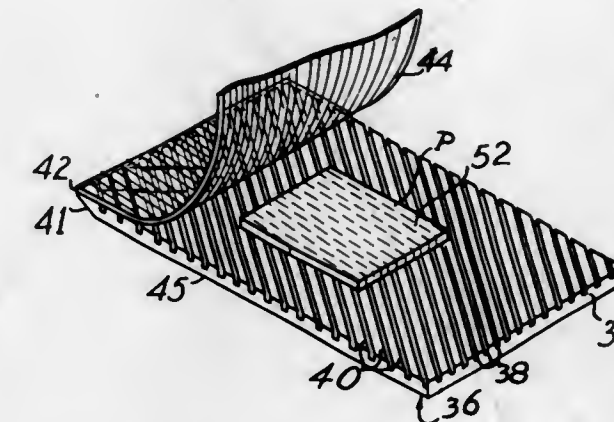
Division of Ser. No. 439,811, Mar. 15, 1965, Pat. No. 3,472,228.

Filed June 3, 1969, Ser. No. 830,019

Int. Cl. A61g 13/00; B23q 27/00

U.S. Cl. 269-288

2 Claims



Carrier for a skin graft patch including a base member having parallel side edges and a plurality of grooves defining a plurality of spaced, substantially parallel and flattened lands, said grooves being obliquely disposed with respect to said side edges. The carrier also includes a cover sheet of thin material for retaining a patch of skin in a position across said lands.

3,593,986

OPERATION TABLES

Norman John Lee, London, England, assignor to Matburn (Holdings) Limited, London, England

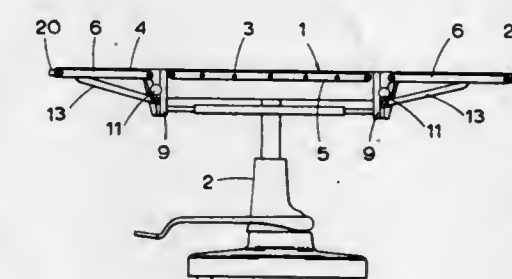
Filed May 15, 1969, Ser. No. 824,851

Claims priority, application Great Britain, May 28, 1968, 25385/68

Int. Cl. A61g 13/00

U.S. Cl. 269-325

4 Claims



A surgical operation table has a patient-supporting platform with an extension flap at one end. The flap is removably fitted to the platform. The flap has coupling blocks or wedges on opposite sides at an end proximate the platform end. These blocks or wedges are engageable in mating coupling sockets on opposite sides of the platform. Locking means, such as a locking screw are provided to lock the blocks or wedges against accidental removal from the sockets.

3,593,987

METHOD OF MAKING A BOOK

Bernard J. Garber, 151 N. Molson Road, Blauvelt, N.Y.

Continuation-in-part of application Ser. No. 756,712, Aug. 7, 1968, now abandoned, which is a continuation of application

Ser. No. 577,411, Sept. 6, 1966, now abandoned. This

application Mar. 11, 1968, Ser. No. 712,199

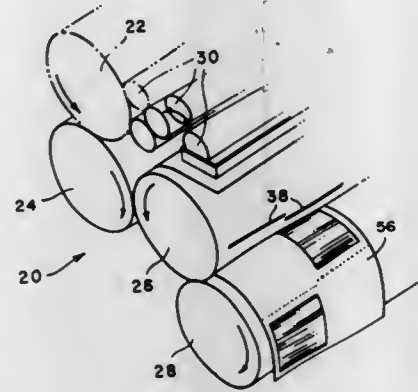
Int. Cl. B41f 13/56

U.S. Cl. 270-21

5 Claims

A method of making a book having both permanent and nonpermanent or removable leaves. The method comprises the steps of providing a plate for printing a plurality of leaves

of a book on a first side of a sheet; printing the leaves on the first side of the sheet; providing a plate for printing a plurality of leaves of a book on the reverse side of the sheet; providing a plurality of perforating members for perforating the plurality of leaves on the sheet which are to be nonper-



manent adjacent the margin thereof; printing the reverse side of the sheet and simultaneously perforating the sheet on the nonpermanent leaves. The sheet is folded about the leaves to form a signature. Finally, a plurality of signatures are bound together and are cut together to form a book.

3,593,988

SHEET-FEEDING ARRANGEMENTS

Collins, Reginald, Potters Bar, England, assignor to Omal Group Limited, London, England

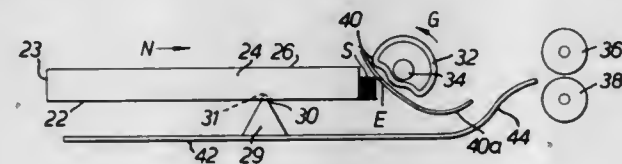
Filed Aug. 27, 1968, Ser. No. 755,607

Claims priority, application Great Britain, Sept. 14, 1967, 42,052/67

Int. Cl. B65h 3/06

U.S. Cl. 271-39

9 Claims



The invention relates to apparatus and a method for feeding copy sheets from a magazine to the charging means of an electrostatic copier. The magazine contains a stack of sheets and the apparatus comprises feed means for feeding each succeeding top sheet downwardly from the stack at an acute angle to a leading face of the stack across an edge of the stack so that the top sheet bows upwardly away from the next sheet in the stack to minimize the risk of adhesion between the top sheet and the next sheet as the top sheet leaves the magazine.

3,593,989

TURNED CORNER AND MULTIPLE SHEET DETECTOR

Charles B. Crittenden, Chagrin Falls, and Alfred J. Stains, Shaker Heights, both of Ohio, assignors to Harris-Intertype Corporation, Cleveland, Ohio

Filed Mar. 11, 1969, Ser. No. 806,100

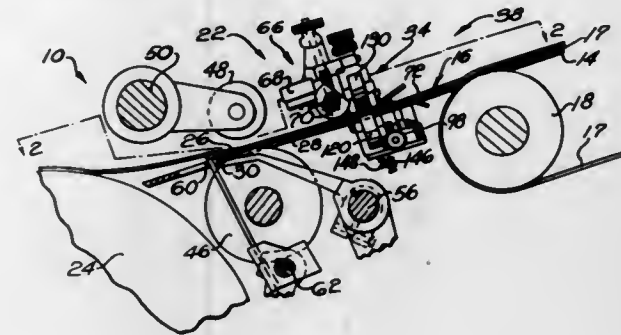
Int. Cl. B65h 7/06

U.S. Cl. 271-57

10 Claims

An improved apparatus for feeding sheets into an assembly for operating on the sheets, such as a printing press or cutting and creasing machine, includes a side guide assembly and a detector assembly. The side guide assembly positions the sheets transversely to the direction of flow. The detector assembly is mounted on the side guide assembly and detects thicknesses of sheets in excess of a predetermined thickness to thereby detect the presence of a folded corner on a sheet

or a number of sheets in excess of a predetermined number. To minimize false or erroneous actuations of the detector assembly due to vibrations and other causes, the detector assembly includes a detector wheel or member which is rotated



through a relatively large distance about fixed axis by engagement with a thickness of sheets in excess of the predetermined thickness to effect an actuation of the detector assembly.

3,593,990

METHOD AND APPARATUS FOR SUPPORTING SHEET MATERIAL

Emile Plumet, Gilly, and Robert Van Laethem, Loverval, both of Belgium, assignors to Glaverbel, Watermael-Boltsfort, Belgium

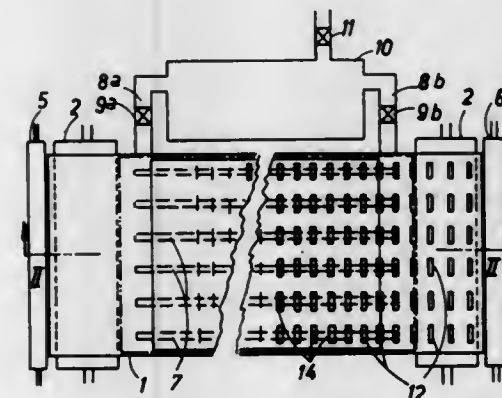
Filed July 9, 1968, Ser. No. 743,387

Claims priority, application Luxembourg, July 12, 1967, 54,091

Int. Cl. B65h 9/00

U.S. Cl. 271-59

16 Claims



An article which may be in the form of a flat sheet is supported at least partially by a plurality of jets of gas discharged upwardly against the article from discharge orifices while the orifices are moved in directions having horizontal components so that the sheet may be displaced in a horizontal plane. The orifices may be in the walls of cylinders which are then rotated so that the moving jets displace the sheet horizontally. Orifices may also be provided in the upper reach of a belt which passes over slots in a gas discharge chamber which is connected to a source of gas under pressure. Both a method and apparatus are disclosed.

3,593,991

STACKER

Baron, Herschel, Philadelphia; Schwenk, Arthur, Gibbsboro; Wajda, Michael L., Philadelphia, and Jacobs, Herbert V., Lower Merion, all of Pa., assignors to Jacobs Machine Corporation, Philadelphia, Pa.

Filed June 13, 1968, Ser. No. 736,629

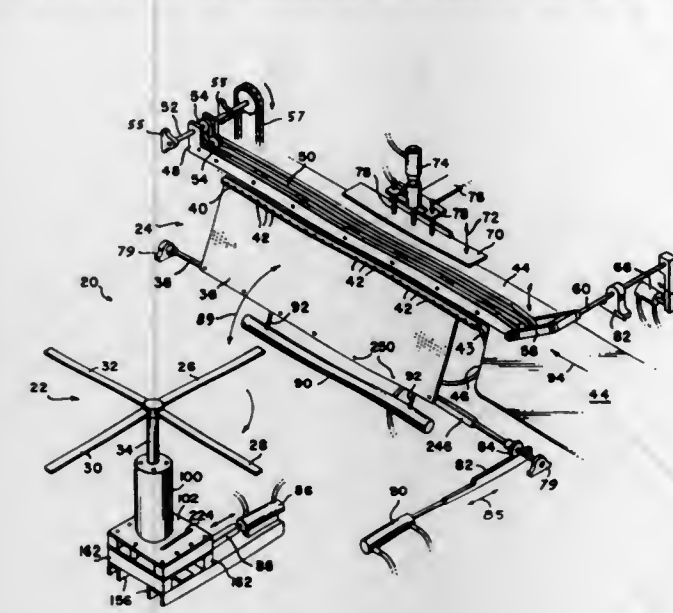
Int. Cl. B65h 29/38; D05b 81/00

U.S. Cl. 271-70

7 Claims

A stacker for flexible articles that are successively presented to an output station. The stacker comprises a support member for flexible articles and a movable member for transporting the articles from the output station to the sup-

port member. The movable member has means for producing adapted to support either the garbage can handles or a suction. The suction means acts to secure the articles to the



rotatable, removable merry-go-round-type attachment.

3,593,994

PIROVETTE EXERCISE DEVICE

Abraham I. Anbar, 625 Broadway, San Diego, Calif. Continuation-in-part of application Ser. No. 743,713, July 10, 1968, now abandoned. This application Nov. 21, 1968, Ser. No. 777,853

Int. Cl. A63b 21/00

U.S. Cl. 272-57

8 Claims

movable member as the movable member transports the articles from the output station to the support member.

3,593,992

PAPER JOGGER

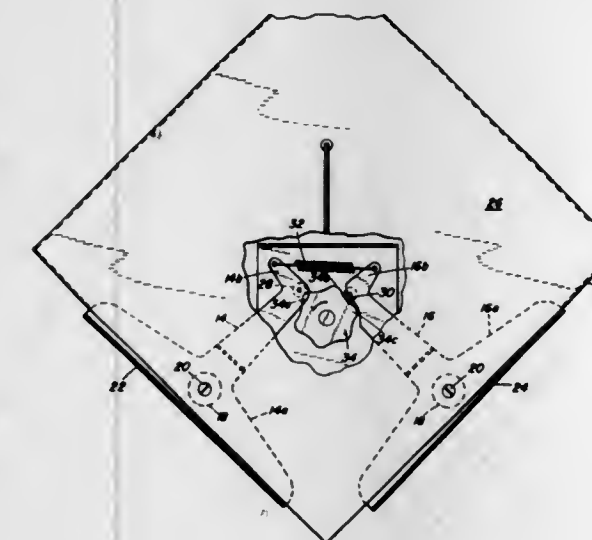
Walter J. Hanson, Old Greenwich, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.

Filed Apr. 23, 1969, Ser. No. 818,536

Int. Cl. B65h 31/38

U.S. Cl. 271-89

10 Claims



A jogger for aligning stacked sheets of paper or the like comprising a tilted table and a pair of jogger arms pivotally mounted to the table. The jogger arms carry paddle portions which extend above the tabletop along two adjacent sides of the table. Followers on each arm are operatively engaged by a multilobed cam which causes the arms and associated paddles to pivot in synchronism and bring into alignment sheets stacked on the tabletop. A prop may be provided on the tabletop to facilitate the alignment of cross-stacked sheets.

3,593,993

ROTATABLE GARBAGE CAN RACK AND CHILD AMUSEMENT RIDE ATTACHMENT

John H. Bonneau, 6604 Bavarian Drive, Mobile, Ala. Filed Aug. 6, 1969, Ser. No. 847,940

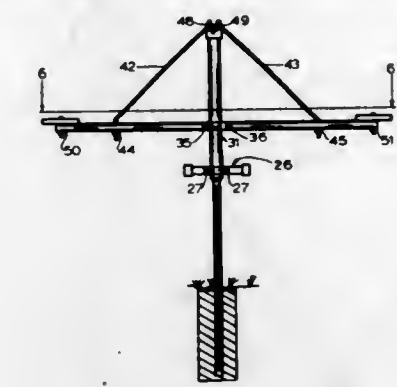
Int. Cl. A63g 1/00

U.S. Cl. 272-33 R

1 Claim

A rotatable uppermost portion of a garbage can holder is

Amusement and agility-developing means comprising a plurality of generally circular toroidal structures including a



An exercise device comprising a platform adapted to pivot about a base. The platform and base pivot by means of two concentric rings of ball bearings riding in raceways formed from two superimposed plates. The upper plate is attached to the platform and the lower plate is attached to the base. One or more handles are attached to the device.

3,593,995

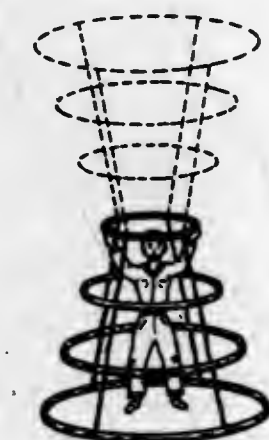
SPRING-COUPLED RINGS FOR AMUSEMENT

Robert J. Eckstrom, 8709 Able St. N.E., Minneapolis, Minn. Filed Oct. 1, 1969, Ser. No. 862,691

Int. Cl. A63b 19/00, 23/02, 21/00

U.S. Cl. 272-57

7 Claims



first generally toroidal member having a certain predetermined diameter and a number of additional toroidal structures, each additional structure having a diameter greater than its neighbor, and resilient coupling means interposed between adjacent toroidal members at substantially equal arcuate dispositions about the periphery of each of the toroidal structures. The unit preferably has at least three resilient coupling means interposed between adjacent toroidal members.

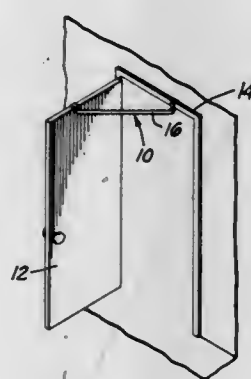
3,593,996 CHINING DEVICE

Thomas R. Thompson, 6086 Brockton, Riverside, Calif.
Filed May 12, 1969, Ser. No. 823,861

Int. Cl. A63b 1/00

U.S. Cl. 272-62

4 Claims



A lightweight tubular member, designed to fit diagonally across the space between an open door and the head molding of the doorframe in which the door is hung. The ends of the member are flattened, and one is shaped to extend up and over the top of the door. The other end is shaped to extend upwardly, then outwardly, then downwardly into down-bearing contact with the top of the head molding. The member is designed to remain in place when supported on the door and doorframe head molding in the above-indicated manner, and serve as a chining bar.

3,593,997 BASEBALL-BATTING CAGE

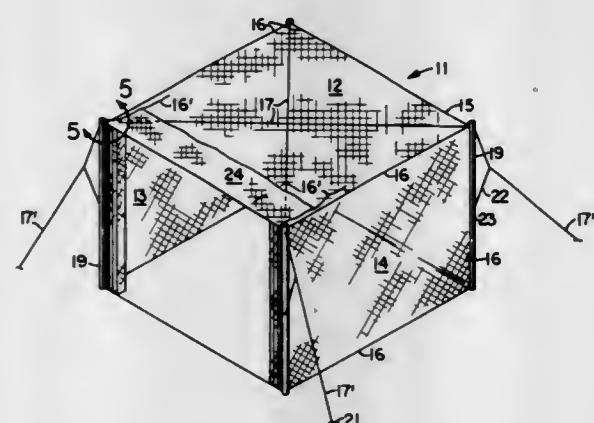
Douglas L. Boehner, Santa Cruz, Calif., assignor to Port-O-Net Inc., Santa Cruz, Calif.

Filed Apr. 4, 1969, Ser. No. 813,619

Int. Cl. A63j 5/00

U.S. Cl. 273-26

13 Claims



A sport practice cage is disclosed enclosed on top, back and sides and with slidable front panels for defining selectable obstructed and unobstructed regions in the front of the cage. A corner post and rope-tensioning panel support structure is disclosed with a corner member for connection of ropes on three mutually perpendicular axes.

3,593,998 TENNIS PRACTICE DEVICE

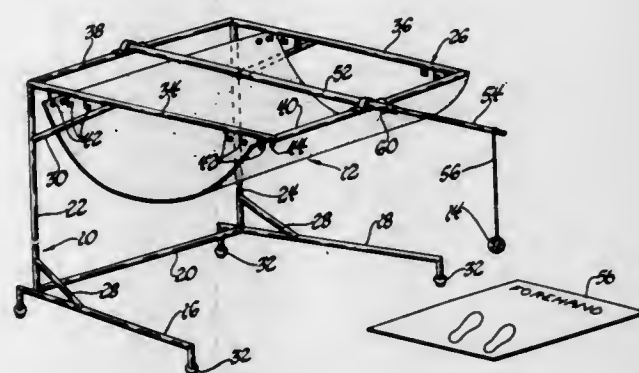
Louis W. Pattyn, 874 Barrington Drive, Gross Pointe Park, Mich.

Filed July 7, 1969, Ser. No. 839,495

Int. Cl. A63b 61/00

U.S. Cl. 273-29 A

12 Claims



Indoor tennis practice apparatus including a hollow unpressurized ball hung on an inelastic tether from an overhead support to be stroked toward an energy-absorbing target including a pliable fabric rectangle having two opposite edges freely suspended from the overhead support along spaced parallel lines to form a draped catenary surface. Both the horizontal spacing between the suspended edges of the fabric rectangle and the horizontal spacing between the target and the ball are adjustable to vary the character of the rebound after the ball is struck. The support can take the form of a single or double target stand or a simple beam structure for home installation.

3,593,999 BALL ROLLING, THROWING AND CATCHING TOYS

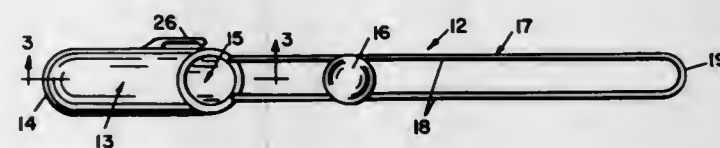
Norbert A. Kirk, 3915 N. Pine Grove Ave., Chicago, Ill.

Filed July 10, 1969, Ser. No. 840,748

Int. Cl. A63b 65/12

U.S. Cl. 273-96

7 Claims



A hollow cylindrical handle having a wire track connected thereto so that a ball may be rolled in and out of the handle along the track, and also thrown from the track and caught in the handle. The wire track is deformable into various straight and/or curved configurations by means of a deforming block slidable manually along the track. The handle may be of light-transmitting material and equipped with a flashlight for illuminating a variable length of the handle which is not blocked by presence of the ball therein. Also, the handle may be apertured to emit a whistling sound as the ball moves in and out of the handle.

3,594,000 REACTION GAME APPARATUS

Marvin I. Glass, Chicago, and Howard J. Morrison, Highland Park, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed May 10, 1969, Ser. No. 805,685

Int. Cl. A63f 9/00; A61b 5/16

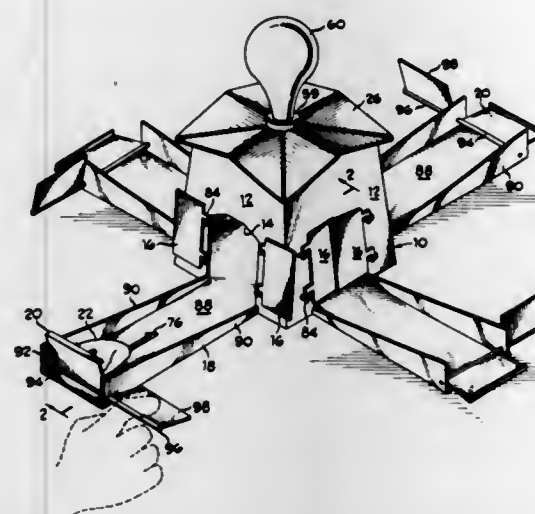
U.S. Cl. 273-108

9 Claims

Game apparatus comprising a central housing structure enclosing a movable game member in a biased and latched position on a platform rotatable about a vertical axis which may be selectively aligned with any of a number of openings defined by the housing walls. Each of the openings is provided with a door. A combined sounder, game member release and platform rotator is secured to the housing. Paths extend from each of the openings for traversal by the game

member. At the end of each path is a pivoted gate member, and a player positioned at the end of each path must stop the game member should it be released from its latched position

and including a number of stations having three-dimensional devices associated therewith presenting different game tricks



and propelled in that player's direction. Failure to stop the game member is detrimental to the player's score while a successful stop is beneficial to his score.

3,594,001 GAME

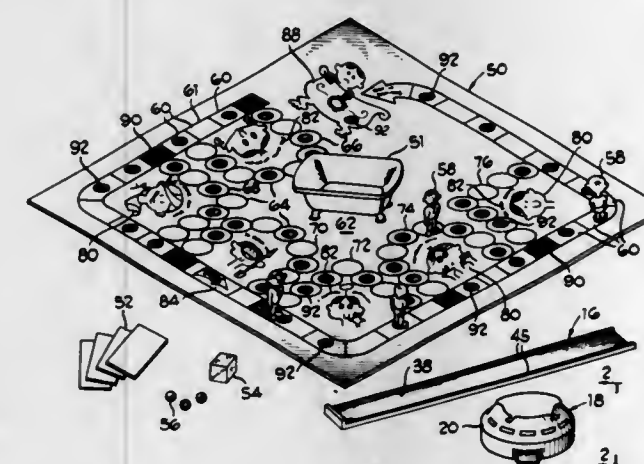
Marvin I. Glass, and Jeffrey D. Breslow, both of Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Mar. 12, 1969, Ser. No. 806,573

Int. Cl. A63f 3/02

U.S. Cl. 273-134 B

3 Claims



Game apparatus comprising a game board having a number of game stations forming a primary path for movement of game markers toward a goal and forming a number of longer alternate paths from one game station of the primary path to another game station thereof. The game apparatus also includes a die for determining movement of the markers along the path and a chance device in the form of means for reproducing a sound message for determining beneficial negotiation of the longer alternate paths. The object of the game is to be the only player to occupy a path station while the remaining players occupy the goal position at the end of the path. A target receptacle is disposed on the board having a constricted lower portion suitable for receiving only the first of several projectiles thrown into the receptacle by the players when a predetermined message is emitted by the sound message device.

3,594,002 BOARD GAME APPARATUS

Marvin I. Glass, and Rouben T. Terzian, both of Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

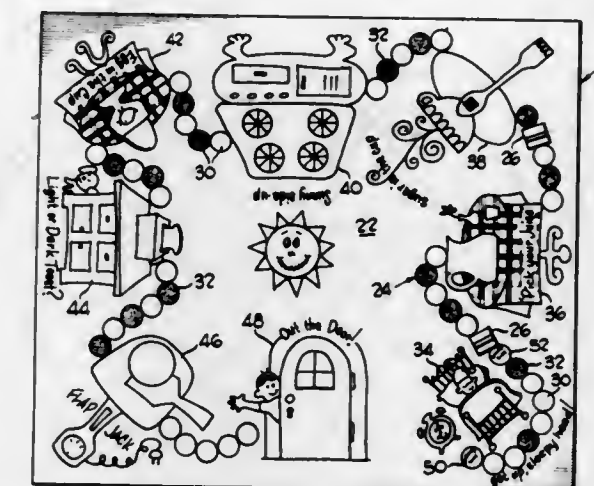
Filed Mar. 24, 1969, Ser. No. 809,558

Int. Cl. A63f 3/02

U.S. Cl. 273-134 B

1 Claim

Game apparatus including a game board having a plurality of stations forming a path for movement of playing pieces



performable by the game players. The players are expected to successfully complete each of the game tricks prior to resuming negotiation of the path toward a goal position.

3,594,003 PROGRAMMED ASSOCIATION GAME

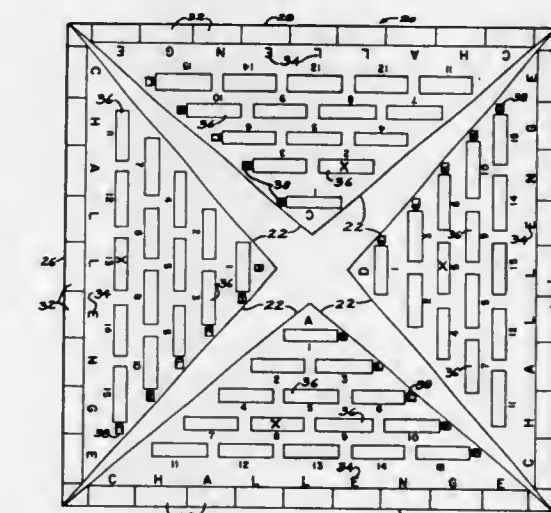
Clarence L. Elder, 916 E. North Ave., Baltimore, Md.

Filed Oct. 4, 1968, Ser. No. 765,239

Int. Cl. A63f 3/00

U.S. Cl. 273-135 R

5 Claims



An educational, competitive, information game employing groups of two-sided playpieces, each bearing on the two respective sides different information which is related in meaning to each other and to information on other playpieces within the same group, and a display board having plural arrays of unique playing positions within a scorecard perimeter coherently keyed to the playing positions, the whole adapted in conjunction with appurtenances to motivate players to learn by playing.

3,594,004 GAME HAVING QUICK PRIZE INDICATION

William H. Barr, Carmel, and Glen L. Wesen, Brooklyn, both of N.Y., assignors to Howard Miller, Scarsdale; David J. Walzer, Forest Hills, N.Y. and Leonard Kaye, Westfield, N.J.

Filed Mar. 15, 1968, Ser. No. 713,492

Int. Cl. A63f 1/18

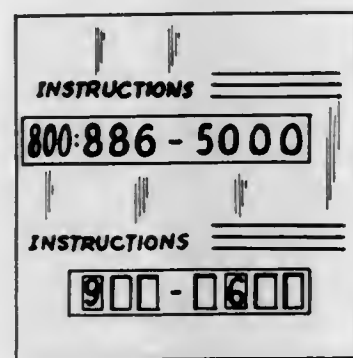
U.S. Cl. 273-139

1 Claim

A game comprising a stacked plurality of cards, each card having two game-playing regions by which two games may be simultaneously played. Means are provided to instantaneously determine the winner of the first game. The second

game comprises zone slots having indicia or light apertures, respectively, the indicia and apertures being different for

ball return by way of a chute back to the vicinity of the tee area. Tee areas are in front of the compartment targets, and



each card. All game-playing regions are intentionally concealed. The winner of the second game is determined by the number appearing in a stacked arrangement of the cards.

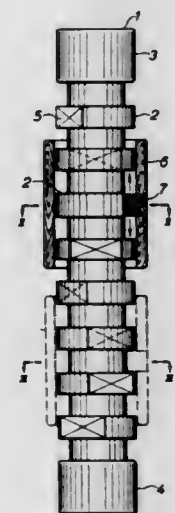
3,594,005
MAZE TOY

Jorma Vennola, Luoteisvayla 17 B, Helsinki, and Pekka Korpijaakko, Implahdentie 14 A, Laaksolahti, both of, Finland
Filed Mar. 20, 1969, Ser. No. 808,744

Claims priority, application Finland, Feb. 4, 1969, 324/69
Int. Cl. A63f 9/08

U.S. Cl. 273-153 R

3 Claims



A toy comprises a stafflike body of wood, plastic, metal or other equivalent material and of a ring encircling this body. The body has several consecutive flanges with notches which are located at different points in every two consecutive flanges, and the ring encircling the body consists of a sleeve having an inner diameter consistent with the outer diameter of the flanges and an inwardly directed projection permitting axial displacement of the ring only when the projection and the notch of an adjacent flange register.

3,594,006
GOLF PRACTICE APPARATUS

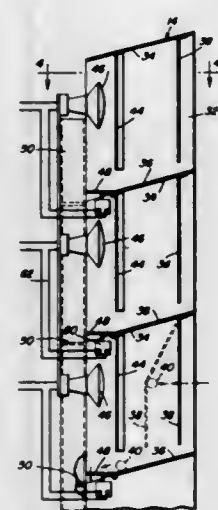
Corwin Clatt, 110 Greenlawn Court, East Peoria, Ill.
Filed July 14, 1969, Ser. No. 841,452

Int. Cl. A63b 67/02, 69/36

U.S. Cl. 273-176

5 Claims

This is a golf ball receiving apparatus for use with conventional golf clubs and balls. It includes a plurality of vertically and horizontally spaced compartment targets, golf ball teeing and ball chipping areas in front of the compartment targets, an identified target curtain hanging in each compartment with a light bulb therebehind, a slanted floor in each compartment behind its curtain for the ball hit against the target curtain to drop onto and then roll over a ball depressible light switch floor to light the bulb while it rolls thereover to a



a sand trap chipping area is in between the nearest tee area and the compartment targets.

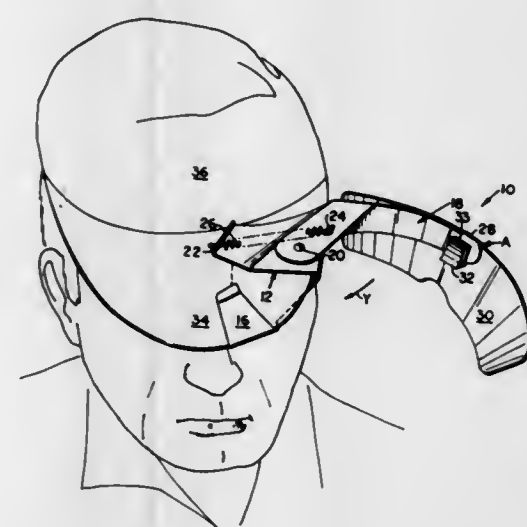
3,594,007
GOLFING DEVICE

Karl H. Kalberer, 2348 Westview Way, Santa Rosa, Calif.
Filed Apr. 11, 1969, Ser. No. 815,413

Int. Cl. A63b 69/36

U.S. Cl. 273-183 B

3 Claims



A device for detecting unwanted movement of a golfer's head has a base which fixes to a golfer's cap, and a pivotal arm extending from the base. The arm and base are interconnected by an adjustable spring, the tension of which holds the arm in a cocked position. However, when the golfer's head is moved in an undesirable manner, the arm, through its own inertia, overcomes the spring tension holding it cocked, and the arm snaps over against the base.

3,594,008
MAGNETIC TAPE RECORDING AND REPRODUCING DEVICE

Isamu Takagi, Tokyo, and Atushi Shino, Kunitachi-shi, both of, Japan, assignors to Aiwa Co., Ltd., Tokyo, Japan
Filed Sept. 23, 1969, Ser. No. 761,576

Claims priority, application Japan, Sept. 3, 1968, 43-55131

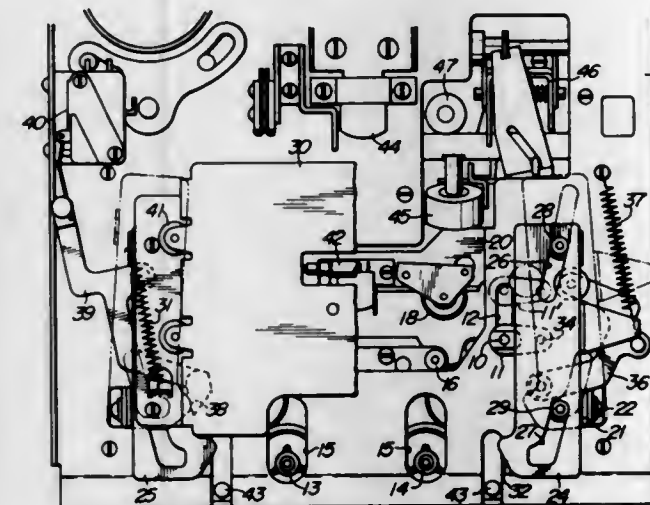
Int. Cl. G11b 5/00

U.S. Cl. 274-4

3 Claims

A magnetic tape recording and reproducing device which is adapted to any of three types of tape cartridges that are currently standard, wherein a large tape cartridge as well as a

small tape cartridge is inserted through a single entrance, the mechanisms for the small cartridge being automatically



removed from the path of an incoming large cartridge when the large cartridge is inserted.

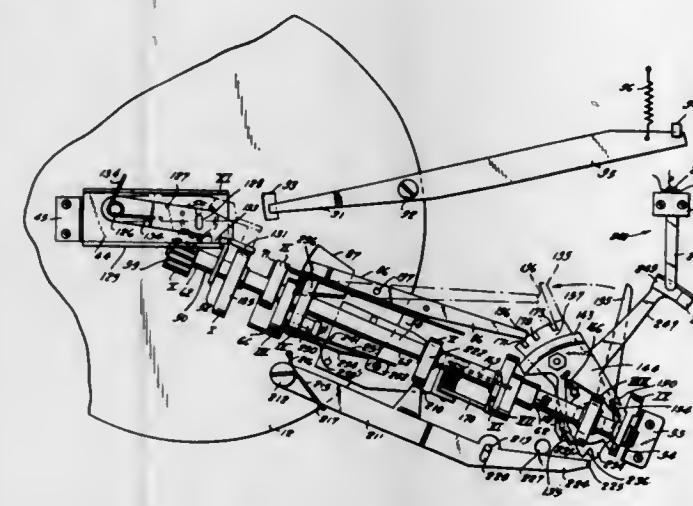
3,594,009
AUTOMATIC RECORD REPRODUCER APPARATUS
Pedro Sans Cerudo, Barcelona, Spain, assignor to V-M Corporation, Benton Harbor, Mich.

Filed Aug. 25, 1967, Ser. No. 663,251

Claims priority, application Spain, Sept. 8, 1966, 330996
Int. Cl. G11b 17/16

U.S. Cl. 274-10

45 Claims



The invention relates to automatic record changers adapted particularly for reproducing records of different diameters. The records may be held in intermingled stacked relationship upon a supporting spindle element prior to release for play. A series of cams carried and supported for rotation upon a single camshaft functioning with suitable controls determines the operational sequence control. Rotation of the camshaft and its cams over a preestablished angle (usually 360°) controls the operation. Camshaft rotation is interrupted each time the shaft turns through the selected angle and is then reinitiated either manually or automatically. All normal operations are established in known sequence.

3,594,010
SHAFT SEAL FOR TURBINES

Laurence Hugo Frederick Warth, Rugby, England, assignor to The English Electric Company Limited, London, England

Filed July 22, 1969, Ser. No. 843,447

Claims priority, application Great Britain, July 19, 1968, 34535/68

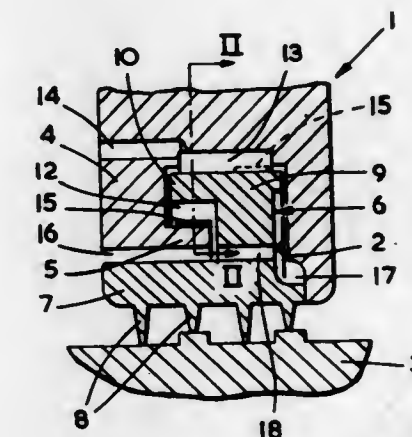
Int. Cl. F02f 11/00; F16j 15/48

U.S. Cl. 277-53

2 Claims

A spring-loaded shaft seal for a steam turbine has a spring 15 which normally urges segments 7 of the seal away from

the rotor shaft 3. Thus a relatively large clearance is provided when the turbine is running up to speed and is on very light loads. An annular space 13 is provided around the segments 7 which is in communication with the higher pressure side of the seal via an opening 14. Thus the clearance between the seal and the rotor shaft 3 is substantially reduced when the



turbine is loaded up due to a significant increase in the pressure difference across the seal. For testing, the springs 15 are set as shown dotted in FIG. 2 to urge their segments 7 towards the rotor shaft 3 so that the normal on-load running clearance may be measured and any high spots on the segment glands may be removed. The springs 15 are reset to their normal position after testing is completed.

3,594,011
COMPOSITE WEAR-RESISTANT ARTICLES SUCH AS FACE SEALS

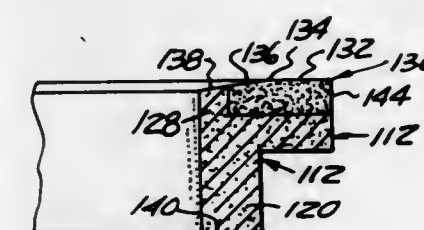
John Haller, Northville, Mich., assignor to Federal-Mogul Corporation, Southfield, Mich.

Filed Aug. 4, 1968, Ser. No. 847,183

Int. Cl. F16j 15/34

U.S. Cl. 277-96

5 Claims



A shallow groove in the flange of an annular radially-flanged briquette of powdered base metal, such as powdered iron, is filled with powder of a wear-resistant metal alloy of high retentive hardness, and this assembly heated to a sufficiently high temperature to simultaneously sinter the base metal briquette and melt the superalloy type powder, which thereupon bonds itself with the iron. The periphery of this composite body is then ground away to expose the superalloy type metal alloy and then finish-machined on its annular face to grind away the edges of the groove and reduce them to the level of the surrounding base metal, a slight inward taper being preferably imparted to the inner part of the hard metal portion.

In a modification, a separate annular briquette of metal alloy powder of wear-resistant high-retentive hardness is prepared in a size adapted to mate with the groove of the base metal briquette and inserted therein. Thereupon the base metal briquette and the hard metal insert are simultaneously heated to sinter the iron powder briquette and melt the hard metal alloy so that it bonds itself to the sintered powdered iron base metal. The resulting annular blank is then machined by grinding as in the principal form of the invention.

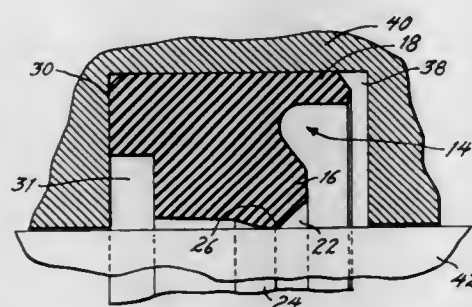
3,594,012

SEALING DEVICE

Robert L. Whittaker, Gwynedd Manor; Joseph Donofry, Broomall, and Thorval L. Berg, Warminster, all of, Pa., assignors to Greene Tweed & Co., Inc., North Wales, Pa.
Filed June 17, 1969, Ser. No. 833,988
Int. Cl. F16j 15/32

U.S. Cl. 277-208

2 Claims



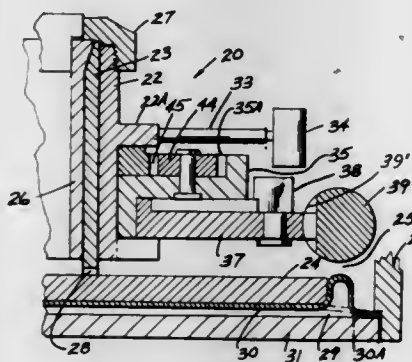
A sealing device includes an annular body having an inner periphery and an outer periphery. The annular body includes upstanding legs which define a generally U-shaped groove therebetween. One of the legs includes surfaces converging to an edge. The surfaces define an included angle of approximately 100-120°. The edge is on the inner periphery of the annular body and lies along a substantially solid width of the annular body in a radial direction. The nadir of the U-shaped groove is maintained above or no more than 10 percent of the overall height of the sealing device below said edge. The substantially solid width in a radial direction provides more sealing pressure at the edge and significantly minimizes leakage of fluid past the sealing device. The material of the annular body may be any suitable resilient gasketing material which has a compression modulus of 200 p.s.i. or about at 10 percent compression.

3,594,013

FLUID-ACTUATED CHUCKING AND INDEXING HEAD
Johannes Lauffer, Roter Berg, Germany, assignor to Hudson Automatic Machine & Tool Co., Union City, N.J.
Filed July 15, 1968, Ser. No. 745,031
Int. Cl. B23b 31/30

U.S. Cl. 279-4

22 Claims



This disclosure is directed to a fluid-actuated chucking and indexing head comprising a housing in which there is disposed a rotatable spindle adapted to reciprocally receive a collet sleeve. A fluid-actuated pressure plate is arranged to exert a force on the collet sleeve to effect displacement thereof to clamp and unclamp a collet onto a workpiece. Operatively connected to the spindle is an indexing assembly to effect the indexing of the clamped workpiece predetermined angular mounts. Actuation of both the chucking features and indexing features of workpiece is attained by a fluid pressure. A valve means is provided for directing a fluid pressure on a pressure plate to control the opening and closing of the collet and/or for ejection of the workpiece from the collet and the cleaning of the head of any dirt, cutting or other particles resulting from a machining operation on the workpiece, and a second valve means is provided for controlling the fluid pressure directed to the indexing means.

3,594,014

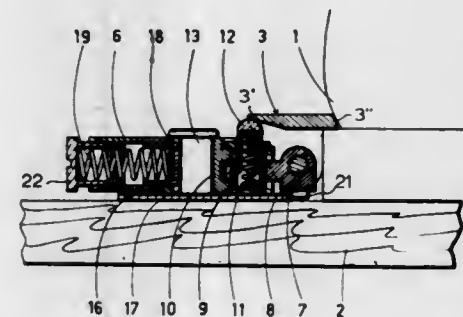
SAFETY SKI BINDING

Georges P. J. Salomon, 34, avenue de Loverchy, Anecy, France

Filed Feb. 28, 1969, Ser. No. 803,271
Claims priority, application France, Feb. 28, 1968, Feb. 19, 1969, 1030-74; 6904385
Int. Cl. A63c 9/00

U.S. Cl. 280-11.35 T

15 Claims



Ski binding with a heel or toe clamp which is upwardly swingable against a spring force and is normally restrained against lateral motion by a fixed or spring-loaded abutment or abutments from which the clamp escapes upon an upward swing so as to become freely pivotable about a horizontal axis or transversely shiftable by generally parallelogrammatic motion.

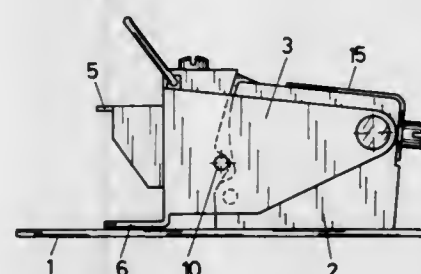
3,594,015

HEEL PORTION OF SAFETY SKI BINDINGS DEVOID OF CABLES

Norbert Pfretschner, Innsbruck, Austria, assignor to Geratebau Huber Kommanditgesellschaft, Gotzis, Austria
Filed Mar. 17, 1969, Ser. No. 807,665
Claims priority, application Austria, Mar. 15, 1968, A2573/68
Int. Cl. A63c 9/00

U.S. Cl. 280-11.35 T

8 Claims



A heel portion of a ski binding comprises a casing which pivotably supports a latch lever for movement about a horizontal axis and a release lever for pivotal movement about a second horizontal axis. The release lever carries a heel retainer and a latching bolt which engages with a latching surface on the latch lever. A release spring is pivotably carried on the casing and acts on the latch lever to oppose release of the bolt from the latching surface, and the spring carries a displaceable element at its front end which is engaged with the latch lever for transmitting the force of the spring to the latch lever. The displaceable element is displaceable along the latch lever upon pivotal movement of the spring between a first position remote from the pivot axis of the latch lever on the casing and a second position closer to the latter axis, such that in the second position the opposite of the spring to release of the bolt from the latching surface is substantially less than in the first position.

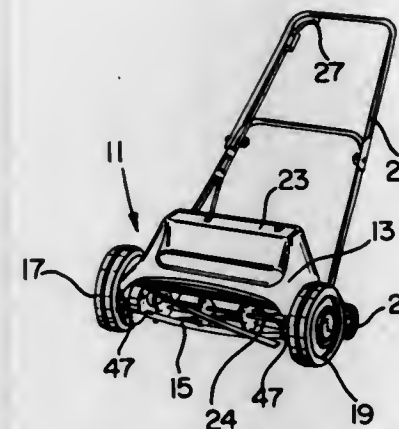
3,594,016

WHEEL HEIGHT ADJUSTMENT FOR LAWNMOWER
Kenneth R. Wells, Joppa, and Timothy G. Pugh, Baltimore, both of, Md., assignors to The Black and Decker Manufacturing Company, Towson, Md.

Filed Sept. 3, 1969, Ser. No. 854,867
Int. Cl. B62d 21/18

U.S. Cl. 280-43.17

10 Claims



A powered lawnmower including a housing supported for movement by ground-engaging wheels. A powered cutting reel is supported upon the housing and cooperates with a stationary bed knife on the housing to cut grass as the mower travels along the ground. Novel means is provided to effect vertical adjustment of at least some of the wheels relative to the housing whereby to adjust the height to which the grass is cut.

3,594,017

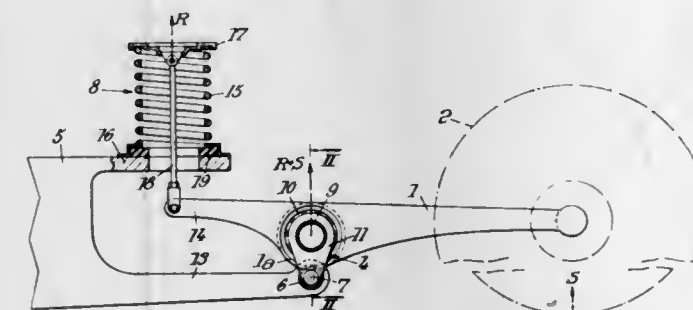
VEHICLE SUSPENSION

Albert Grosseau, Chavelle, France, assignor to Citroen S. A. (Automobiles Citroen, Berlet, Panhard), Paris, France
Filed Mar. 18, 1969, Ser. No. 808,082

Claims priority, application France, Mar. 28, 1968, 145,997
Int. Cl. B60g 9/00

U.S. Cl. 280-124

11 Claims



On each side of the vehicle, a longitudinal arm carrying a wheel is mounted on a first transverse axle and a pendulous member rigidly carrying this axle is articulated to the chassis by the means of a second axle situated substantially in the vertical plane of the first axle; elastic means are interposed between the chassis and the arm. The two first axes (right side and left side) are rigidly interconnected by a rigid element.

3,594,018

TRANSPORT APPARATUS FOR HEAVY MACHINERY SUCH AS BULLDOZERS OR THE LIKE

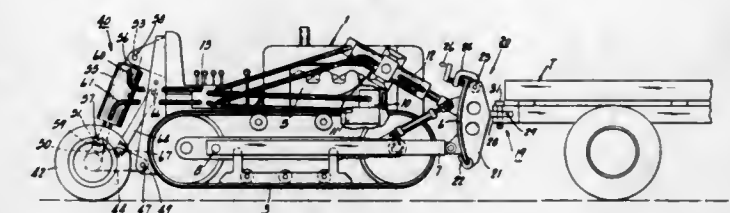
Edward A. Graetz, Rte 2 Box 69, Pound, Wis.
Filed Aug. 7, 1969, Ser. No. 848,169
Int. Cl. B60d 7/00

U.S. Cl. 280-415 R

3 Claims

Transport attachments for quick connection to a piece of heavy machinery for elevating the machinery off the ground for transport. A rear, hydraulically actuated attachment is easily coupled to the rear end of the piece of machinery and the hydraulic system of the machinery itself can be used to

actuate the rear attachment and thereby elevate the rear end of the machinery. The front end of the machinery is elevated by clamping its vertically positionable member, such as a



scraper blade, to a hitch clamp on a tractive vehicle, and the vertically positionable member is then lowered by the hydraulic system on the machinery, thereby raising the front end of the machinery clear of the ground for transport.

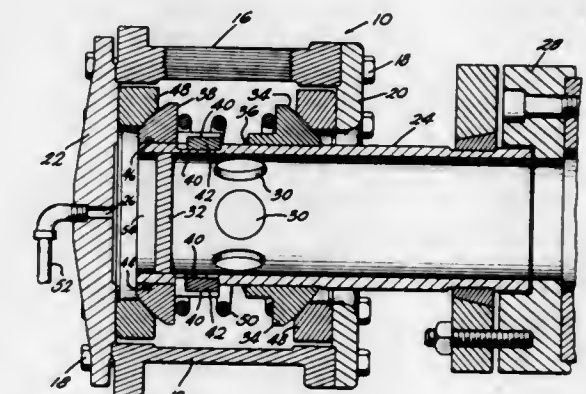
3,594,019
ROTARY JOINT

Ralph W. Gotschall, and Lawrence J. McDonough, both of Three Rivers, Mich., assignors to The Johnson Corporation, Three Rivers, Mich.

Filed July 22, 1969, Ser. No. 843,652
Int. Cl. F16l 55/00

U.S. Cl. 285-14

1 Claim



A rotary joint having a nipple with a closed end and a vented head.

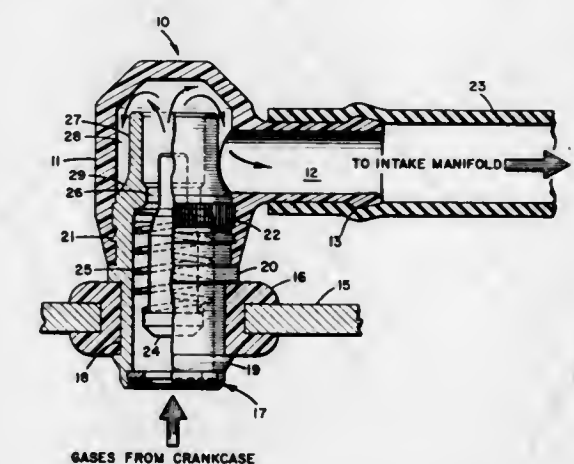
3,594,020

FASTENING MEANS FOR CRANKCASE VENT VALVE
William E. Ehlert, Bellwood, Ill., assignor to Stanadyne, Inc., Bellwood, Ill.

Filed Apr. 24, 1969, Ser. No. 818,861
Int. Cl. F16l 33/00

U.S. Cl. 285-239

5 Claims



An improved means and method for fastening a crankcase ventilating valve in an internal combustion engine comprising an outlet body of heat stabilized plastic receiving therein the metal valve housing of a crankcase vent valve with said housing having both a straight knurled portion and a locking ridge

to provide adequate locking of the valve housing in the outlet body.

3,594,021 EXPANSION JOINT

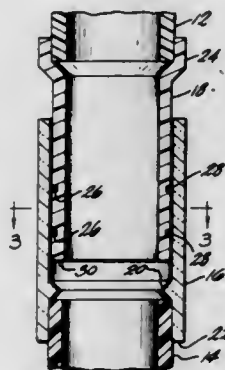
Robert M. Williams, Davison, Mich., assignor to Genova Products, Davison, Mich.

Filed Jan. 27, 1970, Ser. No. 6,261

Int. Cl. F16I 27/12

U.S. Cl. 285-302

10 Claims



An expansion joint for thermoplastic piping for drain, waste and vent uses. The joint includes a movable piston or first sleeve telescoped into a transparent barrel or second sleeve. Position indicator means are located on the movable piston so as to be visible through the barrel and on the barrel to indicate the normal positions that should be maintained by the telescoped parts of the expansion joint.

3,594,022 SEAL

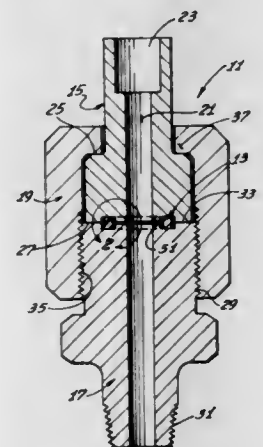
Leslie A. Woodson, Long Beach, Calif., assignor to W. S. Shamban & Co., Los Angeles, Calif.

Filed Feb. 25, 1969, Ser. No. 802,144

Int. Cl. F16I 17/00

U.S. Cl. 285-336

11 Claims



This disclosure describes a seal which includes a sealing ring constructed of deformable plastic material and inner and outer retainer rings engaging the inner and outer peripheral surfaces, respectively, of the sealing ring. The retainer rings are preferably mounted on the sealing ring and each of the retainer rings is substantially noncompressible in the axial direction.

3,594,023 JOINT FOR PREVENTING SLIP-OFF OF PIPES

Shinkichi Yano, 137-1, Sakurazuka Dori, 7-chome, Toyonaka-shi, Osaka-Fu, Japan

Filed May 13, 1969, Ser. No. 824,165

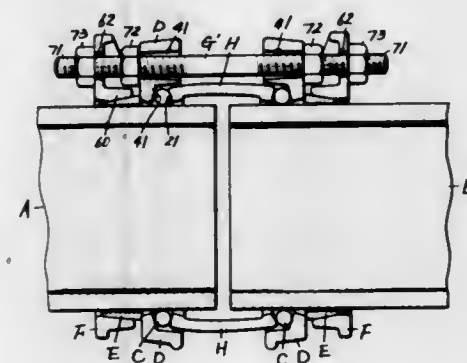
Int. Cl. F16I 17/00

U.S. Cl. 285-337

3 Claims

A joint of such a construction that fitted on an annular rubber packing fitted on a connection is a ring for urging said

packing against a connection step portion, said ring being pulled toward the connection step portion by clamp bolts and nuts to compress the packing between said ring and connection step portion, thereby pressing said packing against the connection step portion and against a pipe surface to prevent leakage of water through the connection and prevent the slip-off of a pipe by the frictional force of the packing, said joint being additionally provided with a split ring for grasping



the pipe and a holding ring for giving a wedging action to said split ring, said holding ring being pulled by the utilization of the clamp bolts and nuts toward the ring for urging the packing against the connection step portion, the wedging action exerted by the split and holding rings being effective to reduce the diameter of the split ring and cause the split ring to be grasped around the pipe surface. Other advantages and details of the arrangement will be made clear.

3,594,024 PISTON AND ROD ASSEMBLY

Siegfried Hertell, Kelsterbach, Germany, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

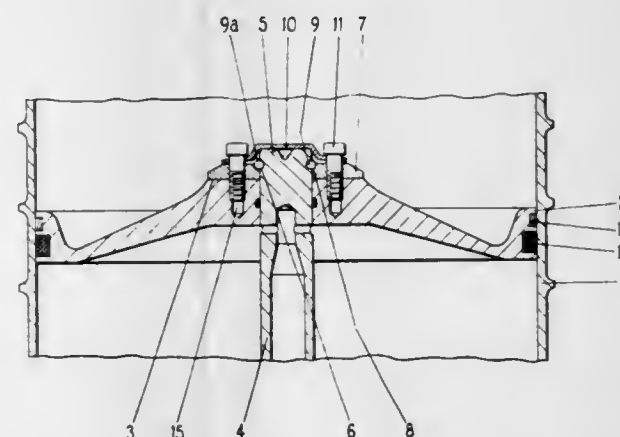
Filed Oct. 17, 1969, Ser. No. 867,177

Claims priority, application Germany, Oct. 19, 1968, P 18 04 037.4

Int. Cl. F16D 1/06

U.S. Cl. 287-53 R

7 Claims



A rigid piston and rod connection in a hydraulic accumulator wherein a piston rod extending through an axial bore in the piston has a retainer ring fitted in an annular groove in the piston rod. A cover plate over the end of the piston rod clamps the retainer ring between one side of the annular groove and a bearing plate on the front face of the piston to provide the rigid connection and hold the piston rod perpendicular to the piston.

3,594,025 PIPE RAILING FITTING

Adolph A. Wagner, 3454 N. Shepard Ave., Milwaukee, Wis.

Filed Nov. 12, 1968, Ser. No. 774,961

Int. Cl. F16b 7/00

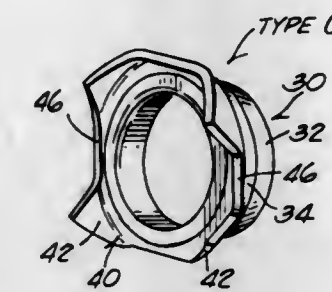
U.S. Cl. 287-54

5 Claims

A pipe railing fitting comprising an extruded collar portion and a connector cup portion. The extruded collar, common

to all fittings, is dimensioned to fit tightly in the end of a standard sized pipe or post. The connection is permanently secured by welding the collar to the pipe or post.

The connector cups vary in configuration to permit one or more pipe railings to be welded to the posts. Essentially four types of connector cups are required in order to accomplish



the various permutations arising in a typical pipe railing structure.

All of the connector cups are similar in that they are "precoped" to permit a pipe or post member to fit snugly in the cup. The connection is permanently secured by welding the members together.

3,594,026

BALL JOINT, ESPECIALLY FOR STEERING DEVICES AND WHEEL SUSPENSIONS OF MOTOR VEHICLES
Leopold F. Schmid, Pischekstrasse 49, 7000 Stuttgart-O, Germany

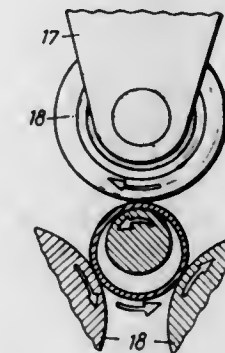
Filed Jan. 6, 1970, Ser. No. 888

Claims priority, application Germany, Jan. 8, 1969, Mar. 31, 1969, Apr. 2, 1969, Apr. 2, 1969, P 19 00 642.9; P 19 16 451.3; P 19 16 832.2; P 19 16 833.3

Int. Cl. F16c 11/06

U.S. Cl. 287-87

7 Claims



For use in a ball joint, especially for connecting rods, steering devices and wheel suspensions of motor vehicles, a joint unit and method of making same, according to which a section of deformable tubular material has one end portion formed into a hollow ball head while by means of a constriction it is separated from a hollow shank portion forming an extension of said head and constriction and together with said head forming a single integral piece with different cross-sectional diameters, the thickness of cross-sectional areas of said ball head and said extension including said constriction increasing proportionally with the decrease in the outer diameter of said cross-sectional areas and vice versa.

3,594,027

STRESS-FREE CRIMP JOINT FOR PLASTIC-TO-METAL INTERFACES

Murray Ressler, and George K. Lucey, Jr., both of Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Army

Filed Mar. 23, 1970, Ser. No. 21,734

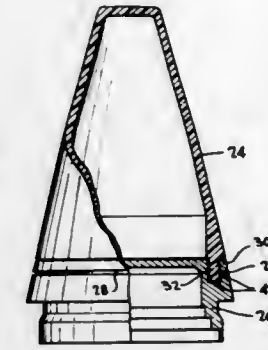
Int. Cl. F16c 11/00

U.S. Cl. 287-91

4 Claims

A stress-free crimp joint for plastic-to-metal interfaces for prevention against stress cracking of the plastic member. The plastic member has a dovetail flange that is placed in a channel in the metal member. The lip of the metal member that

surrounds the flange is circumscribed with a groove. When the lip is crimped over the plastic flange, the groove ensures that the lip bends along an optimum, line, defined by the groove, and that none of the plastic is pinched after the



crimping action. The angle and magnitude of the crimp are carefully controlled so that after the crimping tool is removed the elastic springback of the lip is just sufficient to relieve any load on the plastic.

3,594,028

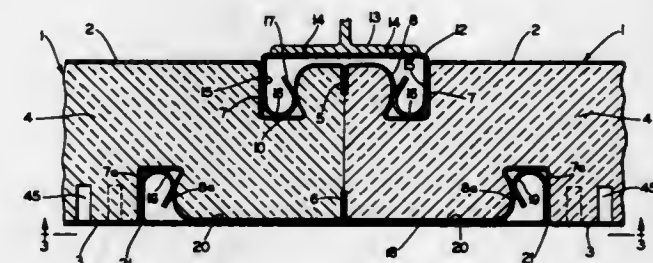
SHEET METAL JOINT FOR PANELS AND SHEETS
Victor P. Scott, Canton, Ohio, assignor to Macomber, Incorporated, Canton, Ohio

Filed Aug. 7, 1969, Ser. No. 848,181

Int. Cl. F16b 5/06

U.S. Cl. 287-189.36

9 Claims



A sheet metal joint for wall and ceiling panels, roofing and sidewall sheets, etc. The joint may be between wall or ceiling panels and an attaching strip, or between adjoining roofing or sidewall sheets.

One member has an open tubular flange at one side edge and there is a channel at the adjacent edge portion of the other member, the channel having a restricted throat into which the open tubular flange is snapped and locked.

The wall and ceiling panels are formed of spaced metal sheets with a heat and cold insulation such as polyurethane therebetween.

3,594,029

CONTROL CIRCUIT FOR A STARTER SOLENOID ON A VEHICLE

William David Holt, 7 Thirlmere Avenue, Colen, Lancashire, England

Filed Apr. 14, 1970, Ser. No. 28,316

Claims priority, application Great Britain, May 27, 1969, 26,638/69

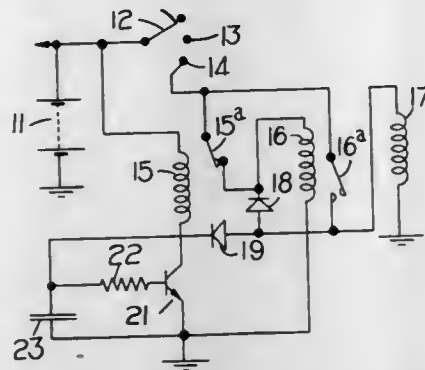
Int. Cl. F02h 11/00

U.S. Cl. 290-38

1 Claim

A control circuit for a vehicle starter solenoid which operates so that a second attempt to start an engine cannot be made until a predetermined time has elapsed after a first attempt to start the engine. A starter switch energizes a first relay which completes a circuit to the starter solenoid, completes a self-hold circuit to itself and charges a capacitor connected across the base emitter path of a transistor. The transistor then energizes a second relay which opens a contact between the starter switch and the first relay to break the circuit to the first relay other than through the self-hold

circuit. The first relay is then deenergized when the starter switch is opened so that the capacitor discharges through the



base-emitter path of the transistor to keep the second relay energized for a predetermined period of time during which the second relay prevents the first relay from being reenergized.

3,594,030

SAFETY GATE HOOK

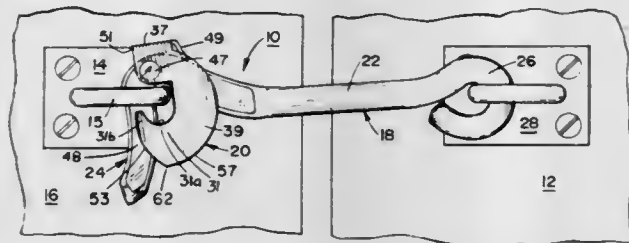
Richard K. Paetz, Sterling, Ill., assignor to National Manufacturing Co., Sterling, Ill.

Filed Nov. 6, 1968, Ser. No. 773,747

Int. Cl. E05c 19/12

U.S. Cl. 292-108

3 Claims



A safety gate hook includes a hook having a hook-shaped front end for hooking onto a wire staple of a staple plate and having a safety-latching dog pivotally mounted on the front end of the hook. The latching dog extends under the staple when the hook is hooked thereon to prevent a spurious upwardly directed force from unhooking the hook from the staple.

3,594,031

UNIVERSAL PARTITION-LOCKING SYSTEM

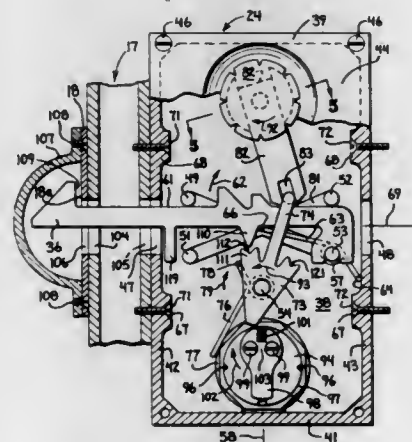
Jerald R. Ford, 12302 Windsor Drive, Carmel, Ind.

Filed Nov. 30, 1967, Ser. No. 686,858

Int. Cl. E05b 15/10, 65/06, 65/08; E05c 1/06

U.S. Cl. 292-140

12 Claims



A partition wall with a door, and a lock-receiving opening in the door. A mortise lock receivable in the opening, and thereof.

having guide and pivot posts and apertures therein arranged for utilization in sliding or swinging doors, left-hand or right-hand opening, inswinging or outswinging, by choice of one or the other of two latches of special design, one pivotable and the other slidable. Accessory units and partition door edge and jamb features facilitating substitution of a padlock for the mortise lock in a slidable or swinging doors.

3,594,032

VEHICLE DOOR LATCH

Max Lampe, Heiligenhaus, Germany, assignor to Firma Arn.

Kiekert Sohre, Heiligenhaus, Germany

Filed Mar. 26, 1969, Ser. No. 810,555

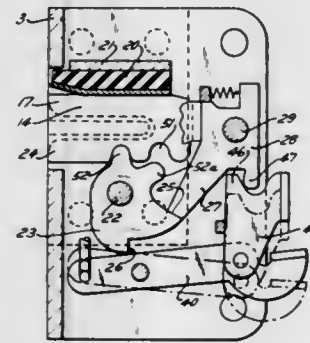
Claims priority, application Germany, Mar. 29, 1968,

P 17 03 083.3

Int. Cl. E05b 3/00; E05c 19/00

U.S. Cl. 292-280

12 Claims



A vehicle door latch has a bolt on the doorpost and a lock on the door in which the bolt is received. A door handle is linked nonpositively to the lock by a hook such that the handle can only actuate the lock when it is pulled away from the door. The bolt is advantageously wedged between a ratchet cam and a body of stiff but resiliently compressible material when fully engaged in the lock to prevent mutual displacement between the door and the doorpost.

3,594,033

FIRECRACKER HOLDER-THROWER DEVICE

Willie Ray McLemore, Rte. 2, Box 178, Benton, La.

Filed Dec. 30, 1968, Ser. No. 788,357

Int. Cl. A47f 13/06

U.S. Cl. 294-19 R

1 Claim



A device for the safe shooting and throwing of firecrackers consisting of a firecracker holder mounted on one end of a rod of suitable length, with a handle on the opposite end thereof.

3,594,034

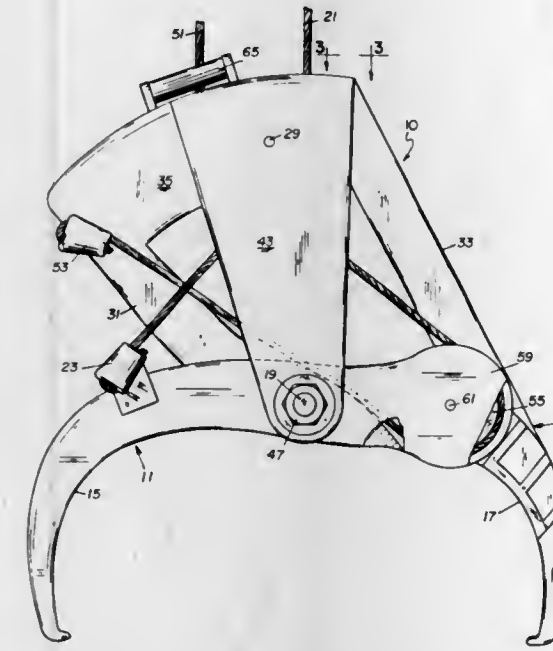
GRAPPLE-LOGGING APPARATUS

Henry C. Rowell, P.O. Box 366, Myrtle Point, Oreg.

Filed Mar. 13, 1969, Ser. No. 806,959

Int. Cl. B66c 3/12, 3/14

U.S. Cl. 294-111



A carriage is pulled along a haulback cable in a retrieving direction by a mainline cable which also turns a triple pulley on the carriage to pull a grapple closing cable to hold closed a grapple member 11 through a force multiplying pulley and support the carriage. The triple pulley is actuated by a strawline cable to release the grapple member through a non-multiplying, release cable. The triple pulley has differential portions for taking up and paying out the grapple closing cable and the release cable.

3,594,035

PICKUP TRUCK RACK

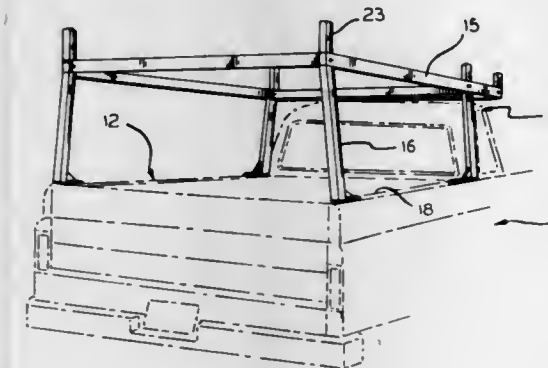
Clifford W. Ferguson, Morris, Ill., assignor to Cerco Corporation, Joliet, Ill.

Filed Feb. 10, 1969, Ser. No. 798,025

Int. Cl. B62d 33/00

U.S. Cl. 296-3

4 Claims



Rack for a pickup truck to facilitate transporting of long pieces of equipment such as ladders, boards and the like including upstanding members mountable on the truck box having longitudinally extending side rails extending over the box and the cab of the truck, and cross bars extending between the side rails with stakes on opposite ends between which long pieces of equipment may be arranged.

3,594,036

VEHICLES WITH SLIDING DOORS

Jean G. Cadiou, Paris, France, assignor to Societe Anonyme

Andre Citroen, Paris, France

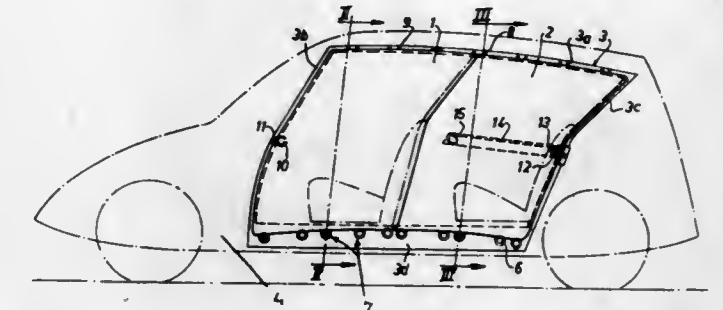
Filed May 26, 1969, Ser. No. 827,800

5 Claims Claims priority, application France, May 30, 1968, 3,510

Int. Cl. B60j 5/06

U.S. Cl. 296-155

3 Claims



A vehicle with a sliding door or doors in which a hollow, quadrilateral frame in which said door is slidable is manufactured separately from the remainder of the vehicle, being fixed to the vehicle body after completion of the latter and preferably after the equipping of the frame with all necessary runners, latch members and the like fittings for the door and possible after the insertion of the door or doors into the frame.

According to another feature of the invention the opening movement of a sliding door lifts an armrest from a normal to a raised position, the armrest pivoting on a pillar fixed to the floor of the vehicle. Preferably the armrest forms with a member fixed thereto a fork in which a finger projecting from the door engages when the door is opened, thus ensuring that the armrest returns from its raised to its normal position as the door is closed.

3,594,037

CABIN ATTENDANT SEAT

Gale K. Sherman, Tustin, Calif., assignor to McDonnell

Douglas Corporation

Filed Apr. 9, 1970, Ser. No. 27,032

Int. Cl. A47c 9/06

U.S. Cl. 297-14

9 Claims



A compact thin profile cabin attendant seat folding automatically when occupant arises. An extensible headrest, tilting backrest and forwardly moving seat bottom frame are interlinked for simultaneous movement.

3,594,038

CHAIR AND GANGING CONNECTORS

Norman Polsky; Edgar M. Lieberman; Robert W. Quearry,

and David Maslan, all of Kansas City, Mo., assignors to Fix-

tures Manufacturing Corporation, Kansas City, Mo.

Filed Nov. 29, 1968, Ser. No. 779,954

Int. Cl. A47c 1/124

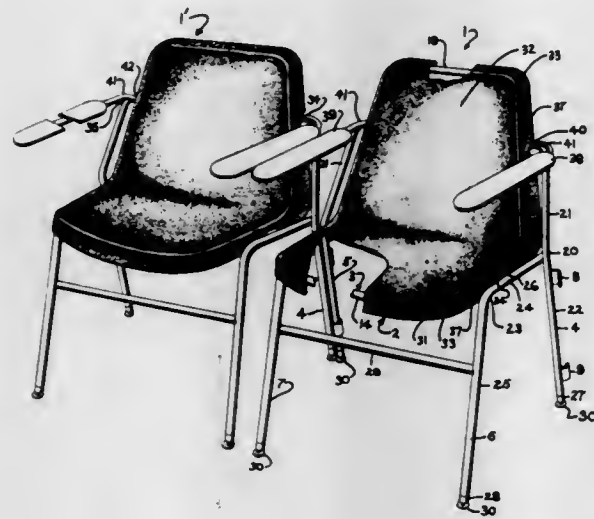
U.S. Cl. 297-248

5 Claims

Ganging connectors are mounted on chair legs and include an upper clip and a lower clip each having means therein for

receiving and retaining a corresponding leg on an adjacent similar chair. The legs having the ganging connectors mounted thereon are inclined relative to the supporting surface. The chair has a unitary seat and back structure received

means are provided to allow limited fore-and-aft movement of the seat to offset backslap. The seat includes seat and



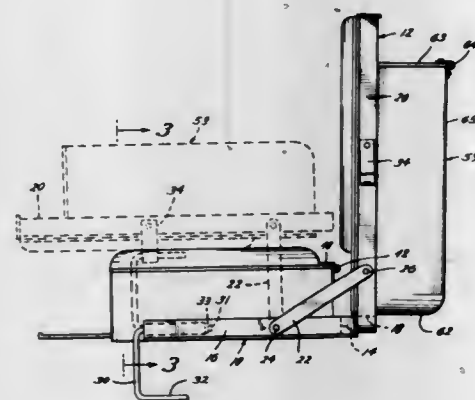
in a loop frame having a substantially horizontal seat supporting portion and a substantially vertical back supporting portion and spaced legs connected to opposite sides of the frame back portion and spaced legs connected to opposite sides of the frame seat portion.

3,594,039 STADIUM CHAIR

Charles E. Harp, 2110 Harper St., Pasadena, Tex.
Filed Apr. 2, 1969, Ser. No. 812,679
Int. Cl. A47c 1/16

U.S. Cl. 297-252

5 Claims



A stadium chair of folding construction having compartments enclosed within both the seat and back portions for readily accessible storage of blankets, food and drink containers, and other accessories.

3,594,040 SUSPENSION DEVICE

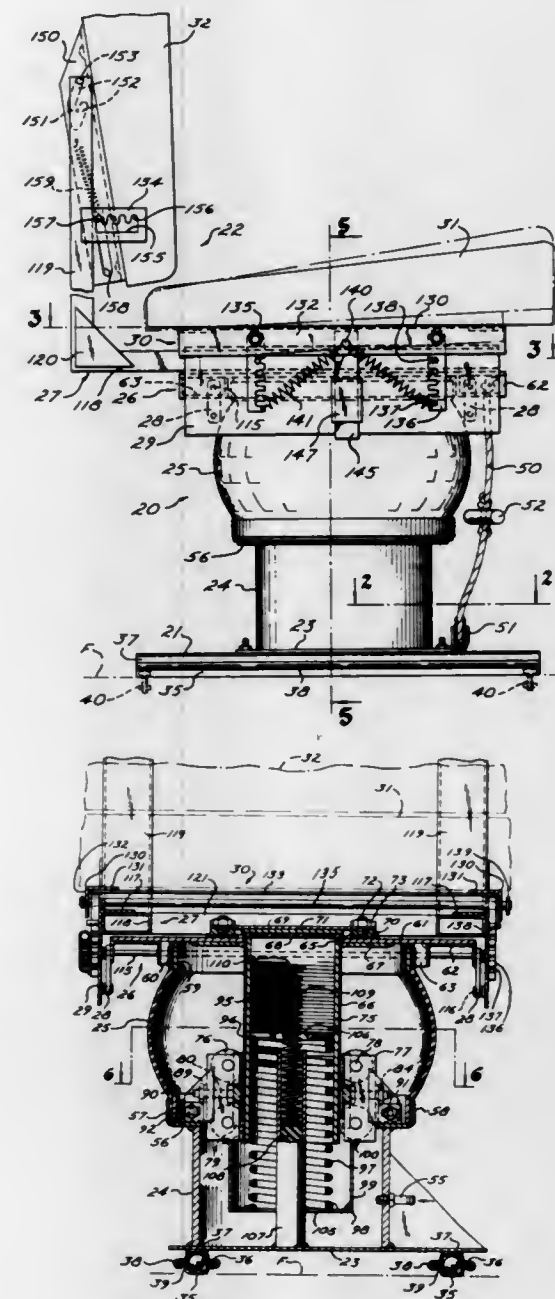
Edwin P. Monroe, 255 Barrett Road, Berea, Ohio
Filed Dec. 31, 1968, Ser. No. 788,228
Int. Cl. A47c 3/02

U.S. Cl. 297-307

33 Claims

An air chamber including a resilient boot is provided between the base and seat portion of a vehicle seat. A post projects downwardly from the seat portion inside the boot and is guided for vertical movement by rollers mounted on means fixed with respect to the base. Spring means resist excessive upward and downward movement of the seat, and

A two-part, tubular chair having a cantilevered seat that is supported at the rear of the chair. The chair base frame is formed from two tubular members, one positioned within the other, which are bent together to provide sufficient structural strength to prevent deflection of the reverse cantilevered seat



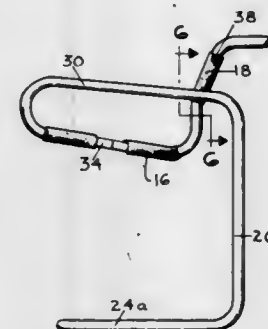
backrest cushions and means for raising, lowering, and tilting either cushion.

3,594,041 REVERSE CANTILEVERED TUBULAR CHAIR

Ralph K. Rye, 102 Bellevue Road, Swampscott, Mass.
Filed Aug. 11, 1969, Ser. No. 848,824
Int. Cl. A47c 7/00, 7/14

U.S. Cl. 297-445

8 Claims



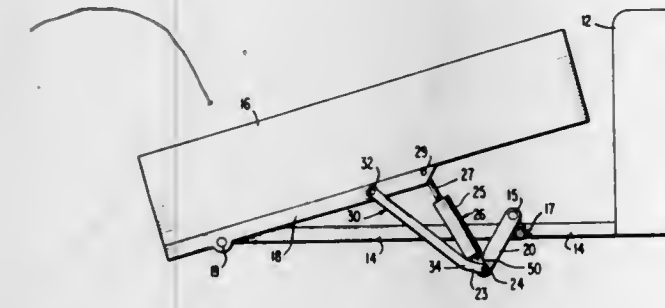
section A tubular back frame having a back rest member is removably secured to the base frame to complete the chair structure.

3,594,042 SWINGING CYLINDER TRUCK HOIST

Donald E. Gauch, Grundy Center, Iowa, assignor to Mid Equipment Corporation, Grundy Center, Iowa
Filed May 5, 1969, Ser. No. 821,921
Int. Cl. B60p 1/16

U.S. Cl. 298-22 D

4 Claims



This device permits an ordinary pickup truck to be modified for use as a lightweight dump truck. It includes a subframe to be mounted under the truck body and hydraulic cylinder linkage means interposed between the truck chassis and the subframe. The linkage serves to swing the hydraulic cylinder rearwardly and upwardly as it is expanded so a short hydraulic cylinder can be used rather than the conventional long cylinders. Further, when the cylinder is collapsed there is no concern over inadequate truck chassis clearance since the short cylinder rides far off the ground.

3,594,043 WINCH FOR UNDERGROUND MINING

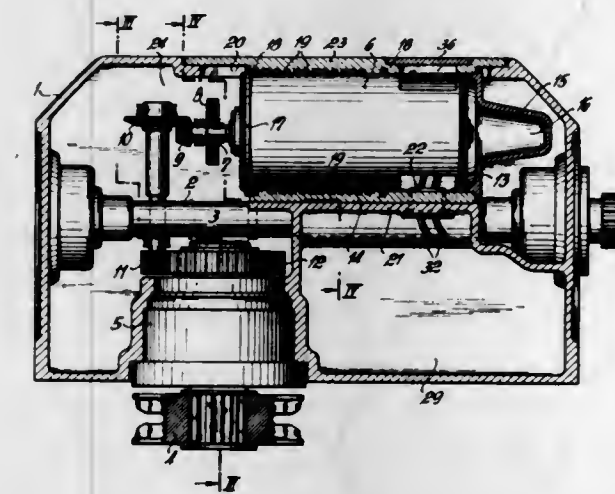
Karl-Heinz Weber, Witten-Heven, and Horst Odenkirchen, Bochum, both of, Germany, assignors to Gebr. Eickhoff, Maschinenfabrik and Eisengleiser mbH, Bochum, Germany

Filed Dec. 30, 1969, Ser. No. 889,186
Claims priority, application Germany, Jan. 2, 1969, P 19 00 025.0

Int. Cl. E21c 29/10

U.S. Cl. 299-42

14 Claims



A driving unit for installation in a coal-cutting machine in which a housing has arranged therein a cooling block with a substantially cylindrical bore in which an electric motor is detachably arranged and through a stepdown transmission likewise arranged in said housing is drivingly connected to a sprocket wheel or winch for operative engagement with a chain or cable for advancing the driving unit.

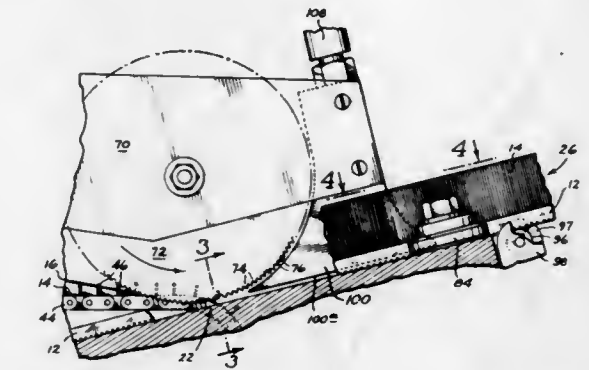
3,594,044 APPARATUS FOR MANUFACTURING STRIP BRUSHES

Benjamin Koback, Portland, Oreg., assignor to Ben-Ko-Mat Inc., Portland, Oreg.

Filed Sept. 4, 1969, Ser. No. 855,250
Int. Cl. A46d 9/00

U.S. Cl. 300-2

8 Claims



Apparatus for manufacturing strip brushes which is operable to move an elongated open-topped channel strip, a series of elongated bristles, and an elongated binding element together at a press station. The outer edge of a press wheel presses the midregions of the bristles and the binding element into the channel strip at the press station. Rows of teeth extending around the periphery of the press wheel engage the bristles adjacent opposite sides of the channel strip to maintain proper bristle alignment as they are pressed into the channel strip. A pair of opposed clamp members spaced downstream from the press wheel clamp the sides of the channel strip toward each other to lock the bristles and binding element therein. A retainer shoe extends between the press member and the clamp members to hold the midregions of the bristles in the channel strip until they are locked therein.

3,594,045 APPARATUS FOR AND METHOD OF MAKING SLITTED ARTICLES

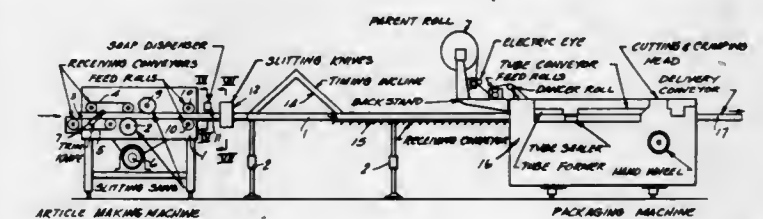
Karl A. Pannier, Jr., and Gordon S. Reynolds, both of Salt Lake City, Utah, assignors to Le Voy's, Inc., Salt Lake City, Utah

Filed Mar. 12, 1970, Ser. No. 18,837

Int. Cl. A46d 9/06

U.S. Cl. 300-21

17 Claims



Apparatus for and a method of making slitted articles, for example, an article in the general shape of a rectangular block, the apparatus providing slits extending only partially through the article and running both longitudinally and transversely of the article, there being slits in a plurality of faces of the article, if desired. The entire article is formed including the slits and passed through a packaging machine in substantially continuous motion at high speed.

3,594,046 WHEEL COVER

Claude J. Marshall, Ann Arbor, Mich., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Mar. 18, 1969, Ser. No. 808,208

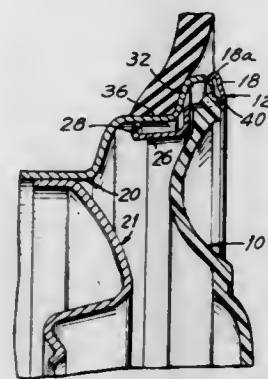
Int. Cl. B60b 7/02

U.S. Cl. 301-37 P

8 Claims

A two-piece automotive wheel cover including a central circular decorative member and a metal ring surrounding the periphery of the decorative member with radially outwardly

projecting tapered locking bosses spaced around and extending from the periphery of said decorative member engaged in openings in a normally generally cylindrical flange of said mounting ring to lock the assembly together, the configuration of said bosses being such as to locally and elastically dis-



place said flange radially outwardly, giving said flange an overall slightly noncylindrical shape, the resilience of said flange holding said mounting ring in firm, rattle-free engagement with said decorative member even when the wheel cover shrinks within anticipated limits.

3,594,047

FEED-MATERIAL-HANDLING APPARATUS

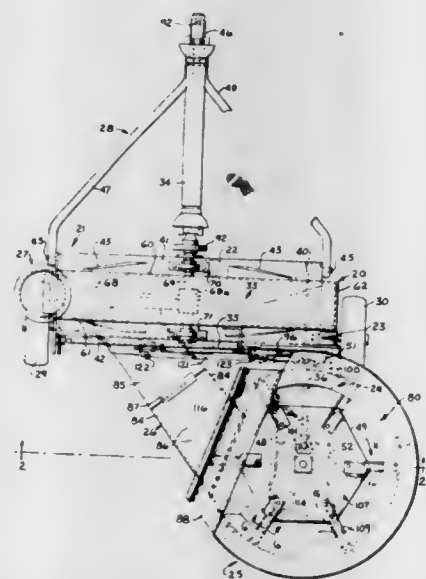
Richard A. Pucher, and James Gordon Greiner, both of Leola, Pa., assignors to Sperry Rand Corporation, New Holland, Pa., by said Pucher

Filed Jan. 12, 1970, Ser. No. 2,229

Int. Cl. B65g 53/40

U.S. Cl. 302-37

19 Claims



The feed-material-handling apparatus has a frame vertically supporting a feed material blower with an upwardly extending transition discharge member and horizontally supporting an impeller with a rotor for delivering feed material to the blower. The blower discharges the material upwardly through the transition member. In the two forms of the horizontal impeller the rotor turns clockwise in one and counterclockwise in the other. The frame is mounted on detachable wheels.

3,594,048

TRACK LINK CONNECTOR

Otto Korner, and Rolf Muller, both of Remscheid, Germany, assignors to Diehl, Nurnberg, Germany

Filed May 26, 1969, Ser. No. 827,544

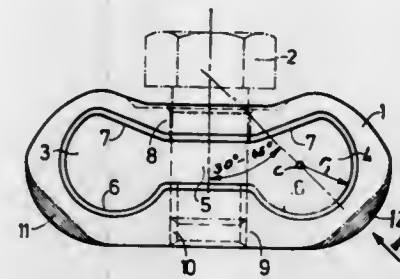
Claims priority, application Germany, June 1, 1968, P 17 55 630.8

Int. Cl. B62d 55/28

U.S. Cl. 305-58

1 Claim

A track chain connecting link, especially clamping connector, which comprises a slot interconnecting the two chain



at the circumference within the area of the interengaging portions of the driving rim approximately circularly over a depth of a few millimeters and approximately by 45 HRC so that the surface hardness remains maintained at least by 50 HRC.

3,594,049

BEARING LINER

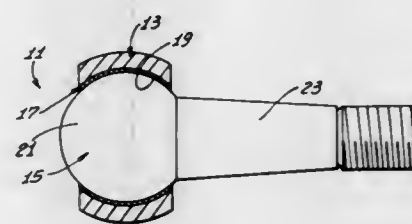
Peter H. Turner, Granada Hills, Calif., assignor to Sargent Industries, Inc., Los Angeles, Calif.

Filed June 19, 1969, Ser. No. 834,851

Int. Cl. F16c 9/06

U.S. Cl. 308-72

24 Claims



A bearing liner which includes a backing member and a mixture of an adhesive and powdered low-friction material. The backing member has a roughened, irregular or porous surface. The adhesive and low-friction material are disposed in a thin layer only a few mils thick so that the particles of the low-friction material are mechanically supported in a fixed position within the pores of the backing member. This fixed positioning of the particles is facilitated by the chemical bonding provided by the adhesive. The bearing liner is disposed with the backing member supported by a bearing member.

3,594,050

MEANS FOR MOUNTING A BEARING ASSEMBLY IN A HOUSING

Karl Evald Andreas Gothberg, Lerum, Sweden, assignor to Aktiebolaget Svenska Kullagerfabriken, Goteberg, Sweden

Filed Apr. 22, 1969, Ser. No. 818,314

Claims priority, application Sweden, Apr. 22, 1968, 5337/68

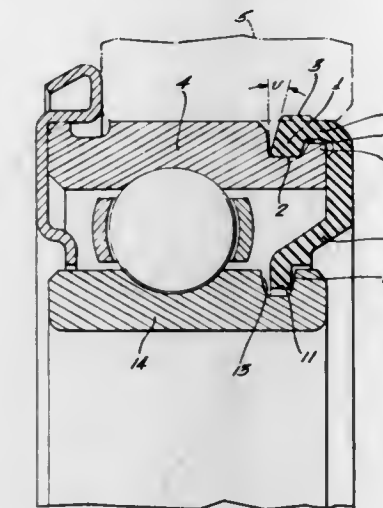
Int. Cl. F16c 33/78

U.S. Cl. 308-187.2

12 Claims

The combination comprising a housing having an opening therein for mounting a bearing assembly, said bearing assembly including inner and outer radially spaced ring members, a plurality of rolling elements in the annular space between the ring members, and at least one cover member made of an elastic material at one axial end of the bearing adapted to seat the outer ring in said housing opening against relative rotation with respect to the housing, said cover member having an annular portion seating in a groove in the outer surface of the outer ring, a substantially cylindrical thinner portion connecting the annular portion to a planar sidewall of the cover, said annular portion being of a size and configuration to exert a radial pressure against the bearing housing and outer ring member, said annular portion having a first supporting surface engaging the bearing housing

and being axially displaced in relation to a second supporting surface engaging in the outer ring groove and being located



nearer said one axial end of said bearing than said second supporting surface.

3,594,051

WHEEL BEARING MOUNTING

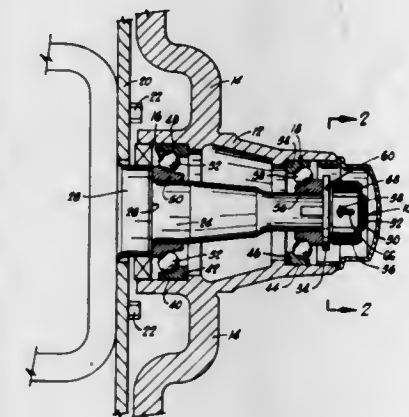
Leonard A. Wells, Oklahoma City, Okla., assignor to June M. Hicks, Oklahoma City, Okla.

Filed July 23, 1969, Ser. No. 844,107

Int. Cl. F16c 13/02

U.S. Cl. 308-191

3 Claims



The present invention relates to an improved wheel bearing mounting of the type wherein one or more axially preloaded antifriction wheel bearings supporting a wheel hub are axially secured on a spindle by a spindle nut. The wheel bearing mounting of the present invention includes a spindle nut having a pair of aligned openings in opposite sides thereof for mating with a cotterway disposed in the threaded portion of the spindle. The spindle nut is of a size such that when the nut is threaded on the spindle to the position where the pair of aligned openings therein mate with the cotterway in the spindle, the desired axial preload on said bearings is provided.

3,594,052

VENDING MACHINE FOR COOLED ARTICLES ESPECIALLY FOR ICES

Alexander H. L. Spronken, Beek, Netherlands, assignor to Spronken N.V., Beek, Netherlands

Filed Jan. 2, 1969, Ser. No. 788,529

Claims priority, application Netherlands, Jan. 4, 1968, 6800139

Int. Cl. A47I 1/00

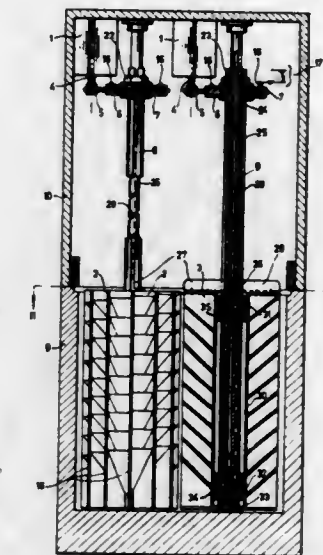
U.S. Cl. 312-36

5 Claims

A cooling circuit within the housing of an automatic vending machine for cream ices covers only the lower part of the housing onto a level just above the upper side of a helically

rotatable magazine in its lowest position. The helically arranged compartments of the latter are in a manner known per se under control of a coin-actuated mechanism and successively brought to register with a delivery opening provided in the casing just below the said upper cooling space level.

By opening the upper space of the housing above the said



level the empty magazine is made accessible at least at its front and at both sides.

The compartments are downwardly inclined onto the center of the magazine and in any position of the latter the cooled space is separated by empty magazine parts from the noncooled space within the housing.

3,594,053

TYPEWRITER CASE

Johan Joseph Winkens, 32, Kerkstraat, Bocholtz, Netherlands

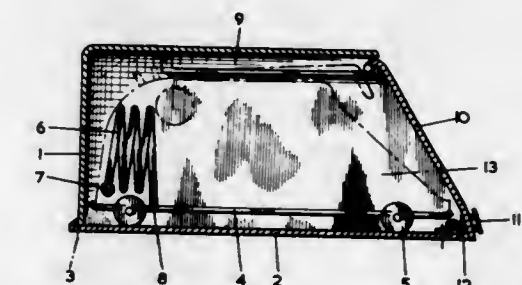
Filed Jan. 16, 1969, Ser. No. 791,736

Claims priority, application Netherlands, Jan. 22, 1968, 6800923

Int. Cl. A47b 21/00

U.S. Cl. 312-208

2 Claims



A typewriter case, adapted to be disposed on or fixed to a desk, has a front wall adapted to be slid under its top wall, and has the typewriter mounted for sliding out from, and return to, the case through the so opened front of the case. The typewriter is carried by a carriage secured to the case by extensible means and the carriage is provided with rollers which may be retracted for stabilizing the support of the typewriter when extended.

3,594,054

APPARATUS FOR USE IN THE DETERMINATION OF THE RELATIVE HUMIDITY OF SUBSTANCES

David N. Gore, Westhumble, near Dorking, Surrey, and Harold G. Wilkinson, Worthing, Sussex, both of England, assignors to Beecham Group Limited

Filed July 24, 1968, Ser. No. 747,388

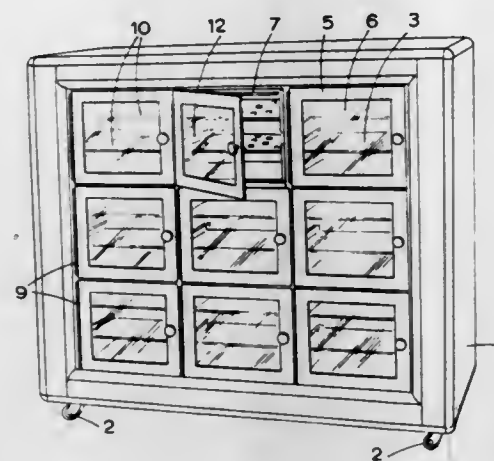
Int. Cl. A47b 77/08; A47I 5/08

U.S. Cl. 312-209

3 Claims

The invention relates to an apparatus for use in the determination of weight changes in substances exposed to at-

mospheres of different relative humidities. The apparatus comprises a cabinet containing a plurality of moistureproof compartments for samples to be tested. Each compartment



has a door which can be opened or closed as desired. A fan is provided in each compartment and a common drive means for the fan is located outside the compartments. The operation of the fans is controlled by a timing device.

3,594,055

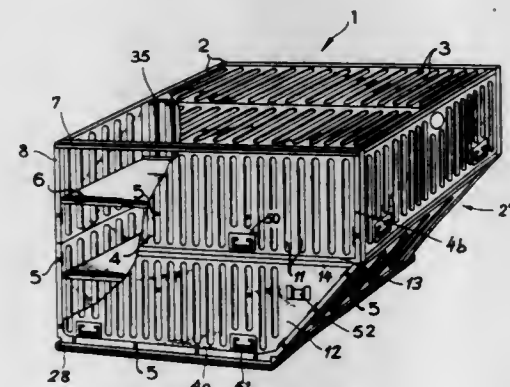
SHEET METAL AIRFREIGHT CONTAINER

Alfred Lohr, Herborn; Helmut Hemmann, Herborn, and Herman Eichtner, Munich, all of Germany, assignors to Burger Eisenwerke Aktiengesellschaft, Herborn Dillkreis, Germany.

Filed June 11, 1969, Ser. No. 832,089
Int. Cl. E05b 00/00

U.S. Cl. 312-215

10 Claims



An airfreight container has a sheet metal polyhedral shell with a stiffening frame running around all its edges and one rectangular side completely open. A rectangular door fits the open side and has its own frame which is just received within the opening of that side while a hinge along the upper edge of the door and the open side allows the door to swing outwardly. Spaced around all of the edges of the door, except the hinged edge, are individually operable latches which are engageable with the receptacle frame to hold the door tightly in place. In addition, the door can fold in the middle and is provided with latches at inner locations that are engageable with shelves in the shell.

3,594,056

FURNITURE ASSEMBLY AND CONNECTOR THEREFOR

Gerald S. Sager, Frankfort, Ill., assignor to Sager Industries Incorporated, Frankfort, Ill.

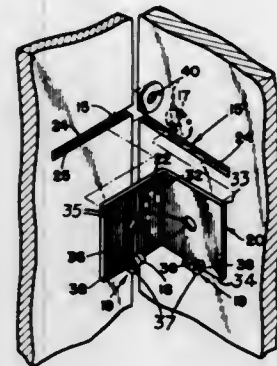
Filed Jan. 13, 1969, Ser. No. 790,582
Int. Cl. A47b 47/00

U.S. Cl. 312-263

4 Claims

A connector is formed with a rigid bracket having clamping means including bearing members for insertion into substantially T-shaped grooves in knocked down wall member of a furniture assembly such as a vanity, cabinet or the like. The bearing members are dimensioned to permit adjusting move-

ment of the wall members in directions parallel or normal to the longitudinal dimension of the respective grooves. When



the wall members are in the desired positions, the clamping means is tightened to rigidly lock the wall members in this position.

3,594,057

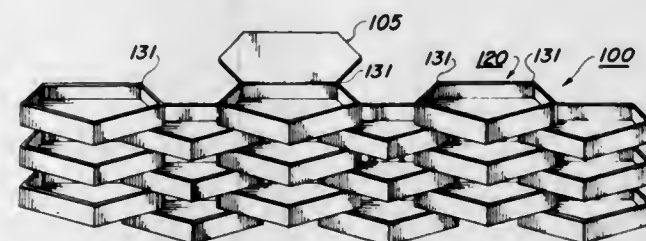
CONTAINER APPARATUS

Dennis George Moore, 1312 Kathy Court, Livermore, Calif.
Filed Nov. 4, 1968, Ser. No. 773,267

Int. Cl. A47b 88/02

U.S. Cl. 312-283

22 Claims



A container apparatus comprising a plurality of operatively connected interleavable receptacles forming a closed unitary structure when in a closed position. Each of the plurality of receptacles is preferably supported from a sidewall in a position such that the receptacles will be interleaved when the container is closed and will be spaced apart when the container is open providing ready access to the contents contained therein.

3,594,058

RACK ASSEMBLY FOR FRONT-LOADING DISHWASHER

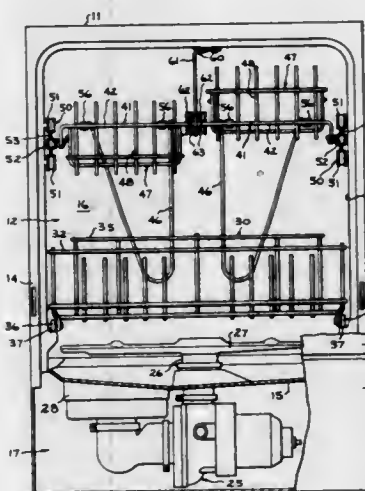
Melvin R. Kauffman, Louisville, Ky., assignor to General Electric Company

Filed Apr. 17, 1969, Ser. No. 817,033

Int. Cl. E04b; A47b 88/00, 95/00

U.S. Cl. 312-298

10 Claims



In a front-loading dishwashing machine of the type having a front access opening to a washing chamber, and dish-sup-

porting racks that may be manually slid outwardly from the chamber and through the access opening to facilitate loading of the machine with soiled tableware, a means is provided whereby when one dish-supporting rack is manually pulled outwardly to extend from the front of the dishwashing machine, another rack positioned at a different horizontal level is caused to move outwardly without the need for the operator of the machine to separately grasp the second rack and pull it outward through the access opening. It is also provided, when the dish-supporting racks are in their normal operating position, within the washing chamber, that the second rack may be manually moved outwardly independent of the first rack, if so desired. The construction of the invention is particularly applicable to a dishwashing machine wherein upper and lower level racks are spaced substantially distant from one another within the wash chamber so that large or cumbersome articles can be conveniently stored for washing in the lower level rack.

3,594,059

CATHODE-RAY TUBE REBUILDING DEVICE

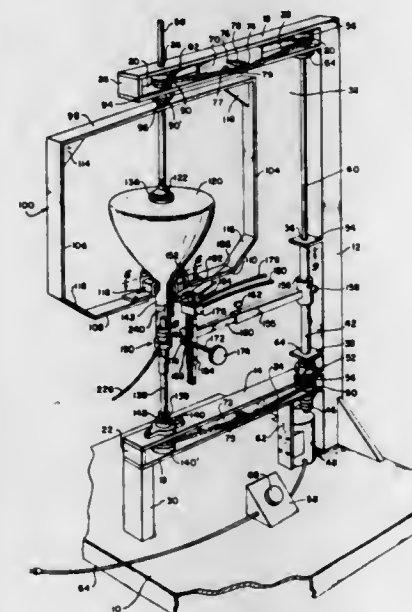
Henry F. Holz, 7234 N. Claremont, Chicago, Ill.

Filed June 30, 1969, Ser. No. 837,770

Int. Cl. H01J 9/50

U.S. Cl. 316-28

12 Claims



A device for holding and rotating a cathode-ray tube upon a true axis during the rebuilding of the tube including self-aligning mandrel members driven by slack-free chains carrying a reinforced tube saddle, with automatic compensation for tube misalignment, and radial two-directional microadjustment tool-mounting means for renecking the tube and installation of a new electron gun.

3,594,060

HIGH-SPEED HOLOGRAPHIC CAMERA

Michael Anthony Lowe, Basingstoke, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Sept. 2, 1969, Ser. No. 854,411

Claims priority, application Great Britain, Sept. 6, 1968,

42650/68

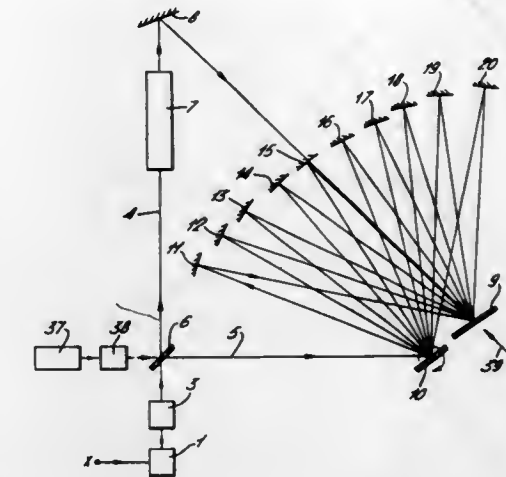
Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

9 Claims

This invention provides apparatus for producing successive three-dimensional images of high-speed events, e.g. stages of an explosion. A pulsed beam of laser light is divided into a reference and an object beam. The reference beam is reflected by a high-speed rotating mirror to a succession of fixed mirrors from which it is reflected on to a fixed photograph plate. The object beam, after reflection from or transmission through the high-speed event, is also reflected on to the plate. The pulsed laser beam is synchronized with the position of the rotating mirror by means of a continuous light beam which is reflected from the rotating mirror to a photodetector associated with each of the fixed mirrors, the

laser being triggered by outputs from the successive photodetectors. The result is a number of multiplexed holograms of the event on the plate. Three-dimensional images of its suc-



cessive stages can be viewed by substituting a continuous laser for the pulsed laser and viewing the developed plate while rotating the mirror slowly.

3,594,061

SIGHTING TELESCOPES WITH DISPLACEABLE EYEGUARDS

John James Selva, Romford, England, assignor to The Rank Organization Limited, London, England

Filed Apr. 10, 1969, Ser. No. 815,153

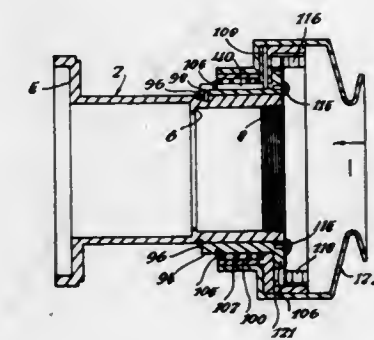
Claims priority, application Great Britain, Apr. 11, 1968,

17625/68

Int. Cl. G02b 23/16

U.S. Cl. 350-57

1 Claim



Light-obscuring means are provided for a telescope having internal illumination means to prevent the escape of such illumination through the eyepiece of the telescope except when an observer applies his eye to the eyepiece. In each of the examples given, an eye guard is displaceable when the observer presses his face against the eyepiece and this causes the movement of an obscuring device in the eyepiece away from a setting in which the light path through the eyepiece is closed. The eye guard and the obscuring device are subject to the action of a biasing member so that they return to their previous positions when the observer moves away from the eyepiece.

3,594,062

SIGHTING TELESCOPE WITH FLEXIBLE EYEGUARD

David Robert Disley, Harlow, England, assignor to The Rank Organization Limited, London, England

Filed Apr. 10, 1969, Ser. No. 815,152

Claims priority, application Great Britain, Apr. 11, 1968,

17625/68

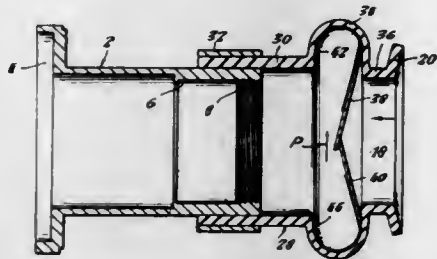
Int. Cl. G02b 23/16

U.S. Cl. 350-17

5 Claims

Light-obscuring means are provided for a telescope having internal illumination means to prevent the escape of such illumination through the eyepiece of the telescope except when an observer applies his eye to the eyepiece. In each of the examples given, an eye guard is displaceable when the observer presses his face against the eyepiece and this causes

the movement of shutter flaps that are attached to the eye guard away from a setting in which the light path through the eyepiece is closed. The eye guard is of a flexible material the



resilience of which returns it, and therefore also the shutter flaps to their previous positions when the observer moves away from the eyepiece.

3,594,063

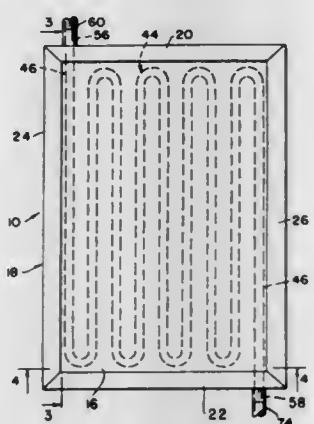
WATER-HEATED MIRROR

Charles M. Smillie, III, 4220 Iverness, Orchard Lake, Mich.
Filed Apr. 1, 1969, Ser. No. 812,155

Int. Cl. G02b

U.S. Cl. 350-61

1 Claim



The water-heated mirror includes a glass mirror panel having a conduit means on the reverse surface thereof in heat exchange relationship therewith through which hot water flows to elevate the temperature of the glass panel and prevent condensation of moisture on the reflecting surface thereof.

3,594,064

ENHANCED MAGNETO-OPTIC MIRROR APPARATUS

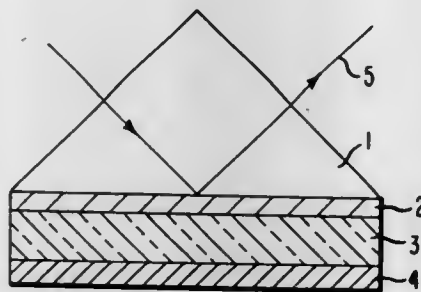
John David Bierlein, Wilmington, Del., and E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 25, 1969, Ser. No. 836,275

Int. Cl. G02l 1/18

U.S. Cl. 350-151

4 Claims

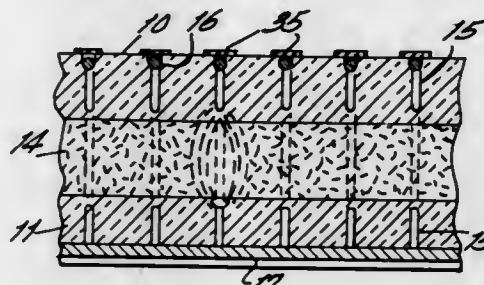


A transparent medium (usually a prism) having a magnetic mirror of a thin magnetic layer, a conversion matching dielectric layer, and finally a reflecting layer provides enhanced longitudinal Kerr effect convertivity with low ellipticity for reflected radiation. The magnetic mirror converts magnetic signals to signals of electromagnetic radiation and can be used for the optical readout of magnetic tapes.

3,594,065
MULTIPLE IRIS RASTER
Alvin M. Marks, 153-16 10th Ave., Whitestone, N.Y.
Continuation-in-part of application Ser. No. 567,456, July 25, 1966, now Patent No. 3,451,742. This application May 26, 1969, Ser. No. 834,929
Int. Cl. G02l 1/34

U.S. Cl. 350-160

12 Claims



A variable light-transmitting panel is described having plural spaced electrostatic control electrodes. The control electrodes can be selectively energized to show a picture or other desired graphic information by modulating transmitted light or by controlling selected areas to alter the reflection coefficient of light. The control electrodes are mounted adjacent to a thin layer of nonconductive liquid containing a large number of minute crystal dipoles. The opaque portions of the raster are due to the random distribution of the dipoles caused by Brownian motion of the fluid molecules. Application of an electric field by the electrodes produces an alignment of the dipoles and permits the passage of light. A small mask may be positioned over each electrode area to block out any light produced by voltages below a threshold voltage.

3,594,066

OPTICAL OBJECTIVES OF VARIABLE EQUIVALENT FOCAL LENGTH

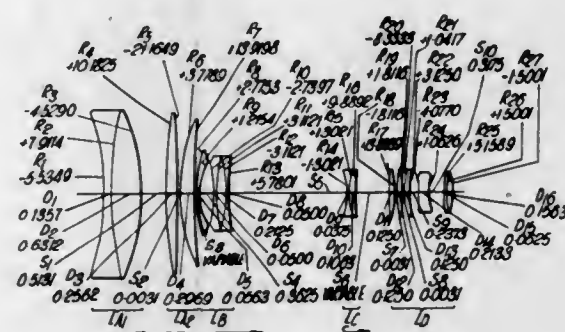
Gordon H. Cook, Oadby, and Peter A. Merigold, Thurnby, both of, England, assignors to The Rank Organization Limited, London, England

Continuation of application Ser. No. 312,669, Sept. 30, 1963, now abandoned. This application Aug. 23, 1968, Ser. No. 758,180

Int. Cl. G02b 15/18

U.S. Cl. 350-186

32 Claims



An optical objective of the zoom type having a front member which for a given object position remains stationary during the zooming relative movements, an assembly located behind the front member and incorporating the members of the objective movable for zooming purposes, and a stationary rear member, wherein the front member is divided into front and rear portions and focusing to suit different object positions is effected by axial movement only of the rear portion of the front member, the stationary front portion of the front member being approximately afocal (that is having an equivalent focal length numerically greater than $4 f_1$, where f_1 is the equivalent focal length of the complete front member for an infinitely distant object) and including a divergent element and a convergent element, whilst the rear portion of the front member is convergent and has an equivalent focal length between $0.75 f_1$ and $1.25 f_1$.

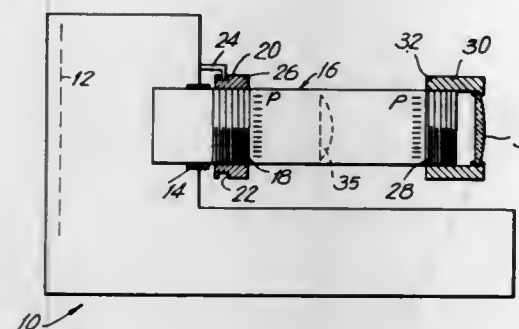
**3,594,067
VARIABLE FOCAL LENGTH OBJECTIVE FOR ROTARY CAMERAS**

Paolo Garbati, Via Sonnino 37, Cagliari, Italy
Continuation-in-part of application Ser. No. 543,145, Apr. 18, 1966, now abandoned. This application June 18, 1969, Ser. No. 834,315

Int. Cl. G02b 15/18

U.S. Cl. 350-186

13 Claims



A lens for a rotary or panoramic camera. The lens includes a pair of optical systems at least one of which is movable along their common optical axis with respect to the other, so as to provide a lens of variable focal length. The entire lens is also adjustable along the optical axis for focusing purposes. A manually operable adjusting structure is provided for adjusting the lens, and this adjusting structure includes graduations indicating different object distances. The adjusting structure provides for each object distance a given focal length, so that the focal lengths and object distances have a predetermined relationship with respect to each other. This relationship provides for any selected object distance a focal length which will prevent movement or creeping of the image with respect to the film which receives the image.

3,594,068

SHOCK ABSORBER FOR ADJUSTABLE OPTICAL COMPONENTS

Lothar Kirstein, Bad Kreuznach, and Gerd Kunz, Biebelshelm, both of, Germany, assignors to Fa. Jos. Schneider & Co., Optische Werke, Kreuznach, Bad Kreuznach, Germany

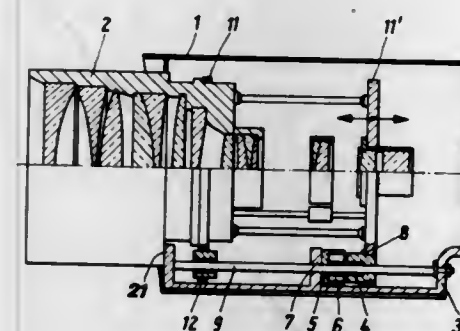
Filed Mar. 26, 1969, Ser. No. 810,639

Claims priority, application Germany, Apr. 4, 1968, P 17 72 142.5

Int. Cl. G02b 7/04

U.S. Cl. 350-255

1 Claim



A hydraulic or pneumatic bumper is interposed between a slidable lens assembly and a support therefor to cushion the impact in a terminal position of the displacement stroke.

3,594,069

INTEGRAL REAR VIEW MIRROR FACE SHIELD

Warren L. Harvey, P. O. Box 622 W. Main St., Mendham, N.J.

Filed Feb. 18, 1969, Ser. No. 800,095

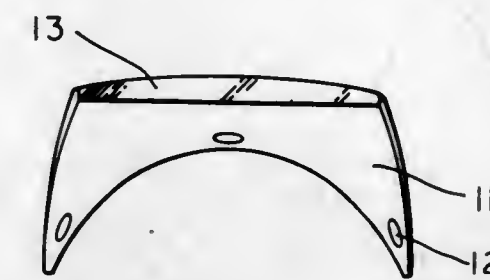
Int. Cl. G02b 7/18

U.S. Cl. 350-298

1 Claim

A one piece rear view mirror face shield as used with a protective helmet. The mirrored surface is positioned below

the eye level of the user and is substantially the same width as the face shield permitting a practical focal length within a



relatively clean aerodynamic and compact configuration by utilizing a rearward line of sight below the maximum width of the protective helmet.

3,594,070

LIGHT AND/OR HEAT RECEPTIVE PANELS

William A. Whitehead, 5 Osterley Park Road, Southall, England

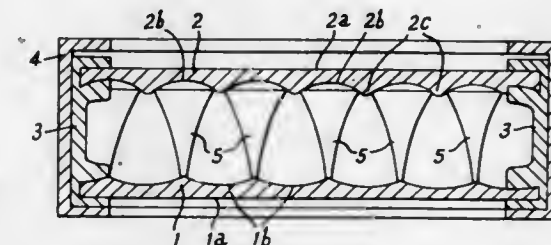
Filed Nov. 22, 1968, Ser. No. 778,216

Claims priority, application Great Britain, Nov. 30, 1967, 54605/67

Int. Cl. G02b 17/00

U.S. Cl. 350-260

14 Claims



A radiation receptive panel which has a first radiation receptive surface and a second radiation receptive surface which are so related to one another wherein radiation passing through the panel in one direction is much greater than the radiation which can pass in the opposite direction. This may be accomplished by providing the panel with a first radiation receptive surface and a second radiation receptive surface which is small in area in relation to the first surface, and the panel being constructed to focus radiation incident on the first surface towards a focal point adjacent the second surface.

3,594,071

OPHTHALMOSCOPIC CAMERA

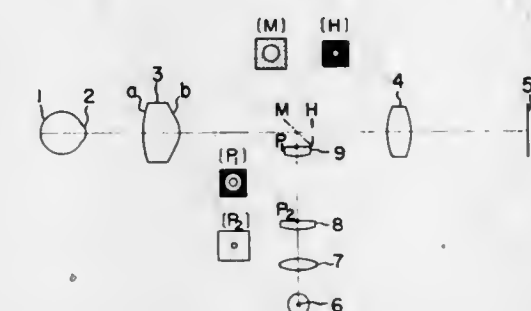
Hirokazu Okajima, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Oct. 7, 1969, Ser. No. 864,327

Int. Cl. A61b 3/14; G03b 19/02; A61b 3/10

U.S. Cl. 351-7

2 Claims



An ophthalmoscopic camera is provided which can eliminate undesired light reflected from the cornea of an eye to be examined and the front and back surfaces of a front objective through which the illumination light passes by interposing a ring-shaped aperture between a plane reflecting mir-

ror and a condenser lens arranged next to the reflecting mirror and a small shield between said condenser lens and the next condenser lens so as to shield a small area in the vicinity of and including the optical axis. The optical system for photography includes no such shield as described above and said photographic objective is of biconvex, thereby increasing the picture angle to 45°

3,594,072

HEAD-HOLDING FIXTURE FOR USE WITH VISUAL INSTRUMENTS

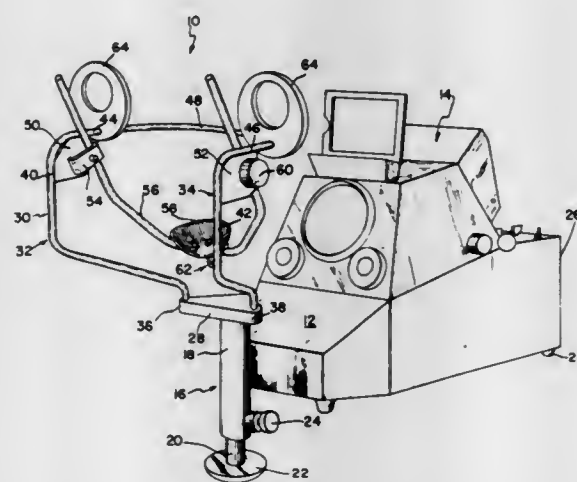
James E. Feather, Natick, and Jens Duborg, Pinehurst, both of Mass., assignors to Biometrics, Inc., Cambridge, Mass.

Filed Dec. 4, 1969, Ser. No. 882,233

Int. Cl. A61b 3/00

U.S. Cl. 351-38

5 Claims



A head-holding fixture for use with visual instruments including a frame with a laterally extending bar for engaging the forehead and a moveable chin support for pivoting the head about the laterally extending bar and/or changing the head elevation with respect to it so as to provide both height and tilt adjustment.

3,594,073

SPECTACLE HINGE

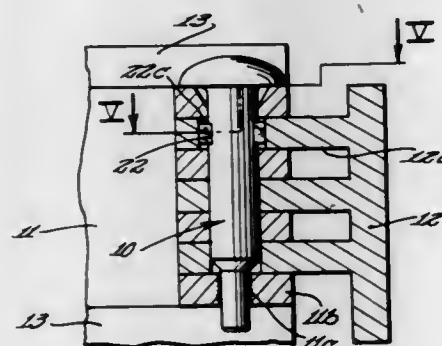
John N. Liautaud, Glenview, Ill., assignor to Fendall Company, Chicago, Ill.

Filed July 9, 1969, Ser. No. 840,426

Int. Cl. G02c 5/22

U.S. Cl. 351-141

6 Claims



A spectacle hinge incorporating interleaved hinge members and a hinge pin passing pivotally therebetween wherein the hinge pin is provided with projecting means providing an interlocking relationship with one of the hinge members in normal positions of spectacle operation or storage in a manner preventing inadvertent hinge disassembly.

3,594,074

CONTACT LENS WITH FLEXIBLE CENTRAL PORTION

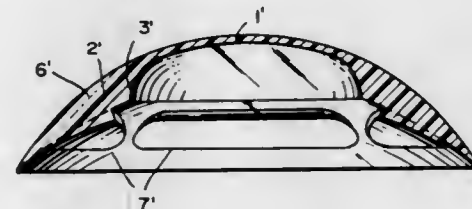
Hyman Rosen, Hewlett, N.Y., assignor to Alexander Mencher, Forest Hills, N.Y., a part interest

Continuation-in-part of application Ser. No. 564,268, July 11, 1966, now Patent No. 3,468,602. This application June 16, 1969, Ser. No. 833,611

Int. Cl. G02c 7/04

U.S. Cl. 351-160

2 Claims



The invention relates to the structure of a yieldable and resilient corneal contact lens having a central and domed area capable of relative and substantial diaphragmatic action without contacting the eye and responsive to exertion and release of pressure induced by eyelid movement. Said lens has an outer peripheral area engageable with the eye and is provided with channels on the inner side to permit ingress and egress of eye or tear fluids to and from said domed area which latter serves as a fluid chamber. An intermediate thickened or reinforced peripheral area connected to the edge of the domed area serves as the support or fulcrum for the diaphragmatic action of the domed area and also serves to connect with the outer peripheral engageable area adapted to float on and adhere to the eye proximate to the cornea.

3,594,075

BIFOCAL OPHTHALMIC LENS

David Jean Smith, 3925 Tall Pines Drive, New Orleans, La.

Filed Oct. 14, 1968, Ser. No. 767,454

Int. Cl. G02c 7/06; G02b 5/04

U.S. Cl. 351-172

3 Claims



An optical device comprising a body formed of two sets of alternately disposed light-transmitting laminar sections through which light from a common optical field is directed, the two sets of sections having different optical characteristics. In one form of the device, the first set of laminations comprises a lens of long focal length and the other set of laminations comprises a lens of long focal length whereby the optical device constitutes a bifocal lens. In another form of the optical device, the two sets of laminations constitute sections of prisms having different optical characteristics so that the images of objects in the field of view of the device are transmitted in different directions.

3,594,076

AUDIO-SLIDE PROJECTOR

Gunars Licitis, Lombard; Norman Kramer, Chicago; Marvin I. Glass, Chicago, and Harry Disko, Parks Ridge, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed June 10, 1968, Ser. No. 735,804

Int. Cl. G03b 31/06

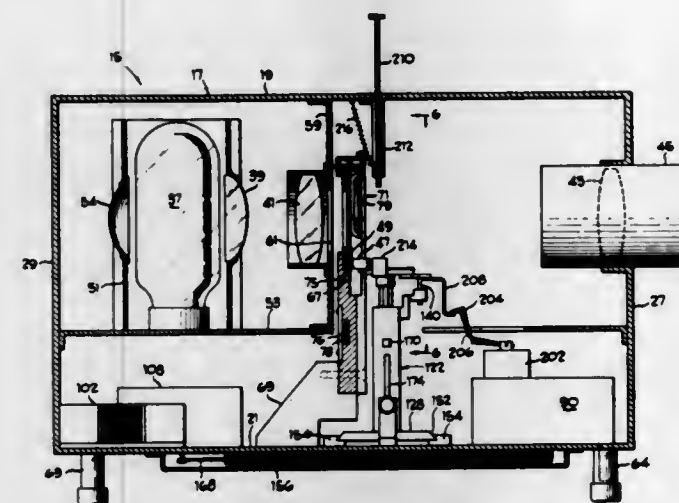
U.S. Cl. 353-19

2 Claims

A slide projector for projecting individually mounted transparencies and including means for recording and reproducing

a sound message on the transparency mounting. The transparency is mounted on a frame of cardboard or the like and a marginal portion of the mounting frame includes a strip of magnetic recording tape. The projector includes a recording

slide after it passes through such discharge opening and holds the slide over the gate in readiness for dropping therein.



and playback unit having a pickup and recording head portion positioned for movement laterally and vertically with respect to the position of the magnetic tape when a mounted transparency is in position for projection.

3,594,077

MULTIPLE PROJECTOR SYSTEM WITH SINGLE SOUND SOURCE

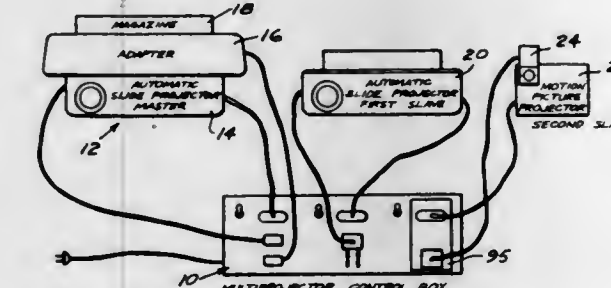
Raymond Marquis, Plainville, Conn., and Edward K. Kaprellan, Mendham, N.J., assignors to The Kalart Company Inc., Plainville, Conn.

Filed June 24, 1968, Ser. No. 739,293

Int. Cl. G03b 21/00

U.S. Cl. 353-94

13 Claims



A multiple projector system including a master projector such as a sound slide projector and one or several slave projectors such as slide projectors or motion picture projectors, and in which the master projector and the slave projectors share adjustably programmed projection time and playback time as controlled by a control system.

3,594,078

STACK-TYPE SLIDE CHANGER FOR USE WITH A SLIDE DISPLAY DEVICE HAVING A GATE OPEN AT THE TOP THEREOF

Walter J. Hall, Evanston, Ill., assignor to GAF Corporation, New York, N.Y.

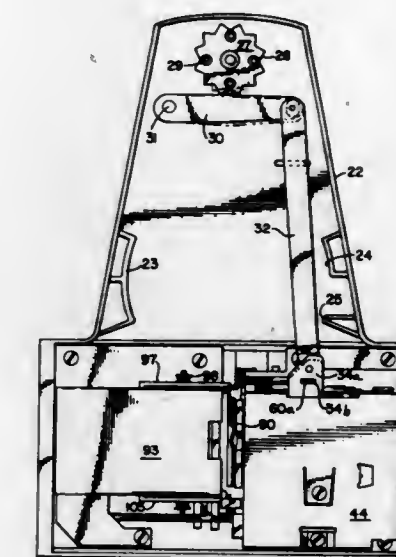
Filed Mar. 12, 1969, Ser. No. 808,039

Int. Cl. G03b 23/02

U.S. Cl. 353-111

13 Claims

A slide loader is mounted over a vertical projection gate open at the top thereof. The slide loader includes supply and takeup magazines for supporting slides in face-to-face contact. A pair of members engage edge portions of the foremost slide in the supply magazine for rocking such slide to separate the same from the adjacent slide and to orient such foremost slide with a discharge opening at the outlet end of the supply magazine. A shiftable plate receives the foremost



Upon movement of this plate to a release position, the foremost slide is allowed to drop into the projection gate.

3,594,079

BOOK COPIER WITH MOVABLE CARRIER

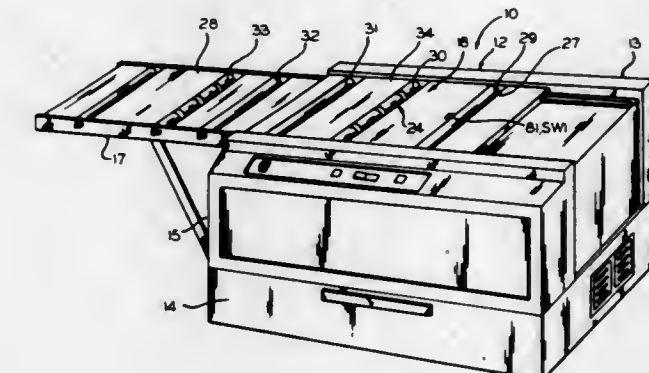
Karl M. Murgas, Lincolnwood; Burton Greenberg, Chicago, and Otto Anthony Clark, Chicago, all of Ill., assignors to ICP Inc., Skokie, Ill.

Filed July 18, 1968, Ser. No. 745,822

Int. Cl. G03g 15/00

U.S. Cl. 355-8

5 Claims



A book copier machine having a carrier on which a book is positioned. A drive roller contacting the carrier moves the carrier in one direction from a first end toward a second end so that a page is reproduced as it moves past a scanning window, and reversing means reverses the direction of rotation of the drive roller when the carrier reaches the second end, to cause the carrier to move back toward said first end.

3,594,080

METHOD AND APPARATUS FOR DIGITAL COLOR PRINTING

Larry Max McMillin, Jefferson, Iowa, assignor to Allied Research Associates, Inc., Concord, Mass.

Filed Jan. 3, 1969, Ser. No. 788,846

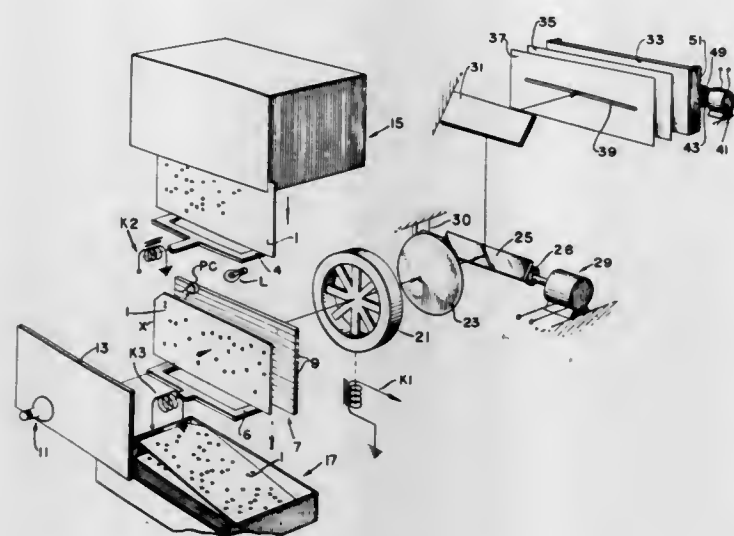
Int. Cl. G03b 27/76

U.S. Cl. 355-36

6 Claims

A method of recording a color image utilizing information signals in digital form. The digital signals give information for a line of the image to be recorded. Under the control of these information signals, different colors are sequentially recorded through a line mask upon color film, each sequence corresponding to a digital encoding of the distribution of the corresponding color along the line in the image being

recorded. The apparatus for practicing the method includes punchcard-scanning means for producing digital-coded motor controlled by a circuit including a manually actuated



colored light signals and distributing the appropriate colored light upon a photographic emulsion.

3,594,081

ADJUSTABLE ILLUMINATING DEVICE

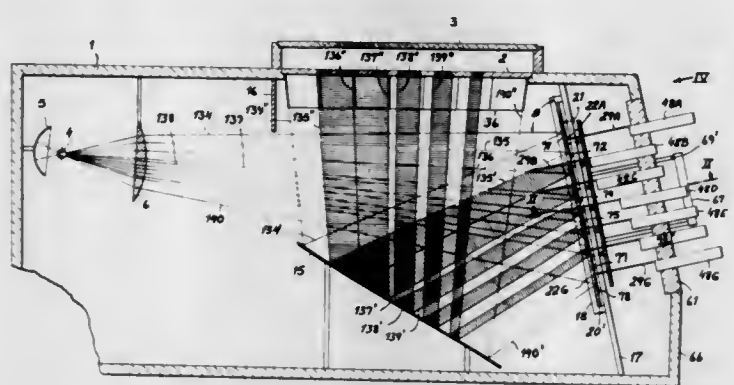
Werner Tschink, Nassauische Str. 4, 1 Berlin, 31, Germany

Filed Nov. 4, 1968, Ser. No. 773,083

Int. Cl. G03b 27/70

U.S. Cl. 355-67

17 Claims



An illuminating device, particularly for photographic copying and enlarging, includes a multiplicity of striplike, relatively inclined mirrors for the reflection of a light beam onto a translucent window. The mirrors divide the beam into a multiplicity of ray bundles which can be selectively intercepted, in whole or in part, by individual light shields interposable in their path; a plurality of such shields are disposed in closely adjoining or overlapping relationship between any pair of adjacent mirrors to intercept rays incident upon one mirror and rays reflected by the other mirror of the pair.

3,594,082

SLIDE CHANGER FOR AN OVERHEAD PROJECTOR

Thomas M. Lonchar, 237 Holmes Drive, Fairborn, Ohio

Filed July 31, 1969, Ser. No. 846,489

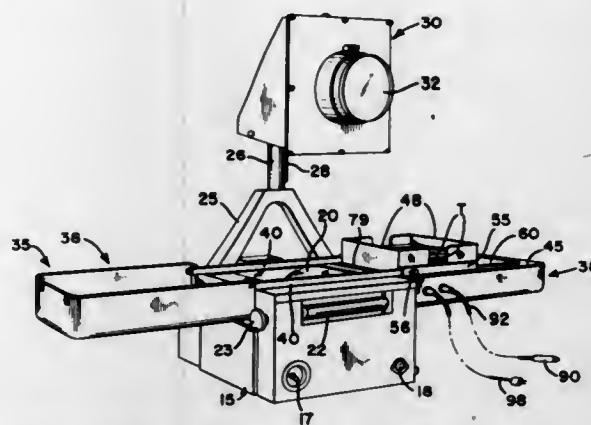
Int. Cl. G03b 23/02, 1/48

U.S. Cl. 353-113

8 Claims

A slide changer attachment includes mating case sections pivotally connected by slidable adjustable arms which provide for selectively mounting the attachment on various overhead slide projectors of different widths. An intermediate panel is mounted one of the case sections and supports a sliding feed plate adjacent the bottom of a hopper. The feed

plate is connected to an endless belt driven by a reversible motor controlled by a circuit including a manually actuated



switch, a set of limit switches and a relay to effect automatic reciprocation of the feed plate.

3,594,083

SPECTROMETER

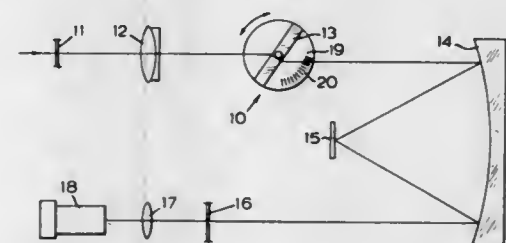
Anthony Rene Barringer, Willowdale, Ontario, Canada, assignor to Barringer Research Limited, Rexdale, Ontario, Canada

Filed July 7, 1969, Ser. No. 839,718

Int. Cl. G01j 3/42, 3/06

U.S. Cl. 356-83

9 Claims



A scanning spectrometer having means for scanning entrance slit images across an exit slit. A predetermined spectrum is recorded photographically or magnetically, and means synchronized with the scanning means is provided for obtaining correlation signals from the recorded spectrum. The correlation signals are precisely synchronized with the scanning means, and are used for correlation with the light passing through the exit slit.

3,594,084

MONOCHROMATOR APPARATUS HAVING IMPROVED GRATING ROTATION MEANS

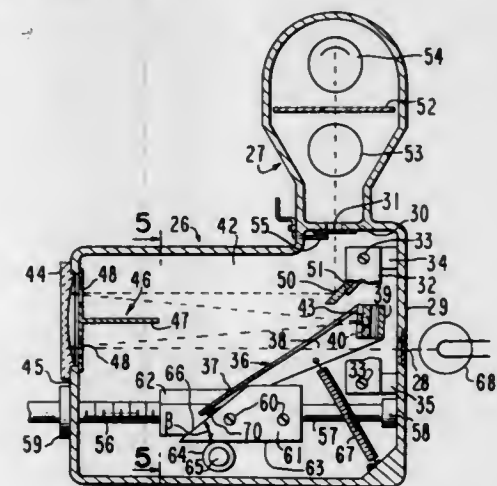
George K. Turner, Palo Alto, Calif., assignor to G. K. Turner Associates, Palo Alto, Calif.

Filed Aug. 1, 1969, Ser. No. 846,796

Int. Cl. G01j 3/06, 3/18

U.S. Cl. 356-100

2 Claims



A diffraction-grating-type monochromator apparatus having an improved apparatus for rotating the grating is described. The grating is fixedly mounted at the pivot of a follower arm which is pivoted by an arm bearing portion engaging the sloped surface of a wedge-shaped bearing member

driven in a direction at an acute angle to the plane of the sloped surface. The wedge-shaped member is a solid wedge or a member in which the acute angle between the sloped surface and the direction of the drive is adjustable.

3,594,085

ELLIPSOMETRIC METHOD AND DEVICE

Ingo Goetz Wilmanns, La Celle Saint Cloud, France, assignor to Centre National De La Recherche Scientifique, Paris, France

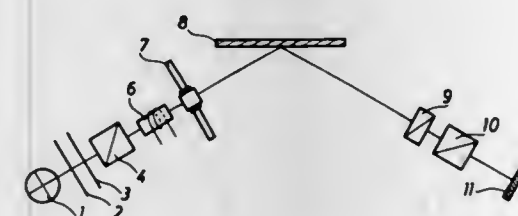
Filed Aug. 28, 1968, Ser. No. 755,965

Claims priority, application France, Aug. 31, 1967, Mar. 22, 1968, 119,567; 145,044

Int. Cl. G01b 11/26; G02f 1/18

U.S. Cl. 356-114

6 Claims



An ellipsometric device and method for applying a phase modulation and a polarization direction modulation to a beam of light at two different frequencies and using a polarized parallel monochromatic light beam, a polarization modulator, a phase modulator, and means to angularly displace with respect to each other, an assembly having on one hand a beam polarizer phase and azimuth modulator and on the other hand the sample, an equalizer, analyzer and photoreceiver.

3,594,086

COLORIMETER USING INTERCHANGEABLE METER FACE MEMBERS

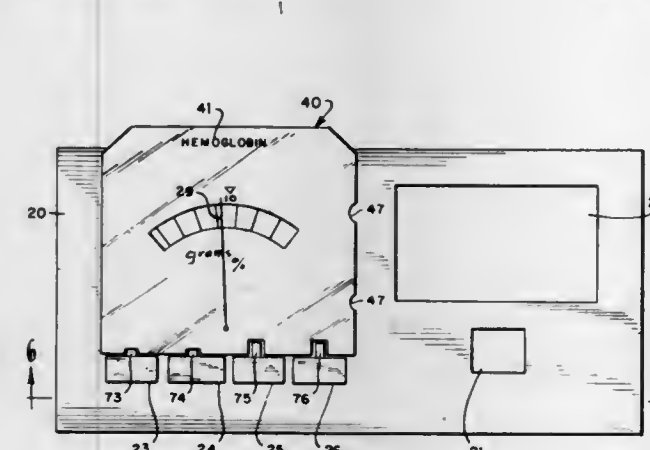
Leonard A. Hughes, 1526 Mountain Blvd., Oakland, Calif.; Willard Tressel, 667 Cragmont Avenue, Berkeley, Calif.; and Evan R. Flavell, 3200 Shattuck Avenue, Berkeley, Calif.

Filed Oct. 1, 1968, Ser. No. 764,190

Int. Cl. G01j 3/48

U.S. Cl. 356-186

4 Claims



A colorimeter which, as one unit of instrumentation, quantitatively analyzes individual test samples of biologic materials for medical purposes according to any one of a presently substantial and prospectively expandable number of different qualitative assays. The instrumentation features a single unscaled meter with an indicator, a set of interchangeable dials that provide both scales for different assays to the meter and switch actuators for automatic selection of photocells for different assays, a constant temperature environment for the photocells, and light distribution by fiber optics. The meter and its indicator are calibrated to a midscale value representing a physiologically significant value of an assayed material. The unit also has a timer and constant temperature wells for preparation of test samples.

3,594,087

OPTICAL DENSITOMETER WITH RETROREFLECTIVE MEANS

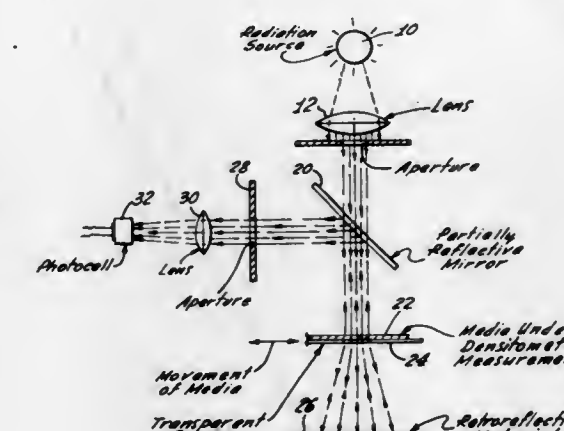
Victor Eduardo Vasquez Miranda, Huntington Beach, Calif., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Nov. 6, 1969, Ser. No. 874,556

Int. Cl. G01n 21/30

U.S. Cl. 356-203

4 Claims



An improved optical densitometer is provided for measuring the varying optical densities of a photographic film, or equivalent media, along the length of the media, and which includes retroreflective means for compensating for irregularities in the surface of the media which would otherwise affect the precision of the optical density readings.

3,594,088

OPTIMUM OR UNDER OR OVER EXPOSURE-INDICATING DEVICE FOR USE IN PHOTOGRAPHY

Hideaki Aklyama, and Tadayuki Imal, both of Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

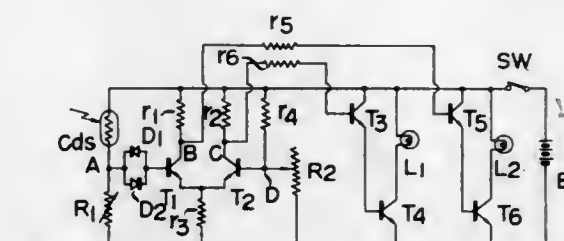
Filed Jan. 29, 1969, Ser. No. 794,962

Claims priority, application Japan, Feb. 10, 1968, 43/8296

Int. Cl. G01j 1/44, 1/42

U.S. Cl. 356-226

2 Claims



An optimum or under or over exposure-indicating device for use in photography in which a differential amplifier is actuated in response to the balance or unbalance of a bridge circuit having one arm thereof composed of a photoconductive member for photometry, whereby both or either of two lamps is lighted for indication of optimum or under or over exposure.

3,594,089

SEAM SEALER APPLICATOR

William H. Powell, Livingston, and Newton S. Foster, Rutherford, both of N.J., assignors to Congoleum Industries, Inc., Kearny, N.J.

Filed July 16, 1969, Ser. No. 842,225

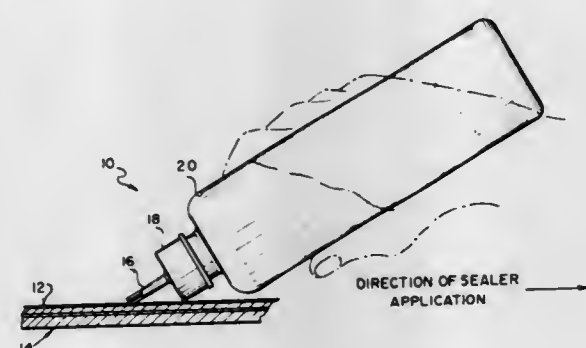
Int. Cl. B43m 11/06

U.S. Cl. 401-9

9 Claims

A shaped implement through the end of which fluid sealer is dispensed has an element for parting adjacent abutting

edges of sheet floor covering along a seam immediately ahead of the dispensed sealer fluid, there also being elements



to control the vertical penetration depth of the implement between said sheet covering abutting edges.

3,594,090
PENCIL

Keith T. Bleuer, 1663 Wilshire Drive N.E., Rochester, Minn.
Filed Sept. 30, 1969, Ser. No. 862,297
Int. Cl. B43k 21/12

U.S. Cl. 401-70

11 Claims



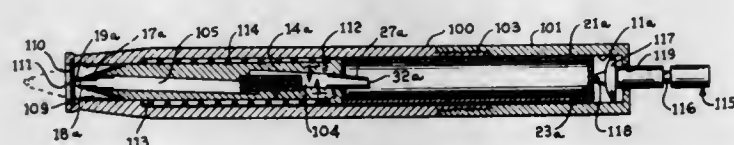
A lead pencil having a core element providing a longitudinal duct through which sticks of writing lead may travel, a slider member disposed on the core element and having a lever portion disposed in a longitudinal slot in the core element and pivoted at a place intermediate its ends, a rotatable sleeve having a helical slot in it for receiving a part of the lever portion for moving the lever portion, while engaging a lead stick, forwardly in the duct and being of reduced width on its forward end so as to force the lever portion out of the slot, and a spring for returning the slider member and lever portion to initial positions.

3,594,091
PEN

Keith T. Bleuer, 1663 Wilshire Drive N.E., Rochester, Minn.
Filed Jan. 29, 1969, Ser. No. 794,913
Int. Cl. B43k 5/16, 7/12

U.S. Cl. 401-107

5 Claims

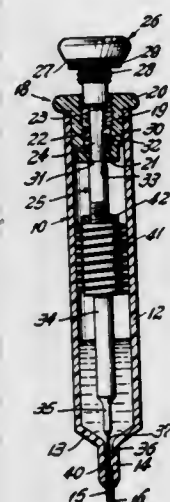


A ballpoint pen using liquid ink including a pen housing, an ink cartridge, and ball-carrying plunger assembly reciprocally movable in the housing so that the ball and assembly may be moved forwardly to protrude from the housing, a disc of rubberlike material having a central perforation therethrough and located internally and at the forward end of the housing through which the ball and assembly may be moved and forming an ink seal when the ball and assembly is in retracted position in the housing, and selectively operable means at the other end of the housing for selectively moving the cartridge and ball assembly forwardly in the housing and holding it in such a position.

3,594,092
DRAFTING PEN
Carlton M. DiCarlo, 3 Station Road, Madison, N.J.
Filed Mar. 6, 1969, Ser. No. 804,810
Int. Cl. B43k 1/10

U.S. Cl. 401-258

6 Claims

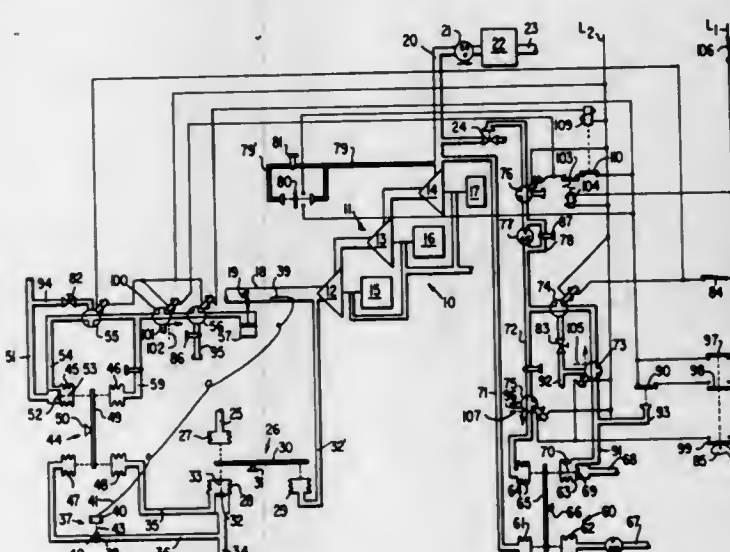


A reservoir drafting pen comprising a barrel having an ink storage portion and a tubular pen point at one end communicating therewith and an inner member having a stem capable of reciprocation and having a needle adapted to clean the tubular pen point and having a control member providing a novel vent and ink leakage control means, including a helical thread, for the pen. The drafting pen is easy to construct and assemble, easy to fill and clean or change the color of ink, cannot bleed through the tubular tip, and provides a uniform flow of ink.

3,594,093
OPERATION OF GAS COMPRESSION APPARATUS
Nick Lukacs, Adamsburg, Pa., assignor to Carrier Corporation, Syracuse, N.Y.
Filed July 31, 1969, Ser. No. 846,567
Int. Cl. F01b 25/00; F04b 49/00

U.S. Cl. 415-15

4 Claims

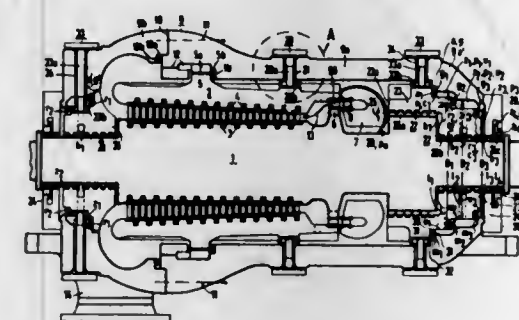


A control system for regulating operation of a gas compression apparatus, selectively operable on either base mode or on intermittent mode. The control system includes a solenoid valve having a first operating position and having a second operating position. The solenoid valve, when in its first operating position, is operable to transmit a predetermined control signal operable to position an inlet valve regulating flow of gas to the compressor at approximately 30 percent of its fully open position and in its second operating position, is operable to transmit a varying control signal, operable to modulate the inlet valve at any operating position, depending upon the temperature and pressure characteristics of the gas entering the compression plant.

3,594,094
SHAFT SEAL WITH AXIAL LABYRINTH FOR TURBOMACHINES
Wilhelm Engelke, and Axel Remberg, both of Mulheim-Ruhr, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Dec. 2, 1969, Ser. No. 881,442
Claims priority, application Germany, Dec. 3, 1968, P 18 12 492.0
Int. Cl. F01d 11/02

U.S. Cl. 415-111

17 Claims



Shaft seal for turbomachines includes a cylindrical shell having a diameter greater than the shaft, labyrinth seals axially disposable in the clearance between the shell and the shaft, and mounting means for holding the shell coaxially to the shaft formed of annular surfaces at the shell periphery extending perpendicularly to the shell axis and being retainable against stream pressure from an interior space of the turbomachine by corresponding surfaces formed on a surrounding part of the turbomachine, the shell surfaces being axially spaced from one another and having annular intermediate chambers located between successive sealing rings in the axial direction, the intermediate chambers being subjectable to pressure intermediate the pressures in the interior and exterior of the turbomachine for attaining a decreasing pressure staging from interior to exterior of the turbomachine, the labyrinth chambers of the labyrinth seals axially spaced a distance from the turbomachine interior corresponding to the distance of the intermediate chambers therefrom being connected by a pressure-equalizing channel to the respective intermediate chambers.

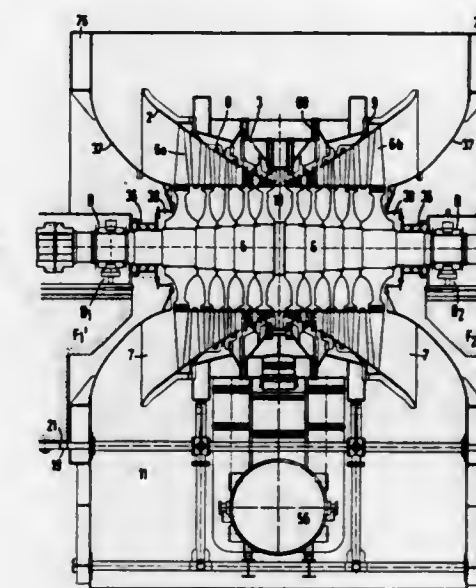
3,594,095
CASING FOR LOW-PRESSURE STAGES OF STEAM TURBINES OF COMPLETELY WELDED MULTISHELL CONSTRUCTION
Werner Trassel; Helmut Maghon; Wilhelm Engelke, and Walter Klamet, all of Mulheim-Ruhr, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Munich, Germany
Filed Dec. 2, 1969, Ser. No. 881,446
Claims priority, application Germany, Dec. 3, 1968, P 18 12 487.3
Int. Cl. F01d 1/24

U.S. Cl. 415-60

16 Claims

Housing assembly for low-pressure parts of steam turbines includes housing for the individual turbine parts mounted on foundation support independently of one another, the underportions of a respective outer housing of a turbine part being connected in the vicinity of an axial partial joint of the outer housing and at both longitudinal sides thereof with longitudinal support frame forming integral housing components and being mounted by ends of the longitudinal support frames, projecting beyond the faces of the outer housing on the foundation support, the outer housing at one face thereof being axially fixedly and horizontally displaceably mounted on support locations of the longitudinal support frame and at

the other face thereof being both axially and horizontally displaceably mounted on support locations of the longitudinal

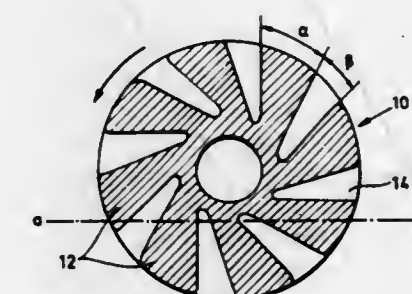


support frame, the outer housing being heat-expansibly movable in axial direction thereof.

3,594,096
COMBINED CARRYING AND DRIVING DEVICE FOR WATERCRAFTS
Eywin Scharffenberg-Kahlke, Karlsro, Lidingo, Sweden, assignor to Eywin, Scharffenberg-Kahlke Karlsro, Lidingo, Sweden
Filed Sept. 19, 1968, Ser. No. 760,837
Claims priority, application Sweden, Sept. 26, 1967, 13196/67
Int. Cl. B63h 5/02

U.S. Cl. 416-84

1 Claim



A marine craft having frame means and rotary means rotatably supported on the frame means for propelling and providing the sole buoyant support for the marine craft. The rotary means includes a plurality of rotatable drumlike members having a plurality of outwardly extending vanes. The vanes have a volume adjacent the outer ends thereof substantially greater than the volume of the vanes adjacent the inner ends thereof whereby the vanes thus provide maximum buoyancy while permitting propulsion of the vehicle when disposed in water.

3,594,097
VARIABLE PITCH PROPELLER OR ROTOR
Rene Mouille, Aix-en-Provence; Charles Tresch, Egulles, and Daniel Mao, Marseille, all of France, assignors to Sud-Aviation, Societe Nationale De Constructions Aeronautiques, Paris, France
Filed July 3, 1969, Ser. No. 838,798
Claims priority, application France, July 11, 1968, 158,807
Int. Cl. B63h 1/20; B64c 27/44

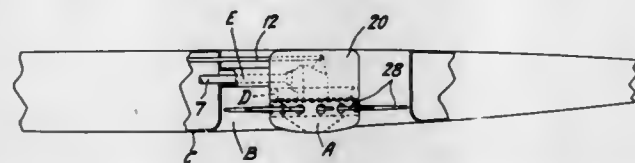
U.S. Cl. 416-104

2 Claims

The invention is concerned with a root for the blade of a

variable pitch rotor, usually the drive torque compensating rotor for a helicopter. The root has a cylindrical portion

dowels engaging in pairs of registering holes in the boss and the blade root, a number of different sets of holes being provided to give different pitch settings.



slidable and rotatable in a plastic sleeve partially embedded in a hub.

3,594,098

FAN WITH WEIGHTED FLEXIBLE BLADES

Shrinivas V. Pratinidhi, Chatham, Ontario, Canada, assignor to Fram Corporation, East Providence, R.I.

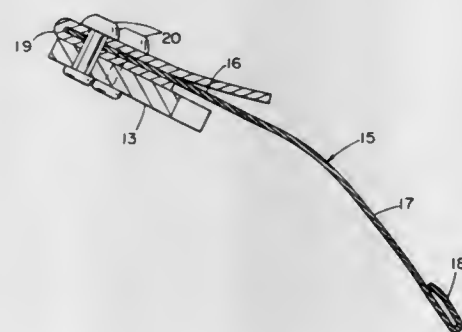
Filed Sept. 15, 1969, Ser. No. 857,849

Claims priority, application Great Britain, Feb. 28, 1969, 11018/69

Int. Cl. F04d 29/38

U.S. Cl. 416—132

3 Claims



An automotive fan having flexible curved blades of resilient material which decamber as rotational speed increases in which an integral portion of each blade, having a mass of the order of 2 percent to 40 percent, preferably 8 percent to 10 percent, of the remainder of the blade, extends continuously along substantially the entire trailing edge of the blade and is folded upon itself at the trailing edge on the upstream side of the blade, thereby rigidifying and weighting the trailing edge to reduce vibration and noise and to assist the decambering of said blade at a predetermined rate.

3,594,099

PITCH ADJUSTMENT IN SCREW-BLADED DEVICES, SUCH AS PROPELLERS

Colin Wray Herbert, Marske-by-sea, Redcar, England, assignor to The Glacier Metal Company, Limited, Alperton, Wembley, England

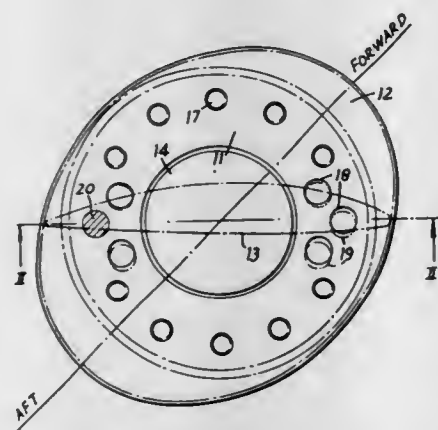
Filed Apr. 25, 1969, Ser. No. 819,255

Claims priority, application Great Britain, Apr. 29, 1968, 20258/68

Int. Cl. B63h 3/12

U.S. Cl. 416—207

3 Claims



A propeller having a boss to which are bolted fixed blades which can be located at the required pitch by means of

dowels engaging in pairs of registering holes in the boss and the blade root, a number of different sets of holes being provided to give different pitch settings.

3,594,100

ROTARY FUEL PUMP

Robert N. Penny, Solihull, England, assignor to The Rover Company Limited, Solihull, England

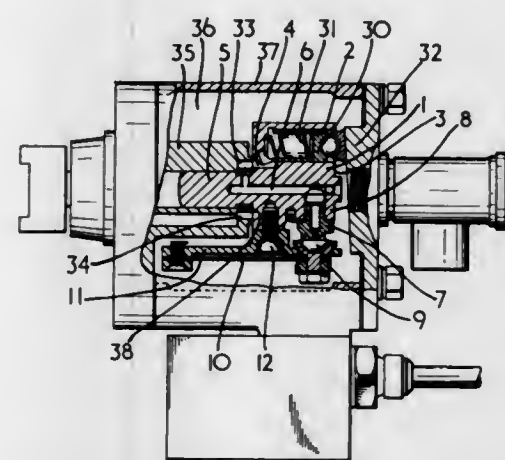
Filed Dec. 1, 1969, Ser. No. 881,164

Claims priority, application Great Britain, Dec. 19, 1968, 60,289/68

Int. Cl. F04b 1/12, 49/00; G05d 13/10

U.S. Cl. 417—270

7 Claims



A rotary fuel pump for supplying liquid fuel of the kind including a centrifugally operable spill valve operable to spill fuel back to pump inlet at a predetermined speed. When a pump of this kind is used to supply fuel to a gas turbine engine there may be a tendency for surging to occur when the pump and the engine are being accelerated prior to said spill valve opening. To reduce the tendency to surge, a second centrifugally operable spill valve is provided to open temporarily to reduce fuel delivery by the pump during acceleration prior to said spill valve opening.

3,594,101

REVERSE VALVE ASSEMBLY FOR FLUID-OPERATED DOWNWELL PUMPS

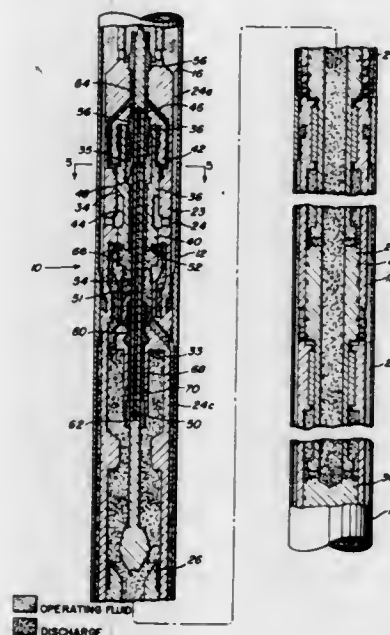
Peter S. Bloudoff, Whittier, Calif., assignor to Armco Steel Corporation, Middletown, Ohio

Filed Dec. 4, 1969, Ser. No. 882,022

Int. Cl. F04b 47/00; F01l 15/12

U.S. Cl. 417—403

18 Claims



A reverse valve assembly for fluid-operated downwell pumps comprising an elongated tubular valve spool, which is longitudinally disposed from the uppermost engine piston and mounted for reciprocal movement in the valve housing, and a longitudinal pilot rod attached to the uppermost engine

piston and extending through the valve spool. The valve spool is provided with lands thereon defining annuli communicating with operating fluid under pressure and with discharge, and the pilot rod is provided with interconnecting port means. As the pilot rod reciprocates, the signal for movement of the valve spool is provided through the port means and the area above the uppermost engine piston is alternately pressurized and exhausted, causing the engine to reciprocate.

3,594,102

WATER PUMP IMPELLER HAVING ELECTRICAL INSULATION AND CORROSION-PREVENTATIVE FEATURES

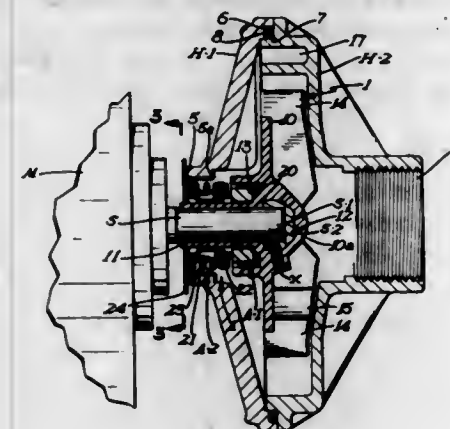
William A. Oden, Temple City, Calif., assignor to Domain Industries, Inc., New Richmond, Wis.

Filed Aug. 11, 1969, Ser. No. 848,829

Int. Cl. F04b 35/04; F16j 15/54

U.S. Cl. 417—423

4 Claims



An impeller for rotary water pumps and the like which through the provision of novel components and combinative relations with the driving shaft of an electric motor, inherently accomplishes two important new results, to wit:

1. The housing of the pump and all water passing therethrough are dielectrically insulated from the metal driving element of the motor.

2. The motor shaft, from its terminal point to an area outside of the pump housing, is entirely enclosed within a protruding sleeve carried by the impeller, thus preventing accumulation of rust or other corrosion as well as eliminating electrolytic buildup on the motor shaft.

3,594,103

SUBSURFACE PUMP AND METHOD

Glen L. Hillis, Gainesville, Tex., assignor to United States Steel Corporation

Filed Jan. 8, 1970, Ser. No. 1,473

Int. Cl. F04b 21/08, 47/00; E21b 43/00

U.S. Cl. 417—435

3 Claims



A subsurface pump and pumping method particularly for use in gassy oil wells to improve pumping efficiency and

avoid gaslocks. A body of relatively gas-free fluid is trapped during each upstroke of the pump plunger. Gassy fluid coming directly from the well blends with this body to produce a blended fluid having a lower proportion of gas. The plunger encounters the blended fluid on its downstroke.

3,594,104

MULTIPLE STAGE ROTARY ENGINE

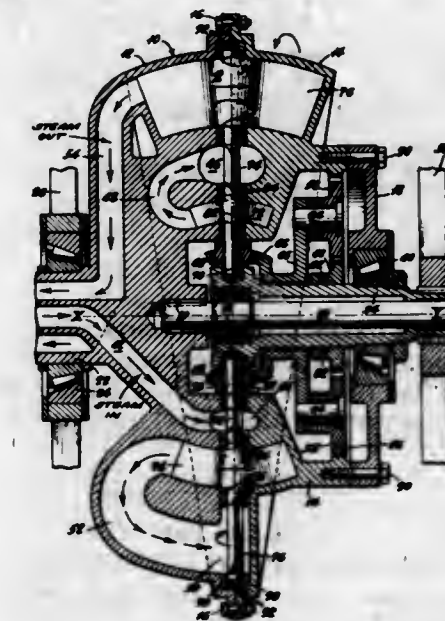
Jasper Speese, 59 Filbert St., Milton, Pa.

Filed Nov. 10, 1970, Ser. No. 88,466

Int. Cl. F01c 1/00, 1/30, 11/00

U.S. Cl. 418—6

10 Claims



An engine comprising a rotatable casing, a plurality of circumferentially disposed variable volume chambers in said casing, said chambers being serially interconnected and defining a plurality of stages in said engine, means for introducing a motive fluid to rotate said casing into the inner of said chambers, means to exhaust said motive fluid from the outer of said chambers, a plurality of vane holder shafts mounted in a support member disposed in said casing, each of said vane holder shafts having a vane disposed in each of said chambers, said vane holder shafts being rotatable about their axes and being nonrotatable about the axis of rotation of said casing, the sizes and configurations of said variable volume chambers and of said vanes being correlated so that upon rotation of said casing and rotation of said vane holder shafts about their axes the edges of said vanes are maintained in close proximity with the walls of said variable volume chambers, and power takeoff means operatively connected to said rotatable casing.

3,594,105

REVERSIBLE, VARIABLE SPEED, ROTARY CASING, ORBITAL GEAR ROTOR MOTOR

Eugene Richardson, Southfield, Mich., assignor to Lamina, Inc., Oak Park, Mich.

Filed June 23, 1969, Ser. No. 835,480

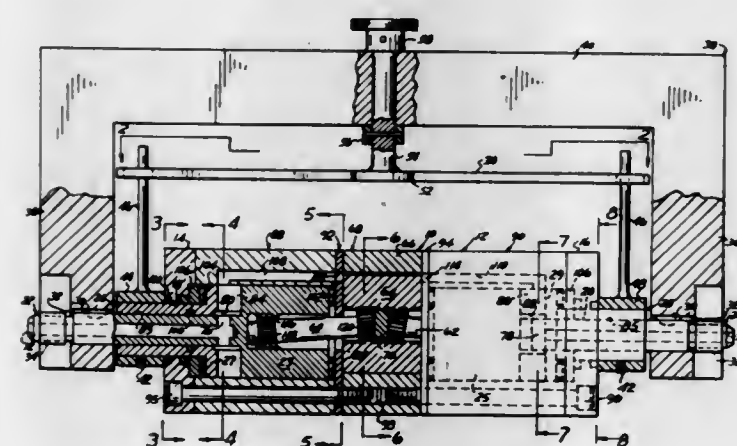
Int. Cl. F04c 1/02

U.S. Cl. 418—61

10 Claims

Axially spaced coaxial fluid inlet and outlet shafts are non-rotatably fixed to a supporting frame and have longitudinal fluid inlet and outlet passageways with transverse ports which communicate with cruciform transverse valve ports in inlet and outlet valve sleeves rotatably mounted on the inlet and outlet shafts with their corresponding ports rotated out of phase relatively to one another. Hubs secured to these inlet and outlet valve sleeves are mechanically connected to one another and to a control knob for rotation simultaneously relatively to one another in opposite directions from an aligned central neutral position to produce forward or reverse rotation of the casing. The inner ends of the shaft are provided with enlarged internally splined heads coupled to an externally toothed internally splined inner stator by a pair of double-headed externally splined drive links which switch, with the stator, oscillate but do not rotate. The rotary casing includes an internally toothed outer rotor meshing with the inner stator on an axis eccentric thereto and, axially spaced

fluid input and output barrels bolted thereto and provided with longitudinal fluid passageways which connect the valve sleeve ports with the spaces between the rotor and stator teeth. In operation, hydraulic pressure fluid flows through the



inlet shaft and valve sleeve ports and input barrel passageways into the spaces between the rotor and stator teeth, rotating the rotor. Fluid is then discharged through the passageways and ports of the barrel, output valve sleeve and output shaft.

3,594,106

VARIABLE SPEED MOTOR DRILL

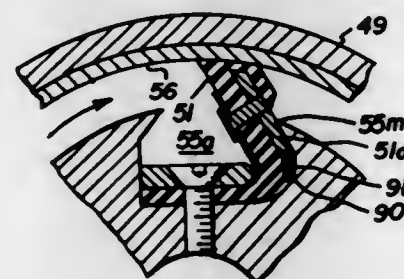
Marion A. Garrison, Denver, Colo., assignor to Empire Oil Tool Company, Denver, Colo.

Filed May 9, 1969, Ser. No. 823,301

Int. Cl. F01c 19/00; F03b 13/02

U.S. Cl. 418-202

10 Claims



A down-hole rotary drilling tool adapted to be driven by hydraulic or pneumatic power with the latter under control of a centrifugal speed regulator establishing drilling speed independently of torque loads. The drilling tool being connected to drill pipe string for suspending the drill bit in formation has novel-type thrust and motor bearings, including load-modifying means responsive to compression or tension loads on shaft causing loads to be applied as compression loading on thrust bearing. Axially adjustable bearings for motor accept radial and thrust loads. Novel blade arrangement for rotor prevents binding from blade distortion due to pressure of flowing liquid. Pressure relief valve and internal rotating dump valve relieve against excessively high and minimum low pressures in flow through tool.

3,594,107

ELECTRIC IGNITION SYSTEM USING A PTC IGNITOR AS A SENSING MEANS

James R. Willson, Garden Grove, and Hugh J. Tyler, Santa Ana, both of, Calif., assignors to Robershaw Controls Company, Richmond, Va.

Filed Mar. 20, 1969, Ser. No. 808,840

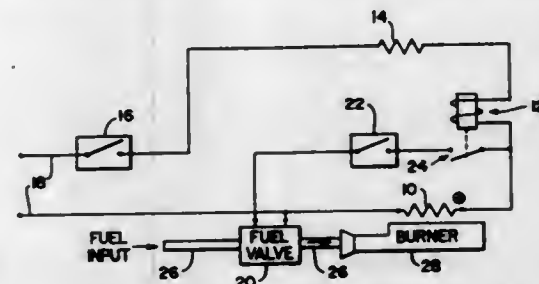
Int. Cl. F23n 5/14

U.S. Cl. 431-66

26 Claims

An electric ignition system for a fuel burner including an electrical resistance-type ignitor, wherein the resistance of the ignitor has a positive temperature coefficient and is connected in series with a ballast relay in parallel with the relay contacts and an electrically operated fuel valve, the latter

being in the burner fuel supply line; the voltage drop of the energizing circuit for the valve and the ignitor varies accord-



ing to the temperature of the ignitor for controlling operation of the burner supply line.

3,594,108

DISPOSABLE GAS LIGHTER

Edmundo Villarreal-Cueva, General Molinos del Campo 15-2, Colonia San Miguel Chapultepec, Mexico

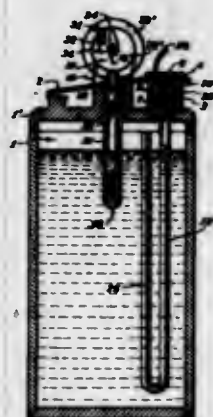
Filed Nov. 13, 1969, Ser. No. 876,262

Claims priority, application Mexico, Nov. 28, 1968, 107,416

Int. Cl. F23q 2/16

U.S. Cl. 431-254

7 Claims



A gaseous fuel disposable lighter filled through the flint support and having novel scraper and gas flow regulator construction. Means to prevent the dispensing of fuel in liquid form is also provided.

3,594,109

FLAME TUBE

Robert Noel Penny, Solihull, England, assignor to Leyland Gas Turbines Limited, Solihull, England

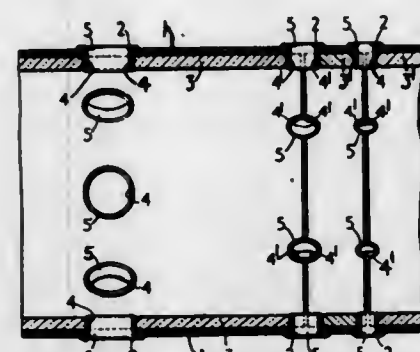
Filed June 27, 1969, Ser. No. 837,280

Claims priority, application Great Britain, July 27, 1968, 35974/68

Int. Cl. F23d 15/02

U.S. Cl. 431-352

2 Claims



A frame tube for a gas turbine combustion chamber including at least one annular liner of a ceramiclike, refractory or other heat and flame resistant material positioned within a metallic outer wall, said liner having apertures therein in registration with holes in said metallic wall, and a plurality of bushes inserted into the holes in the metallic wall and through the registering apertures in said liner, the bushes being a loose fit in the apertures and being secured to the metallic wall to hold said liner from circumferential and axial movement within the flame tube except for limited movements necessary to permit thermal expansion and contraction of the metallic wall relatively to said liner.

CHEMICAL

3,594,110

PROCESS FOR DYEING SHAPED ACRYLONITRILE COPOLYMERIZATES

Wilhelm Happe, Schwalbach, Taunus, Erich Heitzer, Königstein, Taunus, Stefan Müller, Frankfurt am Main, and Helmut Rinno, Lorschbach, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Feb. 19, 1968, Ser. No. 706,615

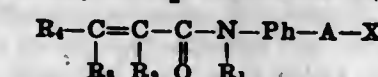
Claims priority, application Germany, Feb. 28, 1967, F 51,667

Int. Cl. D06p 1/18

U.S. Cl. 8-4

8 Claims

A process for fast dyeing a shaped article of a copolymerizate of (a) styrene-acrylonitrile, methacrylic acid lower alkyl ester or acrylonitrile and (b) about 0.1 to about 5.0 mol percent of a vinyl compound of the formula



wherein R_1 and R_2 each is hydrogen or an alkyl of 1 to 4 carbon atoms, R_3 and R_4 each is hydrogen or a group $-COOCH_3$, $-COOC_2H_5$, $-COOC_3H_7$ or $-COOC_4H_9$, or R_1 and R_4 form a ring with a $-CO-$ bridge, Ph is phenylene, alkoxy-phenylene or chlorophenylene, A is a group $-SO_2C_2H_5$ at the m or p position to the amido group, and X is a group of $-OSO_2Me$ or $-OCOCH_3$ in which Me is ammonium, sodium or potassium, which comprises treating said shaped article with an aqueous solution or dispersion of a monoazo dyestuff having a reactive hydrogen atom at a temperature of about 90° C. to about 120° C. at a pH of about 5 to about 10.

3,594,111

METHOD OF DYEING THE SURFACE OF PLASTIC ARTICLES

Harold A. Wittcoff and William S. Baldwin, Minneapolis, Minn., assignors to General Mills, Inc.

No Drawing. Filed Mar. 25, 1968, Ser. No. 715,522

Int. Cl. D06p 1/00

U.S. Cl. 8-4

8 Claims

The surface or a portion thereof of a plastic article is altered with an organophilic clay obtained by replacing inorganic cations of montmorillonite clays with substituted ammonia cations. The resulting treated plastic is then dyed with a solvent dye.

3,594,112

DYEING, PADDING AND PRINTING OF SYNTHETIC POLYAMIDE FIBERS WITH AN ANTHRAQUINONE DYE

Jacques Guenthard, Birmingen, Basel-Land, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 607,142, Jan. 4, 1967. This application May 22, 1968, Ser. No. 731,327

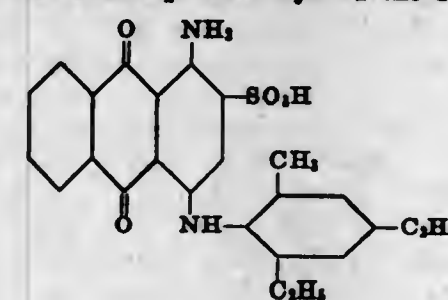
Claims priority, application Switzerland, Feb. 2, 1966, 1,441/66; Mar. 16, 1966, 3,807/66

Int. Cl. C09b 1/00

U.S. Cl. 8-39

8 Claims

A dyeing, padding and printing process for polyamide fibers with the anthraquinone dye of the formula



3,594,113

BACTERIOSTATIC FINISH FOR CELLULOSIC FABRICS

Leonard Lifland, Wellesley Hills, Mass., and Leonard A. Stanley, Charlotte, N.C., assignors to The Kendall Company, Walpole, Mass.

No Drawing. Continuation-in-part of application Ser. No. 774,509, Nov. 8, 1968, which is a continuation-in-part of application Ser. No. 632,927, Apr. 24, 1967, which in turn is a continuation-in-part of application Ser. No. 457,437, May 20, 1965. This application Dec. 3, 1969, Ser. No. 881,843

Int. Cl. D06m 13/34, 13/02

U.S. Cl. 8-115.6

5 Claims

A fine aqueous dispersion of a phenolic bacteriostatic agent such as hexachlorophene, with the addition of zirconium acetate and a cellulose cross-linking agent, is cured onto a cellulosic fabric. The resulting bacteriostatic finish is durable through twice as many launderings as a finish omitting the cross-linking agent.

3,594,114

PRETREATMENT OF DYEABLE POLYOLEFINS

Albert J. Schmid and Leroy C. Jennings, Baytown, Tex., assignors to Esso Research and Engineering Company

No Drawing. Filed Sept. 30, 1966, Ser. No. 583,475

Int. Cl. D06p 5/00

U.S. Cl. 8-168

13 Claims

This invention provides a method for treating a dyeable polyolefin fiber before a dyeing step, which comprises contacting the dyeable polyolefin fiber with a specific liquid treating fluid. The fluid consists essentially of 100 parts by weight made up as follows: from 98 to 80 parts by weight of acetic acid having a concentration from 40 weight percent aqueous to glacial, and from 2 to 20 parts by weight of an acid chosen from the group consisting of substantially water insoluble C_4 to C_{12} alkanolic acids. The treating conditions include a pressure sufficient to maintain the treating fluid in the liquid phase, a temperature from about 75° F. to about 175° F., and a treating time from about 1 minute to about 5 minutes. Suitably, the treating step is followed by conventional acid dyeing.

3,594,115

BACTERIA DESTRUCTION METHODS

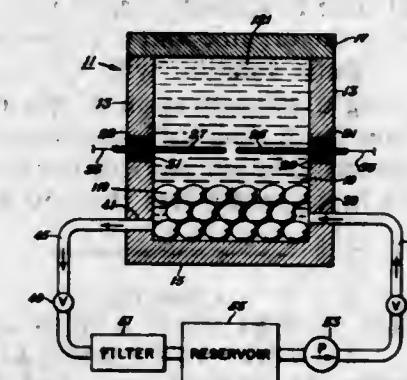
Richard H. Wesley and Glen T. Williams, Fort Worth, Tex., assignors to Electro-Hydraulics Corporation, Fort Worth, Tex.

Continuation of abandoned application Ser. No. 312,526, Sept. 30, 1963. This application Feb. 9, 1966, Ser. No. 704,490

Int. Cl. A61l 9/00; A23l 3/00; B01d 35/20

U.S. Cl. 21-54

19 Claims



Methods to destroy bacteria for various applications including food preservation, vaccine preparation and sewage treatment. Methods involve confining matter to be treated in a closed receptacle which is capable of withstanding high intensity shock wave impulses and high pressure build-up, filling the receptacle with a non-gaseous fluid

(if the matter being treated is in liquid form, then the receptacle will already be filled with non-gaseous fluid), and discharging from electrodes within the receptacle a quantity of electric energy, with the parameters of energy quantity, discharge time duration, and discharge current being within specified ranges to produce high intensity shock wave impulses and high pressure build-up within the fluid.

3,594,116
DITIN(II)ZIRCONIUM(IV)OCTAFLUORIDE OR TRIFLUOROZIRCONIUM PENTAFLUOROSTANNITE
John D. Donaldson, Richmond, England, assignor to Ozark-Mahoning Company, Tulsa, Okla.
Filed Nov. 22, 1968, Ser. No. 778,095
Int. Cl. C22b 59/00

U.S. Cl. 23—20 **3 Claims**
A new composition of matter comprising ditin(II)zirconium(IV)octafluoride (or trifluoro-zirconium pentafluorostannite having the formula $2\text{SnF}_2 \cdot \text{ZrF}_4$ and methods of preparing the said composition.

3,594,117
PROCESS FOR REMOVING CERIUM AND THORIUM FROM THE OTHER RARE EARTH METALS
Vincent Chiola and George J. Kamin, Towanda, Pa., assignors to Sylvania Electric Products Inc.
No Drawing. Filed Oct. 30, 1968, Ser. No. 772,030
Int. Cl. C22b 59/00; C01f 17/00

U.S. Cl. 23—22 **10 Claims**
A process for separating impurities selected from the group consisting of cerium, thorium and mixtures thereof from an impure material useful for cathodoluminescent phosphor production is disclosed, the process comprising a dissolution of said impure material in a mineral acid, oxidizing said impurities, forming the insoluble iodates of said impurities and removing the impurities as solid iodates from the solution containing the purified luminescent materials.

3,594,118
SEPARATION OF YTTRIUM AND CERIUM
Phyllis R. Dodds, Wysox, Pa., assignor to Sylvania Electric Products Inc.
No Drawing. Filed Oct. 30, 1968, Ser. No. 772,031
Int. Cl. C22b 59/00; C01f 17/00

U.S. Cl. 23—23 **3 Claims**
A process for recovering a purified material containing yttrium values from an impure material containing yttrium and cerium is disclosed. The process comprises dissolving the impure material in an aqueous solution of a mineral acid having a critical concentration of acid, contacting the resulting solution with an organic solution containing a critical concentration of di-2-ethylhexyl phosphoric acid for sufficient time to extract yttrium into the organic solution, separating the organic and the aqueous solutions, contacting the organic solution with an aqueous nitric acid solution having a concentration of nitric acid of at least 3.5 moles/liter for a time sufficient to remove the yttrium into the aqueous solution and recovering the purified yttrium values that contain less than 50 p.p.m. of cerium.

3,594,119
PROCESS FOR PURIFICATION OF SODIUM CARBONATE CRYSTALS
Carl E. Pruiss, Madison, Conn., and James M. Ford, Cleveland, Tenn., assignors to Olin Mathieson Chemical Corporation
Filed Jan. 2, 1969, Ser. No. 788,563
Int. Cl. C01d 7/22

U.S. Cl. 23—63 **7 Claims**
Impure solid sodium carbonate monohydrate, formed by hydrating light soda ash in the solid phase with suffi-

cient water to form the monohydrate, is purified by digesting a slurry of the impure crystals in an aqueous solution saturated with sodium carbonate monohydrate at temperatures below the transition point of the monohydrate to anhydrous sodium carbonate and separating the thus purified crystals of monohydrate from the slurry. Purified dense ash is produced by dehydrating the purified monohydrate.

3,594,120
ANHYDROUS MAGNESIUM CHLORIDE
Lawrence L. Bott, Oak Park, Ill., and Richard L. Craig, Edward A. Hunter, and Evan A. Mayerle, Lake Jackson, Tex., assignors to Nalco Chemical Company, Chicago, Ill.
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,394
Int. Cl. C01f 5/30

U.S. Cl. 23—91 **5 Claims**
In the so-called "Nalco-Freeport" process for the production of organolead compounds by the electrolytic decomposition of a sacrificial lead anode utilizing a mixture of anhydrous oxygenated solvents consisting preferably of the diethylether of tetraethylene glycol (DETEG) and tetrahydrofuran (THF) in the operable ratio 25-50/75-50; a preferred ratio of 30-40/70-60 and an optimum value of 35/65 by weight percent, with the consequent byproduct of anhydrous magnesium chloride (MgCl_2), the step and improvement which consists of separating and recovering magnesium values by treatment of the MgCl_2 with anhydrous ammonia to form a magnesium chloride ammine complex precipitate ($\text{MgCl}_2 \cdot \text{XNH}_3$, where $\text{X}=1-6$), separating the ammine complex from the solvent mix and decomposing the ammine under water-free muffled conditions by heating at $300^\circ\text{--}400^\circ\text{C}$. for 10-16 hours to drive off the ammonia and recovering the consequent freed anhydrous MgCl_2 .

3,594,121
DRY GEL PROCESS FOR PREPARING ZEOLITE Y
Willis W. Weber, Niagara Falls, N.Y., assignor to Union Carbide Corporation, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 484,116, Aug. 31, 1965. This application Mar. 10, 1969, Ser. No. 805,883
Int. Cl. C01b 33/28

U.S. Cl. 23—111 **4 Claims**
Process for preparing zeolite Y using reaction mixture gels containing very low mole percentages of water and silica to the extent they contain so little water that they give the appearance of virtually dry to slightly moist powders. These gels permit the use of apparatus such as is conventionally used in dry solids handling.

3,594,122
PROCESS FOR EXTRACTION OF ALUMINA FROM ALUMINA-CONTAINING ORE
George Miller, Bogota, Colombia, assignor to Ethyl C. Fornes, Springville, N.Y.
Filed July 28, 1969, Ser. No. 845,169
Int. Cl. C01f 7/10; C22b 1/06

U.S. Cl. 23—143 **6 Claims**
Ammonium sulphate is added to alumina-bearing ore, such as clay, in stoichiometric proportion to the amount of alumina present in the ore, the mixture is pelletized, and the pellets, preferably about one inch in diameter are heated in a specially constructed plugged flow furnace to a temperature above the decomposition temperature of iron sulphate and below the decomposition temperature of aluminum sulphate. Upon cooling, the pellets are placed in water to form an aluminum sulphate solution which is filtered and then reacted with ammonia gas to form a precipitate of aluminum hydroxide which can be filtered, washed and dried. The furnace or kiln includes

upper and lower chambers of the same diameter and a reduced diameter intermediate chamber. Hot gases are introduced by tuyeres communicating with an annular space defined at the juncture between the intermediate and lower chambers. A rotating table in combination with adjustable drag bars both located below the lower chamber control the rate of flow of material through the furnace.

3,594,123
ENHANCEMENT OF GYPSUM CRYSTAL GROWTH IN WET-PROCESS PHOSPHORIC ACID
Frederick Ludwig Encke, Bronx, and Edward Helmut Sheers, Flushing, N.Y., assignors to Arizona Chemical Company, New York, N.Y.
Filed Aug. 10, 1967, Ser. No. 659,684
Int. Cl. C01b 25/22; C01f 11/46

U.S. Cl. 23—165 **6 Claims**
Improvements in wet-process phosphoric acid systems comprising adding a composition comprising (1) an adduct obtained by reacting ethylene oxide with tall oil rosin; with or without (2) fatty acids, whereby foam is suppressed and gypsum crystal growth is enhanced.

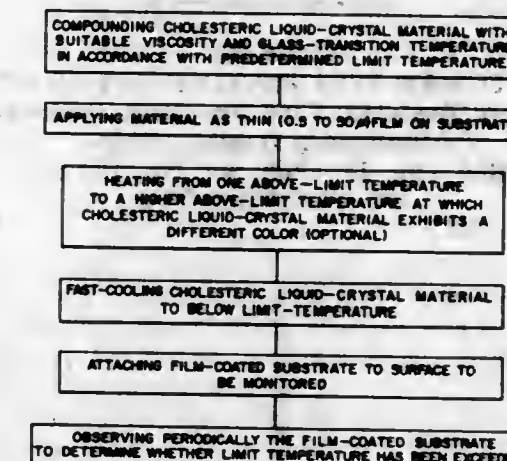
3,594,124
PROCESS FOR THE PREPARATION OF HYDROGEN
Gianfranco De Beni, Cadrezzate-Varese, Italy, assignor to European Atomic Energy Community (Euratom)
No Drawing. Filed Feb. 6, 1970, Ser. No. 9,399
Claims priority, application Netherlands, Feb. 19, 1969, 6902604
Int. Cl. C01b 1/03; 1/07, 13/04

U.S. Cl. 23—212 **2 Claims**
Hydrogen is prepared by a cycle of chemical reactions which comprise the reaction of mercury with hydrogen bromide with the formation of mercury bromide and hydrogen, the reaction of the mercury bromide formed with an alkaline earth hydroxide with the formation of an alkaline earth bromide, mercury oxide and water, the decomposition of the resulting mercury oxide into mercury and oxygen and the hydrolysis of the resulting alkaline earth bromide with the formation of alkaline earth hydroxide and hydrogen bromide, and that the reaction products mercury, hydrogen bromide and eventually alkaline earth hydroxide are returned to the cycle.

3,594,125
REMOVAL AND RECOVERY OF SULFUR FROM A GAS STREAM CONTAINING H_2S
Robert J. J. Hamblin, Deerfield, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Feb. 26, 1969, Ser. No. 802,356
Int. Cl. C01b 17/04; C01c 1/20

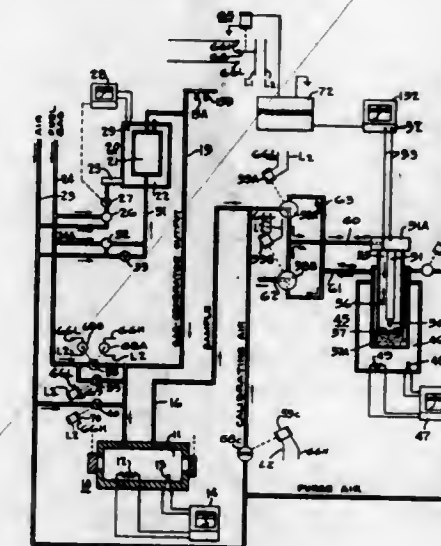
U.S. Cl. 23—224 **10 Claims**
 H_2S is removed from a gas stream and sulfur is produced by the steps of: (1) sequentially scrubbing the gas stream with a first recycle water stream containing NH_4OH and then with a second recycle water stream which is substantially free of NH_4OH to produce a treated gas stream which is reduced in H_2S content and is substantially free of NH_3 , and a bottom water stream containing NH_4HS and NH_4OH ; (2) catalytically treating the bottom water stream with an air stream to produce an effluent stream containing ammonium polysulfide; (3) treating the ammonium polysulfide-containing stream to recover sulfur and to produce a water stream which is substantially free of NH_4OH and a water stream containing NH_4OH ; and, (4) separately recycling at least a portion of these last two streams to the scrubbing step. Key feature of the resulting process is the production in the regeneration section of two separate recycle water streams and the judicious use of these streams in the scrubbing step to remove H_2S from a gas stream and minimize the amount of NH_3 contained in the treated gas stream.

3,594,126
TEMPERATURE-LIMIT DETECTION
James L. Ferguson, Kent, Ohio, and Newton N. Goldberg, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Apr. 30, 1969, Ser. No. 820,602
Int. Cl. C09k 3/00; G01k 11/12; G01n 31/22
U.S. Cl. 23—230LC **14 Claims**



By using certain compositions of matter comprising liquid crystal material of the cholesteric phase having a viscosity controlled in accordance with a desired limit temperature, one can obtain an irreversible color change that serves as an indication that such limit temperature has been exceeded. Possible uses include packaging of frozen foods and determination of body temperatures. Cholesteric liquid-crystal material, microencapsulated and/or in thin-film form, is fast-cooled from an above-limit temperature at which it exhibits a characteristic color other than that which it has in the vicinity of the limit temperature, retaining its high-temperature color until the limit temperature is exceeded. Particular cholesteric-phase liquid-crystal materials amenable to such method, and practices for adjusting the viscosity in accordance with desired limit temperatures, are also taught. Articles of manufacture embodying such compositions are disclosed.

3,594,127
METHODS AND SYSTEMS FOR MONITORING AND/OR CONTROLLING THE CONSTITUENT-POTENTIAL OF HEAT - TREATING ATMOSPHERES
Raymond L. Davis II, Newtown Square, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa.
Filed May 24, 1968, Ser. No. 731,876
Int. Cl. C21d 1/00; G01n 31/10
U.S. Cl. 23—232 **11 Claims**



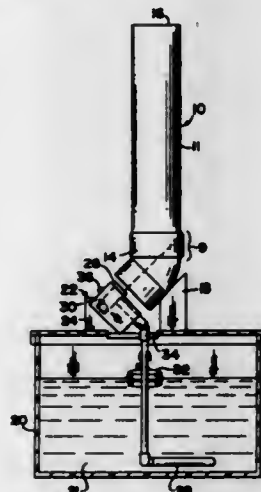
Various generically similar but specifically different methods and systems providing for accelerated response

of a constituent-potential detector to changes in constituent-transfer ability by altering the atmosphere to the detector to form an atmosphere therearound having faster net constituent-transfer ability than the atmosphere sample normally conducted from a space, such as the work chamber of a heat-treating furnace which is being monitored or controlled, particularly a furnace employing a carburizing-type atmosphere.

3,594,128
FOG TOWER FOR TESTING APPARATUS
Albert Singleton, 7360 Brookside Parkway,
Middleburg Heights, Ohio
Filed Aug. 23, 1968, Ser. No. 754,809
Int. Cl. G01n 17/00

U.S. Cl. 23—253

7 Claims

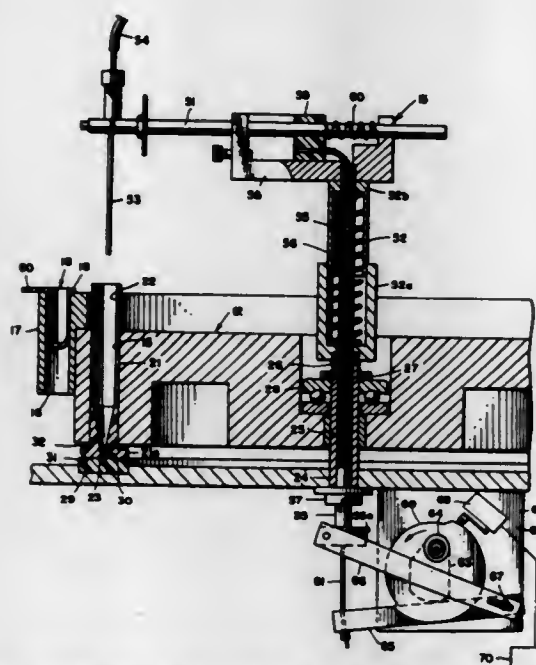


A fog tower for use with corrosion testing apparatus to conduct a flow of corrosive fog. At least one portion of the length of the tower extends transversely to the line of fog flow as the fog enters the tower or transversely to another portion of the tower which is substantially vertical.

3,594,129
SINGLE-CHANNEL ANALYZER
Alan Richardson Jones, Miami, Fla., assignor to American Hospital Supply Corporation, Evanston, Ill.
Filed Sept. 3, 1969, Ser. No. 854,968
Int. Cl. G01n 1/10, 1/14

U.S. Cl. 23—253

21 Claims



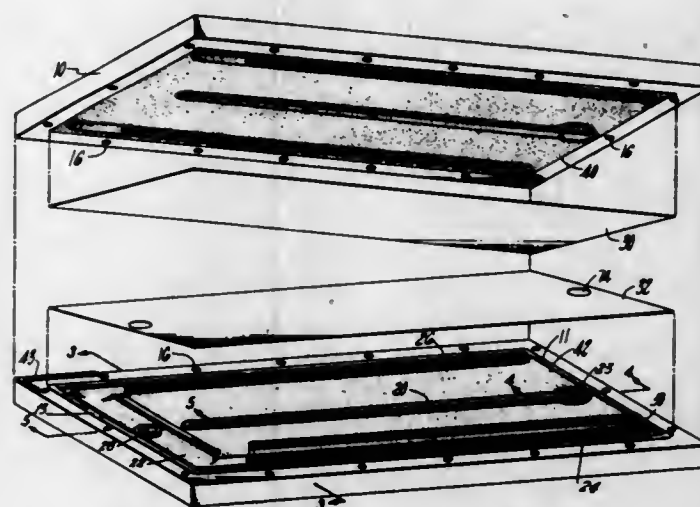
An apparatus especially suited for use in automated chemical analysis. A plurality of open ended reaction tubes are carried by a turntable with the lower ends of the tubes slidably and sealingly engaging the contact surface of a platform. The chambers of the reaction tubes are

therefore closed at their lower ends by the contact surface and standard clinical chemistry tests or reactions may thus be carried out in such chambers. Openings in the contact surface along the path of travel of the reaction tubes, in conjunction with conduits and apparatus communicating with such openings, result in the successive draining of each tube's contents, the colorimetric analysis of such contents, and the subsequent flushing and rinsing of each tube. A transfer mechanism coordinated in its operation with the turntable withdraws measured portions of fluid samples carried by cups supported by the turntable and discharges those measured portions along with a measured volume of a test reagent into the reaction tubes. Each reaction tube has a downwardly tapered chamber and, like the contact surface of the platform, is formed from a resilient plastic material which will insure a fluid-tight seal between the surfaces of the slidably-engaging parts.

3,594,130
BLOOD OXYGENATOR
Howard L. North, Jr., West Simsbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Mar. 24, 1969, Ser. No. 809,790
Int. Cl. A61m 1/03

U.S. Cl. 23—258.5

2 Claims



A thin film blood oxygenator usable with hyperbaric oxygen is constructed in two flat spaced plates sandwiching a pair of semipermeable membranes supported by glass beads whereby blood is passed between the semipermeable membranes and oxygen is passed over the outer surface of the membranes and between the glass beads. Channels formed in the flat plate serve to distribute the blood and oxygen in a predetermined flow path.

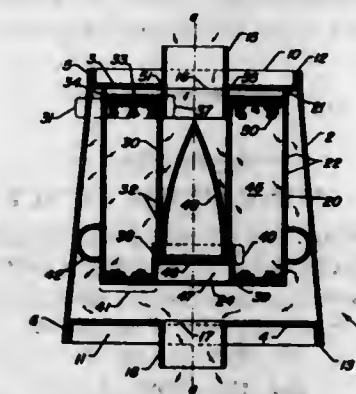
3,594,131
CATALYTIC CONVERTER
Ted V. De Palma, Roselle, and Martin W. Perga, Hoffman Estates, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed Nov. 10, 1969, Ser. No. 875,279
Int. Cl. F01n 3/00, 3/14

U.S. Cl. 23—288

7 Claims

A converter for catalytic conversion of fluid streams which embodies a catalyst retaining section having a reservoir section therein. The reservoir section is established by a partition that prevents flow of fluid through one part of the catalyst section. A flanged end of a movable perforate partition spans the catalyst bed and keeps all the catalyst material in a compacted state. In a preferred embodiment, a weighted bullet-shaped distribution means provides the pressuring means for keeping the flanged end in pressure contact with the catalyst material. As catalyst material shrinks or is lost by mechanical attrition or chemical spallation, the flanged end of the movable perforate partition forces fresh material from the reservoir

section to an area of the bed where fluid flow exists. In a modified embodiment, the movable perforate partition ex-

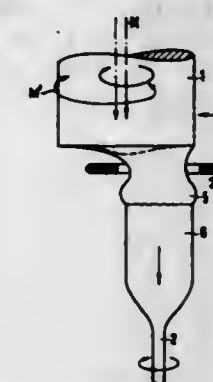


poses additional catalyst material to fluid flow at the other end of the catalyst section as catalyst material is lost.

3,594,132
METHOD OF CRUCIBLE-FREE ZONE MELTING A CRYSTALLINE ROD WITH Laterally Displaced Rod Holders
Wolfgang Keller, Pretzfeld, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany
Filed Sept. 27, 1967, Ser. No. 670,893
Claims priority, application Germany, Sept. 28, 1966, S 106,159
The portion of the term of the patent subsequent to Dec. 3, 1985, has been disclaimed
Int. Cl. B01j 17/10

U.S. Cl. 23—301

5 Claims



Method of crucible-free zone melting a crystalline rod which comprises rotating a pair of spaced and substantially vertically aligned end holders supporting a crystalline rod therebetween, heating the rod with an annular heating device surrounding the rod to a temperature at which a molten zone is formed in the rod dividing the rod into a supply rod portion being supplied to the melt in the molten zone and a rod portion resolidifying from the melt, relatively displacing the end holders and the heating device in the direction of the rod axis at a given relative speed so that the resolidifying rod portion has a thickness of predetermined nominal value, and laterally displacing the end holder for the supply rod portion out of vertical alignment with the other end holder.

3,594,133
ALUMINUM ALLOY
Jacques F. Cote, William Ernest Cooke, and Roy C. Spooner, Kingston, Ontario, Canada, assignors to Alcan Research and Development Limited, Montreal, Quebec, Canada
No Drawing. Filed Nov. 3, 1967, Ser. No. 680,323
Int. Cl. C23f 1/00

U.S. Cl. 29—183

3 Claims

An aluminum base alloy capable of receiving an alkaline etch treatment to produce a uniform mat finish contains silicon in an amount in the range 0.2–0.6%, iron in the amount 0.35% max., manganese in the amount 0.10% max., magnesium in an amount in the range 0.45–0.9%, chromium in the amount 0.1% max.,

titanium in the amount 0.10% max., zinc in the amount in the range 0.03–0.25% and copper in an amount in the weight ratio 1:1 to 2:1 on a Cu-Zn weight basis ratio, others each in the amount 0.05% max., said others total in the amount 0.15% max., the remainder being aluminum, all the aforesaid percentages being percent by weight. Of the above-mentioned alloys when the zinc content is in the range 0.10–0.25% the copper should be present in an amount in the weight ratio 2:1 on a Cu-Zn weight basis ratio and, also, in the above alloys when zinc is present in an amount in the range 0.03–0.10% the copper should be present in an amount in the weight ratio 1:1 on a Cu-Zn weight basis ratio.

3,594,134
PROCESS FOR PRODUCING POROUS METAL FILMS AND ARTICLES PRODUCED THEREBY
Robert R. Russell, Burnt Hills, Harvey E. Cline, Latham, and Warren De Sorbo, Ballston Lake, N.Y., assignors to General Electric Company
Filed Dec. 30, 1968, Ser. No. 787,837
Int. Cl. B23p 1/00; C23b 5/48; B29c 17/08

U.S. Cl. 29—191.4

19 Claims



A process for preparing a metallic film with substantially parallel and uniform apertures of small cross-section and uniform distribution useful as a filter. An alloy is cast which in the solid state is comprised of at least two phases. The cast alloy is directionally solidified to produce a body wherein one of the phases is present as a plurality of substantially parallel rods passing through a matrix comprised of the second or other phases. The directionally-solidified body is etched to remove the rodlike phase to form straight-through apertures or, if desired, recesses. A material is placed on an etched area of the etched body to form a negative replica of the recesses or holes. The material is then stripped away and metal is deposited on its negative replica surface. The resulting deposited metallic film is then recovered.

3,594,135
PRODUCTS FOR CHROMISING OF FERROUS METAL SUBSTRATES
Kenneth Urnston Holker, Harrogate, and Colin Paul Albon, Knaresborough, England, assignors to Albright & Wilson Limited, Oldbury, near Birmingham, England
No Drawing. Original application June 5, 1967, Ser. No. 643,734. Divided and this application Oct. 23, 1969, Ser. No. 871,370
Claims priority, application Great Britain, June 7, 1966 and Nov. 29, 1966, 25,416/66; Mar. 16, 1967, 12,445/67; Apr. 14, 1967, 16,641/67
Int. Cl. B32b 15/04

U.S. Cl. 29—195

28 Claims

Ferrous metal workpiece having an adherent porous chromium metal-containing surface layer in metal to

metal contact with at least one surface of said workpiece and having an adherent metal halide-containing coating on said chromium metal-containing surface layer said metal halide being one that will react with iron.

3,594,136

SMOKE SUPPRESSANT ADDITIVES

Bernard H. Rosen, Little Silver, N.J., assignor to Cities Service Oil Company, Tulsa, Okla.

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,199

Int. Cl. C101 1/18, 1/32

U.S. Cl. 44—51

12 Claims

A smoke and soot suppressant additive for liquid fuel comprises an ether and a Group II-A metal carbonate. An especially suitable additive is barium carbonate and an alkyl ether of ethylene glycol, such as the dimethyl ether of ethylene glycol. Generally the carbonate is employed in amounts from about 0.1 to 1% by weight and the ether is employed in amounts from 0.1 to 1% by weight.

3,594,137

CRUDE OIL CONTAINING DISPERSANT USEFUL AS DIESEL ENGINE FUEL

Thorkild F. Lonstrup, Sarnia, Ontario, Canada, assignor to Esso Research and Engineering Company

No Drawing. Filed Nov. 27, 1968, Ser. No. 779,598

Int. Cl. C101 1/22, 1/24, 1/32

U.S. Cl. 44—51

10 Claims

Synthetic or natural crude oils of low inorganic salts and low sulfur content may be used as fuels for operating heavy duty diesel engines where these crude oils contain at least 0.01 and up to about 2.0 wt. percent, or at least a sufficient amount above 0.01 wt. percent to appreciably minimize or prevent carbon deposition in and on the fuel injectors, of at least one overbased alkaline earth metal sulfonate and/or the condensation product of an alkylene polyamine with organic mono or dicarboxylic acids or anhydrides thereof, wherein the acids or anhydrides have substituted therein a long chain alkenyl group of C_{40} - C_{250} , either or both additives being used as dispersants. Sulfur content of the crude oil should be below about 1.0 wt. percent and salt contents should be below about 3 pounds per thousand barrels of crude oil. The crude oil may be of paraffinic, asphaltic or mixed type.

3,594,138

SMOKE SUPPRESSANT ADDITIVES FOR PETROLEUM FUELS

Elmer J. Badin, Hightstown, N.J., assignor to Cities Service Oil Company, Bartlesville, Okla.

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,830

Int. Cl. C101 1/18

U.S. Cl. 44—66

6 Claims

The invention disclosed herein is a liquid fuel composition comprising a liquid hydrocarbon fuel having a tendency to form soot and smoke on combustion and a metal salt of an alkanolic acid, wherein the concentration of metal salt is at least sufficient, usually from 0.05 to 5% by weight, to inhibit said tendencies. Especially suitable compositions include a diesel fuel having from about 0.3 to 2% by weight of barium 2-ethylhexanoate and a diesel fuel having from about 0.1 to 2% by weight of calcium 2-ethylhexanoate admixed therein. Further improvement in soot and smoke reduction is obtained in hydrocarbon fuels and particularly in diesel fuels, when an ether is additionally incorporated into the salt and fuel mixture. A

diesel fuel having from about 0.1 to 0.5% by weight of barium 2-ethylhexanoate and from about 0.3 to 0.6% by weight of the monomethyl ether of ethylene glycol exhibits substantially reduced smoke and soot forming characteristics.

3,594,139

TERTIARY AMINE OXIDE CONCENTRATES

Roland A. Bouffard, Union, N.J., assignor to Esso Research and Engineering Company

No Drawing. Continuation-in-part of application Ser. No. 547,731, May 5, 1966, now Patent No. 3,387,953. This application Oct. 31, 1967, Ser. No. 3,387,953.

Int. Cl. C101 1/22

U.S. Cl. 44—72

9 Claims

A rust-inhibitor concentrate that can be handled satisfactorily at all normal blending temperatures throughout the year and that presents no blending problems when added to gasoline comprises 30 to 60 wt. percent of a tertiary amine oxide, from 30 to 60 wt. percent of a liquid aromatic hydrocarbon of 7 to 10 carbon atoms having a boiling point in the range of 230 to 400° F., and from 5 to 20 wt. percent of an aliphatic monohydric or dihydric alcohol of from 6 to 13 carbon atoms.

3,594,140

SMOKE SUPPRESSANT FUEL MIXTURES

Elmer J. Badin, Hightstown, N.J., assignor to Cities Service Oil Company, Tulsa, Okla.

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,219

Int. Cl. C101 1/18, 1/24

U.S. Cl. 44—76

11 Claims

A liquid fuel composition having reduced soot and smoking characteristics is formed by admixing a major proportion of a liquid hydrocarbon fuel and a minor proportion, respectively, of an ether and a Group II-A metal sulfonate wherein the concentration of Group II-A metal is from about 0.007 to 0.1% by weight. A preferred fuel composition comprises a diesel fuel admixed with a barium alkaryl sulfonate and an alkyl ether of an alkylene glycol, said glycol ether having from 3 to 10 carbon atoms, wherein the concentration of barium metal is from about 0.04 to 0.08% by weight.

3,594,141

METHOD FOR MAKING A METAL BONDED DIAMOND ABRASIVE TOOL

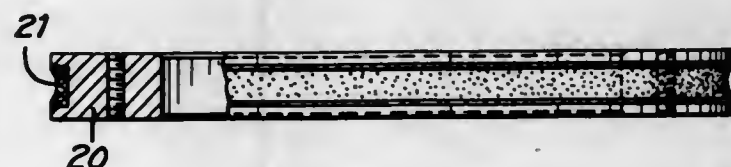
Robert S. Houston and Reginald C. Flisk, West Boylston, Mass., assignors to Norton Company, Worcester, Mass.

Continuation-in-part of application Ser. No. 296,553, July 22, 1963, which is a continuation-in-part of application Ser. No. 25,268, Apr. 28, 1960. This application Mar. 6, 1967, Ser. No. 620,717

Int. Cl. B24b 1/00

U.S. Cl. 51—295

8 Claims



A method for making a metal bonded abrasive tool using powdered metal techniques, the tool having a controlled degree of relative hardness of its cutting action built into the tool during manufacture, the control being

accomplished by producing a specified porosity in the abrasive section of the tool, and then infiltrating the pores with liquified metal produced during a second phase of the sintering operation, the liquid metal for infiltrating being drawn from the support backing for the abrasive tool.

3,594,142

PROCESSES FOR THE PELLETIZATION OF METALLURGICAL SLAG

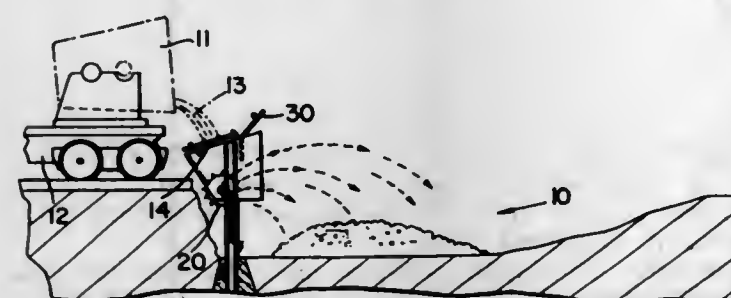
Richard D. Margesson, Burlington, Ontario, and William G. England, Grimsby, Ontario, Canada, assignors to National Slag Limited, Hamilton, Ontario, Canada

Filed June 5, 1968, Ser. No. 734,723

Int. Cl. C03b 5/18

U.S. Cl. 65—19

7 Claims



In a process for the production of generally-spherical pellets from blast furnace slag a stream of molten slag is mixed with water to initiate its foaming and/or expansion; the slag and water mixture flows over the surface of a cooled plate and is then projected into the air by a projecting device such as a rotating drum provided with radially-extending concave vanes; the motion of the expanded pyroplastic slag in the air causes it to form spherical pellets that are sufficiently cooled to retain their individual identities upon reaching the ground.

3,594,143

PROCESS OF FLOATING GLASS ON MOLTEN METAL WITH A PARTICULAR ATMOSPHERE

Iftekhar Mohyuddin, Ormskirk, England, assignor to Pilkington Brothers Limited, Liverpool, Lancashire, England

No Drawing. Filed June 27, 1968, Ser. No. 740,461

Claims priority, application Great Britain, June 30, 1967, 30,385/67

Int. Cl. C03b 18/02

U.S. Cl. 65—32

2 Claims

Glass is heated whilst in contact with a protective atmosphere which comprises hydrogen and methane, the methane being in a proportion of from 1% to 50% of the hydrogen present in order for a condition of equilibrium to be maintained to inhibit any reaction between the hydrogen and the elements which could be attacked thereby, such, for example, as carbon and silicon carbide.

3,594,144

DISPERSING VEHICLE USED IN GLASS BONDING

Salvatore J. Acello, North Adams, Mass., assignor to Sprague Electric Company, North Adams, Mass.

No Drawing. Filed Oct. 10, 1968, Ser. No. 766,639

Int. Cl. C03c 27/00

U.S. Cl. 65—43

2 Claims

The assembly of parts of an integrated assembly by a bond between the parts is achieved by the application of a composition which is solder glasses, ceramics, or metals in fine powder form which are dispersed in fluorinated ether vehicle. The vehicle is removed and the parts bonded by fusion.

METHOD AND APPARATUS FOR FIRE POLISHING THE EDGE OF A GLASS SHEET WHILE BENDING

Solomon Elijah Kay, Solihull, England, assignor to Triplex Safety Glass Company Limited, London, England

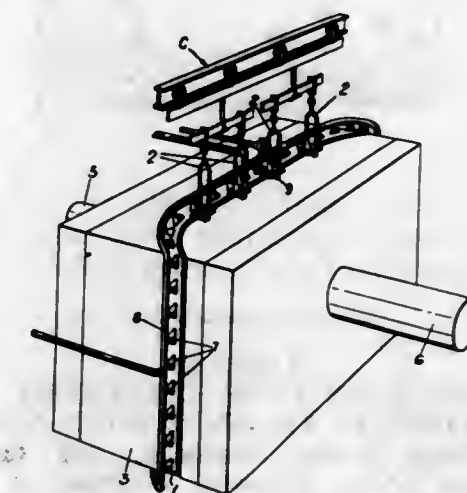
Filed Mar. 17, 1969, Ser. No. 807,515

Claims priority, application Great Britain, Mar. 20, 1968, 13,544/68

Int. Cl. C03b 29/02

U.S. Cl. 65—104

13 Claims



In the treatment of a glass sheet having a sharp edge, the glass sheet is heated preparatory to bending, the hot sheet is bent, and during or after bending a continuous peripheral margin of the sheet is exposed and further heat is applied to the margin to round the edge of the sheet.

3,594,146

MOLD CHARGE HANDLING APPARATUS

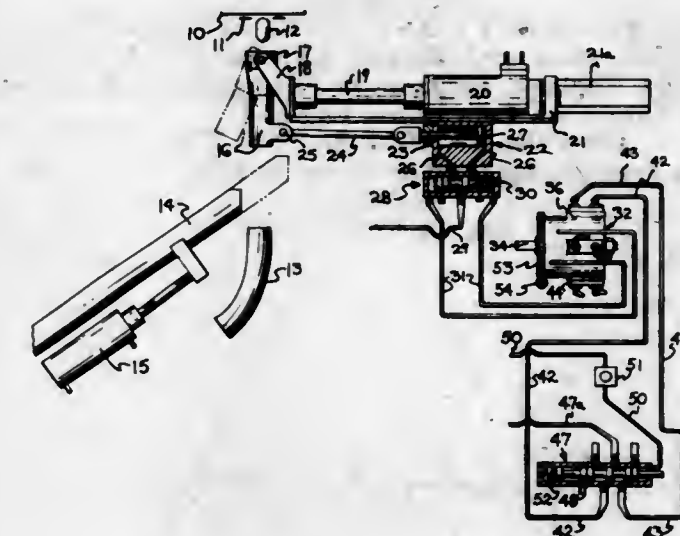
Urban P. Trudeau, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Filed Nov. 1, 1968, Ser. No. 772,709

Int. Cl. C03b 5/30

U.S. Cl. 65—165

7 Claims

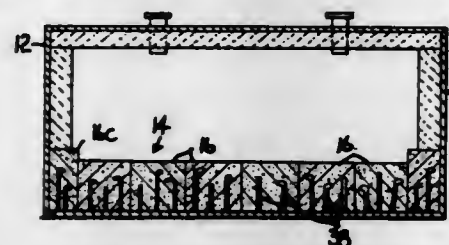


Apparatus for handling feeder-formed glass mold charges or "gobs" in which segregated gobs initially follow a downward vertical path on their way to the sections of an IS-type forming machine, there being a piston-motor operated gob deflector near or encircling said path and a timer and air-conduit arrangement including control-valves, one manually controlled, to regularly actuate the piston-motor for the purpose of positioning the deflector so as to prevent delivery of gobs to a selected section or sections, for any desired period of time.

3,594,147
FLOAT BATH TANK CONSTRUCTION AND METHOD OF MAKING THE SAME
 William F. Galey, Saxonburg, and John E. Sensi, Arnold, Pa., assignors to PPG Industries, Inc.
 Filed Dec. 1, 1967, Ser. No. 687,363
 Int. Cl. C03b 18/02

U.S. Cl. 65—182

4 Claims



A float bath tank has a plurality of refractory lining blocks cast in situ on the bottom of the tank around metal studs which are affixed to the casing of the tank.

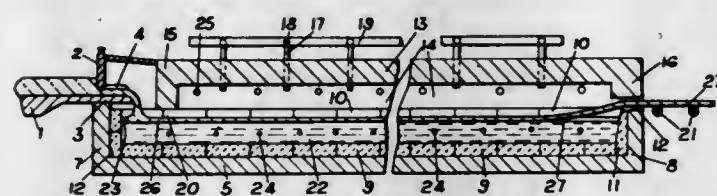
3,594,148
REFRACTORY TANK STRUCTURE FOR FLOATING GLASS ON MOLTEN METAL
 Charles Elwyn Smith, Ormskirk, and Ian William McKittrick, Hythe, England, assignors to Pilkington Brothers Limited, Liverpool, Lancashire, England
 Filed May 20, 1968, Ser. No. 730,312

Claims priority, application Great Britain, May 25, 1967, 24,344/67

Int. Cl. C03b 18/02

U.S. Cl. 65—182

6 Claims



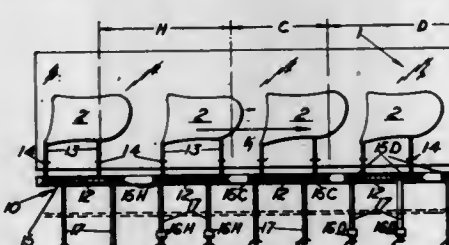
In the float process for the manufacture of flat glass, the tank structure containing a molten metal bath is lined with an alumino-silicate refractory.

3,594,149
GLASS SHEET CONVEYING APPARATUS
 Alan Pickavance and Ronald Charles Freestone, Saint Helens, England, assignors to Pilkington Brothers Limited, Liverpool, Lancashire, England
 Filed Oct. 29, 1968, Ser. No. 771,504
 Claims priority, application Great Britain, Nov. 3, 1967, 50,063/67

Int. Cl. C03b 29/04

U.S. Cl. 65—182

14 Claims



A conveyor for conveying articles such as glass sheets along a path, e.g. through a furnace, at different translational speeds comprises an elongated carriage member which is moved linearly along said path by engagement with successive drive wheels spaced along the path and arranged in at least two sets driven at different rotational speeds. The drives to at least some of the wheels of a set include free-wheel or slipping drive transmission to permit over-running of said wheels during a speed transition of the carriage when moving from one set of drive wheels to another.

3,594,150
PREPARATION OF SOLID MIXED FERTILIZERS AND AMMONIUM NITRATE
 Raybon C. Cannon, Decatur, Ga., assignor to United States Steel Corporation, Pittsburgh, Pa.
 No Drawing. Filed June 27, 1968, Ser. No. 740,449
 Int. Cl. C05b 11/06, 11/12

U.S. Cl. 71—39

9 Claims

In a process wherein phosphate rock is digested with nitric acid and ammonium sulfate, and precipitated gypsum removed, water-soluble low N:P₂O₅ ratio mixed fertilizers and ammonium nitrate are produced by crystallizing and separating ammonium nitrate from the concentrated mother liquor containing the ammonium nitrate and phosphoric acid and then ammoniating the liquor containing the phosphoric acid and uncrystallized ammonium nitrate. The gypsum after removal from the digestion slurry may be converted to ammonium sulfate by an ammoniation-carbonation reaction for recycle to the digestion step.

3,594,151
HERBICIDALLY ACTIVE SPRAY COMPOSITION
 Billy A. Sprayberry, Allentown, Pa., and Ted L. Curry, Anaheim, Calif., assignors to Diamond Shamrock Corporation, Cleveland, Ohio
 No Drawing. Continuation-in-part of application Ser. No. 551,238, May 19, 1966. This application Nov. 12, 1968, Ser. No. 775,207

Int. Cl. A01n 9/00

U.S. Cl. 71—65

3 Claims

A pesticidally active composition for vegetation and insects, and particularly desirable for spray application, is prepared as a lump-free stable dispersion exhibiting thixotropic properties and having viscosity at a given solids content greater than the additive viscosities of individual components of the mixture at the same solids concentration. The preparative steps typically include forming an admix of 20–80 weight percent heteropolysaccharide and 80–20 weight percent locust bean gum, using this with a minor amount of surface active agent, combining these materials, preferably as a premixed homogeneous blend, with an organic liquid to prepare a free-flowing slurry, and mixing the slurry with an aqueous medium to make a sprayable system. Most pesticidal agents are then added to the sprayable system.

3,594,152
METHOD OF PRODUCING CYTOPLASMIC MALE STERILITY IN MAIZE
 Dmitry Fedorovich Petrov, Sovetskaya, ulitsa 7, kv. 39; Ekaterina Sergeevna Fokina, Tsvetnoi proezd 17, kv. 49; and Natalia Borisovna Zhelezova, Morakol prospekt 13, kv. 18, all of Novosibirsk, U.S.S.R.
 No Drawing. Filed Sept. 21, 1967, Ser. No. 669,407
 Int. Cl. A01n 9/00

U.S. Cl. 71—88

3 Claims

A method of producing cytoplasmic male sterility in maize by using the antibiotic streptomycin to cause a mutation of extrachromosomal genes which is known for the monoculture alga Chlamydomonas.

3,594,153
COPPER ORE REDUCTION AND METAL REFINING PROCESS
 Serafino M. De Corso, Media, Pa., and Peter F. Klenast, Phoenix, Ariz., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Continuation-in-part of application Ser. No. 554,427, June 1, 1966. This application June 18, 1970, Ser. No. 47,296

Int. Cl. C22d 7/00, 7/08

U.S. Cl. 75—10

26 Claims

Processes for performing any one or more, or all of the steps required for reducing raw copper ore and obtaining refined pure copper, in which all essential steps of

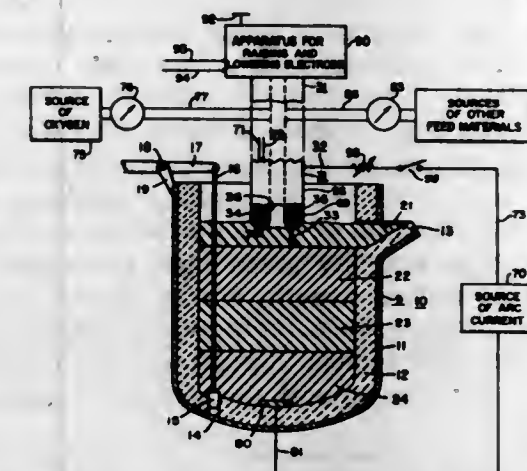
the process may be carried out with a single crucible or ladle, or a number of crucibles may be utilized, each for one or more steps. For heating, an electric arc is formed from and between the uppermost portion of the conductive material in the crucible, whether ore, matte, blister, or copper, and an electrode is employed having a tip composed of substantially pure copper forming an arcing surface, with magnetic field coil means in the tip to set up a magnetic field to move the arc substantially

formed and recycled together with oxygen and fuel through tuyeres into the furnace. Pig iron is produced at a high rate, with low consumption of fuel and the operation is smooth.

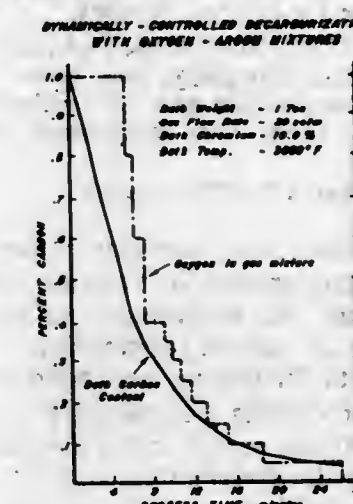
3,594,155
METHOD FOR DYNAMICALLY CONTROLLING DECARBURIZATION OF STEEL
 Sundaresan Ramachandran, Natrona Heights, Pa., assignor to Allegheny Ludlum Steel Corporation, Brackenridge, Pa.
 Filed Oct. 30, 1968, Ser. No. 771,752
 Int. Cl. C21c 5/32

U.S. Cl. 75—60

6 Claims



continuously around the tip, and an axially extending passageway through the electrode utilizable for bringing into the crucible or into the melt ore, oxygen, matte, iron, blister copper, a reducing agent, or any other material essential to one or more of the processes or steps. Normally the arcing surface is spaced from the upper surface of the melt, except for certain special operations. Refined copper is tapped from the bottom of the crucible, and slag as formed is periodically removable by a spout on the crucible, which may be tilted.

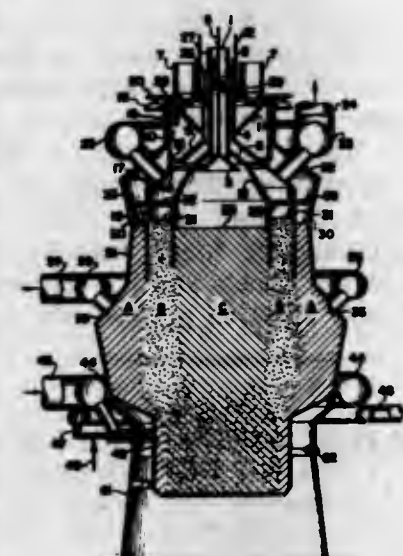


Described herein is a method of dynamically controlling decarburization of steel by measuring the rate of carbon removal from the steel, measuring the rate of oxidizer input, continuously maintaining a balance between the aforementioned rates by adjusting the carbon-oxygen relation rate and/or adjusting the input of oxidizing material to the steel.

3,594,154
IRON MAKING PROCESS AND ITS ARRANGEMENT THEREOF
 Tatsuro Kanokogi, Kyoto-shi, Japan, assignor to Sumitomo Metal Industries Ltd., Higashi-ku, Osaka-shi, Japan
 Filed May 14, 1968, Ser. No. 729,048
 Claims priority, application Japan, May 20, 1967, 42/32,215; Dec. 20, 1967, 42/82,135
 Int. Cl. C21b 5/06

U.S. Cl. 75—41

6 Claims



An improved process for iron making and arrangements thereof characterized in that fuel and ore burden are charged into a smelting shaft furnace so as to form three separate vertical zones of central columnar fuel zone, an intermediate annular ore material zone and an annular fuel zone along the inner wall surface of the furnace, a part of extracted furnace gases is thermally heated, re-

3,594,156
STAINLESS STEEL
 Henry P. Leckie, Griffith, Ind., and Eugene Williams, Pittsburgh, Pa., assignors to United States Steel Corporation
 No Drawing. Filed May 29, 1969, Ser. No. 829,110
 Int. Cl. C22c 37/10

U.S. Cl. 75—124

2 Claims

A low cost ferritic stainless steel with exceptionally good corrosion resistant properties having the following composition:

Carbon	0.03% maximum.
Manganese	2.0% maximum.
Chromium	6 to 12%.
Aluminum	2 to 7%.
Copper	0.1 to 1.5%.
Molybdenum	0.2 to 3.0%.
Columbium	0.2 to 3.0%.
Iron	Balance.

wherein chromium plus aluminum is at least 13.0%, molybdenum plus columbium is at least 0.8% and copper plus molybdenum plus columbium is at least 1.0%.

3,594,157
ALKALINE CHLORINATION OF WASTE PHOTOGRAPHIC PROCESSING SOLUTIONS CONTAINING SILVER
 Thomas N. Hendrickson and Thomas J. Dagon, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Aug. 19, 1969, Ser. No. 851,464
 Int. Cl. C22b 11/06

U.S. Cl. 75—112

7 Claims

Waste photographic processing solutions which contain silver thiosulfate complex, such as exhausted thio-

sulfate fixing solutions, are chlorinated under alkaline conditions to precipitate a silver-bearing sludge from which the silver can be separated and to destroy thiosulfate ion and thereby reduce the oxygen demand of the solution. Chlorination can be effected by introduction of chlorine gas or by use of hypochlorite solution. Since thiosulfate ion accounts for a major part of the oxygen-consuming material which is discharged in photographic processing, a significant source of water pollution is substantially eliminated by this method.

3,594,158 STRONG, TOUGH, CORROSION RESISTANT MARAGING STEEL

Edward Peter Sadowski, Ringwood, N.J., assignor to The International Nickel Company, Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 530,785, Mar. 1, 1966. This application Apr. 5, 1967, Ser. No. 628,567

Int. Cl. C22c 39/20

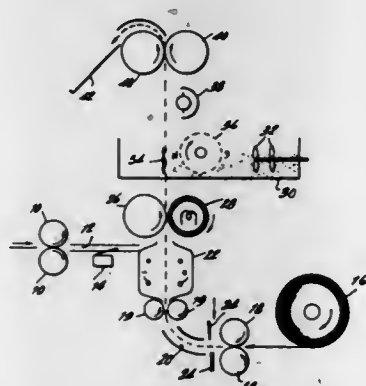
U.S. Cl. 75—128W 7 Claims
A maraging stainless steel contains chromium, molybdenum, nickel, aluminum and/or titanium, and carbon as essential constituents, the aluminum and titanium being specially controlled. A special relationship is given in respect of the elements chromium, molybdenum, and nickel whereby various processing treatments are rendered unnecessary. The steels are useful in the production of pressure vessels and an illustrative steel contains about 11% chromium, 2% molybdenum, 10% nickel, 0.25% aluminum, 0.2% titanium, up to 0.02% carbon, the balance being principally iron.

3,594,159 ELECTROSTATIC COPYING METHOD EMPLOYING DEVELOPMENT ON SIDE OF THE IMAGING SHEET OPPOSITE THE PHOTOCONDUCTIVE COATING

Arthur L. Kaufman, 26 High Point Road, Westport, Conn. 06880
Continuation-in-part of applications Ser. No. 434,078, Feb. 19, 1965, Ser. No. 541,902, Mar. 22, 1966, and Ser. No. 747,163, July 24, 1968. This application Mar. 9, 1970, Ser. No. 17,810

Int. Cl. G03g 13/22

U.S. Cl. 96—1 12 Claims



Method and apparatus for electrostatic reproduction of indicia, wherein a sheet of record material having an insulating substrate and a coating of photoconductive material on one side thereof is electrically charged, the photoconductive side is then exposed to light coming from the indicia to form a latent image, an electrical connection is established between the exposed photoconductive coating and a body of electrostatically attractive toner, the toner is applied to the substrate on the side opposite the photoconductive coating to render the latent image visible.

3,594,160 METHOD FOR EXPOSING PHOTOCONDUCTIVE MATERIALS WITH A MERCURY-THALLIUM VAPOR LIGHT SOURCE

Robert L. Gunto, Moundsville, W. Va., and Merton R. Staley, Palatine, Ill., assignors to Addressograph-Multi-Graph Corporation, Mount Prospect, Ill.
Continuation-in-part of application Ser. No. 653,090, July 13, 1967. This application June 30, 1970, Ser. No. 51,315

Int. Cl. G03c 13/04, 15/04

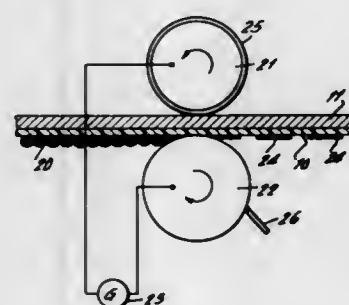
U.S. Cl. 96—1 5 Claims
Exposure of the conventional dye sensitized zinc oxide resin binder copy material, organic photoconductors and selenium is accomplished with a radiation source that emits a high level of energy at 535 nanometers. The photo-electrostatic copying method involves illuminating the original to be reproduced with a mercury-vapor type lamp which has been modified to include thallium vapors through the introduction of thallium halide into the lamp envelope. A high intensity green light is emitted which performs as a monochromatic energy source and finds particular application when reproducing originals having more than one color indicia thereon so that all colors are reproduced in accordance with their relative brightness on the original.

3,594,161 METHOD OF ELECTROPHOTOGRAPHY WITH DE- VELOPMENT ON THE SUBSTRATE SURFACE OF THE PHOTOCONDUCTIVE ARTICLE

Arthur L. Kaufman, 26 High Point Road, Westport, Conn. 06880
Continuation-in-part of abandoned application Ser. No. 434,078, Feb. 10, 1965. This application July 24, 1968, Ser. No. 747,163

Int. Cl. G03g 13/22

U.S. Cl. 96—1 13 Claims



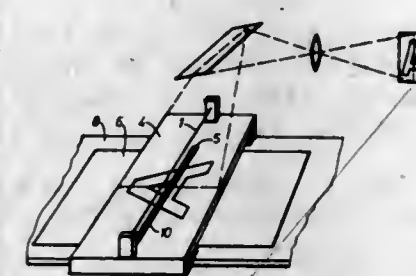
Apparatus and method for electrostatically reproducing images upon recording media in which an insulating sheet-like member is coated on one side with a photoconductive layer. The photoconductive layer is charged so as to produce a latent image on the uncoated face of the insulating sheet-like member. Toner is applied to the latent image to produce a visible image. Various means are disclosed for applying the toner, transferring the latent image to other carrier sheets and for selectively charging the photoconductive sheet to produce the latent image.

3,594,162 ELECTROGRAPHIC RECORDING PROCESS WITH CHARGING DEFLECTION

Walter Stimm, Leverkusen, and Rudolf Müller, Delsenhofen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Nov. 13, 1968, Ser. No. 775,285
Claims priority, application Germany, Nov. 22, 1967, P 16 71 522.3
Int. Cl. G03g 13/22

U.S. Cl. 96—1 7 Claims
The image-wise charging of recording materials in which a corona discharge current constant in time is directed from an electrode through a gap in a metal screen toward a recording material. The gap has along a lip a

means for producing a variable electric field transversely across the gap which variable electric field is capable of deflecting the discharge current and thereby controlling the charge image production.



of deflecting the discharge current and thereby controlling the charge image production.

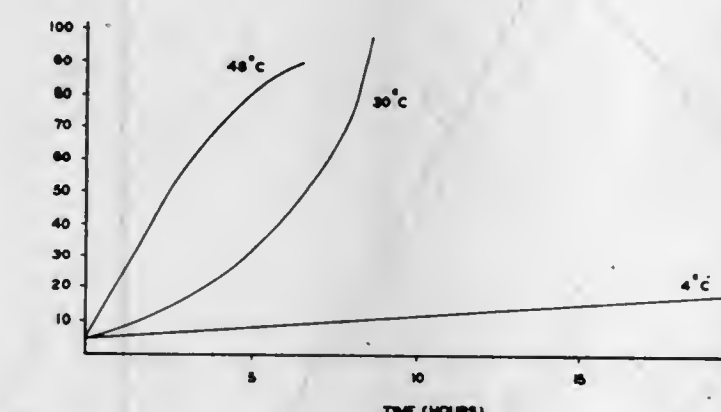
3,594,163 METHOD OF CONVERTING ALPHA PHTHALO- CYANINE TO THE X-FORM

Richard W. Radler, Jr., Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Continuation of abandoned application Ser. No. 566,839, July 21, 1966. This application Feb. 13, 1970, Ser. No. 10,077

Int. Cl. C09b 47/04

U.S. Cl. 96—1.5 9 Claims

PERCENT X-FORM



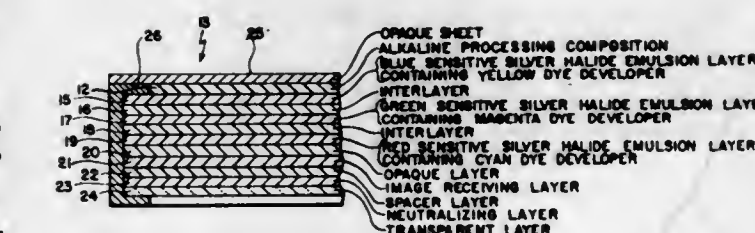
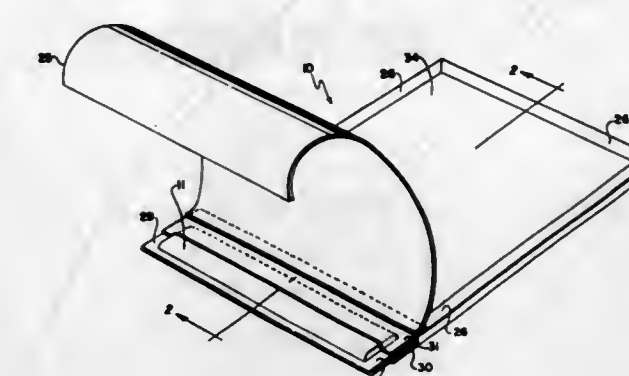
A method of preparing X-form phthalocyanine which comprises crystal conversion from alpha phthalocyanine in organic solvents seeded with small amounts of X-form is disclosed.

3,594,164 PHOTOGRAPHIC COLOR DIFFUSION TRANSFER PROCESS AND FILM UNIT FOR USE THEREIN

Howard G. Rogers, Weston, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Continuation-in-part of application Ser. No. 815,585, Apr. 14, 1969, which is a continuation-in-part of application Ser. No. 728,538, May 13, 1968. This application May 22, 1970, Ser. No. 39,666

Int. Cl. G03c 1/40, 5/54, 7/00

U.S. Cl. 96—3 36 Claims
The present invention relates to a composite photographic diffusion transfer color process film unit which comprises a photosensitive laminate including a dimensionally stable transparent support carrying a dyeable polymeric layer, a processing composition permeable opaque layer, and a photosensitive silver halide layer having associated therewith a dye transfer image-forming material; a dimensionally stable sheet adapted to be superposed substantially coextensive the surface of the lami-



transparent support and between the laminate and superposed sheet; and to specified color diffusion transfer processes employing such film unit.

3,594,165 NOVEL PHOTOGRAPHIC PRODUCTS AND PROCESSES

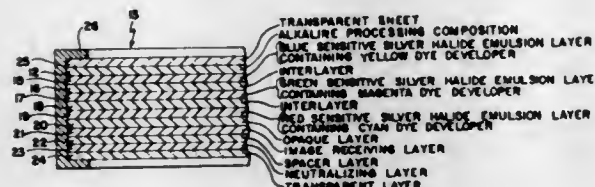
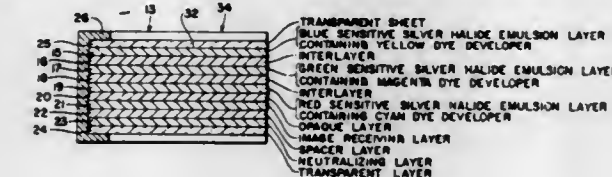
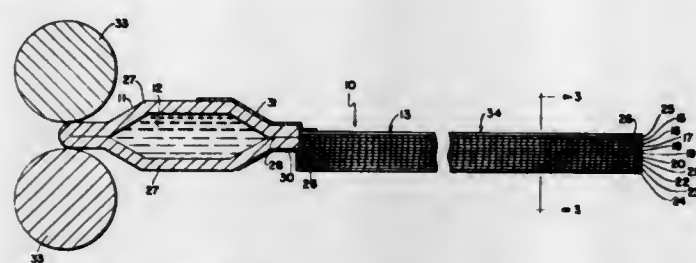
Howard G. Rogers, Weston, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Continuation-in-part of application Ser. No. 815,585, Apr. 14, 1969, which is a continuation-in-part of application Ser. No. 728,535, May 13, 1968. This application May 22, 1970, Ser. No. 39,646

Int. Cl. G03c 1/48, 7/00

U.S. Cl. 96—3 19 Claims
The present invention relates to photography, particularly, to photographic products specifically adapted for employment in specified photographic diffusion transfer color processes and, more particularly, to photographic products which comprise a composite photosensitive structure containing, in combination, a photosensitive laminate including, as essential layers, in sequence, a dimensionally stable layer transparent to actinic radiation; an optional polymeric layer substantially transparent to incident radiation and containing sufficient acidifying capacity to effect reduction of a processing composition having a pH at which a selected dye image-forming material is diffusible to a pH at which such material is substantially non-diffusible; a polymeric layer dyeable by the selected dye image-forming material; a processing composition permeable opaque layer; and a photosensitive silver halide layer having associated therewith a dye image-forming material which is processing composition diffusible, as a function of the point-to-point degree of the silver halide layer's exposure to incident actinic radiation; a transparent dimensionally stable sheet superposed substantially coextensive the surface of the laminate opposite the dimensionally stable transparent layer; and a rupturable container retaining a processing composition containing an opacifying agent positioned extending transverse a leading edge of the film unit to effect unidirectional discharge

of the container's contents intermediate the dimensionally stable sheet and the laminate; and to specified photo-

holographic recording media with large multiple storage capabilities and good diffracted powers.



graphic diffusion transfer color processes employing such products.

3,594,166

PROCESS FOR PRODUCING COPIES BY IMAGE-WISE HEATING

Alexander Riebel, Leverkusen, and Wolfgang Lassig, Karl Dinges, and Wolfgang Himmelmann, Cologne, Stammheim, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Dec. 21, 1965, Ser. No. 515,456
Claims priority, application Germany, Jan. 8, 1965, A 48,075

Int. Cl. G03c 5/04, 11/12, 5/24

U.S. Cl. 96—27

6 Claims

Thermographic copies are made with material, insensitive to daylight, having a support to which is adhered a copying layer of a swellable binder which can be hardened to reduce this swellability. Dispersed in the binder is a hardener that effects such hardening when heated to 50–300° C. and the binder is colored so that it absorbs light and converts the light energy to heat energy. When exposed to an original image with a high intensity flash of at least 300 watt-seconds, the exposed portions of the binder become hardened leaving the other portions swellable. A swelling liquid is then applied and the copying layer placed against a receiving sheet. The swelled unexposed portions of the copying layer adhere to the receiving sheet and when the receiving sheet is pulled away from the copying layer, a relief image of the original is torn out of the copying layer and appears on the receiving sheet. At the same time a relief image of opposite sense remains on the copying layer.

3,594,167

METHOD OF PREPARING HOLOGRAM USING GLASSOUS RECORDING MEDIUM

Frank P. Laming, North Plainfield, and Arthur D. Pearson, Bernardsville, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Filed Apr. 16, 1968, Ser. No. 721,692

Int. Cl. G03c 5/04

U.S. Cl. 96—27

10 Claims

Certain glassy compositions comprising arsenic, sulfur, and optionally included other elements, make excellent

3,594,168 METHOD FOR FABRICATING PHOTOGRAPHIC ARTWORK FOR PRINTED CIRCUITS

Giamplero Compare, Milan, Italy, assignor to General Electric Information Systems S.p.A., Caluso, Turin, Italy

Filed Feb. 12, 1968, Ser. No. 704,658

Claims priority, application Italy, Feb. 13, 1967, 12,554/67

Int. Cl. G03c 5/04

U.S. Cl. 96—27

8 Claims

This invention relates to a method for fabricating photographic artwork for use in the manufacture of printed circuits, the artwork being obtained through the use of a first mask of high precision pattern close to a photo-sensitive plate and a second mask for opaquing selected portions of the pattern of said first mask and exposing the same to appropriate radiation. This process is repeated until the desired artwork is obtained.

3,594,169

TERTIARY ALIPHATIC PHOSPHINES AS PHOTOGRAPHIC SILVER HALIDE SOLVENTS

Stanley M. Bloom, Waban, and Ronald F. Lambert, Cambridge, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

No Drawing. Filed Jan. 21, 1969, Ser. No. 792,776

Int. Cl. G03c 5/54

U.S. Cl. 96—29

8 Claims

Water-soluble tertiary aliphatic phosphines are used as silver halide solvents in photographic processing compositions having a pH in the range of about 4 to 9. In a preferred embodiment, compositions are provided which find particular utility in carrying out diffusion transfer photographic processes at neutrality.

3,594,170

ADDITIVES TO NEGATIVE PHOTORESISTS WHICH INCREASE THE SENSITIVITY THEREOF

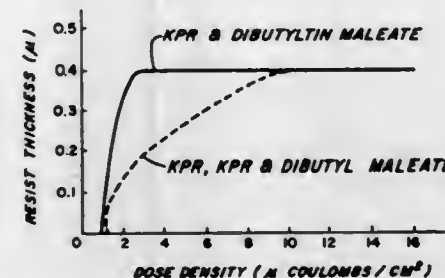
Barret Broyde, Highland Park, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Oct. 3, 1968, Ser. No. 764,867

Int. Cl. B44d 1/50; C08f 1/16

U.S. Cl. 96—36

35 Claims



The use of a scanning electron beam to generate a pattern in a negative photoresist is known. Electron beam equipment can be made which is capable of scanning very quickly, but standard negative photoresists require such a large flux of electrons for proper exposure that the scanning equipment must be operated at speeds substantially slower than the capability of the equipment. By adding soluble, heavy organometallic compounds from Groups III–V of the Periodic Table to the photoresist,

the sensitivity or speed of the photoresist is effectively increased. As a result, the electron beam can scan at a higher rate.

3,594,171

PHOTOGRAPHIC LIGHT SENSITIVE ELEMENTS

Shiro Kimura, Kazuya Sano, and Kazuo Inoue, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Dec. 22, 1967, Ser. No. 692,707

Claims priority, application Japan, Dec. 22, 1966, 41/84,022

Int. Cl. G03c 1/84

U.S. Cl. 96—84

2 Claims

A photographic light sensitive element comprising a support and at least one layer on said support, one of said layers containing at least one member selected from the group consisting of a photographic filter dye, an anti-irradiation dye and an antihalation dye incorporated in the layer as a solution of the dye in a non-volatile organic solvent which is immiscible with water under the conditions of preparation of said photographic light sensitive element but can be easily dissolved out of said layer under the conditions of processing at a pH higher than 8.5.

3,594,172

LIGHT DEVELOPABLE, DIRECT-WRITING, SILVER HALIDE EMULSIONS CONTAINING GOLD AND IODINE

Joseph Anthony Sincus, Little Silver, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 588,734, Oct. 24, 1966. This application June 13, 1967, Ser. No. 645,601

Int. Cl. G03c 1/28, 5/32

U.S. Cl. 96—107

14 Claims

Light-developable, direct-writing, radiation-sensitive silver halide emulsions, emulsion layers and elements containing molecular iodine or an iodide ion-yielding compound, a gold salt and optionally a water-soluble bromide and/or plumbous salt, and process for recording images.

3,594,173

LITH-TYPE PHOTOGRAPHIC MATERIAL

Tsunao Suga, Akio Oshima, and Yuji Kuroda, Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

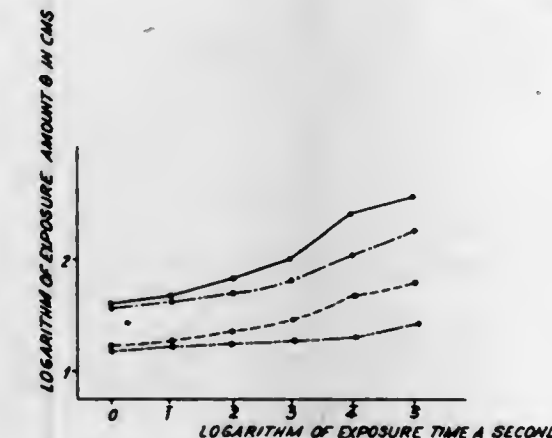
Filed Oct. 30, 1968, Ser. No. 771,807

Claims priority, application Japan, Oct. 31, 1967, 42/69,710

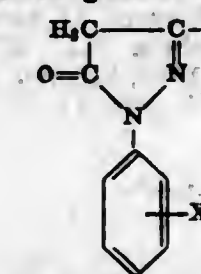
Int. Cl. G03c 1/28

U.S. Cl. 96—108

3 Claims



The joint use of certain pyrazolone compounds together with a gold sensitizer is found to be particularly effective to obtain a lith-type silver halide photographic emulsion



wherein R is an acylamino, arylamino, alkyl, aryl or aralkyl group and X is a hydrogen atom, halogen atom, carboxyl, sulfone, phenoxy amino or nitro group.

3,594,174

NOVEL ANTIFOGGANT FOR SILVER HALIDE EMULSION ON A POLYESTER FILM SUPPORT

Teruhide Haga, Koichi Horigome, Masao Ishihara, and Osakazu Sugino, Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

No Drawing. Filed Jan. 29, 1969, Ser. No. 795,034

Claims priority, application Japan, Jan. 31, 1968, 43/5,398

Int. Cl. G03c 1/34

U.S. Cl. 96—109

3 Claims

A light-sensitive silver halide photographic material which comprises a polyester film support and, coated thereon, a light-sensitive silver halide emulsion, at least one layer of said photographic material containing a new antifoggant specified later. The said antifoggant prevents the impurities in the polyester film support from fogging the silver halide emulsion during its storage or incubation.

3,594,175

PHOTOSENSITIVE ACETYLENIC POLYMERS

Allan S. Hay, Schenectady, N.Y., assignor to General Electric Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 624,202, Mar. 20, 1967. This application Oct. 1, 1968, Ser. No. 764,287

Int. Cl. G03c 1/68

U.S. Cl. 96—115

22 Claims

Polymeric compositions containing acetylenic groups and a photosensitizing agent, which may be part of the polymer molecule or an additive to the polymer, and which upon absorbing actinic radiation, accelerates the cross-linking of the polymer, are rendered insoluble when exposed to ultraviolet irradiation, thereby making them suitable as photoresists in the graphic arts.

3,594,176

PROTECTION OF FATTY MATERIALS

Leo Morris, Melrose Park, Ill., assignor to

CPC International Inc.
No Drawing. Filed Oct. 9, 1967, Ser. No. 673,995

Int. Cl. A23k 1/00; A23j 1/12

U.S. Cl. 99—2F

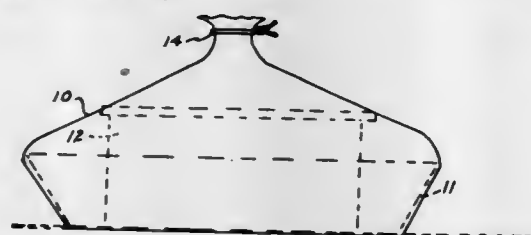
13 Claims

The present invention is directed to an oxidatively stable free-flowing, non-staining product of high fat content useful both in feed formulations and as a food component and to the process for the preparation thereof. In the process of the present invention, lipids are mixed thoroughly with undried gluten obtained from the commercial wet milling process of corn or grain sorghum. The mixture is then dried to yield a product of high fat content which does not bleed. Suitable lipids for use in the product include soapstocks, vegetable oils or fats, starch fat, animal fat, grease, tallow, and the like. The mixture will contain between 50% and 95% dry basis of the wet gluten and between 50% and 5% dry basis of the lipids. Additional constituents may be added to enhance either the flavor or the food value. Such additives include acids, steepwater, or other suitable additives.

3,594,177
SPECIAL FOOD PACKAGE
 Linda E. McGowan, 14 Avenue D,
 West Keanburg, N.J. 07734
 Filed Aug. 5, 1969, Ser. No. 856,875
 Int. Cl. B65b 11/00

U.S. Cl. 99—171R

12 Claims



A readily closable and re-openable package of food, which may be canned food, refrigerated food or dehydrated food, in which the food is placed within a container which may be a dish, can, cup, etc. and the container is affixed at its bottom surface to a flexible plastic sheet so that the plastic sheet may be gathered about the container and secured with a twisted wire retainer for shipment and handling but when the wire retainer is untwisted, the flexible plastic sheet will fall upon a supporting surface to form a mat that is much larger than the container. This protecting mat makes the feeding container appropriate for feeding dogs or cats as they stand upon the mat thus holding the container from shifting while they feed. It is also helpful for feeding children by providing a pad or cover surrounding the food container to catch the normal spillage in feeding a child. This protecting mat makes the food container ideal for travel and in some instances the mat may have ties for tying it upon the person.

3,594,178
ALKALINE TREATMENT OF HOPS AND RESULTING PRODUCT
 Sidney S. Meisler, 3702 Richey Road,
 Yakima, Wash. 98902
 No Drawing. Filed Dec. 26, 1968, Ser. No. 787,193
 Int. Cl. C12c 3/00

U.S. Cl. 99—50

17 Claims

A hops product, including the lupulin glands of hops, having improved effectiveness is obtained by subjecting hops material, such as baled dried hops, loose, field dried hops or the separated lupulin glands of hops, to contact with a gaseous or vaporized alkaline-acting treating agent, such as anhydrous ammonia, ammonium hydroxide and/or aqueous sodium hydroxide, subsequently treating the hops material with a gaseous or vaporized agent, such as hydrogen chloride, hydrochloric acid or methyl chloride, and subjecting the resulting treated hops material to a reduced pressure to effect removal of the readily volatilizable materials therefrom.

3,594,179
METHOD OF PRODUCING KVAAS WORT CONCENTRATE
 Dmitry Amosovich Korolev, Ul. Chkalova 2/5, kv. 23;
 Ljudmila Sergeevna Sahmanova, Ul. Korolenko 1,
 korpus 3; Valentina Ivanovna Bukanova, Donskaya
 ul. 28/32, kv. 146; Petr Ivanovich Bukovsky, Gorodok
 Mossoveta 6, proezd 3, kv. 2; Lidia Semenovna Sheptun,
 Proletarsky raion, pos. Lenino, ul. Severenaya 10; and
 Elena Natanovna Chupchina, 9-Ul. Oktyabrskogo polya
 7, kv. 50, all of Moscow, U.S.S.R.
 No Drawing. Filed Feb. 28, 1967, Ser. No. 619,200
 Int. Cl. C12c 7/00

U.S. Cl. 99—52

2 Claims

A process for preparing concentrated kvass wort for cold beverages comprising mashing germinated malt, adding a cytolytic enzyme to a mixture of the mashed malt, flour and water, cytolyzing said mixture, proteolyzing said mixture and evaporating the mixture under vacuum whereby melanoidins are produced directly in the malt.

3,594,180
PROCESS FOR MAKING BREAD
 Joseph H. Hulse, Rome, Italy, and Robert E. Hannah,
 Crystal Beach, Ontario, Canada, assignors to Maple
 Leaf Mills Limited, Research Div., Toronto, Ontario,
 Canada
 No Drawing. Filed June 3, 1968, Ser. No. 733,757
 Claims priority, application Canada, June 14, 1967,
 993,027

Int. Cl. A21d 2/04, 2/14

U.S. Cl. 99—90R

5 Claims

This invention relates to an improved process for making yeast raised bread products which comprises mixing into a standard dough at least one acid selected from lactic acid, acetic acid, acid phosphates, such as calcium phosphate and sodium acid pyrophosphate, acid tartrates, organic acids such as citric acid, tartaric acid, malic acid, adipic acid, fumaric acid, and glucono delta lactone, at least one compound selected from the bromates of sodium, potassium, and calcium, as a first oxidizing agent, and at least one compound selected from the iodates of sodium, potassium and calcium, acetone peroxide, azodicarbonamide, ascorbic acid, dehydro-ascorbic acid, and calcium peroxide, as a second oxidizing agent for a slightly longer than normal mixing time in a conventional dough mixer. The resulting product requires no fermentation and can be immediately divided, moulded, proofed and baked after mixing and resting.

3,594,181
PROCESS OF UTILIZING MUSTARD AND RAPE SEEDS AS DOUGH IMPROVING AGENTS
 Albert Alpin, 153 Overdale Road, Bredbury Green,
 Romley, near Stockport, Cheshire, England
 No Drawing. Filed May 28, 1968, Ser. No. 732,535
 Claims priority, application Great Britain, July 19, 1967,
 23,556/67

Int. Cl. A21d 2/36

U.S. Cl. 99—91

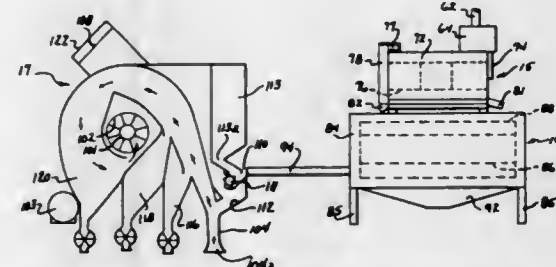
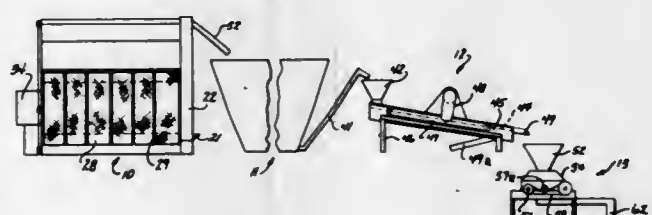
3 Claims

Comminuted non-toxic plants of the family Cruciferae, Resedaceae, Capparidaceae, or Tropaeolaceae, especially ground white mustard seed, having a valuable improving action, generally similar to that of cysteine, as improvers for wheat flour in the making of bread and like comestibles.

3,594,182
METHOD FOR PROCESSING CHERRY PITS AND RESULTING PRODUCT
 George J. Baudhuin, Sturgeon Bay, Wis., assignor to
 Dorco Manufacturing, Inc.
 Filed Jan. 9, 1968, Ser. No. 696,520
 Int. Cl. A23b 9/00

U.S. Cl. 99—93

7 Claims



Drying cherry pits and removing any residue of cherry flesh therefrom. Sizing the cherry pits into generally uniform sizes, cracking with controlled pressure so that the portion of the cherry hull adjacent the line of separation is cracked into pieces and the remainder into smaller

pieces, and removing the larger pieces of the cherry hull from the mixture. Grinding a mixture of the cherry kernels and cherry hulls to make an edible flour.

3,594,183
EGG FOOD PRODUCT AND PROCESS FOR THE PREPARATION THEREOF
 Daniel Melnick, Teaneck, Marcus L. Wegner, Tenafly,
 and David R. Davis, Somerville, N.J., assignors to
 CPC International Inc.
 Filed Aug. 31, 1967, Ser. No. 664,674
 Int. Cl. A23i 1/10, 1/32

U.S. Cl. 99—94

29 Claims

Egg yolk containing products which are high in polyunsaturates and low in cholesterol content. Egg yolk solids, from which not all but a major part of the fat and cholesterol have been extracted, are mixed with vegetable oil, salt, emulsifiers, and coloring compounds. After this mixture has been emulsified, pasteurized and spray dried, substantially dry, discrete particles of refatted egg yolk solids are recovered. These refatted egg yolk solids may be used as a replacement for conventional egg yolk solids, or when admixed with the proper proportion of egg white solids, used as a replacement for whole egg solids. Further, these refatted egg yolk solids, when combined in the proper proportions with egg white solids, non-fat milk solids, an alkaline material, baking powder, vegetable gum, and sugar and spices, may be cooked after rehydration with water, to yield a scrambled egg or omelet product. Vegetable oil is used for refatting, preferably corn oil, because of its high ratio of polyunsaturates to saturates. The resulting refatted egg yolk product is particularly suitable for consumption by those requiring foods that are low in cholesterol and/or rich in polyunsaturates.

3,594,184
TREATING HULL ENCLOSED COTYLEDON SEEDS

Robert L. Hawley, Webster Groves, Mo., and Jesse T. Duren, Belleville, Ill., assignors to Ralston Purina Company, St. Louis, Mo.
 No Drawing. Continuation-in-part of application Ser. No. 643,781, May 12, 1967. This application Apr. 26, 1968, Ser. No. 724,327

Int. Cl. A23i 1/20

U.S. Cl. 99—98

14 Claims

A method of and products resulting from treating hull enclosed cotyledons, especially pea or bean legumes, particularly soybeans, to remove objectionable flavor, to remove or alter physiologically objectionable sugar constituents, to alter the density and texture to provide a desirable texture, and basically to produce a full-fat edible product retaining the desirable oils, by the use of a special combination of controlled dry heating of the complete bean externally and internally, to alter the internal and external characteristics thereof, followed by controlled water treatment to further alter the altered structure. This is followed by roasting to obtain edible nut like products or roasting and grinding to obtain edible spread type products.

3,594,185
TREATING FULL-FAT, HULL ENCLOSED SOYBEANS
 Robert L. Hawley, Webster Groves, Mo., and Jesse T. Duren, Belleville, Ill., assignors to Ralston Purina Company, St. Louis, Mo.
 No Drawing. Continuation-in-part of application Ser. No. 724,327, Apr. 26, 1968, which is a continuation-in-part of application Ser. No. 643,781, May 12, 1967. This application July 18, 1969, Ser. No. 843,208

Int. Cl. A23i 1/20

U.S. Cl. 99—98

12 Claims

A method of and products resulting from treating hull enclosed cotyledons, especially pea and bean legumes,

particularly soybeans, to remove objectionable flavor, to remove or alter physiologically objectionable sugar constituents, to alter the density and texture to provide a desirable texture, and basically to produce a full-fat edible product retaining the desirable oils, by the use of a special combination of controlled dry heating of the complete bean externally and internally, to alter the internal and external characteristics thereof, followed by controlled water treatment to further alter the altered structure. This is followed by roasting to obtain edible nut-like products. The beans may be treated with flavor material, sugars or oils to obtain different edible nut-like products having desirable flavor and texture. Also the beans may be subjected to roasting and grinding to obtain edible spread type products.

3,594,186
PRODUCING A FULL-FAT FLOUR PRODUCT FROM COTYLEDON SEED MATERIALS
 Robert L. Hawley, Webster Groves, Mo., and Jesse T. Duren, Belleville, Ill., assignors to Ralston Purina Company, St. Louis, Mo.
 No Drawing. Continuation-in-part of abandoned application Ser. No. 637,910, May 12, 1967. This application Apr. 26, 1968, Ser. No. 724,326

Int. Cl. A23i 1/20

U.S. Cl. 99—99

15 Claims

A method of making full-fat flour products from hull enclosed cotyledons, especially pea or bean legumes, particularly soybeans, utilizing a novel sequence of steps to dehull and also to alter the texture and cell structure in a manner causing the treatment steps to remove objectionable flavor constituents, to remove or alter physiologically objectionable sugar constituents, and basically to produce a full-fat edible flour product retaining the desirable oils, by the use of a special combination of controlled dry heating of the complete bean externally and internally, to alter the internal and external chemical and physical characteristics thereof, followed by controlled water treatment to further alter the heat altered structure by swelling and extraction processes. This is followed by either (a) drying the treated cotyledons and grinding to a powder, or (b) grinding the treated cotyledons, slurring with water, and flash drying to a powder.

3,594,187
POTATO PRODUCTS HAVING IMPROVED FLAVOR
 Alexander L. Liepa, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
 No Drawing. Filed Mar. 27, 1968, Ser. No. 716,296
 Int. Cl. A23i 1/12; A23b 7/02

U.S. Cl. 99—100

8 Claims

A process for improving the flavor of cooked potato products prepared from dehydrated potatoes and water. A flavor-enhancing agent derived from a plant of the Cruciferae family is added to the potatoes prior to cooking to provide an enhanced natural potato flavor in the cooked product.

3,594,188
PREPARATION OF FROZEN PAR-FRIED POTATOES
 Charles C. Huxsoll, San Pablo, and Merle L. Weaver, Martinez, Calif., assignors to the United States of America as represented by the Secretary of Agriculture
 No Drawing. Filed Apr. 2, 1969, Ser. No. 812,857
 Int. Cl. A23i 1/00; B65b 55/16

U.S. Cl. 99—100P

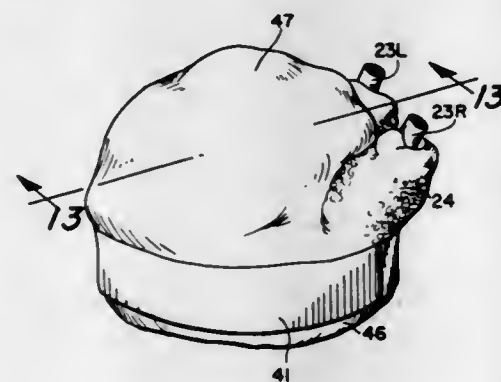
2 Claims

Conventional frozen par-fried potatoes when prepared for the table rapidly lose their crispness and become limp and soggy. This problem is cured as described herein by applying a treatment with radiant heat before the potato strips are subjected to the usual par-frying operation.

3,594,189
PARTIALLY BONED POULTRY PRODUCT AND METHOD OF PREPARING SAME
 Carlo Panattoni, San Francisco, Calif., assignor to San Francisco Poultry, Inc., doing business as American Poultry Company, San Francisco, Calif.
 Filed Nov. 13, 1967, Ser. No. 682,300
 Int. Cl. A22c 21/00

U.S. Cl. 99—107

5 Claims



A single portion of partially boned poultry product is formed by filleting a double chicken breast to which the first joints of the wings remain attached and wrapping the meat around a ball of dressing. The product simulates a miniature whole roast chicken, the wing stubs simulating the drumsticks and the breast meat the chicken carcass.

3,594,190
RECOVERY OF ADHERING MEAT FROM BONES
 Michael J. Eslinger, Weston, Ontario, John E. Dicks, Bolton, Ontario, and Henry R. Nordin, Maple, Ontario, Canada, assignors to Canada Packers Limited, Toronto, Ontario, Canada
 No Drawing. Filed Oct. 20, 1967, Ser. No. 676,718
 Int. Cl. A22c 11/00, 17/04

U.S. Cl. 99—109

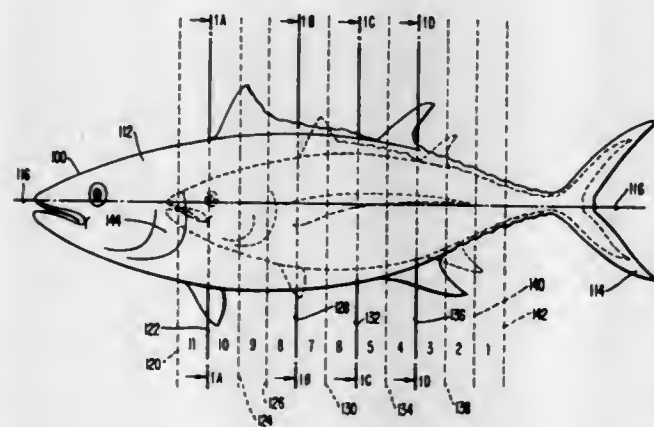
8 Claims

This invention relates to a process for recovering adhering meat from raw bones which the major portion of the meat has already been removed. The process comprises tumbling the bones in a rotating drum in the presence of water or salt brine to abrade the meat from the bones by the combined action of the liquid and of the bones falling and rubbing repeatedly upon themselves to form a meat slurry, and then drawing off the slurry from the cleaned bones. The slurry is used directly in sausage manufacture where it imparts good binding power and adds food value.

3,594,191
METHOD OF PROCESSING TUNA
 James M. Lapeyre, 13 Richmond Place, New Orleans, La. 70115
 Filed Feb. 14, 1969, Ser. No. 799,403
 Int. Cl. A22c 25/00, 25/18

U.S. Cl. 99—111

30 Claims



Method of processing tuna for a canned pack thereof including the preliminary subdivision of whole frozen tuna

transverse to the longitudinal backbone thereof into a plurality of lateral sections of substantially uniform thickness followed by selective grading of similarly sized and configured sections thereof to facilitate subsequent processing thereon.

3,594,192
PROCESS FOR MAKING SOY PROTEIN MORE HEAT COAGULABLE IN COMBINATION WITH EGG WHITE AND COMPOSITIONS CONTAINING SAME
 Joseph D. Mullen, Golden Valley, Donald E. Smith, Minneapolis, and Alide Ogrina, St. Paul, Minn., assignors to General Mills, Inc.
 No Drawing. Filed Nov. 29, 1967, Ser. No. 686,726
 Int. Cl. A23j 3/02

U.S. Cl. 99—114

16 Claims

Aqueous dispersions of soy protein material are modified by raising the pH to over about 9.0 and then reducing the pH to about 5.5 to 8.0. The modified products are used to replace a portion of the egg white in foods whose structures depend at least in part on the heat coagulation properties of egg white.

3,594,193
POWDERED ICE CREAM MIX
 Abraham R. Mishkin, Marysville, Donald E. Yingst, Columbus, and Joseph J. Peters, Marysville, Ohio, assignors to Société d'Assistance Technique Pour Produits Nestlé S.A.
 No Drawing. Filed May 20, 1968, Ser. No. 730,625
 Int. Cl. A23g 5/00

U.S. Cl. 99—136

4 Claims

Preparing a powdered non-dairy ice cream mix by forming a premix of fat, sugar, corn syrup, sodium caseinate, and emulsifier homogenizing and spray drying the premix and subsequently blending the premix with additional sweetener, fat, emulsifier and a flavoring. The emulsifier employed is a combination of sorbitan tristearate and sorbitan monooleate.

3,594,194
PROCESS FOR TREATMENT OF BASIL AND PRODUCTS THEREOF
 Angelo Ricci, 2790 24th St., San Francisco, Calif. 94110
 Filed May 18, 1970, Ser. No. 38,116
 Int. Cl. A23l 1/22, 1/26

U.S. Cl. 99—140

15 Claims

Process for assuring the retention of the natural green color and flavor of basil leaves which includes heating the leaves by steam or hot water, quenching the leaves in cold water, and cutting the leaves into small particles which will remain in suspension when the basil particles are blended with other ingredients to form a flavoring sauce.

3,594,195
COMPOSITIONS CONTAINING 2-VINYLPYROMECONEIC ACID AS A FLAVOR AND AROMA ENHANCER
 Bryce E. Tate, Ninantic, and Robert P. Allingham, Groton, Conn., assignors to Pfizer Inc.
 No Drawing. Division of application Ser. No. 591,126 Nov. 1, 1966, now Patent No. 3,468,916, dated Sept. 23, 1969, and continuation-in-part of application Ser. No. 310,141, Sept. 19, 1963. This application Apr. 10, 1969, Ser. No. 834,923
 Int. Cl. A23l 1/22; C11b 9/00

U.S. Cl. 99—140

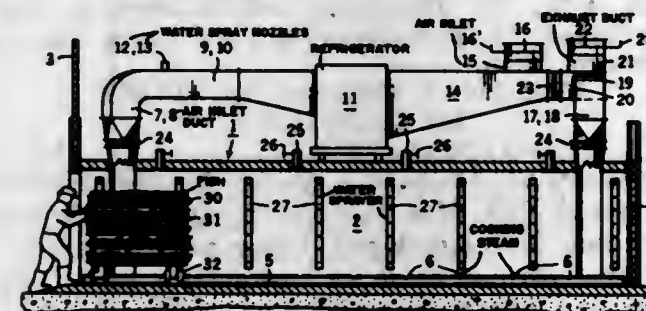
2 Claims

Enhancing the flavor and aroma of edibles and the aroma of perfumes by adding 2-vinylpyromeconic acid.

3,594,196
MULTIPURPOSE COOKER METHOD
 Ernest W. Peterson, Los Alamitos, Calif., assignor to Ralston Purina Company, St. Louis, Mo.
 Filed Dec. 11, 1967, Ser. No. 689,556
 Int. Cl. A23b 3/00, 3/06

U.S. Cl. 99—158

4 Claims



A method of preparing tuna for canning which prevents surface dehydration and retards enzymatic and oxidative deterioration of the fish from the time of evisceration through precooking and cooling. The method utilizes a chamber having suitable means for refrigerated holding, precooking and cooling of fish. After the fish are eviscerated, they are placed in the chamber under refrigerated conditions to retard deterioration and to attain a uniform temperature throughout the fish. The fish are then subjected to the precooking operation which due to the initial uniform temperature of the fish results in a uniform processing of the fish. After the fish are precooked, they are cooled either by recirculating water saturated refrigerated air through the chamber or by initially utilizing evaporative cooling and thereafter recirculating water saturated refrigerated air through the chamber to cool the fish to a desired temperature.

3,594,197
PROCESS AND COMPOSITION FOR IMMERSION PLATING OF ALUMINUM OR ALUMINUM ALLOYS WITH TIN
 Stanley Bunevich, Houston, and Richard E. Horn, Pittsburgh, Pa., assignors to Pitt Metals Company, Pittsburgh, Pa.
 No Drawing. Filed Oct. 29, 1968, Ser. No. 771,650
 Int. Cl. C23c 3/00

U.S. Cl. 106—1

9 Claims

A process for the immersion plating of aluminum and aluminum alloys with tin and the composition of the bath. The plating bath comprises an aqueous mixture of an alkali metal stannate and boric acid, or an alkali metal borate or mixtures thereof. The boric acid or alkali metal borate prevents precipitation of metastannic acid and allows the immersion tin plating bath to be operated under unusual pH conditions. The reaction products stabilize the bath and cause the bath to be self-regulating. The boric acid or alkali metal borate forms a complex with the alkali metal stannates in the plating bath.

3,594,198
PHOTOTROPIC GLASS
 Lowell L. Sperry, Lower Burrell, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
 No Drawing. Continuation-in-part of application Ser. No. 708,426, Feb. 26, 1968, which is a continuation-in-part of application Ser. No. 537,682, Mar. 28, 1966, which in turn is a continuation-in-part of application Ser. No. 236,716, Nov. 9, 1962, all now abandoned. This application Apr. 9, 1970, Ser. No. 27,166
 Int. Cl. C03c 3/14, 3/08, 3/26

U.S. Cl. 106—54

7 Claims

The present invention relates to phototropic glass and to processes for producing a phototropic glass. A phototropic glass is one which has the ability to color or darken in color when radiated with light of a particular wavelength region and whose induced color fades rapidly, that is, within a few minutes after the exciting radiation is removed.

The present invention particularly relates to glasses which exhibit a phototropic effect when radiated with ultraviolet light or sunlight. The invention especially relates to phototropic potassium borate glasses comprising a glass body having in at least a portion thereof microcrystals of at least one silver halide such as silver chloride, silver bromide, or silver iodide or mixtures thereof.

3,594,199
METHOD OF MAKING IMPROVED FIRED BASIC REFRACTORY BRICK AND PRODUCT
 Walter S. Treffner, Luthicum Heights, and George D. MacKenzie, Baltimore, Md., assignors to General Refractories Company, Philadelphia, Pa.
 No Drawing. Filed Sept. 13, 1968, Ser. No. 759,772
 Int. Cl. C04b 35/42

U.S. Cl. 106—59

22 Claims

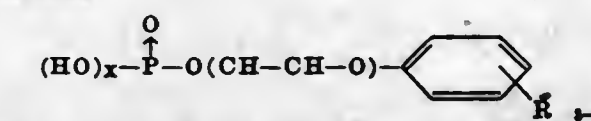
An improved fired basic refractory brick is provided by firing a shaped body consisting essentially of an intimate mixture of, A, a pre-reacted mixture of periclase and chrome ore wherein periclase particles are sintered directly to chrome ore particles and, B, a small amount of fine, substantially pure chromic oxide (Cr₂O₃).

3,594,200
TEXTILE YARN FINISH
 Leigh W. Cooley, Greenville, and Neil Lamar Finch, Winston, N.C., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
 No Drawing. Continuation-in-part of abandoned application Ser. No. 583,111, Sept. 29, 1966. This application Nov. 28, 1967, Ser. No. 686,320
 Int. Cl. C08h

U.S. Cl. 106—245

1 Claim

A textile finish composition consisting essentially of a glyceryl triester, a salt of a sulfated glyceryl triester, a wax and a salt of an aromatized phosphate ester having the formula



wherein n is a number from 1 to 10, R is hydrogen or an alkyl radical of up to 12 carbon atoms and X is one or two.

3,594,201
ASPHALT EMULSIONS
 Harry L. Sommer, Lafayette, and Charles C. Evans, Orinda, Calif., assignors to Shell Oil Company, New York, N.Y.
 No Drawing. Filed Apr. 29, 1968, Ser. No. 725,187
 Int. Cl. C08h 13/00; C08k 1/62; C09d 3/24

U.S. Cl. 106—277

5 Claims

Time stabilized, corrosion resistant anionic asphalt emulsions comprise a mixture consisting of 50 to 75% by weight asphalt and 25 to 50% by weight aqueous phase. The aqueous phase contains from 20 to 80 grams per liter of an emulgator containing specified amounts of ammonia or diammonium phosphate.

3,594,202
ASPHALTIC COMPOSITIONS
 Luke W. Corbett, Mountaineer, and Robert E. Swarbrick, Belle Mead, N.J., assignors to Esso Research and Engineering Company
 No Drawing. Filed May 17, 1966, Ser. No. 550,644
 Int. Cl. C08h 13/00, 17/22

U.S. Cl. 106—278

13 Claims

Asphaltic compositions comprising admixtures of asphaltenes and high boiling ester plasticizers, e.g., diisodecyl phthalates, have the unusual combination of properties including excellent temperature susceptibility, high viscosity and good resistance to aging and hardening.

3,594,203

VISCOSITY STABILIZED CLAY SLURRIES

Edgar W. Sawyer, Jr., Edison, and Walter L. Haden, Jr., Metuchen, N.J., Louis L. Petty, Irwinton, Ga., and Barry S. Miller, Roselle, N.J., assignors to Engelhard Minerals & Chemicals Corporation, Woodbridge, N.J.
Filed Nov. 19, 1968, Ser. No. 777,105

Int. Cl. C09c 1/42

U.S. Cl. 106—288B

7 Claims

A high solids slurry of a kaolin clay coating pigment obtained by the flotation of colored impurities from sedimentary Georgia kaolin clay is deflocculated and the viscosity of the deflocculated slurry is adjusted to a minimum value with tetrasodium pyrophosphate. A small amount of an organic polyanionic polymer is incorporated in the slurry as a stabilizer. The quantity of organic polymer is such that the viscosity of the freshly prepared slurry is substantially unchanged by its presence.

3,594,204

USE OF CLAY IN SYSTEMS CONTAINING VINYL MONOMERS

John C. Nease, Piscataway, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Edison, N.J.
No Drawing. Application Sept. 8, 1967, Ser. No. 666,491, now Patent No. 3,450,666, dated June 17, 1969, which is a continuation-in-part of application Ser. No. 457,176, May 19, 1965. Divided and this application Apr. 4, 1969, Ser. No. 842,039

Int. Cl. C09c 1/00

U.S. Cl. 106—288B

6 Claims

A small amount of a polyoxyethylene fatty acid ester is coated on a dry clay filler having surface acidity. When incorporated with an ethylenically unsaturated monomer, undesired polymerization of the monomer by the clay is prevented.

3,594,205

HYDROUS OXIDE TREATED ALKALI TITANATES

Hugh C. Gullledge, Wilmington, and George Leotasacos Lewis, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 411,692, Nov. 17, 1964, now Patent No. 3,380,847. This application Apr. 29, 1968, Ser. No. 725,149

Int. Cl. C09c 1/00, 1/36

U.S. Cl. 106—299

2 Claims

A fibrous alkali titanate in intimate association with from 0.1 to 25% by weight based on the weight of the fibrous titanate, of precipitated alumina, titania or zirconia has particular utility as a pigment in paper manufacture and as an insulating composition.

3,594,206

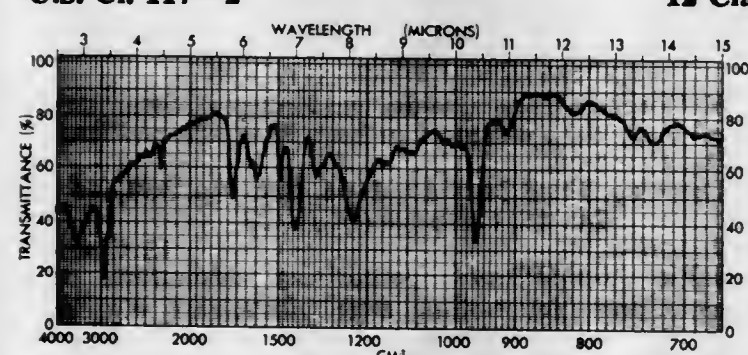
LATEX RECOATING PROCESS

Alex A. Scarborough, La Grange, Ga., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed June 4, 1968, Ser. No. 734,363

Int. Cl. B44d 1/16

U.S. Cl. 117—2

12 Claims



Latex-backed fabrics can be effectively recoated with latex by first applying to the original, glazed latex back-

ing a precoating composition comprising acrylonitrile-conjugated diene copolymer, a curable condensation resin and a solvent.

3,594,207

CATHODE RAY TUBE MANUFACTURE

William Allie, Jr., Dearborn, and Richard H. Marsh, Farmington, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed May 1, 1969, Ser. No. 820,899

Int. Cl. H01j 3/20

U.S. Cl. 117—33.5CM

1 Claim

This invention relates to a process for the preparation of the active face of a cathode ray tube employing as the phosphor europium doped yttrium oxide or gadolinium oxide. The yttrium oxide or gadolinium oxide is protected during manufacture by a fluoride coating deposited from a buffered suspension.

3,594,208

HEAT SENSITIVE COLOR PROJECTION TRANSPARENCY BLANK AND METHOD OF MAKING

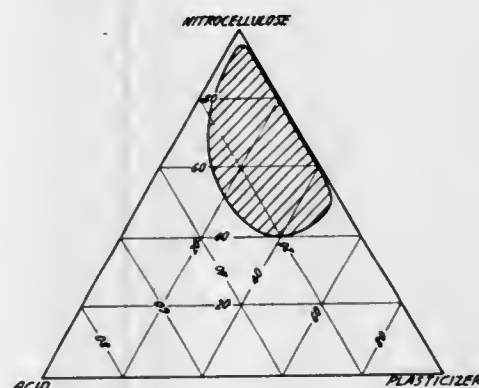
Joseph A. Wiese, Jr., St. Paul, John R. Berg, Roseville, and Donald J. Williams, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed June 16, 1969, Ser. No. 833,642

Int. Cl. B41m 5/18

U.S. Cl. 117—36.8

7 Claims



An integral film for making long-lived color projection transparencies by thermographic copying techniques comprises a first coating of a color progenitor in a vinyl halide resin binder and a firmly retained heat-resistant and permanently clear and transparent second coating of an acidic reactant in a plasticized nitrocellulose binder.

3,594,209

INK TRANSFER MATERIAL AND METHOD FOR MANUFACTURE THEREOF

Horst H. Kosche and Ferdinand K. Müller, Duren, and Karl-Heinz Meyer, Kreuzau, Germany, assignors to Renker-Belipa G.m.b.H., Duren, Germany

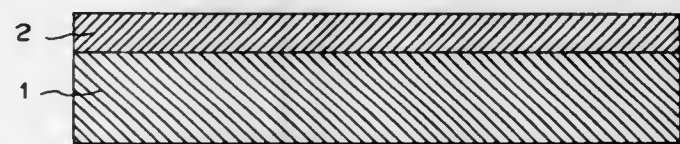
Filed May 27, 1968, Ser. No. 732,246

Claims priority, application Austria, May 26, 1967, A 4906/67

Int. Cl. B41m 5/10

U.S. Cl. 117—36.1

13 Claims



Ink transfer material is produced by heating a mixture of at least a hard and a soft wax in a non-polar or

weakly polar organic liquid along with a high molecular weight binding agent. The solution is agitated and cooled below 25° C. to separate out 40% to 70% of the wax as gel particles and after pigment material is added the dispersion/solution mixture is applied to a carrier having at least surface absorbency. The liquid is expelled to produce a carbon paper for single use with greater blackening.

3,594,210

METHOD OF CONTROLLING RESIN DEPOSITION ON ABSORBENT MATERIALS

Arthur Drellich, Plainfield, N.J., assignor to Johnson & Johnson

No Drawing. Filed Apr. 17, 1969, Ser. No. 817,177

Int. Cl. B44d 1/092, 5/00

U.S. Cl. 117—38

12 Claims

A method of controlling resin deposition on absorbent materials by treating the absorbent material with certain polyelectrolyte compounds and applying an emulsion polymerized resin to the treated material. The product obtained by the method is also disclosed.

3,594,211

AUTOMATIC COATING SYSTEM

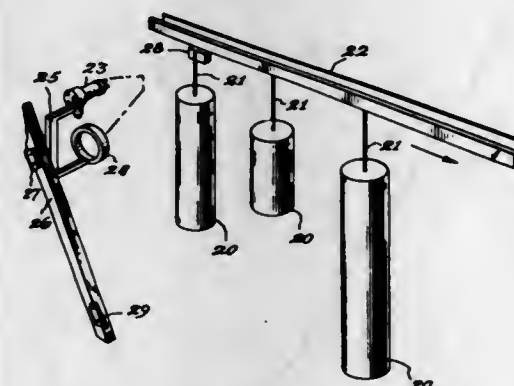
Edward W. Drum, Indianapolis, Ind., assignor to Ransburg Electro-Coating Corporation

Filed Oct. 20, 1966, Ser. No. 588,181

Int. Cl. B05c 1/16, 3/20

U.S. Cl. 117—43

4 Claims



Methods of coating irregularly shaped articles and of shading the edges of articles are performed automatically using a sensor that moves with the coating apparatus to generate a control signal for the coating apparatus. Where the sensitive area of the sensing means is not co-extensive with the coating zone of the coating apparatus, the control signal is stored in a memory means synchronized with the coating apparatus. The recorded signal is detected to operate the coating apparatus over the appropriate portion of its path of movement when the article to be coated is within the coating zone of the coating apparatus.

3,594,212

TREATMENT OF FIBROUS MATERIALS WITH MONTMORILLONITE CLAYS AND POLYAMINES AND POLYQUATERNARY AMMONIUM COMPOUNDS

Le Roy T. Ditsch, Minneapolis, Minn., assignor to General Mills, Inc.

No Drawing. Filed Mar. 25, 1968, Ser. No. 715,542

Int. Cl. B44d 1/44; C08h 17/06

U.S. Cl. 117—62

17 Claims

Cotton fibrous materials are treated with an alkali metal or acid montmorillonite clay and with a polyamine or

PROCESS FOR CONTROLLING POROSITY IN FIBROUS WEBS

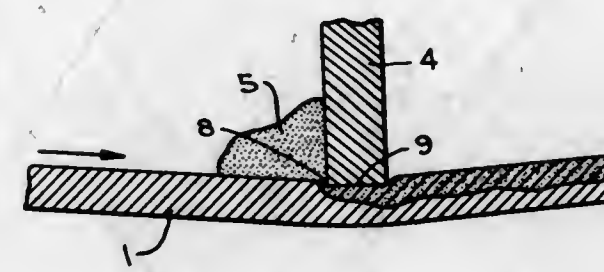
Joseph T. Rudman, 10—51 Bay 25th St., Far Rockaway, N.Y. 11691

Filed Oct. 27, 1967, Ser. No. 678,708

Int. Cl. B44d 1/44

U.S. Cl. 117—65.2

12 Claims



A process for controlling porosity in fibrous webs. The process includes a combination of steps comprising imparting movement to a fibrous web so as to present a moving surface, depositing a substantially liquid material on the moving surface, embedding the liquefied material into continuous portions of the moving surface, and applying a force equally on each continuous portion simultaneously and continuously with the embedding step so as to cause attachment of additional liquefied material with the embedded material. This process is particularly adapted for manufacture of products which are useful in filtering gases, chemicals, and liquids. Waterproof fabrics having air and water-vapor permeability may also be produced according to the process.

3,594,214

METHOD OF APPLYING A ZINC COATING TO A SHEET-STEEL BASE

Lawrence E. Helwig, Hampton Township, and Michael V. Murray, Monroeville Borough, Pa., assignors to United States Steel Corporation

Continuation-in-part of abandoned application Ser. No. 561,807, June 30, 1966. This application Apr. 4, 1969, Ser. No. 822,805

Int. Cl. C23c 13/02

U.S. Cl. 117—71

1 Claim



Low-carbon steel strip is continuously coated with a thin layer of iron by vapor deposition while at a temperature of at least 350° F. under an atmospheric pressure of not more than 10⁻⁴ torr. The iron-coated strip is then subjected to a flash coating of zinc by vapor deposition under similar conditions. The strip is then cooled, to

remove the heat adsorbed by condensation of metal vapor thereon, and a further coating of zinc applied thereto by any desired method conveniently under the same or increased atmospheric pressure, the total thickness of zinc applied being limited to less than .001".

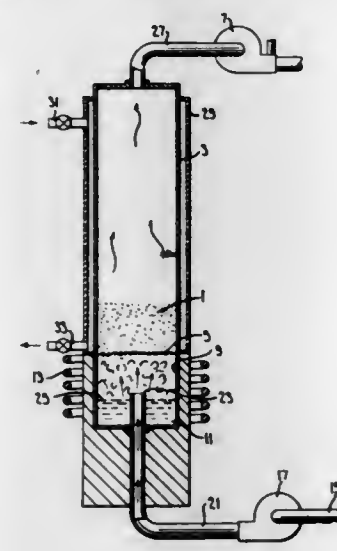
3,594,215

COATING OF GRANULAR PARTICLES

Gene F. Wakefield, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation-in-part of application Ser. No. 522,769, Jan. 24, 1966. This application Sept. 10, 1968, Ser. No. 758,795

Int. Cl. C23c 13/04

U.S. Cl. 117—100



Disclosed is a method and apparatus for coating particulate material with metals utilizing a fluidized bed. The invention comprises a jacketed fluidizing chamber evacuated by a vacuum pump and containing particles to be coated, a cell containing the coating metal, and heating coils for heating the metal. The process enables metallic coatings to be placed on heat sensitive substrate particles, since the fluidizing chamber is easily cooled by the combined effects of circulating a cooling fluid through the jacket and maintaining a vacuum in the chamber.

3,594,216

VAPOR PHASE DEPOSITION OF METAL FROM A METAL-ORGANIC BETA-KETOAMINE CHELATE
Robert G. Charles, Allison Park, and James G. Cleary, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 19, 1969, Ser. No. 834,642

Int. Cl. C23c 11/02

U.S. Cl. 117—107.2



A metallic coating is deposited on a substrate by heating the substrate and contacting the substrate with vaporized metal-organic beta-ketoamine chelates, which react on contact with the hot substrate surface in a gaseous atmosphere to deposit the metal coatings.

3,594,217
BINDER FOR THIN LAYER CHROMATOGRAPHIC ADSORBENTS

Earl K. Seybert, Towson, and Philip W. Link, Baltimore, Md., assignors to W. R. Grace & Co., New York, N.Y.
No Drawing. Filed May 21, 1968, Ser. No. 730,934
Int. Cl. C03c 17/22, 17/00

U.S. Cl. 117—119.6

9 Claims

Improved plates for thin layer chromatography are prepared by incorporating alkali metal silicates into the adsorbent layer. The presence of the silicate binder serves to prevent cracking, crazing, or separation of the adsorbent from the substrate.

3,594,218

WATER AND OIL REPELLENT ARTICLES

Elemer Domba, Olympia Fields, Ill., assignor to Nalco Chemical Company, Chicago, Ill.
No Drawing. Continuation-in-part of application Ser. No. 732,505, May 28, 1968, which is a continuation-in-part of application Ser. No. 494,872, May 28, 1965, both now abandoned. This application Aug. 6, 1969, Ser. No. 848,121

Int. Cl. D06m 15/16

U.S. Cl. 117—139.5

2 Claims

New and useful ethylenically unsaturated fluorinated polymers can be used to make articles and fabrics water and oil repellent.

3,594,219

PROCESS OF FORMING ALUMINIDE COATINGS ON NICKEL AND COBALT BASE SUPERALLOYS

Douglas H. Maxwell, North Palm Beach, Fla., and Richard C. Elam, Rockville, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
No Drawing. Filed Feb. 24, 1969, Ser. No. 801,839
Int. Cl. C23c 9/00

U.S. Cl. 117—131

5 Claims

The method of coating the superalloys wherein the substrate is first coated with a low melting eutectic-type alloy consisting predominantly of elements that form stable aluminides and subsequently aluminizing the coated substrate.

3,594,220

BLUSH COATED FABRIC AND METHOD FOR PRODUCING THE SAME

Frederick H. Schwacke, Jr., Farmingdale, N.Y., John L. Egitto, Belleville, N.J., Charles A. Kumins, Chappaqua, N.Y., and Robert S. Hansen, Ames, Iowa, assignors to Inmont Corporation, New York, N.Y.
No Drawing. Continuation of application Ser. No. 464,578, June 16, 1965. This application May 14, 1969, Ser. No. 828,422

Int. Cl. D06n 3/00

U.S. Cl. 117—135.5

28 Claims

The invention is a leather-like sheet material and a method of making it, wherein a cast film of a blushable polyurethane coating is dried by evaporation of the volatile components. The dried film, which is microporous, may be used as an unsupported film by stripping from a temporary support, or it may be used attached to a permanent support such as a textile fabric.

3,594,221

PROCESS OF TREATING FIBROUS MATERIALS

William S. Baldwin, Minneapolis, Minn., assignor to General Mills, Inc.
No Drawing. Filed Mar. 25, 1968, Ser. No. 715,577
Int. Cl. A611 13/00; C08h 17/00

U.S. Cl. 117—138.5

7 Claims

Fibrous materials such as cotton cloth are treated with an acid or alkali metal montmorillonite clay and then

with a cationic germicide to render the same resistant to bacterial action for extended periods of time.

3,594,222

LITHIUM CHLORIDE AS ANTISTATIC AGENT IN RUBBER LATEX COMPOSITION AND USE OF SAID LATEX

William Earl Wells, Hogansville, Ga., assignor to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed May 15, 1968, Ser. No. 729,441

Int. Cl. C09k 3/16

U.S. Cl. 117—138.8

8 Claims

There is dissolved the use in rubber latex of lithium chloride dissolved in the aqueous phase of rubber latex so as to impart antistatic characteristics to the deposit formed on drying the latex. The amount of lithium chloride preferably equals from 1 to 15% by weight of total solids in the latex composition. There is also disclosed the use of this latex in conjunction with any article of manufacture to dissipate any charge of static electricity that might otherwise build up therein. Thus it can be used in the manufacture of carpets for example as an adhesive to secure the tufts which form the face of the carpet to the backing material such as the primary jute backing. The normal propensity of such carpet to build up a charge of static electricity is thus greatly reduced.

3,594,223

PROCESS OF PRODUCING A LUBRICATED HEAT BONDED THERMOPLASTIC FIBER FABRIC AND THE LUBRICATED FABRIC

Ralph H. Via and Arthur Kramer, Greenville, S.C., assignors to Phillips Petroleum Company

No Drawing. Filed Nov. 8, 1968, Ser. No. 774,526

Int. Cl. D06m 13/16, 13/52

U.S. Cl. 117—138.8

8 Claims

Improved carpet backing formed from highly crystalline and molecularly oriented fibers that have been needled into a cohesive bat, bonded together by heating, and followed by application of an ethoxylated alcohol lubricant.

3,594,224

CELLULOSIC FIBERS IMPREGNATED WITH A QUATERNARY SALT OF A TERTIARY AMINE

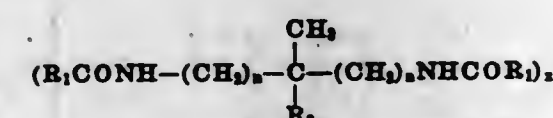
Peter Blackman, Cranston, R.I., assignor to I.C.I./Organics/Inc.

No Drawing. Division of application Ser. No. 577,774, Sept. 7, 1966, now Patent No. 3,492,324, which is a continuation of application Ser. No. 276,969, Apr. 26, 1963. This application July 25, 1969, Ser. No. 855,442
Int. Cl. D06m 13/40

U.S. Cl. 117—139.5

11 Claims

A cellulosic fiber impregnated with a compound having the formula



wherein R_1CO is a fatty acid radical, R_2 is selected from the group consisting of hydrogen, alkyl, hydroxy alkylene, alkaryl and aryl, x is a radical selected from the group consisting of sulfate, halide and aliphatic acid radicals and n is 2-6. Methods of impregnating cellulosic fibers with the indicated compounds and methods of preparing these compounds are also disclosed.

3,594,225

THIN-FILM RESISTORS

Robert K. Waits, Palo Alto, Calif., assignor to Fairchild Camera and Instruments Corporation, Syosset, N.Y.
Original application Sept. 21, 1967, Ser. No. 669,424, now Patent No. 3,458,847, dated July 29, 1969. Divided and this application Oct. 30, 1968, Ser. No. 801,886
Int. Cl. B44d 1/18

U.S. Cl. 117—212

10 Claims

An insulating underlayer is formed over a portion of an insulating substrate to create two surfaces wherein the microstructure variations of one surface are substantially different from the microstructure variations of the other. One or more resistive films are then formed over a portion of the underlayer surface and one or more other resistive films are formed over a portion of the substrate surface, whereby the deposited films may have the same geometry and composition of material, but will have substantially different values of resistance. Preferably, the resistance films are not thicker than 250 angstroms.

3,594,226

SUPERCONDUCTORS

David Brynmor Thomas, Abingdon, England, assignor to Science Research Council, London, England
No Drawing. Filed Oct. 23, 1967, Ser. No. 677,025
Claims priority, application Great Britain, Oct. 31, 1966, 48,777/66

Int. Cl. B44d 1/18

U.S. Cl. 117—228

2 Claims

A superconducting cable consists of multiple strands of carbon fibre coated with a superconductor. The strands may be woven to form a tube and the tube encapsulated to form a rigid coil capable of carrying a cryogenic fluid.

3,594,227

METHOD FOR TREATING SEMICONDUCTOR SLICES WITH GASES

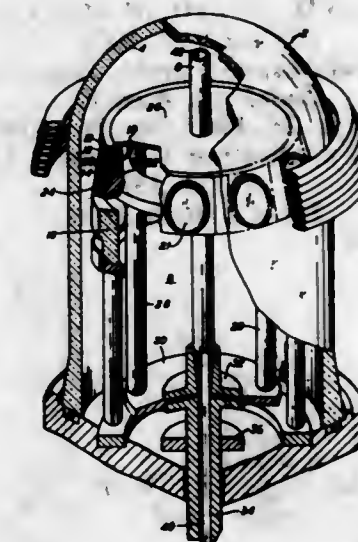
Donald R. Oswald, Schneeksville, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 12, 1968, Ser. No. 744,415

Int. Cl. C23c 11/06, 11/00

U.S. Cl. 117—229

7 Claims



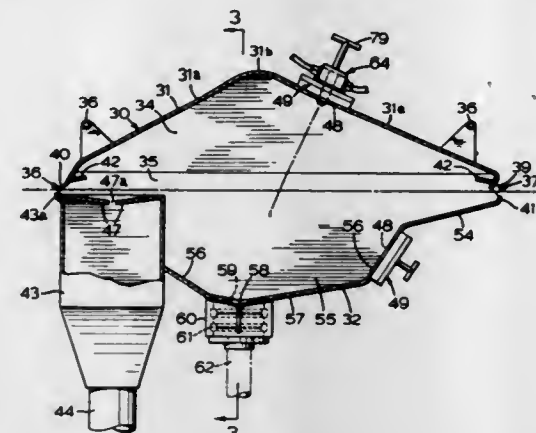
Process for deposition of epitaxial and dielectric films is disclosed. Molybdenum discs for holding semiconductor slices are mounted for rotational movement in a near-vertical plane and for translation along a locus of points substantially equidistant from a heat source. The discs in one embodiment are rested against the inclined sides of a rotating frustoconical housing with their edges in contact with a horizontal track. A deposition chamber enveloping the apparatus provides downward gas flow. Outside RF coils encircle the chamber.

3,594,228 COLOURING OF SHEATHED CONTINUOUS STRANDS

Donald John Mock, Chateaugay, Quebec, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Aug. 1, 1967, Ser. No. 657,607
Int. Cl. B44d 1/08

U.S. Cl. 117—231

10 Claims



A method for the surface coloring of an absorbent sheath on a continuous strand in which the strand is passed, with the sheath being wet, longitudinally through a zone of atomized liquid dye.

3,594,229 PLATED SUBSTRATE AND RELATED METHODS

John H. Kefalas, Waltham, Mass., assignor to Honeywell Inc., Minneapolis, Minn.

No Drawing. Filed June 29, 1966, Ser. No. 561,341
Int. Cl. H01f 10/02; B44d 1/14; B32b 15/16

U.S. Cl. 117—237

15 Claims

A metallic film deposited on a sensitized and seeded thin gel coating on a non-metallic substrate adheres firmly to the substrate. The process requires no intermediate or final curing and the resultant article has high stability against degradation in many solvents including water.

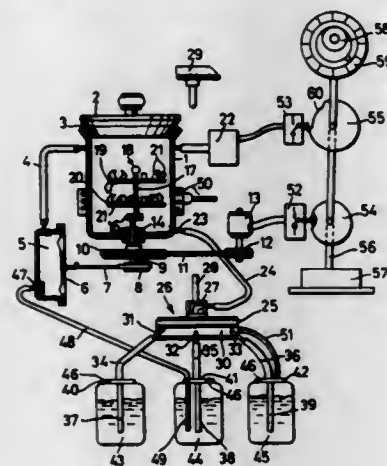
3,594,230 METHOD AND MACHINE FOR CLEANING SMALL PARTS

Hans Klerner, Salzburg-Oesterreld Bajenammerstrasse, Salzburg, Austria

Filed Apr. 25, 1969, Ser. No. 819,161
Claims priority, application Germany, Apr. 26, 1968, P 17 71 256.0
Int. Cl. B08b 3/00

U.S. Cl. 134—26

3 Claims



A method and means for cleaning small parts wherein there is utilized or provided pumps, control valves, rinsing liquid and a cleansing liquid, and a vacuum arrangement.

3,594,231 BATTERY WITH POLY(AZOBISFORMAMIDES) DEPOLARIZER

Charlotte Marie Kraebel, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed July 23, 1969, Ser. No. 844,208
Int. Cl. H01m 15/06

U.S. Cl. 136—6

4 Claims

Poly(biureas) are formed by the reaction of polyisocyanates with semicarbazides, and by other syntheses. The poly(biureas), which are polyhydrazo compounds, are readily reversibly oxidized to the corresponding azo compounds. The oxidation-reduction reaction of the hydrazo-azo moieties act as depolarizing reaction for primary and secondary battery cells, particularly zinc-carbon cells.

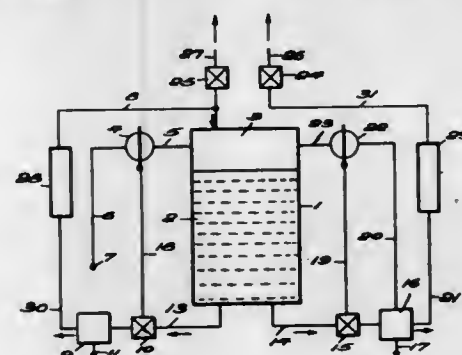
3,594,232 DEVICE FOR THE AUTOMATIC ADJUSTMENT OF THE SUPPLY OF LIQUIDS

Dieter Spahr, Frankfurt am Main, Germany, assignor to Varta Aktiengesellschaft, Frankfurt am Main, Germany

Filed July 12, 1968, Ser. No. 744,357
Claims priority, application Germany, July 19, 1967, V 34,103; Mar. 13, 1968, P 16 67 346.4
Int. Cl. B01j 7/02; F04f 1/14; H01m 27/14

U.S. Cl. 136—86C

13 Claims



The supply of liquid, which may be catalytically decomposed with the evolution of gas, to a main decomposing catalyst body, is regulated by the pressure of gas generated from such liquid on an auxiliary catalyst body. The main catalyst body may be in a gas diffusion electrode.

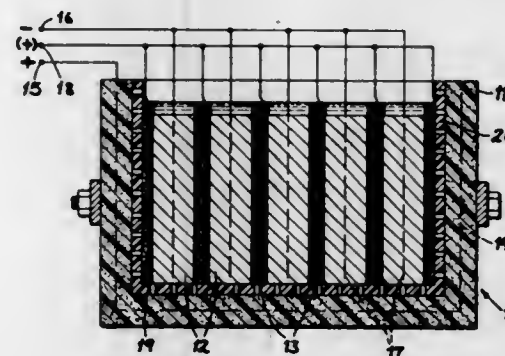
3,594,233 RECHARGEABLE GAS-POLARIZED CELL

Allen Charkey, Flushing, and Frederick P. Kober, Bay-side, N.Y., assignors to Yardney International Corporation, New York, N.Y.

Filed July 19, 1968, Ser. No. 746,153
Int. Cl. H01r 29/04

U.S. Cl. 136—86

2 Claims



Cell with an external gas electrode enclosing a plurality of reversible metal electrodes, the latter electrodes being

separated from one another and from the gas electrode by inert conductor screens serving as auxiliary recharging electrodes; the auxiliary electrode or electrodes proximal to the gas electrode may be separated therefrom by a permeable inert dielectric spacer storing a reserve quantity of liquid electrolyte.

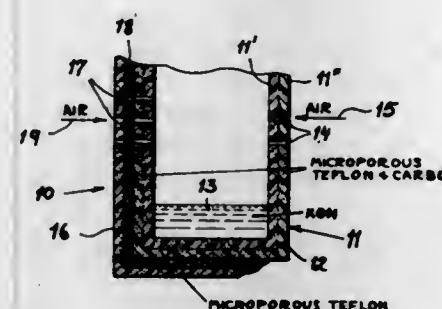
3,594,234 AIR DEPOLARIZED FUEL CELL

Maurice Lang, Massapequa, N.Y., and Renato Di Pasquale, Paramus, N.J., assignors to Yardney International Corporation, New York, N.Y.

Filed Aug. 23, 1968, Ser. No. 754,797
Int. Cl. H01m 29/04

U.S. Cl. 136—86

16 Claims



An air-depolarized fuel cell with a metal electrode in a gas-permeable envelope electrode of microporous carbon-Teflon mixture, containing an alkaline electrolyte, is surrounded by a shell of microporous Teflon closely spaced from the envelope electrode by a small clearance designed to receive products of interaction of carbon dioxide with the electrolyte.

3,594,235 METHOD OF USING A METAL-AIR CELL WITH A TETRA-ALKYL-SUBSTITUTED AMMONIUM ELECTROLYTE

Paul J. Moran, Ballston Lake, N.Y., assignor to General Electric Company

Filed Aug. 30, 1968, Ser. No. 756,507
Int. Cl. H01m 29/04

U.S. Cl. 136—86

1 Claim

A method of generating electrical energy from a metal-air cell includes providing at least one gas diffusion cathode, supplying an oxygen oxidant to the cathode, providing at least one anode, and providing for the cathode and anode an aqueous electrolyte selected from the class consisting of tetra-alkyl-substituted ammonium hydroxides and tetra-alkyl-substituted ammonium halides. The electrolyte eliminates or substantially reduces the accumulation of carbonate reaction products which are formed from the reaction of carbon dioxide from the air with some other alkaline electrolytes.

3,594,236 METHOD FOR PREPARING AN AIR BREATHING ELECTRODE

David P. Boden, Yardley, Pa., and Jack C. Sklar, Trenton, N.J., assignors to ESB Incorporated

No Drawing. Filed Nov. 22, 1967, Ser. No. 684,935
Int. Cl. H01m 27/04

U.S. Cl. 136—120

10 Claims

A method for preparing an air breathing electrode which comprises applying a catalyst composition to a metallic grid member, applying a fluorocarbon polymer sheet material containing a poreforming agent onto one side of the catalyst composition and thereafter removing the pore-former from the fluorocarbon polymer sheet material to render it microporous. The fluorocarbon polymer sheet material is applied to the catalyst composition by

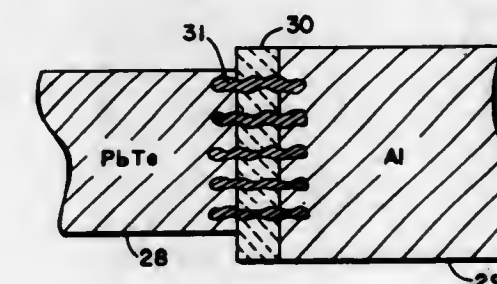
hot pressing to firmly attach it thereto. The metallic salt pore-former is removed from the fluorocarbon polymer sheet material after it is applied to the catalyst composition, and the pore-former may be removed by contacting the electrode with a leaching solvent. An alternative procedure comprises applying a layer of a catalyst composition onto a fluorocarbon polymer sheet material containing a pore former, placing a metallic grid onto the catalyst layer, hot pressing the grid/catalyst/fluorocarbon polymer to form a unitary structure, and then removing the pore-former.

3,594,237 THERMOELECTRIC DEVICE INCLUDING TUNGSTEN GRANULES FOR OBTAINING LOW RESISTANCE BONDS

George Sonnenschein, Los Angeles, Calif., assignor to North American Rockwell Corporation
Original application Oct. 28, 1963, Ser. No. 319,301, now Patent No. 3,392,439, dated July 16, 1968. Divided and this application Sept. 27, 1967, Ser. No. 680,284
Int. Cl. H01v 1/04

U.S. Cl. 136—227

4 Claims



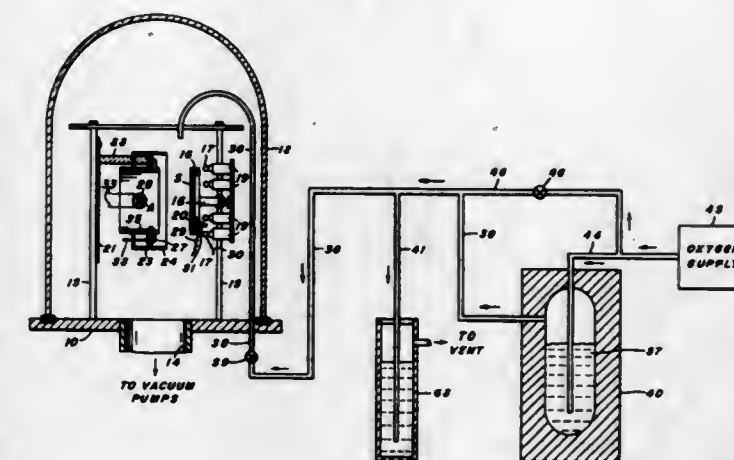
A thermoelectric device for generating electric current including a telluride thermoelectric body bonded to a conductive body of material. A barrier layer is disposed between the two bodies, and conductive tungsten granules penetrate this barrier layer to bond together the two bodies and form low-resistance conductive paths between them through the barrier layer.

3,594,238 METHOD FOR TREATING ALUMINUM SURFACES TO PREVENT DISCOLORATION

Ralph E. Hoeckelman, Manor Borough, Pa., assignor to United States Steel Corporation
Filed Aug. 15, 1968, Ser. No. 752,933
Int. Cl. C23f 7/06

U.S. Cl. 148—6.3

5 Claims



A method and apparatus for treating an aluminum surface to prevent discoloration of the surface when exposed

to boiling water. Particularly applicable to a steel substrate which has a corrosion-resistant aluminum coating. The aluminum surface is exposed to an atmosphere of vapors of a volatile silicon compound and oxygen in a gaseous plasma. A thin protective film of mixed oxides of silicon and aluminum forms on the surface.

3,594,239 METHOD OF TREATING UNIQUE MARTENSITIC ALLOYS

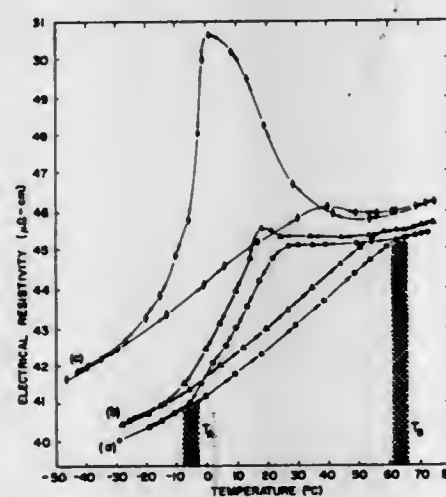
Frederick E. Wang, Taipei, Taiwan, assignor to the United States of America as represented by the Secretary of the Navy

Filed Feb. 26, 1968, Ser. No. 708,300

Int. Cl. C21c 1/26; C22f 1/16

U.S. Cl. 148—13

6 Claims



A method of stabilizing an alloy from the class consisting of $TiNi$, $TiCo$, $TiFe$, $TiNi_{1-x}Co_x$ and $TiCo_{1-x}Fe_x$ by annealing it at 650° to 700° C. and cooling it slowly to a temperature at which the alloy does not undergo thermal cycling.

3,594,240 PROCESS OF MAKING GLASS COATED ELECTRICAL STEEL CORES

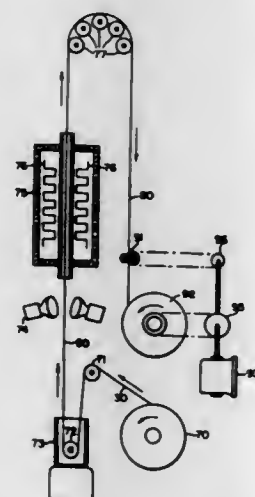
Karl Foster and Joseph Seidel, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Application Sept. 2, 1966, Ser. No. 576,963, now Patent No. 3,528,863, dated Sept. 15, 1970, which is a continuation-in-part of application Ser. No. 556,337, June 9, 1966. Divided and this application June 15, 1970, Ser. No. 46,375

Int. Cl. H01f 3/02

U.S. Cl. 148—113

1 Claim



An oriented silicon steel product and method for producing the same is described in which improved magneto-

striction and strain sensitivity are obtained by means of bonding a thin glass layer to the surface of the steel.

3,594,241 MONOLITHIC INTEGRATED CIRCUIT INCLUDING FIELD EFFECT TRANSISTORS AND BIPOLAR TRANSISTORS, AND METHOD OF MAKING

Heber J. Bresee, Tigard, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Jan. 11, 1968, Ser. No. 697,055

Int. Cl. H01l 7/34

U.S. Cl. 148—175

13 Claims

A monolithic integrated circuit including a plurality of field effect transistors and bipolar transistors formed in a single epitaxial layer on the same semiconductor member and a method for doing so with diffusion steps common to both types of transistors, are described. The top gate of a PN junction gated field effect transistor and the emitter of an NPN bipolar transistor are formed simultaneously, while the source and drain of the field effect transistor and the base of the bipolar transistor are formed simultaneously. The channel portion of the field effect transistor is formed separately with a doping impurity concentration of lower surface value and lower slope than any of the other elements to provide such channel with a high resistance which is more uniform and easier to reproduce.

3,594,242 METHOD FOR PRODUCTION OF EPITAXIAL FILMS

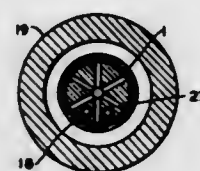
John W. Burd, Chesterfield, and Warren O. Groves, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

Original application Jan. 3, 1966, Ser. No. 521,240, now Patent No. 3,441,000, dated Apr. 29, 1969. Divided and this application Sept. 26, 1968, Ser. No. 798,225

Int. Cl. H01l 7/36; C23c 13/00; B05c 11/14

U.S. Cl. 148—175

7 Claims



The method of producing semiconductor materials by the epitaxial deposition of a film on a substrate by introducing an epitaxial reaction gas mixture into a first zone and thereafter passing the gas mixture into an isothermal zone at an initially high velocity between 5×10^2 centimeters per second and the sonic velocity of the gas. As a result thereof, rapid mixing and agitation of the gas in the isothermal zone prevent non-uniform deposition of the film on a substrate in the isothermal zone.

3,594,243 FORMATION OF POLYMERIC RESISTS

Albert S. Deutsch, Vestal, and William G. Herrick, Binghamton, N.Y., assignors to General Aniline & Film Corporation, New York, N.Y.

No Drawing. Filed Feb. 7, 1967, Ser. No. 614,412

Int. Cl. B23p 15/00; B24b 1/00; C23f 1/00

U.S. Cl. 156—13

14 Claims

Polymeric resist-image formation involving the irradiation of a maleic anhydride polymer coating with cor-

puscular radiation, e.g., an electron beam, whereby to insolubilize the exposed areas, resist-image formation being effected by solvent treatment of the polymer coating.

3,594,244 METHOD OF MAKING AN EMBOSSED STRUCTURE

John Mackinnon, Edison, N.J., Jose A. Rienda, Beverley Hills, Jamaica, and Herbert F. Schroeder, South Plainfield, N.J., assignors to Esso Research and Engineering Company

Filed May 22, 1967, Ser. No. 640,273

Int. Cl. B29j 5/00

U.S. Cl. 156—62.2

7 Claims

The present invention relates to the art of producing embossing platens or plates from parenchyma, a waste portion of bagasse. It contemplates the extraction or removal of parenchyma from the fibrous portions of the bagasse, the formation of compositions by admixture of the parenchyma with thermosetting binder resins, and the use of the compositions as molding compounds for formation of embossing plates or structures by hot stamping methods. These plates or structures can be produced with any desired pattern including, especially, those providing wood grain effects.

3,594,245 METHOD OF MAKING EMBOSSED PANEL

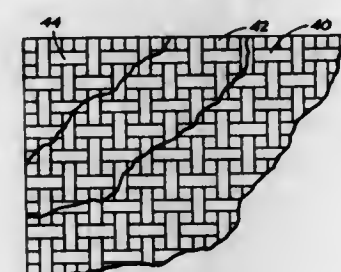
Jack R. Hayes, Crescent City, Calif., assignor to Hambro Forest Products, Inc., Crescent City, Calif.

Filed July 17, 1967, Ser. No. 653,826

Int. Cl. B29j 5/04

U.S. Cl. 156—62.2

2 Claims



A panel having a plastic film as an overlay over a dense base layer of particle board, with an embossed pattern borne by the base layer and the overlay, manufactured by the steps of preparing a mat of loosely organized, bondable particle material, placing a plastic film over this mat, and with an embossing plate having a pattern in relief carried over one face, pressing the plastic film against the mat, simultaneously with the application of heat, to consolidate the film and the particle material in the mat into an integral panel product, with the pattern on the face of said plate transferred in tactile form through the overlay to the dense base layer.

3,594,246 METHOD OF CONTINUOUSLY APPLYING INSULATION TO LENGTHS OF TUBING

Karl Arne Arovelius, Vasteras, Sweden, assignor to Aktiebolaget Svenska Metallverken, Vasteras, Sweden

Continuation of application Ser. No. 584,450, Oct. 5, 1966. This application Jan. 12, 1970, Ser. No. 1,964

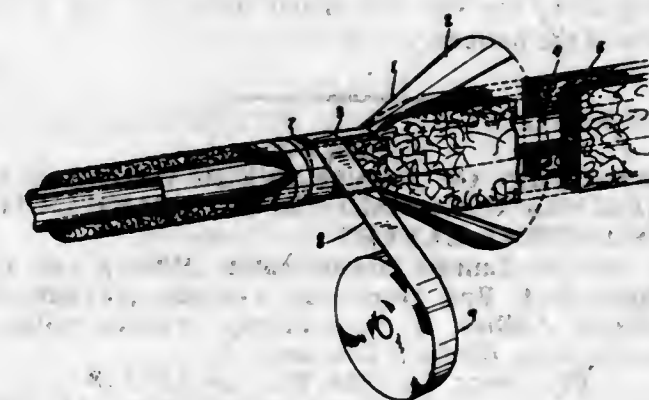
Claims priority, application Sweden, Oct. 11, 1965, 13,151/65

U.S. Cl. 156—162

7 Claims

A method and apparatus for wrapping tape or the like in overlapping coils about an insulated pipe or tube wherein the insulated tube is passed through a funnel-like die having a straight outlet extension integral therewith, and

the tape is wound partly on the outer end of the outlet extension and partly on the portion of the pipe just leaving



said outlet, so that the coils of tape lie in overlapping relationship.

3,594,247 FILAMENT WINDING PROCESS

Donald W. Pennington, Lake Jackson, and Floyd E. Norton, Brazoria, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 30, 1967, Ser. No. 679,194

Int. Cl. B31c 3/00

U.S. Cl. 156—175

8 Claims

Filament reinforced plastic pipe is made by an improved process which minimizes the loss of reactive, volatile monomers from the thermosettable resin composition during the cure cycle. The process consists of gelling the resin by subjecting the resin-filament layer to a temperature sufficient to gel the resin within 5 minutes and then curing the resin at the normal curing temperature.

3,594,248 METHOD OF MANUFACTURING TIRES HAVING AN ANNULAR PATTERNED COLORED BAND ON THE TIRE SIDEWALL

Nils Cronje Sjöberg, Trelleborg, Sweden, assignor to Trelleborgs Gummifabriks Aktiebolag, Trelleborg, Sweden

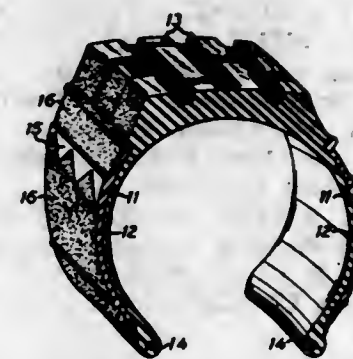
Filed Mar. 18, 1968, Ser. No. 713,797

Claims priority, application Sweden, Mar. 23, 1967, 4,099/67

Int. Cl. B29h 21/02

U.S. Cl. 156—116

3 Claims



A method of manufacturing a light-duty tire in which a colored rubber inlay is inserted into the tire at the building of the green tire, the rubber inlay being provided at the vulcanization with a pattern corresponding to the desired tire sidewall decoration in the form of elevated portions with steep sides, whereupon the entire free surface of the rubber inlay after vulcanization and removal of the tire from the vulcanizing mold is coated with

a self-vulcanizing rubber solution of substantially the same color as the remaining portions of the tire, and finally, after self-vulcanization of the rubber solution, the desired tire sidewall decoration is made visible by grinding away the self-vulcanized rubber on the elevated portions of the pattern.

3,594,249

PRODUCTION OF NONPLANE BUILDING COMPONENTS COMPOSED OF THERMOPLASTIC AND METAL LAYERS

Heinz Mueller-Tamm, Ludwigshafen (Rhine), and Hans Frielingsdorf, Bad Duerkheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

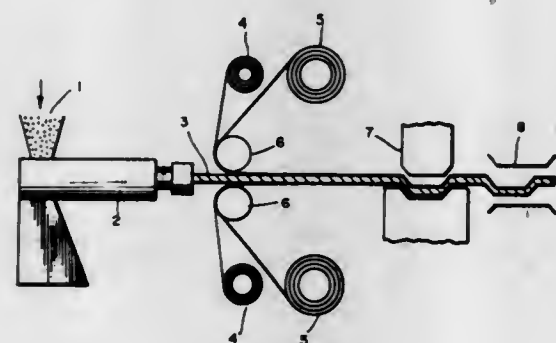
Filed Sept. 11, 1968, Ser. No. 759,018

Claims priority, application Germany, Sept. 14, 1967, P 17 04 496.1

Int. Cl. B31f 1/00

U.S. Cl. 156-199

6 Claims



A process for the production of nonplane building components which comprise a relatively thick inner ply of the thermoplastic and relatively thin outer plies of metal. The building components are prepared by continuously preparing a board from a polyethylene by means of a screw extruder at elevated temperature, covering the board thus obtained on both sides first with a film of a special terpolymer and then with a metal sheet at elevated temperature, forming a sandwich assembly from the whole under the pressure of rollers and then bringing the plane board into the desired nonplane shape at elevated temperature using external forces.

3,594,250

PRODUCTION OF PLANE BUILDING COMPONENTS COMPRISING A THERMOPLASTIC INNER LAYER WITH METAL OUTER PLIES

Heinz Mueller-Tamm and Dieter Mahling, Ludwigshafen (Rhine), Hans Frielingsdorf, Bad Duerkheim, and Alfred Hofmann, Mannheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Sept. 6, 1968, Ser. No. 757,923

Claims priority, application Germany, Sept. 8, 1967, P 17 04 494.9

Int. Cl. B29c 19/00

U.S. Cl. 156-244

7 Claims

A process for the production of plane building components which are composed of a relatively thick inner ply of a thermoplastic and relatively thin outer plies of metal. In the process a board is first made continuously from a polyethylene by means of a screw extruder at elevated temperature, then this board is coated on both sides by means of a pair of rollers continuously with a film of a special terpolymer and thereafter with a sheet of metal. The whole is made into a sandwich assembly by the pressure of the rollers and then brought to ambient temperature.

3,594,251 PROCESS FOR PRODUCING FLEXIBLE FOAM CUSHIONING

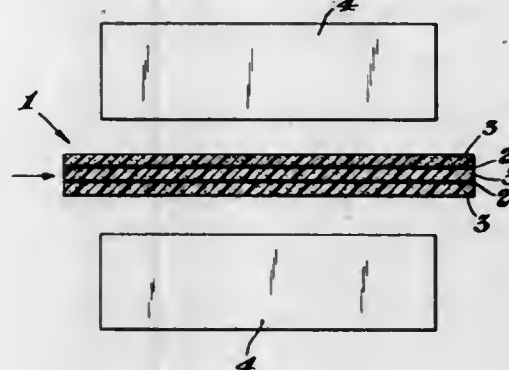
Robert E. Erickson and David P. Sheetz, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed July 10, 1968, Ser. No. 743,591

Int. Cl. B29c 27/04

U.S. Cl. 156-273

11 Claims



Thick slabs of latex foams requiring substantially shorter drying periods are prepared by (1) layering in sandwich fashion thin cured slabs of latex foam coated at each slab interface with a latex adhesive and (2) curing the adhesive line at each interface by dielectric heat.

3,594,252

TELEBLOCK POLYMER BACKING FOR TILE AS SUBSTRATE OVERLAY MATERIAL

Betty B. Weinberg, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed May 27, 1968, Ser. No. 732,097

Int. Cl. B32b 31/14

U.S. Cl. 156-297

10 Claims

Tile is bonded to a backing of teleblock polymer and said article is applied as an attractive, waterproof, insulated, sound deadening, resilient substrate overlay.

3,594,253

BONDING CARBON TO STEEL

Robert W. Froberg, Walter G. Krellner, and Dolores A. Moore, St. Marys, Pa., assignors to Stackpole Carbon Company, St. Marys, Pa.

Filed May 15, 1968, Ser. No. 729,255

Int. Cl. C09j 1/00

U.S. Cl. 156-325

4 Claims

Steel and carbon members are bonded together by a cement formed in situ between the members by reaction of orthophosphoric acid and an oxygen-containing compound of cadmium or of silver or an oxygen compound of both boron and zinc. In the preferred embodiment the cement has dispersed through it finely divided silica. The bonds between the two members remain desirably strong at elevated temperatures.

3,594,254

AUTOMATIC MANUFACTURING APPARATUS

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation-in-part of application Ser. No. 703,523, Dec. 18, 1957, which is a continuation-in-part of application Ser. No. 559,232, Jan. 16, 1956. This application Aug. 31, 1964, Ser. No. 393,292

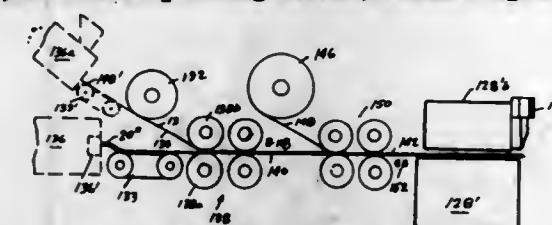
Int. Cl. B29b; B44f 1/10

U.S. Cl. 156-384

15 Claims

An apparatus for the automatic and continuous production of composite sheet material comprising first and

second extruding means for extruding synthetic resinous material, automatic printing means, laminating means and



which has circular rows of radial pins at the ends. A rotary thread laying arm lays closed loops of a cross thread, rope, or band consisting of glass fibers, over pairs of pins of the rows so that transverse closed loop cross the warp threads on one side and can be bonded to the same.

3,594,257

APPARATUS FOR APPLYING LABELS TO ARTICLES

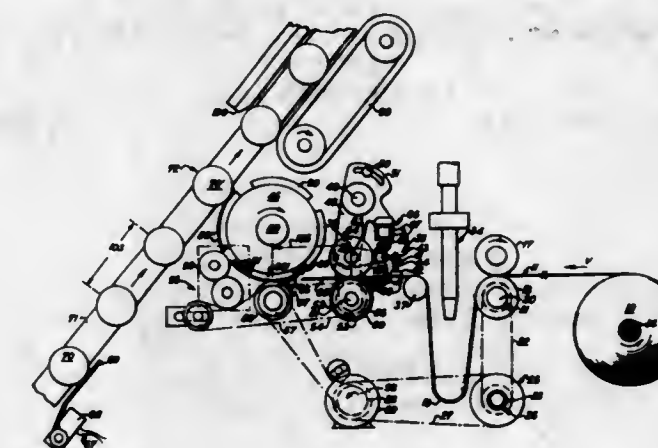
George W. von Hofe, Millington, N.J., assignor to New Jersey Machine Corporation, Hoboken, N.J.

Filed June 22, 1967, Ser. No. 648,101

Int. Cl. B65c 9/04

U.S. Cl. 156-455

8 Claims



3,594,255

HICKEY ROLLER AND METHOD

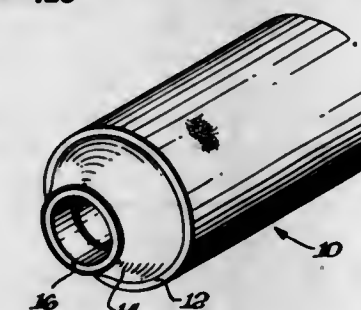
William D. Budinger, Wilmington, Del. (Rte. 1, Box 469D, Chadds Ford, Pa. 19317)

Filed Oct. 16, 1968, Ser. No. 767,980

Int. Cl. B31c 13/00; B65h 81/00; B41f 35/04

U.S. Cl. 156-425

12 Claims



A very effective and long-lived hickey roller has a smooth roll surface of compressed felted fibers with a denier less than 3, bonded together by binder, with at least the outer portion of the surface porous to printing ink. Smooth character can be provided by helically wrapping a relatively narrow sheet of the felted fibers around a roll core and cementing it in place under pressure with the helical edges carefully butted together. Alternatively a sheet sufficiently wide can be circularly wrapped several times around the core, cemented in place and then ground to a uniform cylindrical surface. Raising of a little nap on the surface is helpful.

This invention is concerned with the combination of a first means for successively gripping the terminal labels in a continuous web of labels and applying such labels to the articles, and a second means for hindering the labels adjacent to the terminal labels from partaking of the advancing movement of the latter as they are being applied so that the terminal labels are successively separated from such adjacent labels by the force used by the first means in applying them to the articles.

3,594,258

LABELING MACHINE

Karl Dullinger, Neutraubling, Germany, assignor to Hermann Kronseder, Neutraubling, Germany

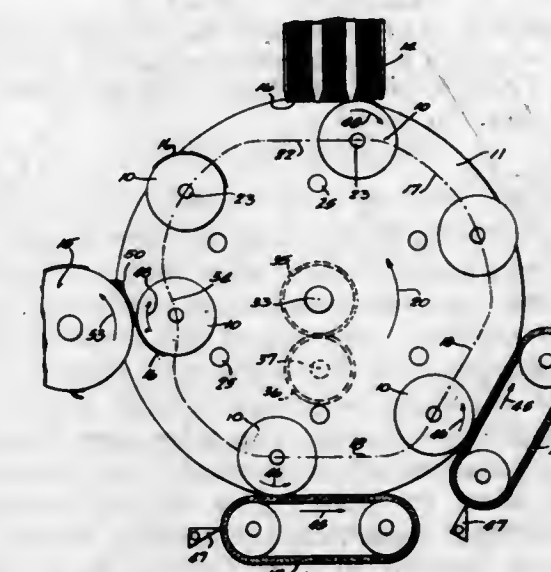
Filed Feb. 28, 1969, Ser. No. 803,143

Claims priority, application Germany, Mar. 6, 1968, P 16 11 910.1

Int. Cl. B65c 9/08; B65h 1/06

U.S. Cl. 156-570

10 Claims



3,594,256 APPARATUS FOR PRODUCING A WARP BY CLOSED LOOPS

Wolfgang Schuller and Heinz Kelb, Wertheim (Main), and Gunter Wiegand, Hasloch, Unterfranken, Germany, assignors to Werner Hugo Wilhelm Schuller, Munich-Grunwald, Germany

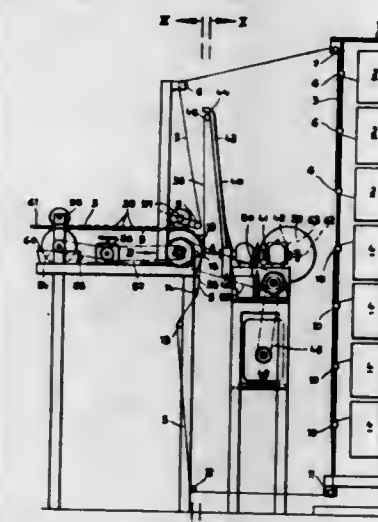
Filed Apr. 18, 1968, Ser. No. 725,254

Claims priority, application Germany, Apr. 22, 1967, G 49,895

Int. Cl. B65h 81/08

U.S. Cl. 156-440

13 Claims



Warp threads, ropes, or bands consisting of glass fibers are transported over the center portion of a rotary drum

A labeling machine having components such as a label magazine, labeling cylinder, and gluing mechanism clustered about the generally circular orbit of a series of label

transfer shoes mounted on a rotating shoe carrier. Mechanism is provided to shape the orbit of the shoes to conform with the surface configuration of the said components for improved cooperation between the shoes and the components. Mechanism is also provided for rotating the shoes about their own axes in the proper direction and at the proper speed for label transfer purposes.

3,594,259 CONTINUOUS HEAT TREATMENT OF GLASS-FORMING MATERIALS

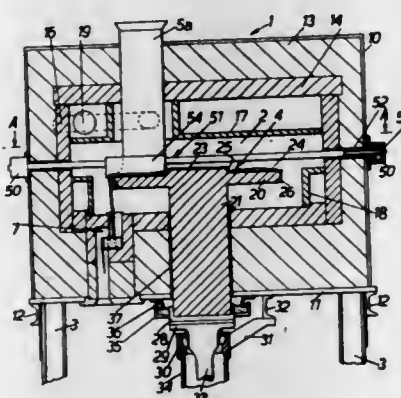
Ernesto Coen, Liverpool, John Victor Alderson, Southampton, and Robert Smith, Ormskirk, England, assignors to Pilkington Brothers Limited, Liverpool, Lancashire, England

Filed Mar. 12, 1968, Ser. No. 712,559
Claims priority, application Great Britain, Mar. 15, 1967, 12,233/67

Int. Cl. C03b 5/26

U.S. Cl. 65-134

14 Claims



Molten glass is produced by continuously distributing glass-forming materials onto a moving (e.g. a rotating) hearth, exposing the materials to high temperature while the materials remain stationary relative to the hearth and are moved by the hearth through a furnace chamber to convert the materials into molten glass, and directing the molten glass over an edge of the hearth as a continuous stream.

3,594,260 ARTIFICIAL SHRUBBERY AND METHOD OF MANUFACTURING THE SAME

Percy Dieffenbach, Main and Lincoln Sts., Blakely, Pa. 18447

Continuation-in-part of application Ser. No. 881,803, Dec. 3, 1969, which is a continuation-in-part of application Ser. No. 779,916, Nov. 29, 1968. This application Jan. 16, 1970, Ser. No. 3,414

Int. Cl. A41g 1/00

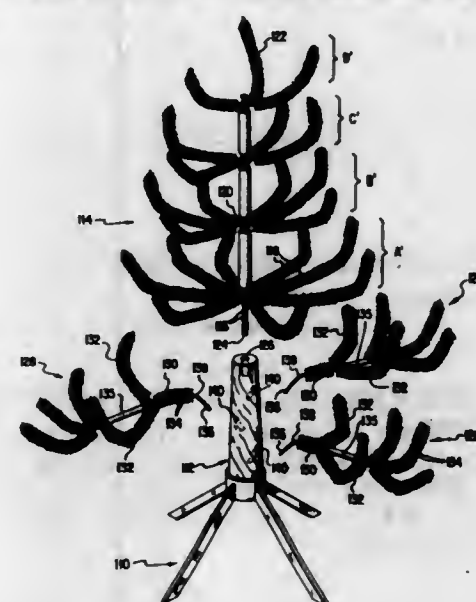
U.S. Cl. 161-24

15 Claims

Stiffly flexible artificial limb members are inserted between a pair of stiffly flexible stem members which extend parallel to and adjacent each other with flexible spacer tubes slid onto the stem members to space the limbs at longitudinal positions. One end of the assembly is held in a fixed chuck and the other end held within a second chuck which is rotated with respect to the first chuck to form a completed assembly. The tubes may have their upper ends flared to define outwardly inclined surfaces to properly orient the limbs during twisting of the stem members. Multiple tipped limb assemblies of this type may be removably coupled to a preformed trunk member carrying a plurality of radial holes for receiving the same.

Alternatively, each multiple tip limb assembly may be provided with a hooked end at the top which is removably coupled to the preformed trunk such that the main limb

portion extends downwardly and outwardly therefrom, of the trunk with the cross limbs directed radially out-



3,594,261 NONWOVEN FABRIC AND METHOD OF MANU- FACTURING SAME BY PERFORATING A THERMOPLASTIC SHEET WITH A LASER BEAM

Arthur B. Broerman, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Nov. 22, 1968, Ser. No. 778,190
Int. Cl. B23k 9/00; B29b 17/08; B32b 3/10
U.S. Cl. 161-62

12 Claims



A light absorbing thermoplastic sheet may be converted into a nonwoven textured fabric by directing a pulsed laser beam onto each area of a predetermined pattern of minute closely-spaced areas over the surface of the sheet with sufficient intensity to cause the sheet to melt and be perforated in each such area. While the area is molten, a stream of air or other gas may be directed into the area with sufficient force and duration to fibrillate or otherwise form the molten material therein.

3,594,262 SHEET MATERIAL

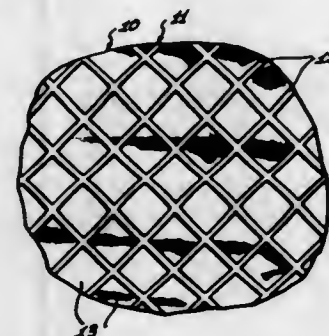
Herbert Magidson, 1450 Carla Ridge, Beverly Hills, Calif. 90210

Continuation of application Ser. No. 283,800, May 28, 1963. This application July 24, 1968, Ser. No. 749,906

Int. Cl. A41c 3/00, 3/08

U.S. Cl. 161-94

1 Claim



A three-dimensional article, such as a brassiere cup, having an elastically stretched fabric held in the desired

shape by a grid shaped stiffener injection molded to one side thereof.

3,594,263 LAMINATED SHEET FOR ELECTROPHORESIS

James L. Dwyer, South Lincoln, Richard A. Paine, Bedford, and Charles W. Souza, Fincham, Mass., assignors to Millipore Corporation, Bedford, Mass.

Filed Mar. 27, 1967, Ser. No. 626,323

Int. Cl. B01d 13/02; B32b 5/18

U.S. Cl. 161-160

6 Claims



This invention provides a laminated sheet for electrophoresis consisting of a plastic base sheet to which is bonded a microporous plastic membrane sheet consisting largely of pores which is in bonded contact with the plastic base with the pores on the outer surface open for receiving electrolyte solution and the material to be analyzed by electrophoresis. It is important that the adhesive bonding material does not enter and plug the pores. The invention provides a process for forming the laminated sheet, which comprises adhesively connecting together the base sheet and the porous plastic sheet under such control of pressure and temperature that the porosity of the sheet is not impaired.

3,594,264 ULTRAVIOLET LIGHT STABILIZED POLYCARBONATE ARTICLE

Raymond C. Urban, Pittsfield, Mass., assignor to General Electric Company

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,336

Int. Cl. B32b 27/18, 27/30

U.S. Cl. 161-165

6 Claims

An ultraviolet light resistant polycarbonate article consisting of a polycarbonate substrate having bonded to at least one surface thereof an acrylate copolymer film of 1 to 10 mils thickness wherein the acrylate copolymer film has uniformly dispersed throughout 0.25-5.0 weight percent of an ultraviolet light absorbent based on the weight of the acrylate copolymer film. The ultraviolet light absorbent may be any of the known ultraviolet light absorbents. The article is particularly resistant to ultraviolet light and protects the polycarbonate from attack from ultraviolet light. In addition, a process is also disclosed for preparing an ultraviolet light resistant polycarbonate article, which process consists of bringing an acrylate copolymer film into contact with a polycarbonate sheet at elevated temperatures and at a pressure of at least 20 p.s.i. and then cooling the article to room temperature.

3,594,265 MANUFACTURE OF THERMOPLASTIC SHEET

George L. Wicker and Malcolm Tate, Rochdale, England, assignors to Turner Brothers Asbestos Company, Limited, Manchester, England

Continuation-in-part of abandoned application Ser. No. 463,809, June 10, 1965. This application Oct. 24, 1967, Ser. No. 677,695

Claims priority, application Great Britain, Oct. 26, 1966, 48,101/66

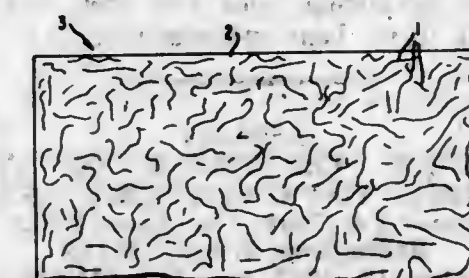
Int. Cl. B32b 5/16

U.S. Cl. 161-170

8 Claims

A rigid sheet comprising a polymeric constituent which is wholly or predominantly vinyl chloride homopolymer or is formed from monomers in which vinyl chloride

predominates with fibre reinforcement is prepared by forming a dough-like mass of the polymeric constituent in the form of a solution or in the form of a mixture of a solution and a dispersion in water with the fibre, and building up the mass in very thin laminations on



a hot calender roll. The part of the polymeric constituent which is soluble in an organic solvent may be low K-value polyvinyl chloride, or a copolymer of vinyl chloride and vinylidene chloride, or a copolymer of vinyl chloride and vinyl acetate.

3,594,266 COMPOSITE FILAMENT

Kaoru Okazaki and Yoichi Shimokawa, Nagoya, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed May 21, 1968, Ser. No. 730,923

Claims priority, application Japan, June 3, 1967, 42/35,150

Int. Cl. D02g 3/02

U.S. Cl. 161-173

6 Claims

Composite polyamide filament having improved anti-static properties, wherein one of the components is composed of synthetic polyamides, and another composed of a polymer blend of a polyamide and a block-copolyetheramide. The block-copolyetheramide comprises 15 to 85%, preferably about 20 to 60% by weight of polyether segments, which segments should be present in an amount of 0.1 to 10%, preferably about 0.3 to 5% by weight based on the composite filament. It is advantageous that each of the polyether segments contains about 45 to 130 ether oxygen atoms.

3,594,267 REINFORCING PROCESS

David S. Breslow, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Sept. 22, 1969, Ser. No. 860,017

Int. Cl. B32b 27/40; C09j 3/12, 5/02

U.S. Cl. 161-231

5 Claims

The adhesion of fibrous polyester reinforcing material to rubber stock can be improved by treating the fibrous material with an isocyanato substituted aromatic sulfonyl azide having the formula



where A is an aromatic radical, R is an organic radical selected from alkylene, unsaturated alkylene, cycloalkylene and arylene radicals, y is an integer from 0 to 1 and x and z are integers from 1 to 5. Vulcanized rubber tires reinforced with treated polyester tire cord are disclosed.

3,594,268 IMPREGNATED CELLULOSIC LAMINATES AND INTERMEDIATES THEREFOR

Ronald H. Dahms, Springfield, and George J. Anderson, Wilbraham, Mass., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 651,387, July 6, 1967. This application June 21, 1968, Ser. No. 738,782

Int. Cl. B32b 27/10

U.S. Cl. 161-250

9 Claims

Impregnated cellulosic sheets and laminates which are cold punchable and have good electrical properties. Such

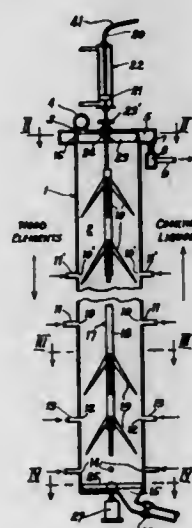
constructions are prepared from cellulosic substrates impregnated with a mixture of carboxylated alkadiene interpolymer and a low molecular weight phenol-formaldehyde resin and then over treated with a certain higher molecular weight substituted phenol-formaldehyde resin. Laminates are made from the resulting sheet-like members by first advancing same and then laying up and thermosetting under heat and pressure.

3,594,269
CONTINUOUS TREATMENT OF FIBROUS MATERIAL TO PREVENT CHANNELING
James d'A Clark, Chuckanut Point, Bellingham, Wash. 98225

Application Dec. 18, 1967, Ser. No. 691,554, which is a continuation-in-part of application Ser. No. 368,917, May 20, 1964. This application July 16, 1969, Ser. No. 842,245

The portion of the term of the patent subsequent to Sept. 16, 1986, has been disclaimed and dedicated to the Public

U.S. Cl. 162—17 Int. Cl. D21c 3/26



An apparatus and process for the treatment of fibrous material with treating liquids in which use is made of an elongate passage with means for introducing a fibrous material into one end portion of the passage and introduction of treating liquid into an intermediate portion of the passage with means for draining treating liquid from the one end portion of the passage and removing treated fibrous material from the other end portion of the passage and including a reciprocating pusher mounted in the passage for reciprocal axial movement with pusher arms inclined in the direction away from the one end of the passage to effect endwise displacement of the fibrous material in the same direction therewith during movement in the direction away from the one end portion of the passage and particularly for disturbing the fibrous material along a greater portion of the passage for redistribution in the passage during return movement without substantial axial displacement of the fibrous material therewith thereby to permit effecting a substantially uniform countercurrent flow through the passage between the fibrous material and treating liquid and which includes means for introducing wash water into the passage beyond the region for introduction of treating liquid whereby the wash water engages the fibrous material subsequent to contact with the treating liquid to leach treating liquid from the fibrous material before removal from the passage and which may include the introduction of steam into the passage beyond the region for introduction of the treating liquid but before introduction of the wash water to raise the wash water to elevated temperature while in contact with the treated fibrous material.

3,594,270
UPGRADING UNBLEACHED SULFITE PULPS
Walter C. Schattner, Webster, and Frank L. Wells, Fairport, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 702,545, Feb. 2, 1968. This application Mar. 24, 1970, Ser. No. 22,370

U.S. Cl. 162—80 Int. Cl. D21c 3/06 5 Claims
Unbleached sulfite wood pulps can be upgraded to "esterification grade" via processes having excellent yields, which processes comprise the essential step of treating the unbleached sulfite pulp with a hot (60° C. or higher) aqueous solution containing strong alkali and at least about 1. weight percent of an inorganic boron compound dissolved therein.

3,594,271
STARCH-MODIFIED THERMOSETTING MELAMINE FORMALDEHYDE ACID COLLOID AND PAPER HAVING DRY STRENGTH MADE THEREWITH

Norman Thorndike Woodberry, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed July 19, 1968, Ser. No. 745,961

U.S. Cl. 162—167 Int. Cl. C08b 21/00; D21h 3/28, 3/56 8 Claims
The invention provides a starch-modified thermosetting melamine-formaldehyde acid colloid. The modified colloid is cationic and water-soluble, and imparts excellent dry strength to paper without imparting more than a negligible amount of wet strength. It is preferably employed as a beater additive but may be applied to preformed paper.

3,594,272
POLYMERIC PRODUCTS OF ALKYLENE-POLY-AMINE-DIHYDROHALIDES, DICYANDIAMIDE, FORMALDEHYDE AND EPICHLOROHYDRIN AND THEIR USE AS RETENTION AIDS IN THE MANUFACTURE OF PAPER

Kwan Ting Shen, Lakewood, and Gary Wayne Jarvis, Toms River, N.J., assignors to Ciba Corporation, Summit, N.J.

No Drawing. Filed May 5, 1969, Ser. No. 822,034

U.S. Cl. 162—167 Int. Cl. D21h 3/52; C08g 9/00 6 Claims
New polymeric products are provided which are obtained by reacting together about 1 molar proportion of an alkylene-polyamine-dihydrohalide, about 2 molar proportions of dicyandiamide, about 3–5 molar proportions of formaldehyde and about 1–3 molar proportions of epichlorohydrin. The products of this invention are especially useful as retention aids in the manufacture of paper, textile and nonwoven fabrics.

3,594,273
SEQUENTIAL ACCRETION OF PLURAL-FIBER ARTICLES

John Covington Williams, Meriden, Conn., assignor to AMF Incorporated

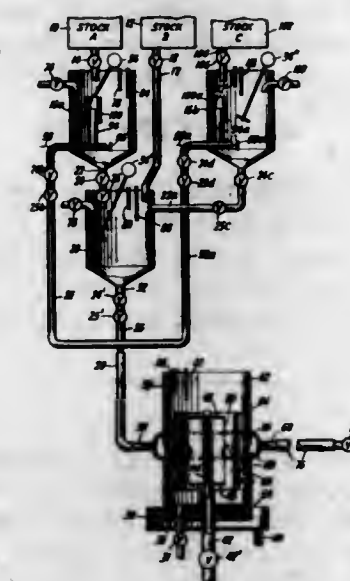
Filed May 15, 1967, Ser. No. 638,549

U.S. Cl. 162—219 Int. Cl. B29j 5/00 17 Claims

A method and apparatus for accreting fibrous particles containing a plurality of fibrous components. A plurality of slurry tanks supply a plurality of different stock slurries to an accreting receptacle with an article former therein. The slurries are supplied to the accreting receptacle substantially at the mid-portion of the former. By means of a series of conduits and valves, the stock slurry tanks are serially interconnected so that the slurries may be supplied to the receptacle in any sequential order and in any mixed proportions, the conduits and valves being connected to the tanks so as to by-pass any particular

tank when desired. Another conduit and valve is provided to supply liquid directly to the receptacle so as to keep the former continuously submerged in liquid. Pre-

the gear rack. The pistons can be deactivated, freezing the slidable gear rack to move pivotally in making tapered articles.



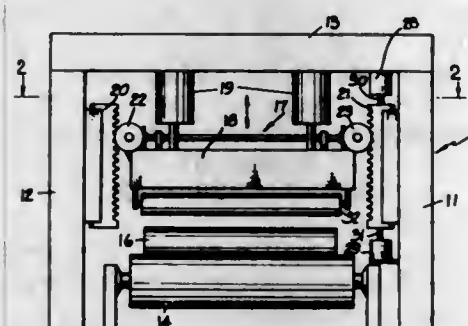
determined amounts of slurry are metered to the receptacle and each accretion depletes substantially the entire metered amounts.

3,594,274
SELECTIVE MECHANICAL ALIGNING AND EQUALIZING MEANS FOR ASBESTOS CEMENT TUBES

Frank A. Claessens, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Filed Apr. 21, 1969, Ser. No. 817,981

U.S. Cl. 162—284 Int. Cl. B31c 1/00 6 Claims



A mechanical system for maintaining positive parallel alignment of a press section or other unit carrying beam member in relation to a press base during movements of the beam member to and away from the press base. The beam member is lowered to make contact with the press base by hydraulic cylinders and is guided and positively aligned in parallel relation to the press base through gear racks and gear pinions on opposite sides of the beam member. One gear rack is rigidly fixed and the opposite gear rack being slidable up and down parallel to the rigidly fixed gear rack to achieve a pivotally movable press member capable of producing tapered articles for example tapered asbestos cement pipes. The pinion gears, mounted on each end of the beam member and meshed with their corresponding gear racks are connected through beveled gears so that the pinion gears rotate in unison. The slidable gear rack is held in position corresponding with the position of the fixed gear rack by fluid actuated cylinders with pistons making contact with the ends of

3,594,275
METHOD FOR THE PRODUCTION OF COBALT-60 SOURCES AND ELONGATED HOLLOW COILED WIRE TARGET THEREFOR

Jackson A. Ransohoff, Bethesda, and Simon L. Lindbeck, Bowie, Md., assignors to Neutron Products, Inc., Washington, D.C.

Original application Apr. 22, 1966, Ser. No. 544,508. Divided and this application May 14, 1968, Ser. No. 737,251

U.S. Cl. 176—12 Int. Cl. G21c 1/00 5 Claims



A unique method of producing cobalt-60 sources which accommodates both the needs of the reactor designer, the fuel cycle manager, and the cobalt-60 user is disclosed. The cobalt-60 source is produced by irradiating, in a nuclear reactor, natural cobalt wire which has been formed into a helical coil. The wire may be clad with a corrosion resistant material before winding, or the spring may be encapsulated in a corrosion protective cladding after it has been formed. The cobalt-60 sources produced may be used in the same geometry in which they are irradiated, or the geometry may be changed prior to use to affect a different distribution of activity.

3,594,276
LEUKOCYTE SEPARATION METHOD

Lester P. Shepherd, Los Angeles, Calif., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

No Drawing. Filed Apr. 10, 1969, Ser. No. 815,234

U.S. Cl. 195—1.8 Int. Cl. A61k 27/00 2 Claims

A method of separating leukocytes from whole blood without agglutination of the erythrocytes consisting of mixing defibrinated whole blood with a liquid extract of the seeds of the Fenugreek herb.

3,594,277
PROCESS FOR FERMENTING HYDROCARBONS

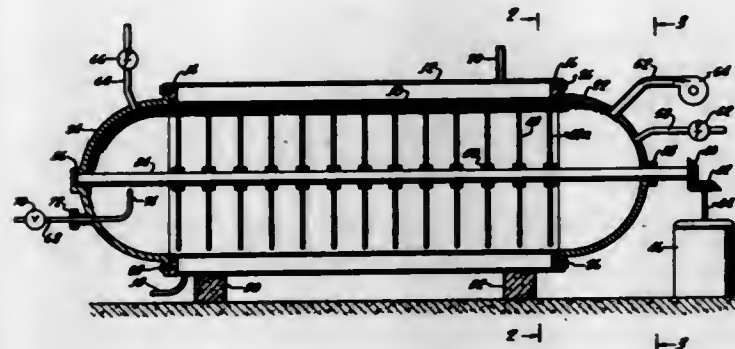
Peter F. Mako, Fullerton, Calif., assignor to Atlantic Richfield Company, Philadelphia, Pa.

Filed Apr. 23, 1968, Ser. No. 723,457

U.S. Cl. 195—28 Int. Cl. C12b 1/00; C12d 13/06 2 Claims

A fermentor comprising a normally horizontal cylindrical chamber having closed ends and including a plurality of apertured discs rotatably mounted in the cylinder, inlet conduits for biological nutrients and air at one end of the closed cylinder and conduits for removing air, spent nutrients and biological products at the other end

of the cylinder, the discs being adapted for continuously rotatably carrying portions of liquid nutrient from the



bottom of the cylinder into a gas phase at the top of the cylinder, is disclosed.

3,594,278

PREPARATION OF POLYNUCLEOTIDES

Robert Naylor, Glendale, Wis., assignor to Pabst Brewing Company, Milwaukee, Wis.
No Drawing. Filed Dec. 31, 1968, Ser. No. 788,319
Int. Cl. C12d 13/06

U.S. Cl. 195—28 8 Claims
Polynucleotides are prepared by enzymatic polymerization of a nucleotide, e.g., inosine diphosphate or cytidine diphosphate, followed by a recovery process employing a surfactant and a finely divided solid adsorbent which yields an active polynucleotide free from impurities.

3,594,279

PROCESS FOR PRODUCING L-TRYPTOPHAN
Kiyoshi Nakayama, Sagami-hara-shi, and Hiroshi Hagino, Hachioji-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
No Drawing. Filed Jan. 23, 1969, Ser. No. 793,557
Claims priority, application Japan, Jan. 24, 1968, 43/3,715
Int. Cl. C12d 13/06

U.S. Cl. 195—28 11 Claims
L-tryptophan is produced by fermentation by a process which comprises culturing a histidine-requiring microorganism belonging to the genus *Arthrobacter*, *Bacillus* or *Corynebacterium* under aerobic conditions in an aqueous nutrient medium. Inexpensive carbohydrates or hydrocarbons can be used as the carbon source in the medium. The strains exemplified include *Arthrobacter paraffineus*, *Bacillus subtilis* and *Corynebacterium glutamicum*.

3,594,280

PROCESSES FOR CARRYING OUT POLYSACCHARIDE-PRODUCING FERMENTATIONS
Pierre Colin and Michel Fleury, Melle, France, assignors to Melle-Bezons, Melle, France
No Drawing. Continuation-in-part of application Ser. No. 717,017, Mar. 28, 1968. This application May 28, 1970, Ser. No. 41,640
Int. Cl. C12d 13/00

U.S. Cl. 195—31 7 Claims
A fermentation process for producing polysaccharides by fermentations with microorganisms of the class *Xanthomonas* in which the broth containing carbohydrate is seeded with a volume of inoculum which does not exceed 2 parts by volume per 1000 parts by volume of broth and preferably less than 0.5 to 1 part by volume per 1000 parts by volume of broth with the medium utilized in preparation of the inoculum preferably being formulated to correspond with the composition of the broth.

3,594,281
CRYSTALLINE COMBINATION OF L-ASPARAGINASE AND A METAL OR METALLOID AND METHOD OF ITS MANUFACTURE
Peter P. K. Ho, Carmel, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Continuation-in-part of application Ser. No. 780,251, Nov. 29, 1968. This application Oct. 2, 1969, Ser. No. 863,376
Int. Cl. C07g 7/02

U.S. Cl. 195—63 10 Claims
A crystalline combination of L-asparaginase and a metal or a metalloid, of high activity as an enzyme and as an oncolytic agent, prepared by crystallization thereof from an aqueous solution containing L-asparaginase a soluble metallic or metalloid salt at about pH 6.0-9, and an antisolvent.

3,594,282

PROCESS FOR PURIFYING L-ASPARAGINASE
Tsuneo Kagawa and Kazuo Mochizuki, Shimizu-shi, and Masao Tanaka, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
No Drawing. Filed Apr. 3, 1969, Ser. No. 813,287
Claims priority, application Japan, Apr. 5, 1968, 43/22,328
Int. Cl. C07g 7/028

U.S. Cl. 195—66A 15 Claims
A process for purifying L-asparaginase obtained from cells while maintaining the enzymic activity thereof. An extract from the cells is adjusted to a pH of 4.5 or less, thereby denaturing, coagulating and precipitating unnecessary proteins therefrom. A supernatant portion of the extract is then adsorbed on an ion exchanger and the L-asparaginase eluted therefrom. Alternatively, the pH of the supernatant can be adjusted to 8 or more, adsorbed by ion exchange and the L-asparaginase eluted. A loss of enzymic activity is encountered with a pH range of 4.5 to 8.0.

3,594,283

FERMENTATIVE PROCESS FOR THE PREPARATION OF TETRACYCLINE
Riccardo Barchielli, Graziana Canevazzi, Arpad Grein, and Romano Tintinelli, Milan, Italy, assignors to Società Farmaceutici Italia, Milan, Italy
No Drawing. Filed Aug. 21, 1967, Ser. No. 661,826
Claims priority, application Italy, Mar. 23, 1967, 14,040/67
Int. Cl. C12d 9/18

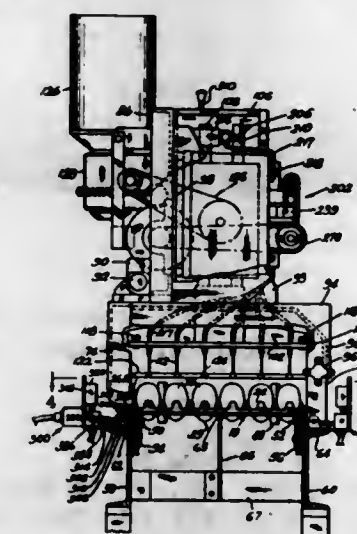
U.S. Cl. 195—80 2 Claims
Described is a fermentative process for the preparation of tetracycline. The process is characterized in that the new *Sterptomyces avellaneus* is cultivated under aerobic conditions in a nutritive medium containing a carbon and nitrogen source and mineral salts at a temperature of from 22° to 35° C. over a period of from 72 to 168 hours at a pH of from 6.0 to 7.2. The thus obtained tetracycline is separated from the fermentation broth and purified as such or transformed in known manner into its salts with non-toxic pharmaceutically acceptable inorganic or organic acids.

3,594,284

LYSOSTAPHIN FERMENTATION WITH ACCELERATED TIME CYCLE
Walter Anthony Zygmunt and Henry Polk Browder, Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.
No Drawing. Filed June 4, 1968, Ser. No. 734,201
Int. Cl. C12d 9/00

U.S. Cl. 195—96 6 Claims
Reduced fermentation periods are obtained in the lysostaphin fermentation when heat sterilization of the medium is eliminated and an inoculum volume of from 2.5% to 20% is employed. A cyclic process in which an aliquot of one batch serves as inoculum for the next is described.

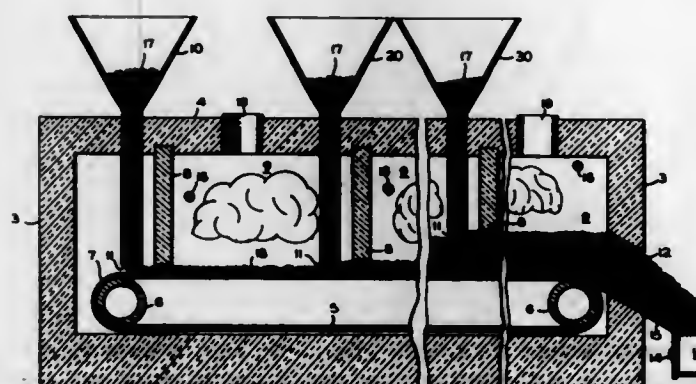
3,594,285
MACHINE FOR INJECTING INFLUENZA SEED VIRUS INTO EGGS
Oscar B. Noren, Grosse Pointe Farms, Mich., assignor to Parke, Davis & Company, Detroit, Mich.
Filed Dec. 29, 1966, Ser. No. 605,632
Int. Cl. C12k 1/10
U.S. Cl. 195—127 18 Claims



Apparatus for automatically transporting, locating and fixturing one or more eggs or the like while the same are arranged in a predetermined array on a flat egg tray or similar support, and for performing an operation on the egg or other supported object while so fixtured. In particular, the machine automatically cycles to lower an array of hollow piercing needles corresponding in number to the fixtured eggs so that the needles pierce the imperforate upper surface of the large end of the eggshell. A liquid containing influenza seed virus is supplied to the needles by a pump which is synchronized to meter a given quantity of liquid to the needle such that this amount of liquid is injected into the egg when the needle is approximately bottomed in its egg piercing and penetrating stroke. The needle is then withdrawn, the tray advanced and the cycle repeated.

3,594,286

CARBONIZING MULTIPLE LAYERS OF MATERIAL BY MAINTAINING REDUCING ATMOSPHERE IN BED AND OXIDIZING ATMOSPHERE ABOVE BED
John L. Kemmerer, Jr., Short Hill, N.J., assignor to Wise Coal & Coke Company, New York, N.Y.
Continuation of abandoned application Ser. No. 526,245, Feb. 9, 1966. This application Mar. 31, 1970, Ser. No. 22,118
Int. Cl. C10b 47/20
U.S. Cl. 201—27 8 Claims

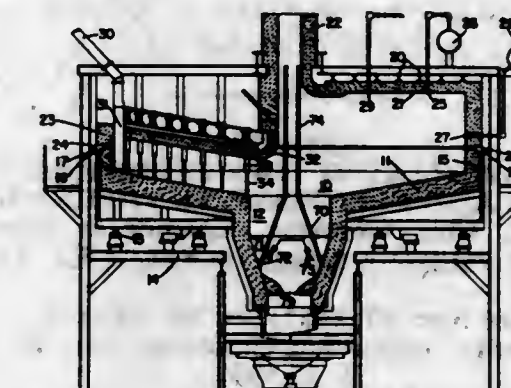


A process of devolatilizing material containing volatiles which involves the feeding of such materials onto a moving hearth in a series of successively applied shallow layers wherein each such applied layer is at least partially devolatilized before application of the next successive

layer and under the action of the radiant heat of a preceding layer and radiant heat derived from combustion of evolved volatiles.

3,594,287

APPARATUS FOR COOLING SOLIDS BY DIRECT CONTACT WITH LIQUIDS
Victor D. Allred, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio
Filed Dec. 22, 1969, Ser. No. 887,449
Int. Cl. C10b 7/02, 39/06
U.S. Cl. 202—103 6 Claims



Into the soaking pit of a rotary hearth calciner is inserted an inverted funnel smaller in diameter than the soaking pit and having internal water sprays directed on hot material flowing underneath the funnel. The water cools the coke directly, generating steam which flows up through the funnel and out through the conventional calciner stack.

3,594,288

PROCESS FOR ELECTROPLATING NICKEL ONTO METAL SURFACES
David H. Reimert, Wayne, Pa., assignor to The Boeing Company, Seattle, Wash.
No Drawing. Filed July 31, 1968, Ser. No. 748,965
Int. Cl. C23b 1/00, 5/46, 5/08
U.S. Cl. 204—34 6 Claims

An adherent, wearable nickel coating is applied to a metal surface by a multistep process in which the metal surface is (a) subjected to an anodic current density in an aqueous acid treatment bath, preferably containing sulfuric acid in an amount between about 20 and 30% by volume, at a bath temperature of 40 to 85° F. and a current density of 75 to 250 a.s.f.; (b) coated with a thin nickel base coat by means of a nickel strike applied from an electroplating bath preferably containing 30 to 34 oz./gal. of nickel chloride and 9 to 12% by volume of hydrochloric acid, and utilizing a 99% minimum purity nickel anode and a cathodic current density between about 50 and 100 a.s.f., and (c) then applying a nickel coating of the desired thickness to the metal surface in a nickel sulfamate plating bath maintained at a temperature of 110 to 125° F. and at a pH of 3.5 to 4.2. The nickel sulfamate plating bath preferably contains 62 to 66 oz./gal. of nickel sulfamate (27 to 31° Bé.), 0.7 to 2.0 oz./gal. nickel chloride, 4 to 5 oz./gal. boric acid, 1 to 3 oz./gal. naphthylene trisulfonic acid, and a sufficient quantity of an organic wetting agent to maintain the bath surface tension at between about 20 and 60 dynes/cm.². A 99% minimum purity nickel anode is used in the nickel sulfamate plating bath and plating is carried out at a current density preferably between 60 and 100 a.s.f.

This process can be applied to various metal surfaces including copper, brass and both high and low carbon steels. The resultant article has an adherent, wearable nickel coating having an excellent combination of hardness, ductility and compressive stress properties.

3,594,289

PROCESS FOR PREPARING A PRESENSITIZED PHOTOLITHOGRAPHIC PRINTING PLATE

Leonard James Watkinson, Leeds, and Brian Joseph Moore, Garforth, Leeds, England, assignors to W. H. Howson Limited, Seacroft, Leeds, England
No Drawing. Filed Nov. 12, 1968, Ser. No. 775,164
Claims priority, application Great Britain, Nov. 15, 1967, 52,084/67

Int. Cl. C23f 17/00; C23b 9/02

U.S. Cl. 204—38A 12 Claims

Process for producing a presensitized lithographic printing plate comprising (i) anodising a sheet of aluminium or aluminium alloy using a phosphoric acid as electrolyte (ii) coating the sheet with a photopolymerisable resin and (iii) optionally colouring the resin coating.



3,594,290

PROCESS OF MAKING THIN FERROMAGNETIC FILMS AND ELECTROLYTE THEREFOR

Josef Jostan, Ulm, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany

Filed Nov. 27, 1967, Ser. No. 685,895

Claims priority, application Germany, Nov. 26, 1966, T 32,595

Int. Cl. C23b 5/32

U.S. Cl. 204—43 7 Claims

An improvement in a process for making thin ferromagnetic films and an electrodeposition bath for use in the process. The process involves the electrodeposition of nickel and iron onto a cathode substrate from a bath containing nickel and iron salts. The improvement comprises the steps of adding selenium compounds to the bath and maintaining the pH of the bath at less than 3. The bath for use in the process contains selenium compounds in addition to the nickel and iron salts and has a pH which is less than 3.

3,594,291

BRIGHT ZINC PLATING FROM AN ACID ELECTROLYTE

Hans-Gunther Todt and Günter Voss, Berlin, Germany, assignors to Schering AG, Berlin, Germany

No Drawing. Filed July 24, 1969, Ser. No. 844,644

Claims priority, application Germany, Aug. 10, 1968, P 17 17 983.4

Int. Cl. C23b 5/12, 5/46

U.S. Cl. 204—55 8 Claims

Mirror bright zinc electrodeposits are formed from acid zinc plating solutions containing as brighteners N-polyvinylpyrrolidone-(2) and a ketone of the formula



wherein R_1 is phenyl, mono- or dihydroxyphenyl or trihydroxyphenyl methylenedioxyphenyl, mono-, di- or tri-lower-alkylphenyl, mono- or di- or tri-lower-alkoxyphenyl, furyl, thienyl, coumaryl, or pyridyl, and R_2 may be lower alkyl, lower alkenyl, lower-alkyl-carbonyl-lower-alkylene, cyano-lower-alkylene, lower-alkoxy-carbonyl-lower-alkylene, or $-(CH=CH)_n-C_6H_5$, n being 1 or 0.

3,594,292

PROCESS FOR PRODUCING ARTICLES WITH APERTURES OR RECESSES OF SMALL CROSS-SECTION AND ARTICLES PRODUCED THEREBY

Robert R. Russell, Burnt Hills, Harvey E. Cline, Latham, and Warren De Sorbo, Ballston Lake, N.Y., assignors to General Electric Company

Filed Dec. 30, 1968, Ser. No. 787,802

Int. Cl. B23p 1/00; B29c 17/08; B22d 7/10

U.S. Cl. 204—143 15 Claims

A process for preparing a body with substantially parallel apertures of small cross-section useful as a filter. An alloy is cast which is in the solid state is comprised of at least two phases. The cast alloy is directionally solidified

to produce a body wherein one of the phases is present as a plurality of substantially parallel rods passing through a matrix comprised of the second or other phases. The

directionally solidified body is etched to remove the rod-like phase to form straight-through apertures or, if desired, recesses.

3,594,293

IRRADIATION PROCESS FOR REDUCING THE MOLECULAR WEIGHT OF POLYOXYMETHYLENE AND THEREBY INCREASING THERMAL STABILITY

Nelson Samuel Marans, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 476,727, Aug. 2, 1965. This application May 24, 1968, Ser. No. 731,734

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.21 4 Claims

A process for rendering polyoxymethylene polymers and copolymers thermally stable while simultaneously reducing their molecular weights. Polyoxymethylene of a high molecular weight is subjected to ionizing radiation of about 0.000015–5 mev. at a dosage of about 0.01 to 2.0 megarads. The irradiated polymer has a much greater thermal stability than the non-irradiated polymer, as well as a substantially reduced molecular weight.

3,594,294

DETECTION METHOD AND APPARATUS FOR CHROMATOGRAPHY

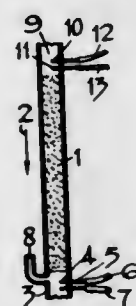
Victor Pretorius and Hans Helmut Hahn, both of 38 Marais St., Bailey's Mucklenek, Pretoria, Transvaal, Republic of South Africa

Filed Oct. 3, 1966, Ser. No. 583,788

Claims priority, application Republic of South Africa, Oct. 6, 1965, 65/5,409; Aug. 2, 1966, 66/4,568

Int. Cl. B01k 5/00

U.S. Cl. 204—180G 23 Claims



For purposes of detecting changes in an eluate in chromatography a cell comprising a solid detection electrode and a reference electrode is connected in series with a chromatographic separating system, the detection electrode being in direct flowing contact with the eluate and a liquid (which may be the eluate itself). A controlled potential difference is applied to the electrodes to bring about a chemical oxidation/reduction reaction of the substances

being separated and the relationship between at least two quantities inter-related by Ohm's law is observed. Provision is made for a compensatory cell and for the electro-chemical removal from the eluant of impurities which interfere with the detection. A preferred cell is tubular with the electrodes e.g. of graphite or glassy carbon provided by the walls of the cell or extending across the cell.

3,594,295

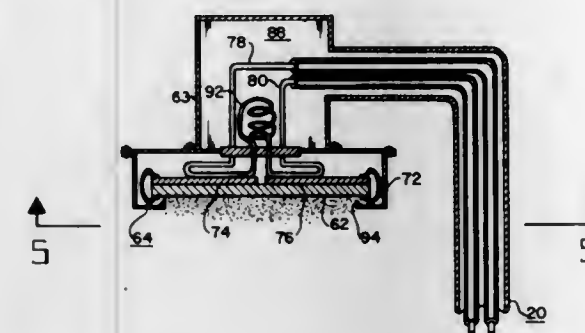
RF SPUTTERING OF INSULATOR MATERIALS

Benjamin B. Meckel, La Mesa, and Bernd H. Richelmann, San Diego, Calif., assignors to Physics Technology Laboratories, Inc., La Mesa, Calif.

Filed Sept. 19, 1966, Ser. No. 580,404

Int. Cl. C23c 15/00

U.S. Cl. 204—192 11 Claims



Method and apparatus for sputtering electrically non-conductive material wherein potentials of opposite polarities are applied to a target of nonconductive material which polarities are alternated at (RF) radio frequencies. The sputtering discharge may also be supported by RF potentials.

3,594,296

APPARATUS FOR GRINDING THE TIPS OF INJECTION NEEDLES

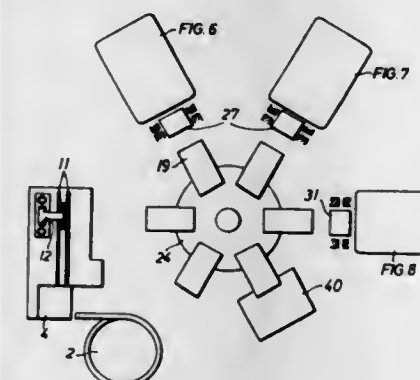
Karlheinz Derwall, Wurselen, near Aachen, Germany, assignor to SCHUMAG Schumacher Metallwerke Gesellschaft mit Beschränkter Haftung, Aachen, Germany

Filed Nov. 14, 1967, Ser. No. 682,750

Claims priority, application Germany, Nov. 15, 1966, Sch 39,817

Int. Cl. B25g 29/00

U.S. Cl. 204—200 13 Claims



An apparatus for grinding the tips of injection needles which are used in hypodermic syringes. The apparatus is of the type wherein electrolytic grinding of the needle tips takes place while the needles are held and ground with a grinding disc during feeding of the electrolyte to the grinding area, the apparatus including the required electrical structure. A holding means is provided for holding a plurality of needles simultaneously during simultaneous grinding of the tips thereof, and a feeding

3,594,297

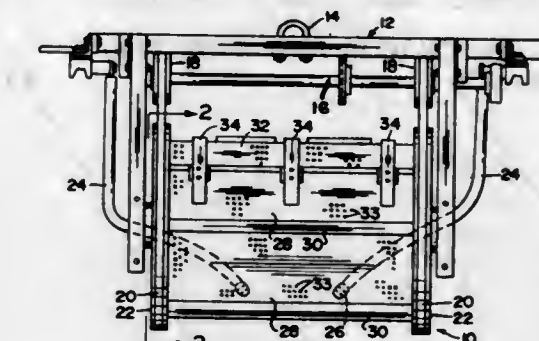
REINFORCED PLATING BARREL

Albert Singleton, 7360 Brookside Parkway, Middleburg Heights, Ohio

Filed Nov. 6, 1968, Ser. No. 773,929

Int. Cl. C23b 5/78

U.S. Cl. 204—213 10 Claims



A plating or metal finishing barrel of generally polygonal shape having a work receiving cavity formed by rectangular side panels and end wall. The side panels are secured in side edge-to-side edge alignment with the end walls secured to the end edges of the panels. A reinforcing plug of substantially the same material as the side panels and end walls is friction welded and thereby fused to one end wall and the meeting edge of a side panel side edge.

3,594,298

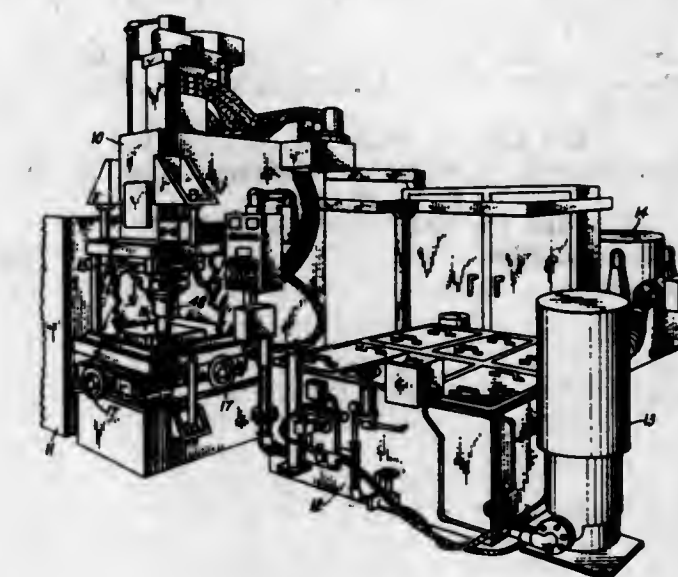
PORTABLE MANIFOLD FOR ELECTRO-EROSIVE MACHINES

Ronald C. Abt, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Dec. 19, 1968, Ser. No. 785,226

Int. Cl. B23p 1/04, 1/12

U.S. Cl. 204—224 8 Claims



This disclosure describes a portable manifold assembly useful in the electro-erosive machining processes. The portable manifold is a telescoping shroud supported from the cathode mounting plate and extending around the length of the tool in spaced relationship with the tool. The space between the tool and the shroud is connected

to the fluid supply passage. The shroud is biased forward to contact and seal against the workpiece by the force of the fluid against the end faces of the telescoping shroud members. An O-ring seal is mounted in the end of the shroud to seal against the workpiece on contact. There is also provided a quick-change tooling system which can be used with the portable manifold of this invention.

3,594,299

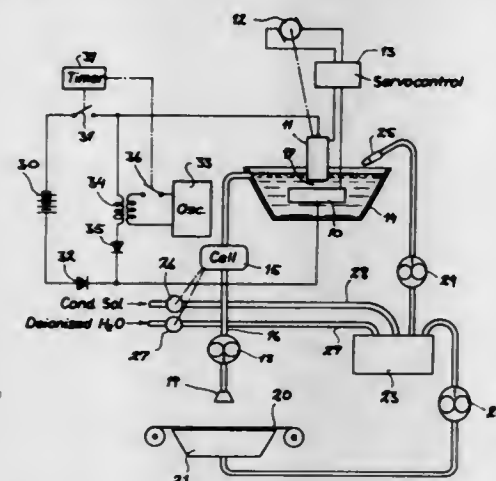
APPARATUS FOR ELECTRICAL MACHINING OF METALLIC WORKPIECES

Kiyoshi Inoue, 182, 3-chome, Tamagawayoga-machi, Satagaya-ku, Tokyo-to, Japan
Original application Jan. 19, 1966, Ser. No. 535,268, now Patent No. 3,417,006, dated Dec. 17, 1968. Divided and this application Aug. 30, 1968, Ser. No. 824,014
Claims priority, application Japan, Jan. 20, 1965, 40/2,947

Int. Cl. B23p 1/04; B01k 3/00

U.S. Cl. 204—224

4 Claims



An apparatus for electrically machining a metallic workpiece in which a first source of electric current is connected between the workpiece and the tool electrode for electrochemical erosion as the workpiece is juxtaposed with the tool electrode and in contact with an electrolyte. A second source of electric current applies spark discharge pulses in addition.

3,594,300

APPARATUS FOR INDICATING AND ELIMINATING SHORT CIRCUITS IN THE CELLS OF ELECTROLYSIS PLANTS

Rolf Schafer, Krefeld-Urdingen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

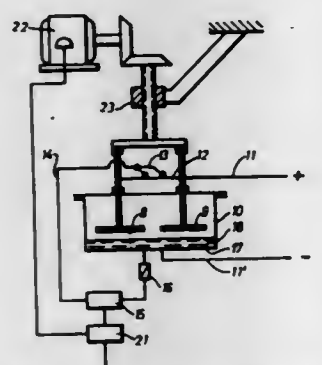
Filed July 19, 1968, Ser. No. 746,118

Claims priority, application Germany, Aug. 1, 1967, P 16 17 431.1

Int. Cl. B32p 1/14; B01k 3/00

U.S. Cl. 204—225

1 Claim



Improvements in the operation of an electrolytic cell and/or a battery of such cells such as set forth in application Ser. No. 660,815, filed Aug. 15, 1967, wherein the

switch means of a circuit activates a relay means which in turn activates a motor means which functions to adjust the gap or distance between the anode and the cathode of such electrolytic cell and which device and circuit may also contain means for measuring when the anode and cathode have a short circuit therebetween whereby activating the switch means and means for detecting the opening of the short circuit so as to control the motor and adjusting means thereby.

3,594,301

SPUTTER COATING APPARATUS

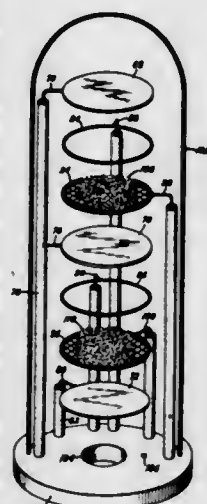
Charles A. Bruch, Cincinnati, Ohio, assignor to General Electric Company

Filed Nov. 22, 1968, Ser. No. 778,155

Int. Cl. C23c 15/08

U.S. Cl. 204—298

14 Claims



Apparatus for efficiently providing ionic cleaning and sputter coating of materials. The sputtering apparatus basically includes at least two targets (cathodes) with a porous anode located therebetween with the material to be coated positioned between at least one of the targets and the anode. The use of a porous anode allows sputtering atoms to pass therethrough to provide substantially uniform coating of the material.

3,594,302

APPARATUS FOR IMPROVING THE CHEMICO-THERMAL SURFACE TREATMENT OF TUBES

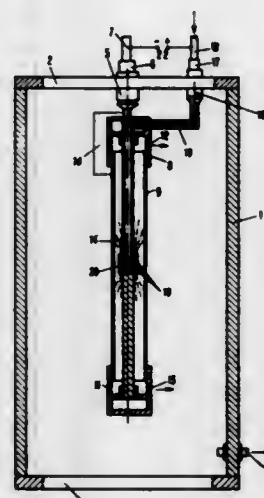
Horst Edmund Rordorf, Weinigen, Zurich, Switzerland, assignor to Elektrophysikalische Anstalt Bernhard Berghaus, Vaduz, Liechtenstein

Filed June 10, 1968, Ser. No. 735,675

Int. Cl. B01k 1/00

U.S. Cl. 204—312

2 Claims



An apparatus for hardening tubular workpieces by electrical glow discharge in a gas atmosphere. Gas is

delivered into a glow discharge chamber through a pipe functioning as an anode and discharging gas within the tubular workpiece, generally midway of its ends, through openings in the pipe. Baffle means further deflect the gas to effect efficient distribution thereof over the interior surface of the workpiece, which is connected as a cathode.

3,594,303

COAL HYDROGENATION PROCESS

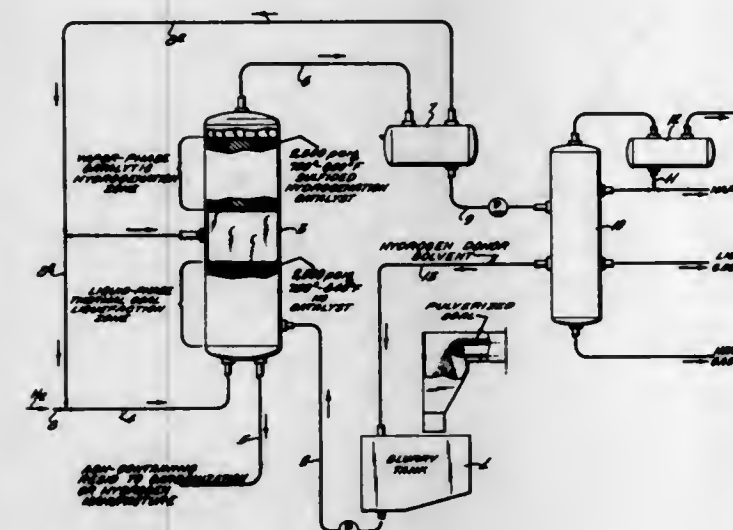
Merritt C. Kirk, Jr., Thornton, and Walter H. Seltzer, West Chester, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

Filed Feb. 18, 1970, Ser. No. 12,195

Int. Cl. C10g 1/08

U.S. Cl. 208—8

6 Claims



A process for hydrogenation of coal where a slurry of pulverized coal in a hydrogen donor solvent is hydrogenated in the liquid phase in the absence of catalyst, vapors from this first hydrogenation are then subjected to a vapor phase hydrogenation in the presence of a sulfided catalyst and thereafter the products of the reaction are separated.

3,594,304

THERMAL LIQUEFACTION OF COAL

Walter H. Seltzer, West Chester, and Robert W. Shinn, Chester, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Apr. 13, 1970, Ser. No. 27,975

Int. Cl. C10g 1/04

U.S. Cl. 208—8

4 Claims

A sub-bituminous coal is liquefied by rapidly heating a slurry of said powdered coal in a hydrogenated solvent at a temperature range of from 440° to 450° C., and a residence time of from about 5 to 20 minutes.

3,594,305

PROCESS FOR HYDROGENATION OF COAL

Merritt C. Kirk, Jr., Thornton, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

Filed Jan. 23, 1970, Ser. No. 5,328

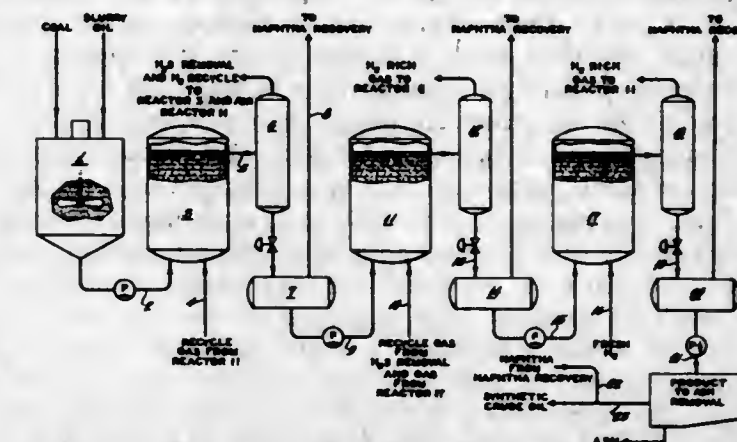
Int. Cl. C10g 1/04

U.S. Cl. 208—10

3 Claims

Process of obtaining hydrocarbons from coal by treating a hydrocarbon oil-coal slurry with hydrogen under catalytic conditions in an ebullated bed system where the reaction involves a series of reactors, each reactor increasing in temperature and pressure, oxygen and sulfur removal occurring in the first series of reactors and finally passing the oil-coal slurry through one or more final reactors which contain catalyst different from the upstream

reactors to remove nitrogen compounds and complete hydrogenation, whereby an effluent is obtained suitable



for hydrocracking to fuels and other useful petroleum-like products.

3,594,306

SEPARATION CELL AND SCAVENGER CELL FROTH TREATMENT

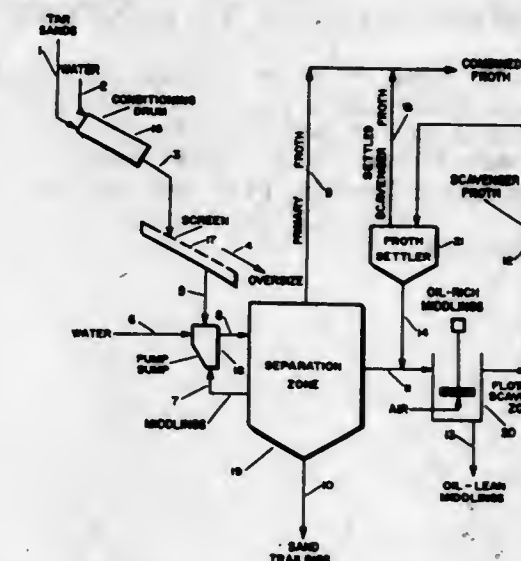
Ernest W. Dobson, Media, Pa., assignor to Great Canadian Oil Sands Limited, Toronto, Canada

Filed Apr. 3, 1967, Ser. No. 627,958

Int. Cl. C07g 1/04

U.S. Cl. 208—11

4 Claims



The hot water process for extracting bitumen from tar sands produces a froth product from a separation cell. A secondary recovery may be conducted on the middlings from the separation cell to produce additional froth which usually is combined with the primary froth and treated. It has now been found that the froth from the secondary recovery operation can be upgraded in bitumen content by gravity settling. By the process of the present invention then, secondary recovery froth is settled to produce an upper layer upgraded in bitumen content over the secondary froth. This upgraded bitumen layer is then added to the primary froth for further processing.

3,594,307

PRODUCTION OF HIGH QUALITY JET FUELS BY TWO-STAGE HYDROGENATION

Merritt C. Kirk, Jr., Thornton, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of applications Ser. No. 532,298, Mar. 7, 1966, now Patent No. 3,424,673, dated Jan. 28, 1969, and Ser. No. 781,095, Dec. 4, 1968, now Patent No. 3,481,996, dated Dec. 2, 1969, said application Ser. No. 781,095 being also a continuation-in-part of said application Ser. No. 532,298. This application Feb. 14, 1969, Ser. No. 799,499

Int. Cl. C10g 23/02

U.S. Cl. 208—57

9 Claims

Process of producing a jet fuel having a luminometer number of at least 75 comprises contacting a charge com-

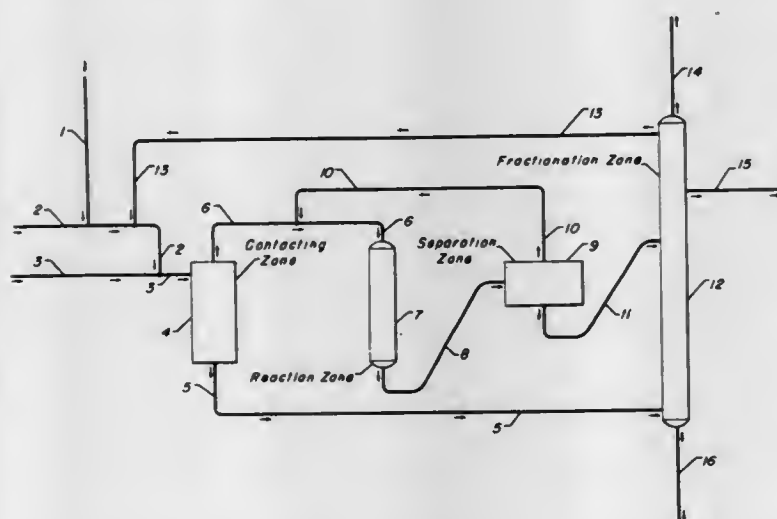
prising jet fuel range distillate from coked (thermally cracked) tar sands bitumen (such as that separated from Athabasca tar sands by the hot water process) or a straight-run kerosene charge, or a catalytic gas oil charge, acyclic C_9 - C_{18} olefin charge (or a mixture of at least two such charges) with hydrogen in the presence of a hydrogenation catalyst formed from at least one member selected from the group consisting of nickel, cobalt, iron, molybdenum and tungsten and oxides and sulfides thereof, on an inert porous carrier, at a temperature of 500-785° F., a pressure of 350-2000 p.s.i.g., a liquid hourly space velocity of 0.5-10.0 and a hydrogen circulation rate of 0 to 20,000 s.c.f. per barrel of said charge, contacting the resultant product with hydrogen in the presence of a catalyst which comprises a metal selected from the group consisting of nickel, cobalt, tungsten, Ru, Rh, Re, Os and the noble metal hydrogenation catalysts (Pt and Pd), said catalyst being supported on a porous support (e.g., alumina, kieselguhr) at a temperature of 450-775° F., at a pressure of 500-3000 p.s.i.g., a liquid hourly space velocity of 0.1-10.0 and a hydrogen circulation rate of 0-20,000 standard cubic feet per barrel of said product of the first stage, the combination of conditions being selected to produce a jet fuel having an ASTM smoke point of at least 32±3.

3,594,308 PETROLEUM CRUDE OIL CONVERSION PROCESS

Laurence O. Stine, Western Springs, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Continuation-in-part of application Ser. No. 758,217, Sept. 9, 1968, now Patent No. 3,544,450, dated Dec. 1, 1970.
This application June 22, 1970, Ser. No. 48,371
Int. Cl. C10g 21/14

U.S. Cl. 208-86

8 Claims



A petroleum crude oil feedstock is converted into a more valuable hydrocarbon product by a combination process including the steps of contacting the feedstock in a contacting zone with a light hydrocarbon solvent, separating the resulting mixture to provide a light hydrocarbon fraction and a heavy hydrocarbon fraction, hydrorefining the light hydrocarbon fraction, passing a resulting hydrorefined effluent hydrocarbon and the heavy hydrocarbon fraction into a distillation zone, and recovering the desired hydrocarbon product from the distillation zone. The light hydrocarbon solvent contains hydrocarbon having less than six carbon atoms per molecule, and the hydrorefined effluent hydrocarbon contains species having less than six carbon atoms per molecule, whereby at least a portion of the light hydrocarbon solvent passed into the contacting zone is obtained from the distillation zone. The process has particular application to hydrotreating and hydrocracking heavy feedstocks

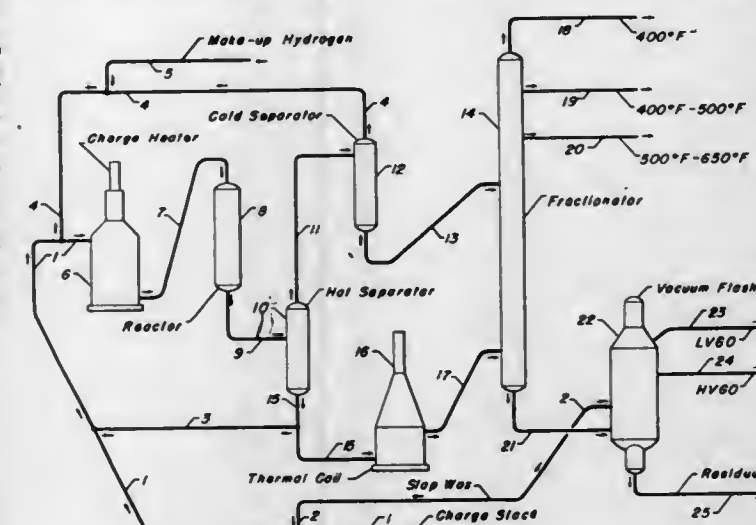
containing a significant quantity of asphaltic materials, organo-metallic complexes, sulfur compounds, and nitrogen compounds, wherein at least about 10% by volume of the feedstock boils at a temperature in excess of about 1050° F.

3,594,309 CONVERSION AND DESULFURIZATION OF HYDROCARBONACEOUS BLACK OILS

Frank Stofa, Park Ridge, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Oct. 28, 1968, Ser. No. 771,248
Int. Cl. C10g 37/04

U.S. Cl. 208-89

4 Claims



A process for converting sulfurous, hydrocarbonaceous black oils into lower-boiling, normally liquid hydrocarbon products of reduced sulfur content. The process involves the integration of hydrogenative cracking and fixed-bed catalytic desulfurization, and is especially applicable to those hydrocarbon charge stocks containing less than 150 p.p.m. of metallic contaminants. The charge stock is initially subjected to fixed-bed catalytic hydrogenation and desulfurization. Following separation of the catalytic reaction zone product effluent, a high-boiling concentrate is thermally-cracked in the presence of dissolved hydrogen.

3,594,310 HYDROCRACKING CATALYST

Ernest L. Pollitzer, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Continuation-in-part of application Ser. No. 723,886, Apr. 24, 1968. This application Mar. 20, 1969, Ser. No. 808,999
Int. Cl. C10g 13/02

U.S. Cl. 208-111

7 Claims

A hydrocracking catalyst of a crystalline aluminosilicate carrier material, a Group I-B metal component having an atomic number below 79, and a Group VII-B metal component having an atomic number above 25. The crystalline aluminosilicate carrier is substantially pure, being at least about 90.0% by weight zeolitic.

3,594,311 CONVERSION PROCESS

Vincent J. Frilette, Delaware Township, Camden County, N.J., and Paul B. Welsz, Media, Pa., assignors to Mobil Oil Corporation
No Drawing. Continuation-in-part of application Ser. No. 754,915, Aug. 14, 1958, now Patent No. 3,140,322. This application Mar. 19, 1963, Ser. No. 266,186
The portion of the term of the patent subsequent to July 7, 1981, has been disclaimed
Int. Cl. C10g 13/02, 11/02

U.S. Cl. 208-111

21 Claims

Normal aliphatic hydrocarbons in a feed are selectively cracked or hydrocracked by contacting said feed under

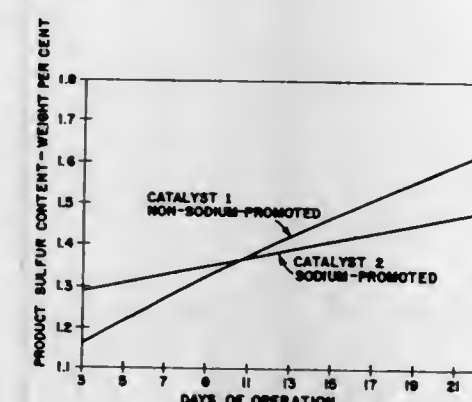
conversion conditions with a crystalline acid aluminosilicate having a pore size of about 5 angstroms, and a silicon to aluminum ratio of at least 1.8.

3,594,312 HYDRODESULFURIZATION PROCESS UTILIZING A CATALYST PROMOTED WITH AN ALKALI METAL

Robert D. Christman, Penn Hills Township, and Joel D. McKinney, Indiana Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Sept. 17, 1969, Ser. No. 858,585
Int. Cl. C10g 23/02

U.S. Cl. 208-216

6 Claims



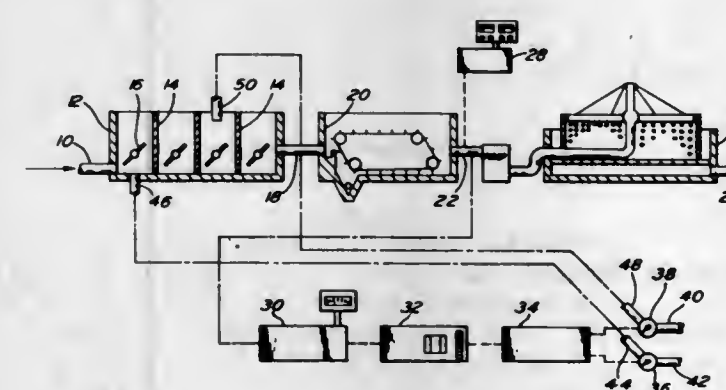
The hydrodesulfurization of a hydrocarbon oil with a catalyst comprising a supported Group VI and Group VIII metal is improved by sodium promotion of the catalyst. The improved effect is surprising because over an extended initial stage of the process the sodium acts as a catalyst poison and depresses catalyst activity. However, after a period of aging the hydrodesulfurization activity of the sodium-promoted catalyst emerges superior to that of the non-promoted catalyst. The superior activity of the aged sodium-promoted catalyst is inexplicable in view of the fact that the carbon, sulfur and metals laydown on the aged sodium-promoted catalyst is about as high as on the aged non-sodium-promoted catalyst.

3,594,313 LIQUID PURIFICATION SYSTEM WITH ZETA-POTENTIAL CONTROL OF CHEMICAL ADDITIVES

Rolf C. Carlson, Levittown, Pa., assignor to International Waterpure Corporation, Fallsington, Pa.
Filed Apr. 13, 1970, Ser. No. 27,807
Int. Cl. C02b 1/20

U.S. Cl. 210-18

9 Claims



An anti-pollution system for flowing liquids which is particularly adapted to the treatment of flowing aqueous systems polluted with sewage, industrial wastes, or the

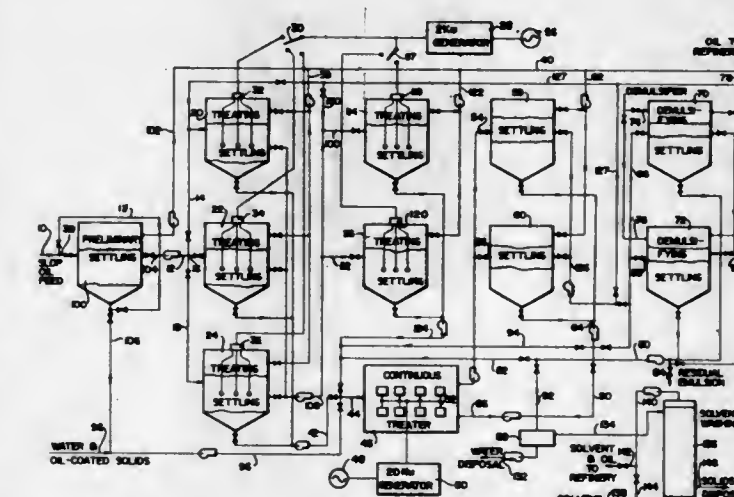
like. The system is especially adapted to remove colloids from the liquid by causing flocculation and coagulation of the colloids. This is accomplished by controlling the zeta-potential of the liquid at the initial stages in such a manner that flocculation and coagulation of the colloids is substantially effected at that point. After a zeta-potential value is determined and obtained by the insertion of chemical additives, the subsequent flow of the liquid is scanned by an automatic control unit which adjusts the amount and rate of insertion of the chemical additives at the initial stages in accordance with any variation of the zeta-potential from a predetermined value.

3,594,314 METHOD OF SEPARATING OIL, WATER AND SOLIDS BY ULTRASONIC TREATMENT

James R. Billhartz, 3220 Cliffcoak Drive, Dallas, Tex. 75233, and Alden G. Nellis, Jr., 1709 Winthrop, Irving, Tex. 75060
Filed Feb. 12, 1969, Ser. No. 798,664
Int. Cl. B01d 17/04

U.S. Cl. 210-19

28 Claims



A method for treating waste materials containing oil, water, oil and water emulsions, and oil-coated solids, particularly slop oil from an integrated petroleum refinery, to separate oil, water and solids which can be utilized or disposed of without environmental contamination, in which the waste material is subjected to ultrasonic treatment at subcavitation power levels and permitted to settle, for example at a power level of about 2 to 10 watts per barrel of oil and with hourly alternate treatment for 5 to 30 minutes and settling for 30 to 55 minute periods for an 8-hour treating cycle, followed by a 16-hour settling period, to provide a 24-hour total time cycle; a clarified oil phase is recovered as an upper phase; a lower phase is removed and subjected to ultrasonic treatment at cavitation power levels, for example in a continuous flow operation and at a power level of about 1 to 10 kilowatt hours per barrel of fluid treated; the cavitated product is then separated to recover an upper free oil phase and a lower water and solids phase; and the water and solids are then separated for use and/or disposal. The lower phase of sonically treated products from either the subcavitation treatment or the cavitation treatment or both may be further separated to recover an intermediate emulsion phase and this emulsion phase may be recycled to the subcavitation treatment while the remaining water and solids phase is subjected to cavitation treatment. Alternatively, an intermediate emulsion phase from the first subcavitation treatment

may be separated and subjected to a second subcavitation treatment prior to subjecting the bottoms product to the cavitation treatment. The water and solids from the process may be separated by filtering or centrifuging and, if desired, the solids material recovered may be washed with a solvent to remove any residual oil therefrom.

3,594,315

PROCESS FOR THE SEPARATION OF SOLIDS FROM A LIQUID BY MEANS OF AN ARTIFICIAL GRAVITATIONAL FIELD

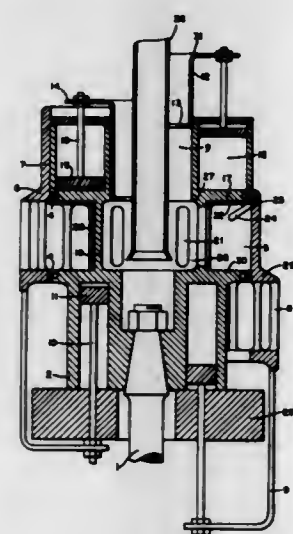
Eberhard Otto Gert Buban, Munich-Allach, Germany, assignor to N.V. Motorenfabrik Thomassen, De Steeg, Netherlands

Continuation of application Ser. No. 496,737, Sept. 30, 1965. This application May 5, 1969, Ser. No. 821,974

Int. Cl. B01d 37/00

U.S. Cl. 210—73

4 Claims



This invention is directed to a process for separating solids from a liquid, by way of example in purifying sewage waters and settling sludges by the use firstly of an artificial gravitational field and secondly a natural gravitational field while periodically removing sediments after interrupting the supply of the liquid to be purified.

3,594,316

APPARATUS FOR STORING AND FEEDING FRACTIONS OF A STREAM OF LIQUID FLOWING INTO AND OUT OF A REACTOR OR A PROCESS EXCHANGE APPARATUS

Alfons Mersmann, Ranzel, Sandor Vajna, Rheinbreitbach, and Hans Epler, Ranzel, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

Filed Aug. 30, 1968, Ser. No. 756,648

Claims priority, application Germany, Sept. 1, 1967, D 53,993

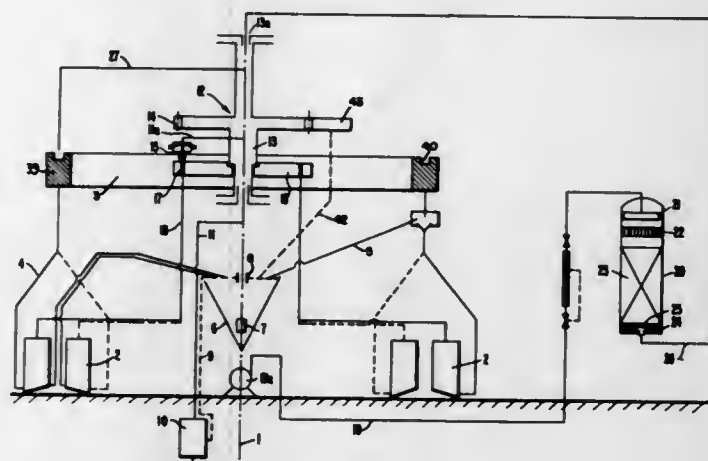
Int. Cl. B01d 33/38, 15/04

U.S. Cl. 210—101

27 Claims

The present disclosure is directed to an apparatus for storing, feeding and conveying a liquid fraction which comprises a plurality of pressure-resistant, gas-tight storage tanks, distributor channel means disposed above said storage tanks and divided into a number of compartments corresponding to the number of said storage tanks, a distributing system containing a first liquid feed line as-

sociated therewith for introducing the liquid fraction into said compartments, second liquid feed line means for providing communication between each compartment and a storage tank, reservoir means associated with the storage tanks, exhaust line means providing communication between each of the storage tanks and the reservoir means, measuring means disposed in the reservoir means for measuring a predetermined minimum level in said reservoir, gas feed line means providing communication between the storage tanks and a source of pressurized gas, switch means in operative engagement with the measuring



means and said source of gas pressure for supplying a pressurized gas through said gas feed line means to the storage tanks in response to a signal received from said measuring means so that the storage tanks can be filled with the liquid fraction and/or drained of the liquid fraction as necessary, means for removing the liquid fraction from the reservoir means and introducing it into a reactor means, and means for removing the liquid fraction from the reactor and introducing it into the distributing system for reintroduction by said first liquid feed line means into the distributor channel.

3,594,317

WELL DRILLING METHOD USING DECANOL IN PLACE OF OIL IN AQUEOUS DRILLING FLUIDS

Jack C. Estes and Arthur Park, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla.

No Drawing. Filed Nov. 12, 1969, Ser. No. 876,115

Int. Cl. C01m 3/16

U.S. Cl. 252—8.5C

9 Claims

Normal, primary decanol is used in water-based, clay-containing drilling fluids as a replacement for oil to decrease friction of the drill string and flowing drilling fluid and to reduce the tendency of the drill pipe to stick to the well wall due to higher pressures in the well than in the formation. Preferably, the alcohol is pure, synthetic decanol. It can be used as blends with other liquids such as other alcohols.

3,594,318

ANTIOXIDANT COMPOSITIONS

James D. O'Neill, Southfield, Mich., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Filed May 12, 1969, Ser. No. 823,971

Int. Cl. C10m 1/12, 1/38

U.S. Cl. 252—46.4

10 Claims

Organic material is synergistically stabilized by addition of both an α -alkoxy dihydrocarbyl cresol and a dialkyl tin sulfide synergist. For example, lubricating oil containing α -alkoxy-2,6-di-tert-butyl-p-cresol and dibutyl tin sulfide is exceptionally stable.

3,594,319

ADDITIVES FOR FUEL ANTIOXIDANTS AND FOR LUBRICANTS

Heinrich Vollmann, Leverkusen, Heinrich Leister, Cologne-Stammheim, and Walther Lohmar, Bergisch-Gladbach, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 21, 1969, Ser. No. 792,788

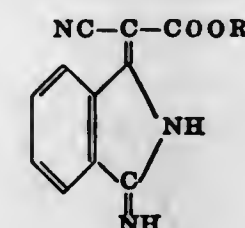
Claims priority, application Germany, Jan. 29, 1968, P 16 44 897.8

Int. Cl. C10m 1/32; C10i 1/22

U.S. Cl. 252—51.5A

6 Claims

Additives to lubricants and fuel antioxidants, consisting of or containing isoindoline compounds of the formula



in which R stands for an alkyl, isoalkyl or alkenyl radical with 7 to 20 carbon atoms.

3,594,320

HYDROCRACKED LUBRICANTS

Bernard A. Orkin, Cherry Hill, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Feb. 19, 1968, Ser. No. 706,632

Int. Cl. C10m 1/18

U.S. Cl. 252—59

7 Claims

Hydrocracked lubricating oils when treated with an organic peroxide in the presence of a synthetic hydrocarbon lubricant or ester lubricant or additive containing abstractable hydrogen atoms produces products having improved viscosity properties and oxidation stability.

3,594,321

PIEZOELECTRIC CERAMIC

Tomeji Ohno, Masao Takahashi, and Tsuneo Akashi, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Minato-ku, Tokyo, Japan

Filed Nov. 3, 1969, Ser. No. 873,233

Claims priority, application Japan, Nov. 5, 1968, 43/81,194

Int. Cl. C04b 35/46, 35/48

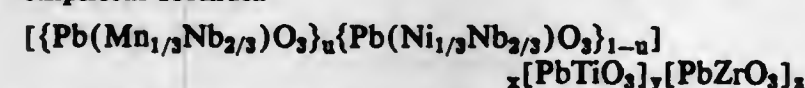
U.S. Cl. 252—62.9

1 Claim

Piezoelectric ceramics are provided in solid solution of the quaternary system



the ceramic compositions being expressed by the general empirical formula



wherein the subscripts u , x , y and z denote respectively mol fractions of the respective members and have the following values

$$0.00 < u < 1.00$$

$$x + y + z = 1$$

ERRATA

For Classes 252—83, 252—187 see: Patent Nos. 3,594,578, 3,594,580

3,594,322

LIQUID DETERGENT

James H. Wilson, Demarest, N.J., assignor to Lever Brothers Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 449,862, Apr. 21, 1965. This application Nov. 6, 1967, Ser. No. 680,946

Int. Cl. C11d 9/48, 1/18

U.S. Cl. 252—106

9 Claims

Stable germicidal compositions containing, in dissolved form, certain relatively insoluble halogenated organic germicides and methods for the preparation of such compositions are disclosed. The specific germicides are polybromosalicylanilides and trichlorocarbanilide. These germicides are predissolved in specific alkaline solvents or solvent systems which include fatty acid alkanolamides, anionic surfactant solutions, and nonionic surfactant solutions.

3,594,323

TRIETHANOLAMINE STRAIGHT CHAIN SECONDARY ALKYL BENZENE SULFONATE LIQUID DETERGENT COMPOSITIONS

Robert C. Taylor, King of Prussia, and William K. Griesinger, Haverford, Pa., assignors to The Atlantic Refining Company, Philadelphia, Pa.

No Drawing. Filed Mar. 5, 1965, Ser. No. 437,580

Int. Cl. C11d 7/12, 3/04, 3/06

U.S. Cl. 252—137

10 Claims

A non-gelling aqueous solution consisting essentially of an amount in excess of about 40 weight percent and ranging up to about 70 weight percent of triethanolamine straight chain secondary alkylbenzene sulfonates and a de-gelling agent in amounts ranging from minimum amounts sufficient to prevent the gelling of said sulfonates to maximum amounts sufficient to produce clear, free-flowing solutions of said sulfonates.

3,594,324

DETERGENT COMPOSITION CONTAINING A SYNERGISTIC COMBINATION OF EMC AND GELATIN AS SOIL SUSPENSION AGENTS

Thomas J. Sayers, Dobbs Ferry, and Edward N. Walsh, New City, N.Y., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed May 24, 1968, Ser. No. 731,742

Int. Cl. C11d 3/22, 3/065, 7/46

U.S. Cl. 252—137

1 Claim

A built detergent composition of the nitrilotriacetic acid type characterized by improved soil anti-redeposition comprising a synthetic detergent, a builder of a polyphosphate builder salt in combination with sodium nitrilotriacetate and as a soil anti-redeposition agent, the combination of carboxymethylcellulose and a gelatin protein.

3,594,325

AGGLOMERATED ENZYME PRODUCTS

Harold E. Felerstein, Creve Coeur, Raymond L. Liu, Warren Woods, and Noel L. Schomburg, Florissant, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,269

Int. Cl. C11d 3/065

U.S. Cl. 252—138

11 Claims

The present invention relates to stable enzyme products composed of a mixture of enzymically active materials and a resinous binding agent. Said products are useful in detergents and are prepared by a novel agglomeration process.

3,594,326

METHOD OF MAKING MICROSCOPIC CAPSULES
Rene Karl Himmel, Kilchberg, Switzerland, assignor to The National Cash Register Company, Dayton, Ohio
No Drawing. Continuation of application Ser. No. 415,809, Dec. 3, 1964. This application Feb. 14, 1969, Ser. No. 802,731

Int. Cl. B01j 13/02; A61k 9/04; B44d 1/02
U.S. Cl. 252—316 2 Claims

The process of forming minute capsules en masse which comprises (a) establishing an agitated system consisting of a liquid polar vehicle constituting a continuous first phase, a second phase dispersed therein consisting of minute mobile entities of core material, and a third phase dispersed therein consisting of minute, mobile liquid entities of a wall-forming solution of a non-polar polymeric material, the said core material being wettable by said wall-forming solution, the said three phases being mutually incompatible, the third phase constituting such a part of the total three-phase system, by volume that it can exist as a dispersed phase of minute mobile entities capable of and sufficient in amount to deposit around the core entities, and wherein the wall-forming polymeric material has a decreasing solubility with increasing temperature in the vehicle, and wherein the third phase is maintained as such, at least in part, by the presence of a polyelectrolyte polymer (b) hardening the walls so formed by elevating the temperature of the system to a temperature above the gel point of the wall-forming polymer, and (c) separating the hardened capsules from the rest of the system at a temperature above that at which resolution of the capsule walls takes place to any substantial degree.

3,594,327

PROCESS FOR MAKING MINUTE CAPSULES AND CAPSULE PRODUCT

Julius G. Becsey, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
No Drawing. Continuation of abandoned application Ser. No. 622,369, Mar. 10, 1967, which is a continuation of abandoned application Ser. No. 151,449, Nov. 10, 1961. This application Mar. 28, 1969, Ser. No. 837,967

Int. Cl. B01j 13/02; B44d 1/02, 1/44
U.S. Cl. 252—316 9 Claims

A process for making minute capsules in which minute particles of water-immiscible material, such as iron oxide, and hydrophilic, film-forming polymeric material, such as gelatin, are dispersed in water; coacervation is induced which causes the polymeric material to deposit on each of the minute particles as a liquid wall; and a metallic chelating salt, such as chromic chloride or copper sulfate, is added to harden and water-insolubilize the liquid deposit to produce the minute, rigid-walled capsules.

3,594,328

PROCESS FOR THE ENCAPSULATION OF DISPERSIBLE MATERIALS

Luzius Schibler, Riehen, Switzerland, assignor to Ciba Limited, Basel, Switzerland
No Drawing. Continuation of application Ser. No. 564,543, July 12, 1966. This application Dec. 9, 1969, Ser. No. 880,476

Claims priority, application Switzerland, Aug. 2, 1965, 10,861/65

Int. Cl. B01j 13/02; B44d 1/02
U.S. Cl. 252—316 5 Claims

An encapsulation process is provided wherein the substance to be encapsulated is dispersed in a liquid with which it is substantially immiscible in the presence of a

tenside capable of forming a compound that is insoluble in the dispersing liquid and thereafter the tenside in the dispersion, which is in association with the substance, is converted into the irreversibly insoluble state to encapsulate the substance. Particularly suitable as tensides are the surface-active, cross-linkable aminoplasts, preferably surface-active, etherified methylolmelamines or the corresponding methylolureas.

ERRATUM

For Class 252—327 see:
Patent No. 3,594,393

3,594,329

REGENERATION OF ZINC CHLORIDE CATALYST

Everett Gorin, Pittsburgh, Robert T. Struck, Bridgeville, and Clyde W. Zielke, Pittsburgh, Pa., assignors to the United States of America as represented by the Secretary of the Interior and Consolidation Coal Company, Library, Pa., fractional part interest to each

Filed July 23, 1969, Ser. No. 844,201

Int. Cl. B01j 11/80, 11/04
U.S. Cl. 252—417 5 Claims

Spent zinc chloride catalyst is regenerated by combustion in the vapor phase in the presence of a fluidized refractory solid such as silica sand. Use of a near-stoichiometric amount of air results in substantially complete removal of sulfur, nitrogen and carbon impurities, while use of about 40 to 60% of the stoichiometric amount of air results in production of a low-sulfur fuel gas.

3,594,330

PROCESS FOR THE POLYMERIZATION OF α -OLEFINS

André Delbouille and Henri Toussaint, Brussels, Belgium, assignors to Solvay & Cie, Brussels, Belgium

No Drawing. Filed Aug. 29, 1968, Ser. No. 756,330
Claims priority, application France, Aug. 31, 1967, 119,563

Int. Cl. C08f 3/02
U.S. Cl. 252—429 10 Claims

Polymerization of α -olefins is carried out in the presence of a solid catalyst which is composed of an organic compound of a metal of Groups I to III of the Periodic Table and a crystalline halide of a reduced metal of Groups IV-b, V-b or VI-b of the Periodic Table deposited on a pulverulent support. The reduced metal halide is obtained by reducing a halide of the metal at its maximum valence with an organometallic compound at a temperature below 0° C. and in the absence of liquid diluent. Catalysts prepared in this manner have a high stereospecificity and catalytic activity, and polymerization carried out in the presence thereof yields highly isotactic crystalline polymer.

3,594,331

METHOD OF INCREASING THE THERMAL STABILITY OF CRYSTALLINE ZEOLITES

Curtis H. Elliott, Jr., Baltimore, Md., assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,117
Int. Cl. B01j 11/78

U.S. Cl. 252—442 12 Claims

Methods of increasing the thermal stability of crystalline zeolites are disclosed. The methods are characterized

3,594,335

SHAPED BODIES OF BONDED RIGID POLYURETHANE FOAM PARTICLES

Gerald A. Schultz, Newfan, and Walter E. Volsinet, Colden, N.Y., assignors to National Gypsum Company, Buffalo, N.Y.

No Drawing. Original application Jan. 3, 1966, Ser. No. 518,032. Divided and this application June 12, 1969, Ser. No. 840,895

Int. Cl. B32b 27/18; C08g 41/00
U.S. Cl. 260—2.5 3 Claims

Integral shaped articles are made of comminuted rigid polyurethane foam particles bonded together by the products of the reaction between organic isocyanates and water. The organic isocyanates may be modified with a high melting thermoplastic resin which is reactive with the isocyanates and/or inert inorganic fillers.

3,594,336

PROCESS FOR THE PREPARATION OF AQUEOUS POLYMERIZATE DISPERSIONS OF UNSATURATED MONOMERS

Eduard Bergmeister and Hubert Wiest, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie GmbH, Munich, Germany

No Drawing. Filed May 8, 1968, Ser. No. 727,693
Claims priority, application Germany, Sept. 20, 1967, W 44,815

Int. Cl. C08f 15/20
U.S. Cl. 260—17R 3 Claims

The invention relates to a process for the preparation of aqueous polymerizate dispersions which comprises the steps of effecting a dispersion polymerization of free-radical polymerizable organic compounds in the presence of 0.6% to 4% by weight of the polymerizates of N-vinylpyrrolidone, 0.1% to 8% by weight of non-ionic emulsifiers and from 0% to 1% by weight of anionic emulsifiers characterized in that about 0.1% to about 0.8% by weight of a water-soluble hydroxyalkyl cellulose is additionally present in the polymerization recipe, where all the above percentages are percentages by weight with reference to the weight of the free-radical polymerizable organic compounds present in the polymerization recipe.

3,594,337

SYNTHETIC LATICES AND USE THEREOF

Joseph L. Shea, Short Hills, N.J., assignor to Celanese Corporation

No Drawing. Filed Apr. 15, 1966, Ser. No. 542,720
Int. Cl. C08f 29/50

U.S. Cl. 260—17.4 14 Claims

A latex blend of a tripolymer of vinyl acetate, N-alkylol acrylamide, and ethyl acrylate with a tetrapolymer of methyl acrylate, ethyl acrylate, N-alkylolacrylamide, and unsaturated monocarboxylic or dicarboxylic acid or anhydride provides, on application and heat curing, is an effective adhesive, especially for use in non-woven fabrics.

3,594,338

NITROCELLULOSE LACQUERS CONTAINING ETHYLENE/VINYL ESTER/CARLXYLIC ACID COPOLYMERS

George L. K. Hoh and Donald E. Tuites, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 2, 1968, Ser. No. 726,242

Int. Cl. C09d 3/16, 3/74
U.S. Cl. 260—17 6 Claims

An organic solvent-containing lacquer composition is disclosed which contains, as solid ingredients, nitrocellu-

by the steps of treating the crystalline zeolite with a dilute solution of a fluorine compound whereby a very small amount of fluoride is incorporated in the zeolite.

3,594,332

SPHERICAL PARTICLES OF HYDROXIDE AND METHOD

Max Michel, Yerres, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed July 2, 1968, Ser. No. 741,873
Claims priority, application France, July 4, 1967, 112,982; Mar. 1, 1968, 142,059

Int. Cl. B01j 11/44
U.S. Cl. 252—448 8 Claims

The preparation of spherical particles of oxides characterized by high mechanical solidity in which at least two oxides are present in a concentration of 2 moles per liter and in the form of a sol or peptized suspension, mixed and flocculated by addition thereto of a base to raise the pH of the mixture, after which the flocculated mixture is worked to form a suspension of spherical particles which are washed, dried and, if desired, calcined at elevated temperatures.

3,594,333

FORMYLATED AROMATIC POLYMERS AND METHOD OF MAKING SAME

David R. Buss, Kalamazoo, Mich., and Theodore Vermeulen, Berkeley, Calif., assignors to The Regents of the University of California

No Drawing. Filed July 26, 1967, Ser. No. 656,000
Int. Cl. C08f 27/00; C08j 1/30

U.S. Cl. 260—2.5 18 Claims

Crosslinked, formylated, swellable aromatic-containing polymers prepared by swelling a preexisting crosslinked polymer with an inert organic solvent, reacting the polymer with a dihalomethyl alkyl ether in the presence of a mild Friedel-Crafts catalyst and hydrolyzing the reaction product. The resulting formylated polymer retains its swelling characteristics and is useful as an intermediate in the synthesis of optically active amine-containing sorbents.

3,594,334

SURFACTANT MIXTURES FOR FLEXIBLE POLYESTER URETHANE FOAMS

Lawrence Marlin, Yorktown Heights, N.Y., assignor to Union Carbide Corporation

No Drawing. Continuation-in-part of abandoned application Ser. No. 493,529, Oct. 6, 1965. This application Dec. 7, 1967, Ser. No. 688,702

Int. Cl. B01f 17/54; C08g 22/46
U.S. Cl. 260—2.5 19 Claims

This invention relates to the use of novel combinations of foam stabilizing surfactants in the production of flexible polyester urethane foams. The novel foam stabilizer combinations consist of (a) an anionic organic surfactant that is soluble in the polyester reactant at room temperature and that is capable of lowering the surface tension of the polyester resin reactant when dissolved therein and, (b) a siloxane-polyoxyalkylene block copolymer surfactant that has a critical molecular weight, siloxane content and oxyethylene content. The novel surfactant combinations allow for the production of flexible polyester urethane foams having fine, uniform cell structure, low compression set and freedom from large voids and splits.

lose, an ethylene/vinyl acetate/acrylic or methacrylic acid copolymer, and, optionally, a modifying resin (sucrose acetate isobutyrate). The particular copolymer contains at least 35 weight percent vinyl acetate and at least 0.5 weight percent acid. The lacquers are particularly suitable for coating metal substrates where enhanced flexibility and adhesion are required.

3,594,339

USE OF OXIDES OF MANGANESE IN ELECTRO-DEPOSITABLE COMPOSITIONS

Thomas Palatka, Arnold, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 791,129, Jan. 14, 1969. This application Nov. 3, 1969, Ser. No. 873,518

Int. Cl. C08g 51/04

U.S. Cl. 260—18

13 Claims

This invention relates to novel, pigmented electro-depositable compositions. More particularly, this invention relates to the use of oxides of manganese to produce black or dark-colored electrodepositable compositions, and which in some cases also produce a drying effect in the deposited film. Said films do not exhibit the pig-skinning effect observed when carbon black pigments are used.

3,594,340

EPOXY RESIN ESTERS AND PROCESS OF PREPARATION

Samuel D. Hollis, Pleasant Hills, Pa., and Philip E. Winston, Jr., Union, N.J., assignors to Pennsylvania Industrial Chemical Corporation

No Drawing. Filed June 24, 1968, Ser. No. 739,189

Int. Cl. C08g 30/10

U.S. Cl. 260—18EP

11 Claims

Terpene epoxy resin ester solution which is non-photochemically reactive and a process for preparing such a solution by polymerizing a mixture of liquid epoxy resin and a terpene phenolic compound dissolved in a hydrocarbon solvent and thereafter esterifying the product with a monocarboxylic acid.

3,594,341

TREATING OF AGGLOMERATES OF CELLULOSE PARTICLES AND FIBRES

Hynek Bata, 25 Rue Saint-Dider, Paris, 6^e me, France; Pierre Bernard, 5 Parc de l'Ilton; and Bernard Costemalle, Tour n°3, Place Colbert, both of Mont-Saint-Aignan, Seine-Maritime, France; and Robert Michelet, 6 Square de Versailles, Les Grandes Terres, Marly-le-Roi, Seine-et-Oise, France

No Drawing. Filed Aug. 16, 1966, Ser. No. 572,669

Int. Cl. C08g 51/52; C08f 45/52

U.S. Cl. 260—28

3 Claims

An aqueous emulsion of a mixture of paraffin and a petroleum resin, to which a resin adhesive is added, is useful for treating agglomerates such as cellulose fibres or wood particles to form products such as chip boards and fibre boards.

3,594,342

PROCESS FOR THE INTRODUCTION OF ADDITIVES INTO PLASTIC AND WAX MELTS

Mandred Ratzsch, Leuna, and Rolf Killian, Bad Durrenberg, Germany, assignors to VEB Leuna-Werke Walter Ulbricht, Leuna, Germany

No Drawing. Filed Sept. 22, 1967, Ser. No. 669,681

Int. Cl. C08f 11/70

U.S. Cl. 260—28.5

8 Claims

Process for the introduction of additives into plastic and wax melts by means of a concentrated solution or dispersion of said additives wherein as solvents or dis-

persants molten copolymers of ethylene with vinyl acetate or with acrylic esters of a mean molecular weight ranging from 1200 to 8000 are used.

3,594,343

PHENOLIC-UREA HOT BOX RESIN SYSTEM

Rodney M. Huck, Longmeadow, and Joel M. Schnur, Agawam, Mass., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 12, 1967, Ser. No. 667,059

Int. Cl. C08g 51/04, 51/26

U.S. Cl. 260—29.3

2 Claims

A liquid phenolic-urea resin and catalyst system which has improved bench life and low formaldehyde evolution during thermosetting. The system is especially useful in foundries for the production of sand cores at an extremely rapid rate.

3,594,344

STABLE AQUEOUS EMULSIONS OF ALKYL ACRYLATE-GLYCIDYL METHACRYLATE ENGRAFTED N-VINYL

Eugene S. Barabas, Watchung, and Frederick Grosser, Midland Park, N.J., assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 595,027, Nov. 17, 1966. This application May 22, 1969, Ser. No. 827,040

Int. Cl. C08f 7/14

U.S. Cl. 260—29.6

10 Claims

Water-insoluble grafted terpolymers of a polymeric N-vinyl lactam, such as polyvinyl pyrrolidone, with an alkyl acrylate and glycidyl methacrylate, are prepared as stable aqueous emulsions.

3,594,345

FIBER GLASS LAMINATES CONTAINING FURFURYL RESIN BINDER

Lloyd H. Brown, Crystal Lake, and David D. Watson, Barrington, Ill., assignors to The Quaker Oats Company, Chicago, Ill.

No Drawing. Filed May 31, 1968, Ser. No. 733,282

Int. Cl. C08f 27/18; C08g 51/10

U.S. Cl. 260—37

4 Claims

Glass fibers are bound with a furfuryl alcohol-formaldehyde resin in a binder containing furfural, a high catalyst level, and a silane. The resulting article is cured at temperatures below 100° C.

3,594,346

POLYAMIDES STABILISED AGAINST DEGRADATION BY LIGHT

Karl Heinz Hermann, Krefeld-Bockum, August Bockmann, Krefeld, Hans Rudolph, Krefeld-Bockum, and Walter Bockmann, Krefeld-Uerdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 24, 1968, Ser. No. 731,716

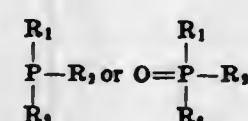
Claims priority, application Germany, June 9, 1967, F 52,642

Int. Cl. C08g 51/62

U.S. Cl. 260—45.75

5 Claims

Polyamides, stabilized against degradation by light, containing a combination of manganese compounds and phosphorous compounds of the general formula



wherein R₁, R₂, and R₃, which may be different or not, represent alkyl, cycloalkyl, aralkyl, aryl, alkoxy, cycloalkoxy, aralkoxy or aryloxy radicals.

3,594,347

POLYESTERS CONTAINING ARYL PHOSPHINATES

Stanley D. Lazarus, Petersburg, and Ian C. Twilley, Chester, Va., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Sept. 5, 1968, Ser. No. 757,770

Int. Cl. C08g 17/04, 51/58

U.S. Cl. 260—45.75

24 Claims

Linear, fiber-forming polyesters of reduced color and resistant to yellowing caused by actinic or thermal degradation are prepared by providing a small but effective amount of certain aryl phosphinic acids or salts thereof in the polyester.

3,594,348

POLYETHERS CAPABLE OF BEING CROSS-LINKED UNDER THE ACTION OF LIGHT AND PROCESS FOR THEIR MANUFACTURE

Herbert Maar and Hartmut Steppan, Wiesbaden, Günter Messwarb, Kelkheim, Taunus, and Walter Lüders, Neu-Isenburg, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Bleibach, Germany

No Drawing. Filed July 2, 1968, Ser. No. 741,877

Claims priority, application Germany, July 6, 1967, F 52,874

The portion of the term of the patent subsequent to

Mar. 10, 1987, has been disclaimed

Int. Cl. C08g 23/04; G03c 1/68, 5/00

U.S. Cl. 260—47

20 Claims

Polyethers capable of being cross-linked under the action of light are made by cationic polymerization of light-sensitive oxetanes disubstituted in the 3-position, if desired together with substituted oxiranes, oxetanes or oxolanes as light-insensitive comonomers.

3,594,349

SUBSTITUTED POLYMERIC AS-TRIAZINES

Billy M. Culbertson, Burnsville, Minn., assignor to Ashland Oil & Refining Company, Ashland, Ky.

No Drawing. Original application Nov. 8, 1966, Ser. No. 592,743, now Patent No. 3,498,981, dated Mar. 3, 1970. Divided and this application May 27, 1969, Ser. No. 828,354

Int. Cl. C08g 9/04, 9/06

U.S. Cl. 260—72

1 Claim

Novel substituted polymeric as-triazines have been prepared by the reaction of a difunctional hydrazidine with a difunctional substituted glyoxal. The compositions are thermally stable and can be employed as coatings.

3,594,350

ESTERIFICATION OF TEREPHTHALIC ACID WITH AN ALKYLENE GLYCOL IN THE PRESENCE OF AMMONIA OR AN AMMONIUM SALT OF A DIBASIC CARBOXYLIC ACID

Robert A. Lofquist, Richmond, and Lamberto Crescentini and Laszlo J. Balint, Chester, Va., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Oct. 6, 1969, Ser. No. 864,181

Int. Cl. C08g 17/013; C07c 69/82

U.S. Cl. 260—75

12 Claims

The esterification of polycarboxylic acid with an alkylene glycol is described under conditions of direct esteri-

3,594,351

PROCESS FOR PRODUCING A BLOCK COPOLYMER OF α-AMINO ACID-N-CARBOXY ANHYDRIDE AND AN ISOCYANATE AND A PROCESS FOR PRODUCING SYNTHETIC LEATHER BY THE USE THEREOF

Shinzi Uchida and Yasuo Sone, Hitachi-shi, Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

No Drawing. Filed Mar. 26, 1968, Ser. No. 715,952

Claims priority, application Japan, Apr. 10, 1967, 42/22,419, 42/22,422

Int. Cl. C08g 22/04

U.S. Cl. 260—77.5

10 Claims

(1) A process for producing a synthetic resin (C) and a process for producing a synthetic leather by use of said synthetic resin (C), wherein the synthetic resin (C) is produced by the process which comprises:

(I) Reacting an amine having at least two active hydrogen atoms with a urethane pre-polymer having isocyanate groups at the terminals thereof in an equivalent less than an equivalent of the amine to produce a compound (A) having amino groups at the terminals thereof;

(II) Reacting compound (A) with an anhydride of N-carboxy-alpha-amino acid to produce compound (B), a compound having amino groups at the terminals thereof; and

(III) Reacting compound (B) with additional urethane pre-polymer, said urethane pre-polymer having isocyanate groups at the terminals thereof, to produce synthetic resin (C).

(2) A process for producing a synthetic resin (C') and a process for producing a synthetic leather by use of said synthetic resin (C'), wherein the synthetic resin (C') is produced by the process which comprises:

(I) Reacting an amine having at least two active hydrogen atoms with an anhydride of N-carboxyl-alpha-amino acid to produce a compound (A') having amino groups at the terminals thereof; and

(II) Reacting compound (A') with a urethane pre-polymer, said urethane pre-polymer having isocyanate groups at the terminals thereof to produce synthetic resin (C').

3,594,352

POLYURETHANE ELASTOMER COMPOSITIONS PREPARED FROM POLYARYLPOLYISOCYANATES AND HIGH MOLECULAR WEIGHT POLYETHER POLYOLS

Rodney Frederick Lloyd and George Phillip Speranza, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Oct. 1, 1968, Ser. No. 764,318

Int. Cl. C08g 22/06

U.S. Cl. 260—77.5

5 Claims

Polyurethane elastomer compositions are prepared by reacting in a one-shot process polyarylisocyanates having a functionality greater than 2.0 with polyether polyols having functionalities from 3 to 6 and molecular weight of about 5,000 to 13,000. The elastomer compositions are characterized by ambient temperature curing and physical properties of good elongation, tear strength, tensile strength and compression load deflection properties and low compression set values. These elastomers are useful as sealants, gaskets and surface coatings.

3,594,353

NOVEL ESTER POLYMERS

Elemer Domba, Olympia Fields, Ill., assignor to Nalco Chemical Company, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 732,505, May 28, 1968, which is a continuation-in-part of application Ser. No. 494,872, May 28, 1965. This application Aug. 6, 1969, Ser. No. 848,120

Int. Cl. C08f 3/50, 15/16

U.S. Cl. 260—78.4

4 Claims

New and useful ethylenically unsaturated fluorinated polymers used in sizing fabrics to impart both repellency to water and resistance to absorption and soiling by oily and greasy material.

3,594,354

METHOD OF INCREASING THE CURING RATE OF MONOEPoxide-CONTAINING COMPOSITIONS

Stanley M. Hazen, Cheswick, and William J. Hellman, Allison Park, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,842

Int. Cl. C08f 47/00

U.S. Cl. 260—78.5

11 Claims

A method is provided for increasing the rate of curing of a liquid coating and molding composition to form an infusible resinous article or coating. The composition comprises a solution of a polymerizable olefinically unsaturated monooxirane compound such as glycidyl methacrylate, a solid polyanhydride having at least three succinic anhydride groups (excluding aromatic anhydrides in which the alpha carbon atoms of the anhydride group are included in the aromatic ring), for example, the copolymer of a straight chain alpha-monoolefin and a maleic anhydride; and certain olefinically unsaturated monomers free of oxirane oxygen atoms, such as styrene or acrylonitrile. The rate of curing of this composition can be increased by adding to the above described composition a small amount of water on the order of 0.5 weight percent. The water is effective for increasing the rate of curing for the above composition whether the composition is cured thermally, with the use of a free radical catalyst such as an organic peroxide, for example benzoyl peroxide, with a soluble tertiary amine such as 3-picoline, or with a combination of heat, organic peroxides and tertiary amines.

3,594,355

WATER-SOLUBLE ISOTHIURONIUM SALTS OF EPIHALOHYDRIN POLYMERS

Edwin J. Vandenberg and William D. Willis, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Oct. 29, 1969, Ser. No. 872,344

Int. Cl. C08g 23/00

U.S. Cl. 260—79R

9 Claims

Water-soluble isothiuronium salts of epihalohydrin homopolymers or copolymers with one another or with ethylene oxide are described which are highly useful as shrinkproofing agents for wool, as flocculating agents and as paper additives for increasing both wet and dry strength. These isothiuronium salts can be prepared in solution whereupon only about 5% of the halo groups need be converted to isothiuronium groups to obtain water-solubility of the product or they can be prepared in the substantial absence of a solvent whereupon about 50% of the halo groups need to be converted to obtain water-solubility of the product.

3,594,356

POLYMER RECOVERY PROCESS AND APPARATUS

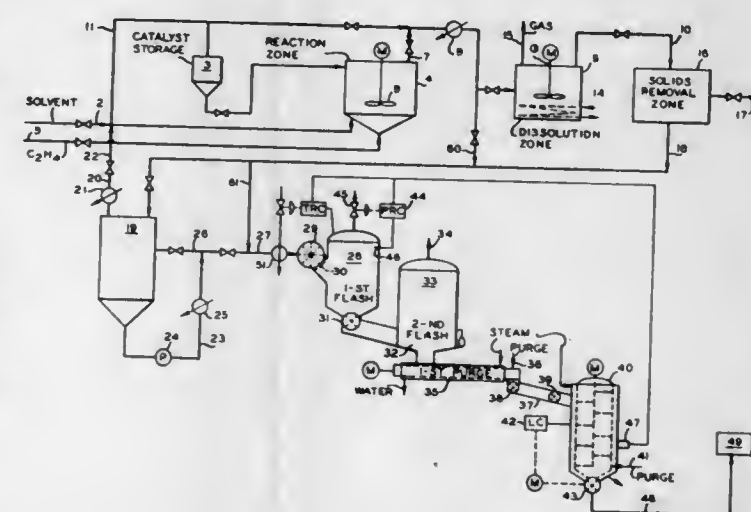
Robert A. Hinton, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Apr. 24, 1967, Ser. No. 633,227

Int. Cl. C08f 1/88, 1/98

U.S. Cl. 260—88.2

10 Claims



Bulk density of polymer recovered from a solution thereof in a solvent is controlled by removing the polymer from solvent in a flashing operation wherein the flash zone is held at an elevated pressure, said pressure being sufficiently high to densify the polymer but not so high as to restrict the flashing of solvent from the solution. The initial solvent removal is thus achieved by flashing the solution consisting essentially of polymer and solvent in a flash-comminution zone having a pressure maintained therein in the range of 16 to 50 p.s.i.a., thereafter passing the resulting solid sized polymer particles to a lower pressure solvent removal zone and finally purging the resulting essentially solvent-free material in two or more zones to provide substantially solvent-free polymer. Pressure in the initial flash-comminution zone is controlled responsive to the measured value of the bulk density of the polymer in the purge zone.

3,594,357

POLYMERIZATION OF VINYL COMPOUNDS WITH SELECTED BORON-NITROGEN COMPOUNDS

Anestis L. Logothetis, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 546,615, May 2, 1966. This application June 24, 1968, Ser. No. 739,151

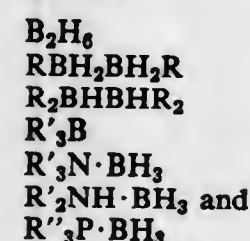
Int. Cl. C08f 1/74, 1/76

U.S. Cl. 260—88.2

25 Claims

Described is a process for the homo- and copolymerization of ethylene which employs an initiating system comprising the following two components or the reaction products thereof:

(1) A borane component consisting of one or more of the boranes of the formulas



wherein

R is an alkyl group of 1-9 carbon atoms, R' is an alkyl group of 1-12 carbon atoms, and R'' is an alkyl, aryl or alkaryl group, each of up to 12 carbon atoms; and

(2) A stable free radical or free radical precursor component which may be one of

nitric oxide
a 1,1-diaryl-2-(polynitrophenyl)hydrazyl
an N-nitrosodiarylamine
a nitrosoarene
a tetraarylhydrazine
a nitroxide
a tertiary alkyl nitrite
a selected nitrite salt
the ammonium salt of N-nitrosophenylhydroxylamine and
a poly (tert-alkyl)phenoxy.

3,594,358

CATALYST COMPOSITION, PROCESS OF PREPARATION, AND POLYMERIZATION PROCESS AND PRODUCT

Charles W. Moberly, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Continuation-in-part of application Ser. No. 401,689, Oct. 5, 1964. This application Sept. 28, 1967, Ser. No. 671,240

Int. Cl. C08f 3/30, 29/00, 33/00

U.S. Cl. 260—92.8

7 Claims

A preformed stable free radical catalyst is formed by impregnating a free radical precursor on solid particles of a polymer of at least one vinyl monomer. The preformed catalyst can be utilized to polymerize substituted vinyl monomers. The polymer production rate and the yield in vapor phase polymerization is increased by incorporating a small amount of a hydrocarbon selected from the group consisting of alkanes, cycloalkanes and aromatics.

3,594,359

METHOD OF POLYMERIZING VINYL CHLORIDE
Anatoly Mikhailovich Sharetsky, Ulitsa Pirogova 14, kv. 15; Stanislav Vladimirovich Svetozarsky, Prospekt Pobedy 8-a, kv. 15; Ekhiel Naumovich Zilberman, Prospekt Dzerzhinskogo 10, kv. 3; and Isaak Elyaberkovich Kotlyar, Ulitsa Kljukvina 11-a, kv. 42, all of Dzerzhinsk, U.S.S.R.

No Drawing. Filed Sept. 3, 1968, Ser. No. 757,123

Int. Cl. C08f 1/11, 3/30, 11/62

U.S. Cl. 260—92.8

4 Claims

Vinyl chloride is polymerized in an aqueous medium at 0° to 25° C. using a novel redox system consisting of lauroyl peroxide and ferrous hydroxide, using sodium styrene-maleate, polyvinyl alcohol or methyl cellulose as the dispersing agent, chloroform or trichloroethylene as the molecular weight regulator and triethylamine as the polymerization inhibitor.

3,594,360

QUATERNARY CATALYST SYSTEM FOR BUTADIENE POLYMERIZATION

Rudolf H. Gaeth, Lake Jackson, Tex., assignor to Phillips Petroleum Company

No Drawing. Filed May 29, 1969, Ser. No. 829,108

Int. Cl. C08d 3/06

U.S. Cl. 260—94.3

8 Claims

A polybutadiene composition possessing broad molecular weight distribution and easily controllable microstructure varying from a high cis to a high vinyl configuration is fashioned in a single direct polymerization system by employing a novel catalyst containing a nickel compound,

lithium aluminum hydride or an organometallic compound, a fluoride compound, and a molybdenum compound.

3,594,361

1,2-POLYBUTADIENE COMPOSITIONS

Chester L. Parris, Morris Plains, and Leo S. Rieve, Schooley's Mountain, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Sept. 23, 1969, Ser. No. 860,406

Int. Cl. C08d 3/06

U.S. Cl. 260—94.3

5 Claims

Polybutadiene compositions of melting point 50°-100° C. with the major proportion of the butadiene content being combined in the 1,2 form. The co-ingredient is rubbery, amorphous butadiene polymer having vinyl double bonds and internal double bonds. The process of making employs as catalyst a complex of a cobalt compound with butadiene or open chain butadiene dimer and with an organo metallic compound of zinc, lithium or aluminum; and a catalyst modifier of fumaric acid ester or maleic acid ester. The copolymers are formulated to molding compounds which can be cured rapidly and used in transfer molding.

3,594,362

UREA COMPLEXES

Karoly Szabo, Orinda, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Mar. 17, 1964, Ser. No. 352,637

Int. Cl. C36 127/14, 16, 18, 20

U.S. Cl. 260—96.5

19 Claims

This invention relates to chemical complexes of urea or urea derivatives with a completely halogenated acetone and to their preparation. The invention is also concerned with fungicidal and herbicidal compositions containing as the active component thereof at least one of the aforesaid complexes.

3,594,363

DIAZO DYES FOR NYLON

Hans Alfred Stingl, Brookside Heights, Toms River, N.J., assignor to Toms River Chemical Corporation, Toms River, N.J.

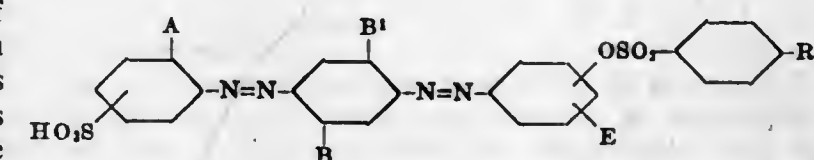
No Drawing. Filed July 10, 1968, Ser. No. 743,630

Int. Cl. D09b 31/12; D06p 1/02

U.S. Cl. 260—186

6 Claims

Compounds of the formula



wherein A is hydrogen, lower alkyl such as methyl, ethyl or propyl, lower alkoxy such as methoxy, ethoxy or butoxy, or chlorine; B and B' are hydrogen, lower alkyl such as methyl, ethyl or butyl, or lower alkoxy such as methoxy, ethoxy or butoxy; E is hydrogen, lower alkyl such as methyl, ethyl or butyl, or lower alkoxy such as methoxy, ethoxy or butoxy; R is hydrogen, methyl or chlorine and



is either ortho or para to the azo linkage; and SO₃H is either meta or para to the azo linkage, provide yellow to

scarlet shades of good fastness and dyeing properties and excellent leveling characteristics on natural and synthetic polyamide fibers.

3,594,364 5H-1,4-BENZODIAZEPINE-4-OXIDE AND PREPARATION THEREOF

George Francis Field, Nutley, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Application Dec. 3, 1964, Ser. No. 415,793, now Patent No. 3,398,139, dated Aug. 20, 1968, which is a continuation-in-part of applications Ser. No. 358,919, Apr. 10, 1964, and Ser. No. 400,193, Sept. 29, 1964. Divided and this application Apr. 9, 1968, Ser. No. 735,479

Int. Cl. C07d 53/06

U.S. Cl. 260—239 5 Claims
New 5-phenyl-5H-1,4-benzodiazepin 4-oxides and methods for their preparation are described.

3,594,365 3H-1,4-BENZODIAZEPINES AND PREPARATION THEREOF

George Francis Field, Nutley, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Application Dec. 3, 1964, Ser. No. 415,793, now Patent No. 3,398,139, dated Aug. 20, 1968, which is a continuation-in-part of application Ser. No. 358,919, Apr. 10, 1964. Divided and this application Apr. 9, 1968, Ser. No. 735,477

Int. Cl. C07d 53/06

U.S. Cl. 260—239 6 Claims
Novel 5-phenyl-3H-1,4-benzodiazepines and 5-phenyl-3H-1,4-benzodiazepines 4-oxides are described.

3,594,366 PROCESS FOR THE PREPARATION OF AMINO- ALICYCLIC AND AMINOARYLALICYCLIC PENICILLINS

Norman H. Grant, Wynnewood, Donald E. Clark, Norristown, and Harvey E. Alburn, West Chester, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Continuation of application Ser. No. 656,668, July 28, 1967. This application Nov. 26, 1968, Ser. No. 779,234

Int. Cl. C07d 99/16

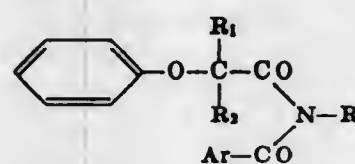
U.S. Cl. 260—239.1 5 Claims
6-(1-aminocycloalkancarboxamido) and 6-(1-amino-arylcycloalkancarboxamido) penicillanic acids with broad spectrum antibacterial activity are obtained rapidly and in high yield, without the need to isolate them from dilute solutions, by an improved process comprising condensing and precipitating in one step the product from the addition of an N-carboxyanhydride of an amino acid to a highly concentrated, e.g. 5–40% by weight, aqueous suspension of 6-aminopenicillanic acid.

3,594,367
PROCESS FOR PRODUCTION OF PENICILLIN
Jinnosuke Abe, Tagata-gun, Shizuoka-ken, Tetsuo Watanabe, Tokyo, Teruo Take, Tagata-gun, Shizuoka-ken, Kentaro Fujimoto, Sunto-gun, Shizuoka-ken, Tadashi Fujii and Masashi Kuramoto, Tagata-gun, Shizuoka-ken, and Sadami Kobari, Mishima-shi, Japan, assignors to Toyo Jozo Kabushiki Kaisha, Shizuoka-ken, Japan
No Drawing. Filed Nov. 29, 1968, Ser. No. 780,234
Claims priority, application Japan, Nov. 29, 1967, 42/76,142; Mar. 9, 1968, 43/15,278

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1 6 Claims
α-Phenoxyalkyl penicillin and salts thereof are pro-

duced by reacting 6-aminopenicillanic acid or salts thereof with a novel N,N-diacyl compound of the formula



in which R is alkyl, cycloalkyl, aryl, substituted aryl, aralkyl, substituted aralkyl or phenylalkenyl, Ar is phenyl, phenoxyalkyl, or substituted phenyl, and R₁ and R₂ are hydrogen or lower alkyl.

3,594,368 PREPARATION OF N,N'-DIBENZYLETHYLENE- DIAMINE BIS D(-)-α-AMINOBENZYLPE- NICILLIN TRIHYDRATE

John H. Sellstedt, St. Davids, Delaware, Richard Bogash, Philadelphia, and Joseph P. Hou, Butler Pike, Conshohocken, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed June 11, 1969, Ser. No. 832,463

Int. Cl. C07d 99/16

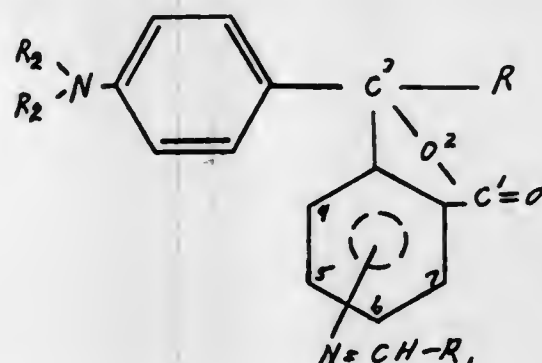
U.S. Cl. 260—239.1 5 Claims
This invention concerns a process for the preparation of crystalline N,N'-dibenzylethylenediamine bis [D(-)-α-aminobenzylpenicillin] trihydrate of high purity and potency having an average particle size in the range of about two to about thirty microns which is useful in the preparation of pharmaceutically elegant antibiotic dosage forms.

3,594,369 3,5(6)-DISUBSTITUTED-3-(PARA-DILOWERALKYL- AMINOPHENYL) PHTHALIDES

Chao-Han Lin, Dayton, and Arthur J. Wright, Cincinnati, Ohio, assignors to The National Cash Register Company, Dayton, Ohio
Filed Jan. 21, 1969, Ser. No. 792,280

Int. Cl. C07d 5/36

U.S. Cl. 260—240 11 Claims
A novel chromogenic material of normally colorless form is disclosed, having a structural formula:



wherein R comprises 1,2-dimethylindol-3-yl and p-dialkylaminophenyl radicals; R₁ comprises substituted and unsubstituted aromatic and heterocyclic-aromatic radicals; and R₂ comprises hydrogen and alkyl radicals having less than five carbon atoms; said material assuming a colored form upon reactive contact with a Lewis acid molecule. Examples include

- 6-(p-dimethylaminobenzylidene)amino-3-(p-dimethylaminophenyl)-3-(1,2-dimethylindol-3-yl)phthalide;
- 5-(p-dimethylaminobenzylidene)amino-3-(p-dimethylaminophenyl)-3-(1,2-dimethylindol-3-yl)phthalide;
- 6-(benzylidene)amino-3,3-bis(p-dimethylaminophenyl)phthalide;
- 5-(p-dimethylaminobenzylidene)amino-3,3-bis(p-dimethylaminophenyl)phthalide;
- 6-(cinnamylidene)amino-3-(p-dimethylaminophenyl)-3-(1,2-dimethylindol-3-yl)phthalide.

3,594,370 PRODUCTION OF 7-AMINOCEPHALOSPORANIC ACID

Harvey M. Higgins, Jr., Danville, and Thomas W. McIntyre, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of application Ser. No. 738,083, June 19, 1968. This application May 15, 1969, Ser. No. 825,066

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
In the preparation of 7-aminocephalosporanic acid (7-ACA) by the chemical deacylation of cephalosporin C and salts thereof with nitrosyl chloride and recovery of 7-ACA by the evaporation of the solvents, increased yields are obtained by the addition, prior to the evaporation of the solvents, of a substance that destroys excess nitrosyl chloride and decreases undesirable side reactions.

3,594,371 PREPARATION OF 7-AMINOCEPHALOSPORANIC ACID

Thomas W. McIntyre, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of applications Ser. No. 738,084, and Ser. No. 738,085, both June 19, 1968. This application May 15, 1969, Ser. No. 825,028

Int. Cl. C07d 99/24

U.S. Cl. 260—243 13 Claims
7-aminocephalosporanic acid (7-ACA) of high purity is obtained by treating cephalosporin C with a nitrosating agent such as nitrosyl chloride followed by treatment of the reaction mixture with a lower alkylene oxide.

3,594,372 PYRIMIDO[4,5-e][1,4]OXAZEPIN-5-ONES AND DERIVATIVES THEREOF

Arthur A. Santilli, Havertown, and Dong H. Kim, Wayne, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Aug. 13, 1968, Ser. No. 752,164

Int. Cl. C07d 99/04

U.S. Cl. 260—247.2B 21 Claims
Pyrimido[4,5-e][1,4]oxazepin-5-ones are prepared by the reaction of a 5-carbethoxy-4-chloropyrimidine with an aminoethanol. Compounds resulting from the reaction are pharmacodynamically active, particularly as central nervous system depressant agents.

3,594,373 BASES OF 2-ANILINOBENZOXAZOLES AND PROCESS FOR MAKING THEM

Francis Frederick Stephens and Christopher James Sharpe, London, England, assignors to Twyford Laboratories Limited

No Drawing. Filed Mar. 11, 1968, Ser. No. 711,866

Claims priority, application Great Britain, Mar. 20, 1967, 12,843/67

Int. Cl. C07d 89/32, 29/18, 99/00

U.S. Cl. 260—247.5 15 Claims
Nitrogen bases of alkoxy-substituted anilino benzoxazoles and the salts of these bases with physiologically acceptable acids, having utility as anti-depressive agents, are disclosed. These bases may be prepared by condensing a 2-halogeno- or 2-mercaptobenzoxazole with an aniline compound having an appropriately substituted alkoxy group in the para-position. The nitrogen base group may be present as the substituent on the alkoxy group before the condensation reaction or may be added as a separate step.

3,594,374 NOVEL N,N-BIS-(BIS-AMINO-S-TRIAZINYL)- ALKYLAMINES

Denis Varsanyi, Ariesheim, Basel-Land, and Willy Roth, Strengelbach, Aargau, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 560,855, June 27, 1966. This application Oct. 4, 1967, Ser. No. 672,701

Claims priority, application Switzerland, June 30, 1965, 9,158/65

Int. Cl. C07d 55/22

U.S. Cl. 260—249.6 2 Claims
New N,N-bis-(bis-amino-s-triazinyl)-alkylamines in which up to 3 of the amino groups may be heterocyclic rings are useful as surface treating agents. Compositions containing certain of these new bis-s-triazinyl alkylamines and certain tris-amino-s-triazines and 1,4-bis-(bis-amino-s-triazinyl)-piperazines are also useful for surface treating, particularly as floor waxes and shoe polishes, and as textile softening components.

3,594,375 TRIAZINE COMPOUNDS

Max Schellenbaum, Muttentz, and Max Duennenberger, Frenkendorf, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,254

Claims priority, application Switzerland, Dec. 14, 1967, 17,546/67

Int. Cl. C07d 55/20

U.S. Cl. 260—249.9 4 Claims

The present invention is concerned with new arylguanamines wherein one carbon atom of the triazine ring is linked directly to a benzene ring, the second carbon atom is linked by an —NH— group to a benzene ring and the third carbon atom is linked to an —HN— alkylene group, the latter being bound to the nitrogen atoms of a tertiary amino group. The new arylguanamines are useful for controlling harmful microorganisms.

3,594,376 PROCESS FOR PREPARING 4-PHENYL- QUINAZOLINE-2(1H)-ONES

Stanley C. Bell, Penn Valley, and Peter H. L. Wei, Springfield, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Application Feb. 23, 1968, Ser. No. 729,838, which is a division of application Ser. No. 447,545, Apr. 12, 1965. Divided and this application Sept. 5, 1969, Ser. No. 855,733

Int. Cl. C07d 51/48

U.S. Cl. 260—251 1 Claim

The preparation of 4-phenylquinazoline-2(1H)-ones by reacting a 2-amino-diphenylmethyleiminoacetic acid N-oxide with a phenyl haloformate. The products are known compounds having pharmaceutical and other utilities.

3,594,377 CONDENSATION PRODUCTS OF N-(3-THIA- ZOLIDINYLMETHYL) - NITROGEN BASE COMPOUNDS

Douglas I. Relyea, Pompton Plains, N.J., assignor to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Nov. 7, 1967, Ser. No. 681,115

Int. Cl. C07d 51/04

U.S. Cl. 260—250 8 Claims

The invention relates to reaction products of beta-mercaptoethylamine with an amide, imide, hydrazide or amine compound and formaldehyde to form an N-(3-thiazolidinylmethyl) nitrogen base compound.

3,594,378

THIAZOLOPYRIMIDINE DERIVATIVES AND PREPARATION THEREOF

Real Laliberte, St. Laval, Quebec, Canada, assignor to Ayerst, McKenna and Harrison Limited, St. Laurent, Quebec, Canada

No Drawing. Filed Oct. 24, 1969, Ser. No. 869,322

Int. Cl. C07d 51/46

U.S. Cl. 260—251

13 Claims

Disclosed herein are

2,3,5a,6,7,8,9,9a-octahydro-9a-hydroxycyclopenta [4,5]pyrimidino [2,1-b]benzothiazol-11(1H)-one, 2,3,7,8-tetrahydro-3-hydroxy-2-methylcyclopenta [d] thiazolo [3,2-a]pyrimidin-5(6H)-one, 2,3,7,8-tetrahydro-3-hydroxy-3-ethylcyclopenta [d] thiazolo [3,2-a]pyrimidin-5(6H)-one, 2,3,6,7,8,8a-hexahydro-8a-hydroxy-5aH-cyclopenta [d] cyclopenta [4,5]thiazolo [3,2-a]pyrimidin-10(1H)-one, 5a,6,7,8,9,9a-hexahydro-9a-hydroxy-3-methyl-1H-pyrimido [2,1-b]benzothiazol-1-one, 2,3-dihydro-3-hydroxy-3,7-dimethyl-5H-thiazolo [3,2-a]pyrimidin-5-one, 3-ethyl-2,3-dihydro-3-hydroxy-7-methyl-5H-thiazolo [3,2-a]pyrimidin-5-one, 2,3,3a,9a-tetrahydro-9a-hydroxy-6-methyl-1H,8H-cyclopenta [4,5]thiazolo [3,2-a]pyrimidin-8-one, 5a,6,7,8,9,9a-hexahydro-9a-hydroxy-1H-pyrimido [2,1-b]benzothiazol-1-one, 2,3-dihydro-3-hydroxy-3-methyl-5H-thiazolo [3,2-a]pyrimidin-5-one, 3-ethyl-2,3-dihydro-3-hydroxy-5H-thiazolo [3,2-a]pyrimidin-5-one, and 2,3,3a,9a-tetrahydro-9a-hydroxy-1H,8H-cyclopenta [4,5]thiazolo [3,2-a]pyrimidin-8-one.

The compounds have anti-inflammatory activity. The methods for their preparation and use are also disclosed.

3,594,379

2,3-DIHYDROIMIDAZO [1,2-c]QUINAZOLINES

Goetz E. Hardtmann, Florham Park, and Hans Ott, Convent Station, N.J., assignors to Sandoz-Warner, Inc., Hanover, N.J.

No Drawing. Filed Sept. 16, 1968, Ser. No. 760,076

Int. Cl. C07d 57/12

U.S. Cl. 260—256.4

16 Claims

The invention discloses 5-oxy-substituted-2,3-dihydroimidazo [1,2-c]quinazolines which are pharmaceutically active and useful as hypotensive agents and as coronary dilators. Also disclosed are processes involved in preparation of said 2,3-dihydroimidazo [1,2-c]quinazolines employing intermediates which are 5-chloro-2,3-dihydroimidazo [1,2-c]quinazolines and 2-chloro-4-ethyleniminoquinazolines.

3,594,380

ISOQUINOLIN-1(2H)-ONES

Theodore S. Sulkowski, Narberth, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 627,284, Mar. 31, 1967. This application Feb. 18, 1969, Ser. No. 800,275

Int. Cl. C07d 35/14

U.S. Cl. 260—256.4

10 Claims

This invention is concerned with imidazolinisoquinolinones and pyrimidinisoquinolinones which are pharmacologically active as central nervous system depressants.

3,594,381

PROCESS FOR THE PREPARATION OF BENZO-PHENAZINE-DI-N-OXIDES

Florin Seng, Cologne-Buchheim, and Kurt Ley, Odenthal-Globusch, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 27, 1969, Ser. No. 794,346

Claims priority, application Germany, Feb. 28, 1968, P 16 70 991.4

Int. Cl. C07d 51/80

U.S. Cl. 260—266

17 Claims

Reacting [optionally 4- and/or 5-(halo, alkyl, alkoxy, aminocarbonyl and/or aminosulfonyl)-substituted]-benzofuroxan with [optionally 3-, 4-, 5-, 6-, 7- and/or 8-, especially mono or di (nitro, halo, sulfonic acid, sulfonic acid alkali metal salt, carboxy, amino, alkyl-sulfonyl-amino, alkyl-carbonylamino and/or chloro-substituted phenyl-carbonylamino)-substituted]-naphth-1 or 2-ols, for example at temperatures of about 0–100° C., in the presence of a base or basic-reacting salt such as alkali metal -alcohulates, -hydroxides, -cyanides, -carbonates, alkaline earth metal hydroxides, and/or organic amines including ammonia, and also in the presence of a diluent such as water and/or organic liquids, to form the corresponding [optionally 2- and/or 3-(halo, alkyl, alkoxy, aminocarbonyl and/or aminosulfonyl)-substituted]-[optionally 5-, 6-, 7-, 8-, 9- and/or 10-, especially mono or di (nitro, halo, sulfonic acid, sulfonic acid alkali metal salt, carboxy, amino, alkyl-sulfonylamino, alkyl-carbonylamino, and/or chloro-substituted phenyl-carbonylamino)-substituted]-ortho-benzo-phenazine-di-N-oxides, all but the corresponding unsubstituted compound of which are new and all of which possess fungicidal properties.

3,594,382

PROCESS FOR THE PREPARATION OF HYDROXY-PHENAZINE-DI-N-OXIDES

Florin Seng, Cologne-Buchheim, and Kurt Ley, Odenthal-Globusch, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 27, 1969, Ser. No. 794,345

Claims priority, application Germany, Jan. 31, 1968, P 16 70 981.2

Int. Cl. C07d 51/80

U.S. Cl. 260—267

16 Claims

Reacting [optionally 4- and/or 5-(chloro, alkyl, alkoxy, aminocarbonyl and/or carboalkoxy)-substituted]-benzofuroxan-N-oxide with at least the equimolar quantity of an aromatic hydroxy compound, e.g. [optionally 2-, 3- and/or 6-(chloro, hydroxy, alkyl, nitro, alkanoyl, aminocarbonyl-alkyl, phenyl, chlorophenyl, phenyl sulfonyl and/or pyrroldiazolyl-1-alkylaminocarbonyl-alkyl)-substituted]-1,4-di- and -1,3,5-tri-hydroxy-benzenes and [optionally 2-(chloro, hydroxy, alkyl, nitro, alkanoyl, aminocarbonyl-alkyl, phenyl, chlorophenyl, phenyl sulfonyl and/or pyrroldiazolyl-alkyl-aminocarbonyl-alkyl)-substituted]-1,4-hydroxy naphthalenes; optionally in the presence of a diluent, at temperatures of about 0–50° C., and in the presence of a base or basic-reacting salt, to form the corresponding [optionally 1-, 3- and/or 4- (chloro, hydroxy, alkyl, nitro, alkanoyl, aminocarbonyl-alkyl, phenyl, chlorophenyl, phenyl sulfonyl and/or pyrroldiazolyl-alkyl aminocarbonyl-alkyl)-substituted]-[optionally 6- and/or 7- (chloro, alkyl, alkoxy, aminocarbonyl and/or carboalkoxy)-substituted]-2-hydroxy-phenazine-di-N-oxides, all the corresponding said substituted compounds of which are new, and all of which possess fungicidal properties.

3,594,383

PROCESS FOR THE PREPARATION OF HYDROXY-PHENAZINE-DI-N-OXIDES

Florin Seng, Cologne-Buchheim, and Kurt Ley, Odenthal-Globusch, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 27, 1969, Ser. No. 794,347

Claims priority, application Germany, Mar. 5, 1968, P 16 70 994.7

Int. Cl. C07d 51/80

U.S. Cl. 260—267

13 Claims

Reacting [optionally 4- and/or 5- (chloro, alkyl and/or alkoxy)-substituted]-benzofuroxan-N-oxide with [optionally 2-, 3- and/or 6-(mono or di -chloro, -phenyl and/or -chlorophenyl)-substituted]-benzoquinone or corresponding [optionally 2-(chloro, phenyl or chlorophenyl)-substituted]-naphthoquinone, in the presence of a diluent and at least an equimolar amount of an oxidizable basic agent at a temperature of about 0–100° C. to form the corresponding [optionally 1-, 3- and/or 4-(mono or di -chloro, -phenyl and/or -chlorophenyl)-substituted]-[optionally 6- and/or 7-(chloro, alkyl and/or alkoxy)-substituted]-2-hydroxy-phenazine-di-N-oxides and the corresponding orthobenzohydroxy-phenazine-di-N-oxides, all but the corresponding unsubstituted compound of which are new and all of which possess fungicidal properties.

3,594,384

PHARMACOLOGICALLY-ACTIVE TRIMETHOXY-BENZOXYALKYL-PIPERAZINO [1'] COMPOUNDS

Adolf Stachel, Frankfurt am Main, Fechenheim, Rudi Beyerle, Bruchkobel, and Rolf-Eberhard Nitz, Klaus Resag, Frankfurt am Main, Fechenheim, Germany, assignors to Cassela Farbwerke Mainkur Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed Oct. 7, 1968, Ser. No. 765,692

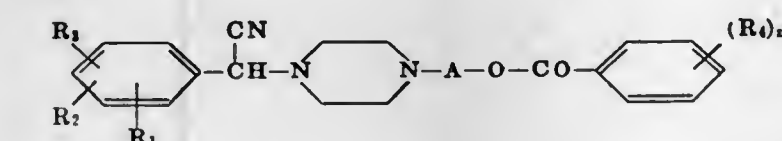
Claims priority, application Germany, Oct. 12, 1967, P 16 70 478.2

Int. Cl. C07d 51/70

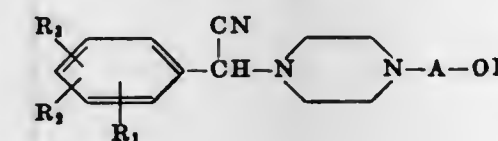
U.S. Cl. 260—268CN

6 Claims

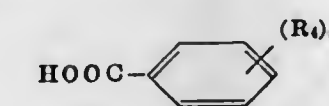
The present invention relates to pharmacologically-active α -piperazinophenylacetone derivatives having the structural formula



wherein R_1 , R_2 and R_3 may be hydrogen, halogen or alkoxy groups, where R_4 is an alkoxy group, where m may be either 1, 2 or 3, and where A is a straight or branched chain alkylene radical containing 2–4 carbon atoms, by reacting in a conventional manner an α -piperazinophenylacetone having the structural formula



with an acid halide of an alkoxybenzoic acid having the structural formula



an acid-binding agent being used, if desired.

3,594,385

SYNTHESIS OF NEW NF COMPOUNDS

Thomas Harland Brownlee, Westport, Conn., assignor to American Cyanamid Company, Stamford, Conn.

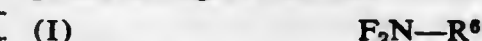
No Drawing. Continuation-in-part of abandoned application Ser. No. 578,420, Sept. 2, 1966. This application Aug. 2, 1967, Ser. No. 660,870

Int. Cl. C07d 29/26, 31/42, 27/00

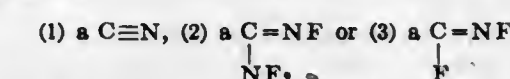
U.S. Cl. 260—290

2 Claims

A novel process for the production of NF compounds which comprises reacting a conjugated diene with a compound having the formula



wherein R^6 is



radical is disclosed as are the novel compounds produced thereby.

3,594,386

8-SUBSTITUTED-1-OXA-3,8-DIAZASPIRO [4,5] DECAN-2-ONES

Gilbert Regnier, Sceaux, Roger Canevari, L'Hay-les-Roses, and Jean-Claude Le Douarec, Suresnes, France, assignors to Science Union et Cie, Société Française de Recherche Médicale, Suresnes, France

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,871

Claims priority, application Great Britain, Dec. 29, 1967, 58,994/67

Int. Cl. C07d 29/30

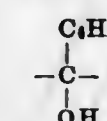
U.S. Cl. 260—293.4

12 Claims

1-oxa-2-oxo-3,8-diazo spiro (4,5) decanes substituted in 8-position by



wherein X is $-CO-$, $-CHOH-$, $-CH(OCH_3)-$,



n is 1, 2 or 3, and

Ar is phenyl or mono- or di-halo-phenyl, or



wherein Ar is 2-pyridyl or 4-pyridyl or certain substituted phenyl.

These compounds possess analgesic, antiinflammatory, central nervous system depressant and bronchodilator properties.

3,594,387

METHOD OF PREPARING 2-IMINO-OXAZOLIDINES AND THE STABILIZATION OF POLY-ESTERS THEREWITH

Sidney H. Metzger, New Martinsville, W. Va., assignor to Mobay Chemical Company, Pittsburgh, Pa.

No Drawing. Filed Oct. 9, 1964, Ser. No. 402,951

Int. Cl. C07d 85/26, 95/00

U.S. Cl. 260—307

8 Claims

This invention relates to 2-imino-oxazolidines, methods of preparation and to the stabilization of ester-containing compositions against hydrolysis.

3,594,388

4-AMINO-5-(SUBSTITUTED PHENYL) FURAZAN
Claude Lehmann, Ernst Renk, and André Gagneux, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed Feb. 2, 1968, Ser. No. 702,551

Claims priority, application Switzerland, Feb. 7, 1967, 1,894/67

Int. Cl. C07d 85/56

U.S. Cl. 260—307

9 Claims

The compounds are of the class of furazan derivatives, more particularly 4-amino-5-phenyl furazan derivatives

wherein the phenyl ring is further substituted. The compounds are useful as anticonvulsive, muscle-relaxing agents and agents depressing the central nervous system (CNS). An illustrative embodiment is 3-amino-4-(α,α,α -trifluoro-o-tolyl) furazan.

3,594,389

CERTAIN 4-(N-ALKENYL-CARBAMYL) THIAZOLES
Robin D. G. Cooper, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed June 12, 1969, Ser. No. 832,853
Int. Cl. C07d 91/30

U.S. Cl. 260—302R

4 Claims

Substituted thiazoles useful as antibiotics and antifungal agents or as anti-radiation chemicals, are obtained by treatment of a thiazoline azetidinone with an acid or a base to open the β -lactam ring. The thiazoline azetidinone is obtained by treatment of a penicillin sulfoxide with triphenyl phosphine or a trialkyl phosphite.

3,594,390

ISOTHIURONIUM SALTS

Helmut Timmler, Wuppertal-Vohwinkel, Ingeborg Hammann, Cologne, and Richard Wegler, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 7, 1967, Ser. No. 658,631
Claims priority, application Germany, Aug. 30, 1966, F 50,078

Int. Cl. C07f 9/16, 9/40

U.S. Cl. 260—308

9 Claims

(Alkyl, phenyl or O-alkyl)-(O-alkyl)-(O- or S-(4-unsubstituted or (amino, alkyl, phenyl or [halo, nitro, alkyl, alkoxy and/or alkylmercapto] substituted phenyl) substituted-5-unsubstituted or alkyl or phenyl substituted-1,2,4-triazoline-3-thione-2-yl-methyl)-phosphoric, phosphonic, thiophosphoric, thiophosphonic, thionothiophosphoric and thionothiophosphonic acid esters which possess pesticidal, especially acaricidal and insecticidal, properties and which may be produced by reacting the corresponding phosphoric, phosphonic, thio or dithio-phosphoric or -phosphonic acid ester with the corresponding 2-(N-halomethyl)-1,2,4-triazoline-3-thione.

3,594,391

2-HALO-3-SUBSTITUTED INDOLES

Milton Wolf, West Chester, John H. Sellstedt, St. Davids, and Harry Rosen, Drexel Hill, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed June 9, 1969, Ser. No. 831,702
Int. Cl. C07d 27/56

U.S. Cl. 260—326.15

8 Claims

This invention concerns 2-halo-3-substituted indoles which are useful as bronchodilators. Further, it relates to the process of preparing some of these compounds by the halogenation of appropriate 3-substituted indoles.

3,594,392

DIBENZO[b,e]THIOPINE-1,1-DIOXIDES

Stanley O. Winthrop and Martin A. Davis, Montreal, Quebec, Canada, assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Dec. 4, 1961, Ser. No. 158,636
Int. Cl. C07d 67/00

U.S. Cl. 260—327

4 Claims

Dibenzo [b,e]thiopine - 1,1 - dioxides, having antihistaminic and anticholinergic properties, and intermediates therefor are disclosed.

3,594,393

USE OF POLYURETHANES AS DEMULSIFIERS

Rudolf S. Buriks, Franklin E. Mange, and Patrick M. Quinlan, St. Louis, Mo., assignors to Petrolite Corporation, Wilmington, Del.

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,928
Int. Cl. B01d 17/00

U.S. Cl. 252—327

9 Claims

A process of employing polyurethanes as demulsifiers in preventing, breaking and/or resolving emulsions of the water-in-oil type, and more particularly petroleum emulsions.

3,594,394

THIOPHENE DIAMINE DERIVATIVES

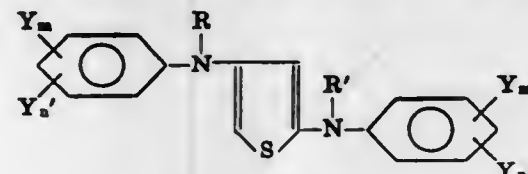
John Paul Chupp, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed July 16, 1969, Ser. No. 842,372
Int. Cl. A01n 9/12; C07d 63/12

U.S. Cl. 260—329AM

8 Claims

Novel thiophene diamine derivatives of the formula:



wherein R and R' are independently primary or secondary alkyl having not more than 4 carbon atoms, Y and Y' are independently selected from the group consisting of alkyl having a maximum of four carbon atoms, halogen, and nitro, and m and n are each integers from 0 to 2; and methods for making these compounds. These compounds have utility as herbicides, anthelmintics, and as intermediates for making insecticides.

3,594,395

THALLIC TRIFLUOROACETATE AND PROCESS

Edward C. Taylor, Princeton, N.J., and Alexander McKillop, Norwich, England, assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Jan. 21, 1969, Ser. No. 792,765
Int. Cl. C07f 5/00

U.S. Cl. 260—429

1 Claim

Thallic trifluoroacetate is prepared by reacting thallic oxide with trifluoroacetic acid. The compound reacts with aromatic compounds to give intermediates convertible to useful substituted aromatic compounds.

3,594,396

CRYSTALLINE ORGANOLITHIUM COMPLEXES CONTAINING SILICON

Arthur W. Langer, Jr., 175 Oakwood Road, Watchung, N.J. 07060

No Drawing. Division of application Ser. No. 690,054, Dec. 13, 1967, which is a continuation-in-part of application Ser. No. 560,110, June 24, 1966, which is a continuation-in-part of application Ser. No. 505,976, Nov. 1, 1965, which in turn is a continuation-in-part of applications Ser. No. 359,434, Apr. 13, 1964, and Ser. No. 589,240, Oct. 25, 1966. Said applications Ser. No. 359,434 and Ser. No. 589,240 being continuations-in-part of application Ser. No. 266,188, Mar. 19, 1963. This application Dec. 17, 1969, Ser. No. 886,009
Int. Cl. C07f 7/10; B01j 11/06

U.S. Cl. 260—448.2N

5 Claims

New crystalline organolithium compounds which consist of an organolithium in which the organic radical consists of hydrocarbon groups bonded to silicon complexed with a chelating tertiary polyamine in which the monomeric units have a straight chain structural formula are prepared in liquid phase reactions; the products are useful as polymerization and isomerization catalysts and as reagents in organometallic synthesis.

3,594,397

HALOGENATED SILICON-CONTAINING CYCLIC ACETALS

François Meiller, Palaiseau, France, assignor to Société Industrielle des Silicoes, Paris, France

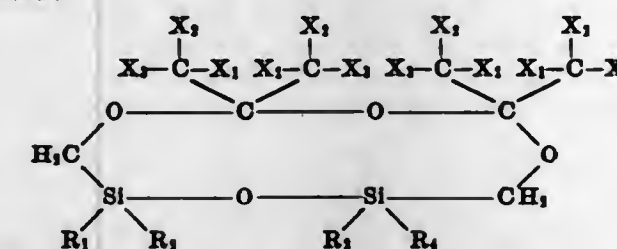
No Drawing. Filed Oct. 16, 1969, Ser. No. 867,067
Claims priority, application France, Oct. 18, 1968, 170,480

Int. Cl. C07d 103/02

U.S. Cl. 260—448.2B

23 Claims

Halogenated silicon-containing cyclic acetals having the formula:



wherein X₁, X₂ and X₃ are bromine, chlorine or fluorine and R₁, R₂, R₃ and R₄ are the same or different groups, such as alkyl, aryl and substituted aryl, prepared by the reaction of a hexahaloacetone with a siloxanediol. The compounds are useful as anti-foaming agents, extraction solvents, and wetting agents.

3,594,398

METHOD FOR PRODUCING N-FORMIMIDATE

Takeo Saegusa and Yoshihiko Ito, Kyoto, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Jan. 25, 1968, Ser. No. 700,390
Claims priority, application Japan, Apr. 5, 1967, 42/21,756

Int. Cl. C07c 119/00

U.S. Cl. 260—453

4 Claims

N-substituted formimide is prepared in high yield by reacting alcohol with isonitrile with the aid of copper, silver or mercury or oxide of these metals. The thus-obtainable formimides are useful as agricultural chemicals.

3,594,399

MANUFACTURE OF ALCOHOLS BY OXIDATION OF SATURATED HYDROCARBONS

Jacob Alagy, La Celle-Saint-Cloud, France, assignor to Institut Français du Pétrole des Carburants et Lubrifiants, Rueil-Malmaison, France

No Drawing. Filed Feb. 7, 1968, Ser. No. 703,529
Claims priority, application France, Mar. 1, 1967, 97,048

Int. Cl. C07f 5/04; C07c 35/08

U.S. Cl. 260—462A

4 Claims

A process for converting cyclohexane to cyclohexanol by contacting the cyclohexane in the liquid phase with gas containing molecular oxygen wherein the oxidation step is conducted in the presence of sulfate of the alkali and alkaline earth metals.

3,594,400

CYANOALKYL-NITROPHENYL CARBONATES

Krijn van den Boogaart and Meelis Nicolaus Louis, Vlaardingen, Netherlands, assignors to N.V. Fabriek Van Chemische Producten Vondelingenplaat, Rotterdam, Netherlands

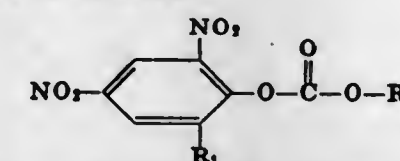
No Drawing. Filed Mar. 5, 1968, Ser. No. 710,630
Claims priority, application Netherlands, Mar. 7, 1967, 6703598

Int. Cl. C07c 79/28; A01n 9/20

U.S. Cl. 260—463

7 Claims

Compounds of structure



where R₁ is alkyl of one to ten carbon atoms, and R₂ is cyanoalkyl containing from one to four carbon atoms in

the alkyl group. These compounds are extremely effective as acaricides and also have fungicidal and herbicidal activity.

3,594,401

ACETYLENICALLY UNSATURATED DIARYL NITRILES AND DERIVATIVES THEREOF

John F. Cavalla, Idleworth, Gillian M. Sandison, Datchet, and Alan C. White, Windsor, England, assignors to John Wyeth & Brother Limited, Taplow, Maidenhead, England

No Drawing. Continuation-in-part of application Ser. No. 619,207, Feb. 28, 1967. This application Nov. 18, 1969, Ser. No. 877,840

Claims priority, application Great Britain, Mar. 3, 1966, 9,319/66

Int. Cl. C07c 121/70

U.S. Cl. 260—465E

4 Claims

Certain diaryl-substituted acetylenically unsaturated compounds bearing a cyano, carboxylic acid, ester, or amide substituent or hydroxymethyl or aminomethyl, and optionally an amino substituent, exhibit useful CNS activity as anticonvulsants and are also useful as anti-inflammatory agents and tranquilizers, etc.

3,594,402

TETRAACETONITRILILITHIUMHEXAFLUOROPHOSPHATE AND METHOD FOR THE PREPARATION THEREOF

Robert A. Wiesboeck, Atlanta, Ga., assignor to

United States Steel Corporation

No Drawing. Filed May 29, 1969, Ser. No. 829,111
Int. Cl. C07c 12/28

U.S. Cl. 260—465.8

4 Claims

Tetraacetone-nitrililithiumhexafluorophosphate, a new compound prepared by reacting lithium fluoride and PF₅ or previously prepared LiPF₆ with excess CH₃CN, is disclosed. Tetraacetone-nitrililithiumhexafluorophosphate is useful for the production of high purity exceptionally active LiPF₆ which is also a new composition of matter. The preparations of these new compositions are also disclosed.

3,594,403

9,15-DIOXOPROSTA-8(12),13-DIENOIC ACID AND METHYL ESTER

Masateru Miyano, Morton Grove, Ill., assignor to

G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 688,981, Dec. 8, 1967. This application Jan. 8, 1968, Ser. No. 696,101

Int. Cl. C07c 61/36, 67/74

U.S. Cl. 260—468

3 Claims

9,15-dioxoprost-8(12),13-dienoic acid derivatives useful as hypocholesterolemic, anti-ulcerogenic and anti-protozoal agents and preparable by the condensation of 6-hexanoylbicyclo[2.2.1]hept-2-en-5-yl chloromethyl ketone with dimethyl 3-oxoundecane-1,11-dioate followed by hydrolysis, decarboxylation, esterification and pyrolysis of the resulting adduct to afford methyl 9,15-dioxoprost-8(12),13-dienoate, which is reduced and/or saponified to afford the related derivatives.

3,594,404

RACEMIC AND OPTICALLY ACTIVE p-PHENYL-HYDRATROPIC ACID, 2,3-DIHYDROXYPROPYL ESTERS

James R. Fisher, Royal Oak, Mich., assignor to

Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed July 1, 1968, Ser. No. 741,276
Int. Cl. C07c 69/76; A61k 27/00

U.S. Cl. 260—469

4 Claims

2,3-dihydroxypropyl esters of d-, l-, and dl-p-phenyl-hydratropic acids, useful as pharmacological agents having anti-inflammatory activity, and their production by (a) reacting p-phenylhydratropic acid, in racemic or in optically active form, or a carboxylate salt thereof, with a 3-halo-1,2-propanediol, and (b) reacting a (1,3-di-

oxolan-4-yl)methyl ester of d-, l-, or dl-p-phenylhydra-tropic acid with a strong acid, whereby the dioxolane ring is cleaved.

3,594,405 SUBSTITUTED PYRANYL ANILINES AS PLANT GROWTH MODIFIERS

Harvey M. Loux, Valley View, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed May 17, 1968, Ser. No. 729,900
Int. Cl. C07d 7/04

U.S. Cl. 260—345.1 3 Claims
This disclosure teaches that novel 2-tetrahydropyranyl-anilines such as 3,4-dichloro-N-(tetrahydro-2-pyranyl)-aniline when applied to plants effect a modification of the growth pattern of said plant.

3,594,406
SUBSTITUTED-DES-A-ANDROSTAN-5-ONES
Milan Radoje Uskokovic, Upper Montclair, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Application Oct. 20, 1965, Ser. No. 499,094, which is a continuation-in-part of application Ser. No. 400,206, Sept. 29, 1964, now Patent No. 3,412,107, dated Nov. 19, 1968. Divided and this application June 13, 1968, Ser. No. 736,585
Int. Cl. C07c 49/30; C07d 7/04

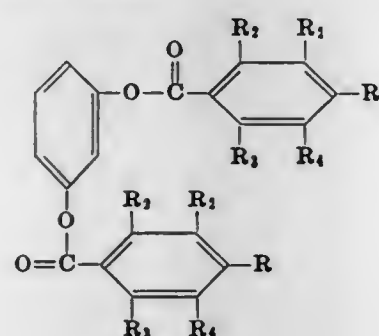
U.S. Cl. 260—345.9 9 Claims
This invention is directed to substituted-des-A-androstan-5-ones and derivatives thereof which are useful as intermediates in the production of known steroids of the androstane series. These latter compounds can be utilized as anabolic and antiandrogenic agents.

3,594,407
13,17-DIALKYL-19-NORPREGN-4-ENE,
3,20-DIONES
Daniel M. Teller, King of Prussia, George H. Douglas, Chester, and Herchel Smith, Delaware, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 614,410, Feb. 7, 1967. This application Apr. 3, 1969, Ser. No. 813,284
Int. Cl. C07c 169/08

U.S. Cl. 260—397.3 8 Claims
The compounds of the class of 13,17-dialkyl-18,19-dinorpregn-4-en-3,20-diones and 13,17,21,21-pentaalkyl-18,19-di-norpregn-4-en-3,20-diones are prepared and found to be hormonally useful.

3,594,408
RESORCINOL DIALKYL BENZOATES
John Frederick Hosler, Bound Brook, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Original application Apr. 28, 1966, Ser. No. 545,851, now Patent No. 3,391,108, dated July 2, 1968. Divided and this application Feb. 1, 1968, Ser. No. 702,200
Int. Cl. C07c 69/78; C08b 45/58

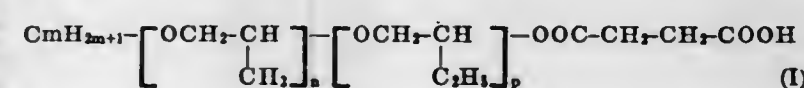
U.S. Cl. 260—476R 4 Claims
As new chemical compounds, resorcinol di(alkylbenzoates) of the formula:



wherein each R is an alkyl radical of from four to twelve carbon atoms and each R₁, R₂, R₃ and R₄ is individually either hydrogen or alkyl of 1-4 carbon atoms. These compounds are useful as light stabilizers for polymers prepared from mono-olefins having from 2 to 4 carbon atoms.

3,594,409
MAGNESIUM SALTS OF SUCCINIC ACID ESTERS
Felix Lachamp, Franconville, Andre Viout, Paris, and Guy Vanlerberghe, Mitry-Mory, France, assignors to Societe Anonyme dite: L'Oreal, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 491,439, Sept. 29, 1965, now Patent No. 3,419,665. Divided and this application Mar. 4, 1968, Ser. No. 709,904
Claims priority, application France, Oct. 5, 1964, 990,354
Int. Cl. C07c 69/40

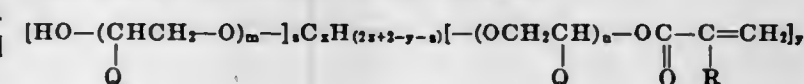
U.S. Cl. 260—485 7 Claims
Emulsifier compounds which are magnesium salts of a succinic ester of a polyoxyalkylene fatty alcohol having the formula:



in which:
m is an integer between 12 and 28 inclusive,
n and p are numbers lying between 0 and 12 inclusive, while the sum of n and p falls between 2 and 12 inclusive, which produce unusually stable water in oil emulsions.

3,594,410
ADDITION POLYMERIZABLE BRANCHED
CHAIN POLYOL POLYESTERS OF ALPHA-
METHYLENE CARBOXYLIC ACIDS
Abraham Bernard Cohen, Springfield, and Arnold Charles Schoenthaler, East Brunswick, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Original application May 26, 1964, Ser. No. 370,338, now Patent No. 3,380,831, dated Apr. 30, 1968. Divided and this application Dec. 11, 1967, Ser. No. 689,320
Int. Cl. C07c 69/54

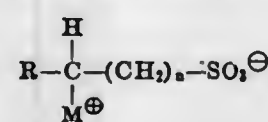
U.S. Cl. 260—486R 5 Claims
An addition polymerizable, branched chain polyol polyester of an alpha-methylene carboxylic acid of 3-4 carbon atoms represented by the formula:



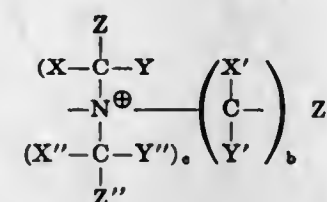
where Q is H, CH₃ or C₂H₅, R is H or CH₃, x is 3 to 6 and equal or greater than y+z, y is 2-6, z is 0 or 1-4, and y+z is more than 2, m is 0, 1 or more, n is 1 or more, and ny+mz is more than 6 but less than 500. The polyesters are useful in photopolymerizable compositions, have water-miscible characteristics, are less toxic, and more efficient than other polyesters.

3,594,411
SULFOBETAINE DETERGENTS, AND LUBRICANTS
AND COSMETICS CONTAINING SAME
George F. Kite, Springdale, and Arthur C. Whitaker, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Apr. 25, 1968, Ser. No. 724,290
Int. Cl. C07c 143/14

U.S. Cl. 260—501.12 4 Claims
Novel sulfobetaines, prepared from tertiary amines and sultones, having the structure

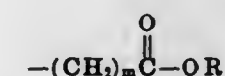


in which R is an alkyl group having from 6 to 23 carbon atoms, n is the integer 2 or 3, and M⁺ is a radical having the structure



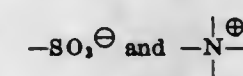
wherein a, b, and c are, independently, integers of from 1 to 6, and the substituents X, X', X'', Y, Y', Y'', Z, Z', and Z'', attached to each carbon atom, are independently, selected from the group consisting of:

- hydrogen,
- hydroxyl,
- halogen,
-

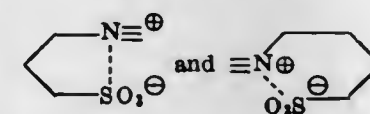


in which m is 0 or an integer of from 1 to 5 and R' is H— or an alkyl group having from 1 to 3 carbon atoms, (v) —NR₂ in which each R'' is, independently, H— or an alkyl group having from 1 to 4 carbon atoms, and (vi) —OR''', in which R''' is an alkyl group having from 1 to 4 carbon atoms, at least one of said substituents being other than hydrogen are provided.

The five or six membered chain including the



groups provides for ready inner salt or ring formation, giving resistance to degradation, such as



not readily obtained with similar chains containing other numbers of atoms such as ≡N⁺-CH₂-CH₂-SO₃⁻, which would require a highly strained four-membered ring. A more effective detergent is provided than in compounds having the nitrogen atom in the longest chain of the molecule. The detergent compounds are useful, for example, in lubricants and cosmetics, all as is more particularly described in the specification which follows.

3,594,412
PROCESS FOR THE PREPARATION OF SURFACE-
ACTIVE DERIVATIVES OF 5 - SULFOISO-
PHTHALIC ACID

Rudolf Burkhardt, Witten (Ruhr), Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf (Beritz Cologne), Germany
No Drawing. Continuation of application Ser. No. 704,990, Feb. 13, 1968, which is a continuation-in-part of application Ser. No. 367,200, May 13, 1964. This application June 9, 1970, Ser. No. 44,861
Int. Cl. C07c 143/52

U.S. Cl. 200—507 2 Claims
Surface-active ester and amide salts of 5-sulfoisophthalic acid are prepared by reacting an alkali or alkaline earth metal salt of 5-sulfoisophthalic acid dimethyl ester with an alcohol or an amine having 4 to 12 carbon atoms

in the alkyl group to produce the desired dialkyl ester and dialkyl amide salts, respectively, of 5-sulfoisophthalic acid.

3,594,413
CYCLOPENTENE DERIVATIVES
Harvey E. Alburn, West Chester, and Horace Fletcher III, Pottstown, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed Nov. 20, 1968, Ser. No. 777,506
Int. Cl. C07c 101/14

U.S. Cl. 260—514 2 Claims
This invention is concerned with the preparation of cyclopentene - 1,1 - dicarboxamides; 1,3-diazaspiro[4,4] nonene-2,4 - diones; 1 - aminocyclopentene-1-carboxylic acids; 1-(N - alkylamino)cyclopentene - 1 - carboxylic acids; and 3-oxa-1-azaspiro[4,4] nonene-2,4-diones which are intermediates in the preparation of 6-(1-aminocyclopentene-1-carboxamido)penicillanic acids which are useful antibacterial agents.

3,594,414
PROCESS FOR THE PREPARATION OF FIBER-
GRADE TEREPHTHALIC ACID

Ewald Katzschmann, Witten-Bommern, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
No Drawing. Filed Sept. 1, 1967, Ser. No. 664,948
Claims priority, application Germany, Sept. 3, 1966, D 51,020
Int. Cl. C07c 63/26

U.S. Cl. 260—515R 15 Claims
A process for the preparation of fiber-pure terephthalic acid which comprises hydrolyzing dimethyl terephthalate at a temperature of from about 180° to 280° C., preferably 200°-250° C. The process is advantageously carried out under pressure in a corrosion-proof vessel with an aqueous solution of a neutral water-soluble inorganic salt, said salt being used in concentrations of about 5 to 50% by weight. The preferred salts employed are sodium chloride, potassium chloride and calcium chloride. The process may be carried out as a continuous process with the obtained terephthalic acid being further purified by subsequent washings or by steam distillation. Left-over filtrates and washings are recycled to the reaction solution for a more efficient operation.

3,594,415
TRICARBALLYLIC ACIDS
William A. Zisman, Silver Spring, and Jacques G. O'Rear, Camp Springs, Md., assignors to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Aug. 30, 1968, Ser. No. 756,426
Int. Cl. C07c 63/56

U.S. Cl. 260—515 3 Claims
New triacids which are ω-(p-chlorophenyl)- and ω-(3,4,5-trichlorophenyl) n-alkyltricarballic acids in which the alkyl group has from 3 to 20 carbon atoms. The new triacids are used to prime hard inorganic solids with a film which, essentially, is an adsorbed monolayer of the triacid. The film is a coupling agent for promoting bonding of organic coatings to the solids.

3,594,416
MELTING OF UREA CRYSTALS
Robert N. Summerville, Cranford, and Arthur M. Bauer, Tenafly, N.J., assignors to The Lummus Company, Bloomfield, N.J.
Filed Apr. 10, 1968, Ser. No. 720,156
Int. Cl. C07c 127/00

U.S. Cl. 260—555 5 Claims
A process and apparatus for producing a urea melt wherein the urea is melted in a plurality of steam heated

vertical tubes, while being maintained in equilibrium with solid urea, to produce a urea melt essentially at or slightly above the melting point of urea, approximately 271° F. The total residence time for the melting is maintained at less than 7 minutes whereby increase in biuret content during melting is minimized.

3,594,417

SUBSTITUTED 2-ARYLALKYLOXY BENZAMIDES
Michel Léon Thominet, Paris, France, assignor to Société d'Etudes Scientifiques et Industrielles de L'Île-de-France, Paris, France
No Drawing. Filed Mar. 21, 1968, Ser. No. 714,795
Claims priority, application France, Apr. 3, 1967, 101,328; June 23, 1967, 111,808
Int. Cl. C07c 103/26

U.S. Cl. 260—559S

5 Claims

The 2-arylalkyloxy-benzamides of this invention are useful for the production of anesthesia, such as local anesthesia, in mammals. When administered intramuscularly, compounds of this invention show significant anesthesia when compared with xylocaine. Again, intradermic injections of 0.2 ml. of a solution of such a compound in concentrations varying from 0.1 to 1.25 mg./ml. effect suppression of platysma tremor produced by the prick of a pin in guinea pigs. The LD₅₀ dosage of the compounds evaluated on mice and rats proved compatible in therapeutic use on mammals.

3,594,418

1-(2-HYDROXYHEXAFLUORO-2-PROPYL)-3,4-DIAMINO-BENZENE

Everett E. Gilbert, Morristown, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Jan. 17, 1969, Ser. No. 792,130
Int. Cl. C07c 91/42

U.S. Cl. 260—575

1 Claim

New (2-hydroxyhexafluoro-2-propyl) benz-substituted benzoheterocyclic nitrogen compounds useful in the preparation of benzoheterocyclic nitrogen compound carboxylic acids and as hypotensive agents, and new (2-hydroxyhexafluoro-2-propyl)-3,4-diaminobenzene precursor for such compounds.

3,594,419

PROCESS FOR CONVERTING NITROPARAFFINS TO AMINES

Robert W. Rosenthal, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Apr. 15, 1968, Ser. No. 721,199
Int. Cl. C07c 88/10

U.S. Cl. 260—583

3 Claims

A process which involves subjecting a nitroparaffin to reaction with hydrogen in the presence of ammonia and a hydrogenation catalyst to convert the nitroparaffin to the corresponding primary amine.

3,594,420

PROCESS FOR PRODUCING AMINES
Georges Gobron and Remy Proust, Melle, France, assignors to Melle-Bezons, Melle, Deux-Sevres, France
No Drawing. Filed Oct. 14, 1968, Ser. No. 767,466
Claims priority, application France, Oct. 25, 1967, 125,763
Int. Cl. C07c 85/00

U.S. Cl. 260—583R

9 Claims

The preparation of monoethylamine, which may be accompanied by the formation of small amounts of diethylamine by hydrogenation of aldehyde ammonia in solution in monoethylamine, diethylamine or mixtures thereof.

3,594,421

RECOVERY OF PRIMARY AMINES
James Edward Kmiecik, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Filed Oct. 31, 1968, Ser. No. 772,371
Int. Cl. C07c 85/06, 85/16

U.S. Cl. 260—583N

6 Claims

Primary amines are recovered from the products of reductive amination of alcohols by converting the unreacted alcohols to alkyl borates and distilling the amines. Primary amines have many uses in commerce, for example, they are useful as corrosion inhibitors, ore flotation agents, germicides, rubber mold release agents, pigment coating agents and chemical intermediates.

3,594,422

CHEMICAL PROCESS

Richard L. Golden, Oradell, N.J., and Gerald Mazzella, Brooklyn, N.Y., assignors to Halcon International, Inc.
No Drawing. Original application Jan. 29, 1965, Ser. No. 429,165, now Patent No. 3,423,471, dated Jan. 21, 1969. Divided and this application July 25, 1968, Ser. No. 747,434
Int. Cl. C07c 45/12

U.S. Cl. 260—586B

4 Claims

This invention relates to an improved process for the recovery of boron compounds used to form borate esters in hydrocarbon oxidation processes, which comprises removing dissolved and entrained organic material from the aqueous phase of the hydrocarbon oxidation process by adsorption in a carbon bed.

3,594,423

CONVERSION OF VINYL BENZENES TO ETHYNYLBENZENES

Howard M. Relles, Schenectady, N.Y., assignor to General Electric Company
No Drawing. Filed Oct. 3, 1969, Ser. No. 863,720
Int. Cl. C07c 15/02

U.S. Cl. 260—668

9 Claims

Chlorination of vinylbenzenes leads to a mixture of products rather than only the α,β -dichloroethyl derivatives, the expected products. In contrast, bromine produces only the expected α,β -dibromoethyl derivatives. When the mixture of chlorinated products is dehydrohalogenated with most of the dehydrohalogenating agents found useful for the dehydrobromination of the brominated products, a lower yield of the corresponding ethynyl compounds or only partially dehydrochlorinated products are obtained with considerable amounts of chlorinated products remaining unconverted because of their nonreactivity with the dehydrohalogenating agents. However, it has been found that alkali metal amides are capable of completely dehydrochlorinating the mixture of chlorinated products to the desired ethynyl compounds. This permits low cost chlorine to be substituted for the more expensive bromine and provides an economical process for converting vinylbenzenes to the corresponding ethynylbenzenes without the production of undesired by-products. The acetylene products are useful in making polyacetylenes.

3,594,424

2,6-BIS(3,5-DIALKYL-4-HYDROXYBENZYL)CYCLOALKANONES

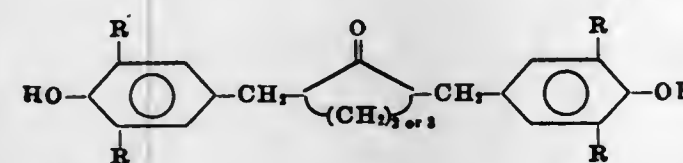
Robert A. Krueger, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
No Drawing. Filed Nov. 1, 1967, Ser. No. 679,622
Int. Cl. C07c 49/82

U.S. Cl. 260—590

3 Claims

Disclosed are novel 2,6-bis(3,5-dialkyl-4-hydroxybenzyl)cycloalkanones which are useful antioxidants for olefin

polymers. The particular 2,6-bis(3,5 - dialkyl-4-hydroxybenzyl)cycloalkanones of this invention have the formula



where R is a hydrocarbon radical and are useful as protective agents for poly(ethylene), poly(4-methylpentene-1), poly(propylene) and other olefin polymers.

3,594,425

HYDROFORMYLATION PROCESS

Walter H. Brader, Jr., Stanley B. Cavitt, and Robert M. Gipson, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed July 7, 1966, Ser. No. 563,374
Int. Cl. C07c 45/08

U.S. Cl. 260—604

10 Claims

Olefins are reacted with carbon monoxide and hydrogen to yield an aldehyde or alcohol having one more carbon atom than the olefin under hydroformylation reaction conditions in the presence of a complex catalyst comprising as essential ingredients a transition metal and a polyamine containing at least two amino-functional groups where the amino-functional groups are separated by one to four carbon atoms.

3,594,426

PROCESS FOR THE PREPARATION OF TRI-ORGANO-BORON COMPOUNDS

Antonio Salvemini and Franco Smai, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Original application Feb. 2, 1967, Ser. No. 613,416. Divided and this application Sept. 30, 1969, Ser. No. 862,464

Claims priority, application Italy, Feb. 3, 1966, 2,296/66

The portion of the term of the patent subsequent to Oct. 28, 1986, has been disclaimed

Int. Cl. C07f 5/02

U.S. Cl. 260—606.5B

6 Claims

Process for the preparation of organoboron compounds of the general formula BR₃, wherein R is an alkyl, aryl, cycloalkyl or aralkyl radical, for using in catalysts for the polymerization of vinyl compounds in organic synthesis, etc., by reacting the components of a Grignard reagent of the general formula R·Mg·X, where R is the aforementioned radical and X is a halogen from the group of chlorine, bromine and iodine, with a polyborate boron derivative of the general formula (R'O)₃B·nB₂O₃ (where R' is an alkyl radical having a straight or branched chain containing from 2 to 6 carbon atoms, a phenyl, an alkyl substituted-phenyl or phenyl substituted alkyl, and n is a number equal to or upwards of 1, but preferably less than 2). This Grignard reagent is prepared from an RX type compound and a suspension of magnesium in an inert organic hydrocarbon solvent containing only catalytic quantities of an ether such that the molar ratio of ethers to the RX compound ranges substantially from 0.01 to 0.5. The magnesium may be activated with small quantities of ethyl iodide prior to its incorporation in the suspension.

3,594,427

ADAMANTANE BISPHENOLS

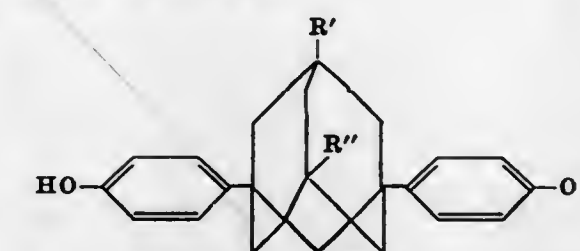
Robert E. Moore, Wilmington, Del., assignor to Sun Oil Company

No Drawing. Filed Feb. 26, 1969, Ser. No. 802,661
Int. Cl. C07c 39/12

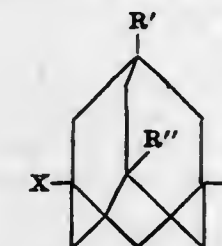
U.S. Cl. 260—619B

3 Claims

Bisphenols of the structure



where R' and R'' are hydrogen or a hydrocarbon radical are prepared by reacting a compound of the structure



where X is bromo or chloro with phenol at reflux for several hours. The adamantane bisphenols are useful for preparing polyesters and polycarbonates as films or coating which have unusually high thermal stability.

3,594,428

PROCESS FOR PREPARING 1,1-DICHLOROETHYLENE, 1,2-DICHLOROETHYLENE AND VINYL CHLORIDE

Albert Antonini, Paris, Gustave M. Stahl, Saint-Anban, and Claude Vrillon, Montmagny, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Paris, France

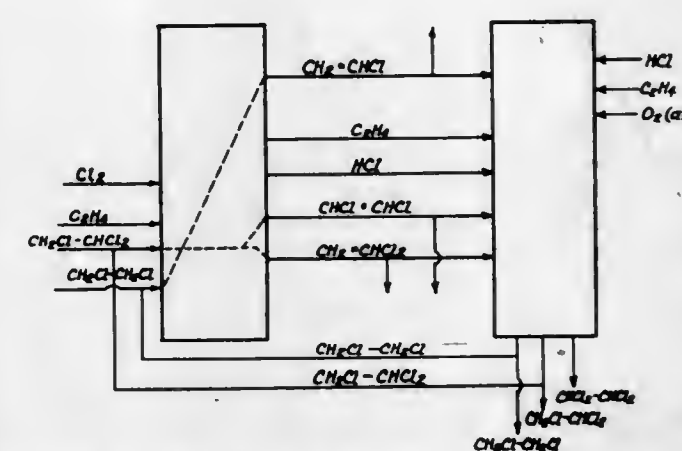
Filed May 20, 1968, Ser. No. 730,446

Claims priority, application France, July 13, 1967, 114,307

Int. Cl. C07c 21/04, 21/06, 17/02, 17/04

U.S. Cl. 260—654H

22 Claims



Process of reaction of a mixture of ethylene, chlorine, 1,2-dichloroethane and 1,1,2-trichloroethane to produce 1,1-dichloroethylene, 1,2-dichloroethylenes and vinyl chloride and the combination thereof with an oxychlorination reaction which makes use of components from the dehydrochlorination reaction and which makes available components for the chlorination reaction.

3,594,429
TRICHLOROETHYLENE PREPARED BY OXY-CHLORINATION OF VINYLIDENE CHLORIDE
 Albert Antonini, Paris, Claude Kaziz, La Courneuve, and Georges Wettruff, Le Thillay, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Paris, France

No Drawing. Filed May 20, 1968, Ser. No. 730,617
 Claims priority, application France, May 19, 1967, 106,977

Int. Cl. C07c 17/06, 21/10
 U.S. Cl. 260—654A 16 Claims
 A process for preparation of trichloroethylene by oxy-chlorination of vinylidene chloride with a fluid bed catalyst.

3,594,430
ALKYLATION OF AROMATIC HYDROCARBONS
 George L. Hervet, Woodstock, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 No Drawing. Continuation-in-part of application Ser. No. 686,690, Nov. 29, 1967. This application May 25, 1970, Ser. No. 40,455

Int. Cl. C07c 15/02, 15/14
 U.S. Cl. 260—668C 10 Claims
 The alkylation of aromatic hydrocarbons is effected in the presence of a novel catalyst comprising a hydrogen fluoride-carbon dioxide complex to prepare alkylated aromatic hydrocarbons possessing certain desirable configurations.

3,594,431
CATALYTIC LIQUID PHASE HYDROFLUORINATION OF ALKYNES TO FORM OLEFIN FLUORIDES

Michael J. Maximovich and Henry C. Stevens, Akron, and Fred C. Trager, Barberton, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Jan. 19, 1967, Ser. No. 610,225
 Int. Cl. C07c 17/08, 21/18

U.S. Cl. 260—653.4 8 Claims
 Described is the catalytic hydrofluorination of acetylenics in a liquid organic medium made up of from 3 to 15 moles hydrogen fluoride per mole of organic base such as N,N-dimethylaniline while evolving olefin monofluoride (the equimolar hydrofluorination product) product from the liquid. Exemplary conditions for maintaining this reaction media composition while evolving the product include 50° C. to 100° C. and 5 to 100 p.s.i.g.

3,594,432
PREPARATION OF CAROTENOID COMPOUNDS
 Jacques Morel, Tassin-la-Demi-Lune, France, assignor to Rhone-Poulenc S.A., Paris, France
 No Drawing. Filed Jan. 15, 1970, Ser. No. 3,208
 Claims priority, application France, Jan. 17, 1969, 826

Int. Cl. C07c 5/14
 U.S. Cl. 260—666 9 Claims
 Retrohydro-β-carotene is produced in improved yield by brominating β-carotene with N-bromosuccinimide and then dehydrobrominating the resulting 4-bromo-β-carotene in the presence of an alkali metal iodide.

3,594,433
CATALYTIC ISOMERIZATION PROCESS FOR THE PRODUCTION OF 5-ETHYLIDENEBICYCLO[2.2.1]HEPT-2-ENES

Wolfgang Schneider, Brecksville, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
 No Drawing. Filed Jan. 26, 1970, Ser. No. 5,987

Int. Cl. C07c 5/24
 U.S. Cl. 260—666 9 Claims
 5-vinylbicyclo[2.2.1]hept-2-ene is isomerized to 5-ethylidenebicyclo[2.2.1]hept-2-ene when contacted with a catalyst comprising a titanium compound such as ti-

tanium alcoholates and cyclopentadienyl titanium halides with a Group I-A, II-A or III-A or Lanthanide metal or a Group I-A, II-A, III-A or Lanthanide metal in combination with certain Lewis acids. 5-ethylidenebicyclo[2.2.1]hept-2-ene is a useful comonomer for polymerization with α-olefins such as ethylene and propylene.

3,594,434
PROCESS FOR THE CATALYTIC PREPARATION OF DIVINYLCYCLOBUTANE

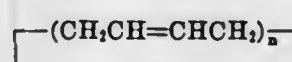
Gunther Wilke and Paul Heimbach, Mulheim (Ruhr), and Wolf-Bernd Brenner, Oberhausen, Rhineland, Germany, assignors to Studiengesellschaft Kohle m.b.H., Mulheim (Ruhr), Germany
 No Drawing. Filed Apr. 3, 1968, Ser. No. 718,376
 Claims priority, application Germany, Apr. 8, 1967, St 26,718

Int. Cl. C07c 3/10
 U.S. Cl. 260—666 4 Claims
 A process for the catalytic dimerization of 1,3-diolefins is disclosed. Preferred diolefins are butadiene, isoprene and piperylene. The catalysts used are ones formed by mixing a reducible nickel compound and a metal having a reducing action with respect to the reducible nickel compound or a halogen-free organometallic compound, of which metal alkyls, metal aryls or metal hydrides are examples, and an electron donor. They may also be formed by mixing a nickel complex compound which contains O-valent nickel with an electron donor. The electron donor may be an ester of a phosphorous acid or a diolefine. The process is carried out with incomplete conversion of the 1,3-diolefine.

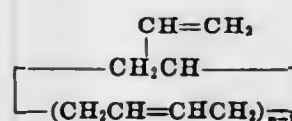
3,594,435
LARGE RING POLY-ENE COMPOUNDS HAVING TRANS CONFIGURATION AND METHOD FOR THEIR PRODUCTION

Hisao Kondo, Masaki Nishino, and Akihisa Miyake, Kamakura-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan
 No Drawing. Filed Feb. 10, 1969, Ser. No. 798,176
 Claims priority, application Japan, Feb. 9, 1968, 43/7,768; Oct. 31, 1968, 43/78,867

Int. Cl. C07c 3/10, 13/02
 U.S. Cl. 260—666 8 Claims
 Cyclic compounds having one of the following formulas:



or



are described, where n is an integer not less than 4, and the unsaturations of said compounds exhibit trans configurations. These compounds are produced by a process comprising reacting butadiene in the presence of both a nickel-hydrogen coordination complex and a halogenated nickel-hydrocarbon coordination complex.

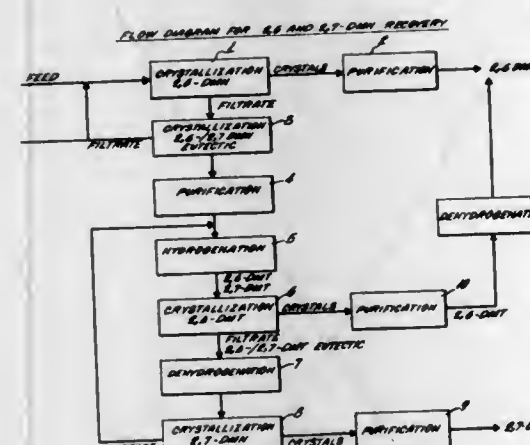
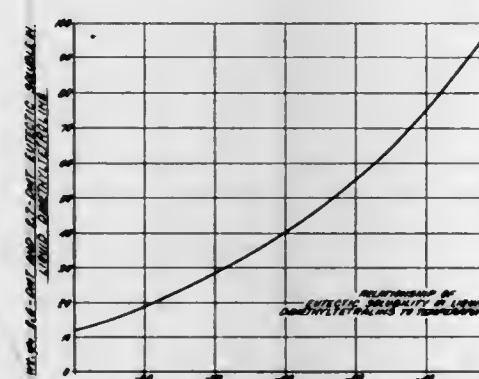
3,594,436
SEPARATION OF 2,6- AND 2,7-DMN EUTECTIC VIA 2,6-DIMETHYLTETRAHYDRONAPHTHALENE CRYSTALLIZATION

John A. Hedge, Devon, Wilmington, Del., and Kenneth A. Scott, Swarthmore, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

Filed Feb. 3, 1969, Ser. No. 796,078
 Int. Cl. C07c 7/14, 15/24
 U.S. Cl. 260—674N 10 Claims
 Essentially all of the 2,6-dimethylnaphthalene (DMN) contained in the 2,6-/2,7-dimethylnaphthalene eutectic

mixture can be recovered by hydrogenating the eutectic mixture to produce a mixture of 2,6- and 2,7-dimethyltetralin (DMT). The 2,6-/2,7-DMT also forms a eutectic, however, it is at a different ratio than the 2,6-/2,7-DMN. The shift is in favor of greater 2,7-DMT in the eutectic thus there is free 2,6-DMT that can be recovered from this mixture. 2,6-DMT can be recovered in high yields and high purity by carefully controlling the temperature of crystallization at the lowest temperature determined from FIG. 3 at which all of the 2,6-/2,7-DMT eutectic is soluble in the liquids present. For example, a hydrogenated 2,6-/2,7-DMN eutectic feed containing

	Wt. percent
2,6-DMT	30
2,7-DMT	30
Other liquid aromatics	40



will have a eutectic of 2,6-/2,7-DMT in the weight ratio of .538. Thus, the eutectic represents 46.2% of the incoming feed. To use FIG. 3, the weight percent of eutectic is calculated on total feed excluding the free 2,6-DMT in this case the weight percent of eutectic to be dissolved is calculated to be 53.6 wt. percent. From FIG. 3, 53.6 wt. percent eutectic is soluble at -51° C. The temperature of crystallization should be no less than -51° C. (±2° C.) to avoid crystallization of the 2,6-/2,7-DMT eutectic and no more than -51° C. (±2° C.) to avoid dissolving free 2,6-DMT.

3,594,437
PURIFICATION OF DIETHYNYLBENZENES
 Dwain M. White, Schenectady, N.Y., assignor to General Electric Company
 No Drawing. Filed Nov. 28, 1969, Ser. No. 880,923
 Int. Cl. C07c 15/02

U.S. Cl. 260—674R 5 Claims
 Impure diethynylbenzenes are purified by cooling a solution of the material in a liquid alkane, maintaining the temperature of the solution at least as low as -50° C., until the purified diethynylbenzene precipitates from the solution and isolating the precipitate from the solution.

3,594,438
CATALYTIC CONVERSION OF 3-CARENE BY ETA ALUMINA

James O. Bledsoe, Jr., Jacksonville, Fla., assignor to SCM Corporation, New York, N.Y.

No Drawing. Filed Aug. 27, 1969, Ser. No. 853,501
 Int. Cl. C07c 5/00; C09f 3/00

U.S. Cl. 260—675.5 9 Claims
 Alumina in the form of eta alumina is used catalytically to convert 3-carene to a mixture of dipentene and carvostrene with increased yields and suppression of undesirable by-products.

3,594,439
ACCELERATORS FOR POLYESTER RESINS

John G. Baker, Cheswick, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Dec. 22, 1967, Ser. No. 692,657
 Int. Cl. C08f 21/02

U.S. Cl. 260—863 17 Claims
 Polyester resin compositions comprising polyesters of ethylenically unsaturated polycarboxylic acids and polyhydric alcohols and accelerators for the peroxide cure of the polyesters are treated with from about 0.001 to about 0.9 weight percent of the resin of free alkylene glycol having up to 6 carbon atoms to accelerate the gel time of the polyesters. The cured polyester compositions are useful as coatings, castings and laminates.

3,594,440
PROCESS FOR THE PREPARATION OF OLEFINS
 Brian Patrick McGrath, Crowthorne, and Keith Vaughan Williams, Shepperton, England, assignors to The British Petroleum Company Limited, London, England
 No Drawing. Filed Mar. 11, 1968, Ser. No. 711,878
 Claims priority, application Great Britain, Mar. 16, 1967, 12,303/67

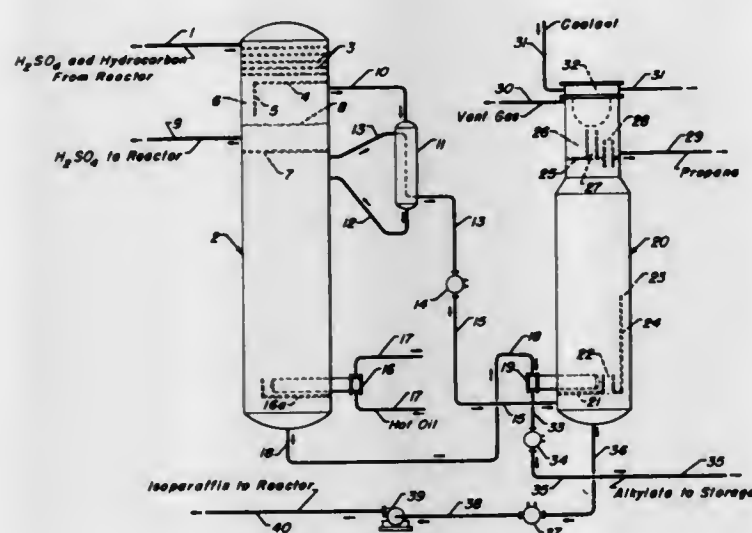
Int. Cl. C07c 3/62
 U.S. Cl. 260—683D 15 Claims
 An initial mixture of an acyclic olefin, e.g., butene-2, and an easily polymerisable olefin, e.g., isobutane, is co-reacted in the presence of a catalyst comprising rhenium heptoxide on sodium poisoned alumina.

In an example a feedstock containing 6.4% by weight of butene-1, 42.4% of isobutene and 51.2% of butene-2 was passed over a catalyst at 20° C., 150 p.s.i.g. and a LHSV of 10. The catalyst was prepared by fluidising ammonium perchlorate onto alumina which had been treated with a 0.25 N solution of sodium bicarbonate. The catalyst contained 14% by weight of rhenium heptoxide and 0.25% by weight sodium ion. The reaction products, expressed as grams per 100 gram feed, were as follows, ethylene 0.4; propylene, 16.7; butene-1, 1.3; isobutene, 25.7; butene-2, 32.9; n-pentenes, 4.2; isopentenes, 18.3; and polymer, 0.4.

3,594,441
PRODUCTION OF HEPTENES
 John Grebbell, Send, near Woking, and Kuldar Heljala, Twickenham, England, assignors to The British Petroleum Company Limited, London, England
 No Drawing. Filed June 19, 1968, Ser. No. 738,107
 Claims priority, application Great Britain, June 22, 1967, 28,801/67

Int. Cl. C07c 3/20
 U.S. Cl. 260—683.15 14 Claims
 Heptenes are produced by codimerising propylene and a butene at an elevated temperature over a catalyst prepared by dispersing sodium and/or lithium on anhydrous potassium carbonate, the catalyst being treated by either (a) incorporating a minor molar proportion of hydrogen in the feed for at least part of the time for which the feed is passed or (b) removing the feed and contacting the catalyst with hydrogen in the absence of the feed at a temperature in the range 50 to 350° C. The catalyst is preferably hydrided before use.

3,594,442
SEPARATION OF REACTOR EFFLUENT FROM SULFURIC ACID ALKYLATION PROCESS
 Edwin K. Jones, Kenilworth, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 Filed June 9, 1969, Ser. No. 831,330
 Int. Cl. C07c 3/54; B01d 3/00
 U.S. Cl. 260—683.62 **5 Claims**



Process for separating hydrocarbons and sulfuric acid catalyst from the total sulfuric acid-hydrocarbon effluent of an isoparaffin-olefin alkylation reaction zone in a processing system wherein a vapor fraction comprising propane and isoparaffinic hydrocarbons is partially condensed in an external heat exchanger means utilizing hydrocarbon separated in a first separation zone as the medium for indirect heat exchange and wherein the desired alkylated fraction is passed to second separation zone reboiler means as the sole source of heat to this reboiler prior to recovery.

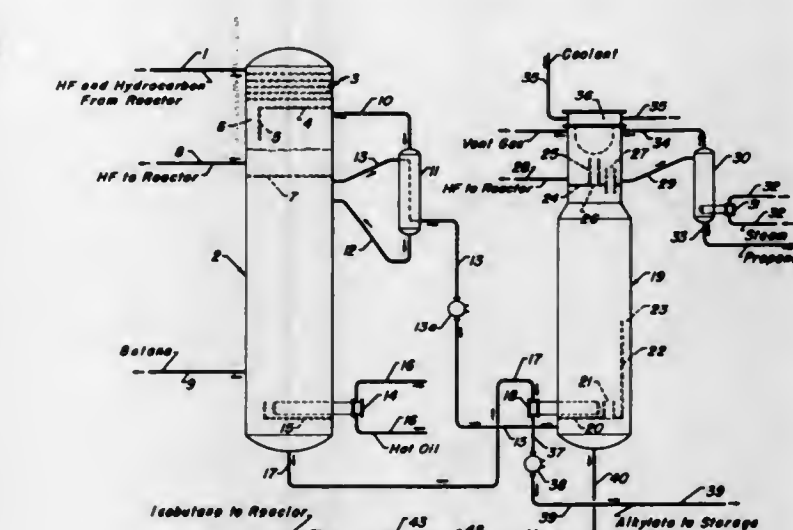
3,594,443
PROCESS FOR PREPARING LOW MOLECULAR WEIGHT α -OLEFINS
 Gisela Henrici Henrici and Salvador Olivé Martin, Zollikon, Switzerland, assignors to Monsanto Company, St. Louis, Mo.
 No Drawing. Filed May 2, 1969, Ser. No. 821,495
 Claims priority, application Switzerland, May 13, 1968, 7,420/68
 Int. Cl. C07c 3/10 **6 Claims**

Process for preparing low molecular weight α -olefins having 4 to 50 carbon atoms by reacting ethylene in presence of a solution in an aromatic solvent AlCl_3 and $(\text{RO})_3\text{TiCl}$ where R is a 1 to 4 carbon alkyl, the Al to Ti molar ratio is in the range of 2:1 to 10:1, at a temperature in the range of 0 to -50°C , preferably -10 to -50°C , at a pressure in the range of 1 to 20 kg./cm.² and preferably at a titanium compound concentration of 1×10^{-3} to 50×10^{-3} mol/liter of solvent.

3,594,444
PROCESS FOR SEPARATING HYDROCARBONS AND HYDROGEN FLUORIDE CATALYST FROM THE EFFLUENT OF AN ISOPARAFFIN-OLEFIN ALKYLATION REACTION ZONE
 Edwin K. Jones, Kenilworth, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 Filed June 9, 1969, Ser. No. 831,618
 Int. Cl. C07c 3/54; B01d 3/00
 U.S. Cl. 260—683.48 **6 Claims**

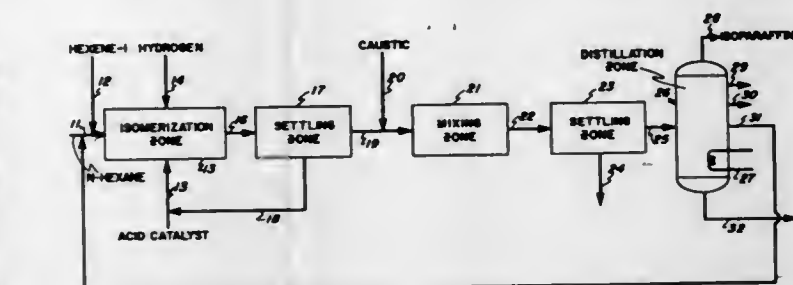
Process for separating hydrocarbons and hydrogen fluoride catalyst from the total hydrogen fluoride-hydrocarbon effluent of an isoparaffin-olefin alkylation reaction

zone in a processing system wherein a vapor fraction comprising propane and isoparaffinic hydrocarbons is partially condensed in an external heat exchanger means utilizing hydrocarbon separated in a first separation zone as



the medium for indirect heat exchange and wherein the desired alkylated fraction is passed to second separation zone reboiler means as the sole source of heat to this reboiler prior to recovery.

3,594,445
ISOMERIZATION OF PARAFFINIC HYDROCARBONS EMPLOYING HYDROGEN WITH AN OLEFIN AND/OR AN ALKYL FLUOROSULFONATE
 Paul Thomas Parker, Baton Rouge, La., assignor to Esso Research and Engineering Company
 Filed Oct. 30, 1969, Ser. No. 872,687
 Int. Cl. C07c 5/28
 U.S. Cl. 260—683.68 **10 Claims**



In the isomerization of normal and naphthenic paraffins with a catalyst comprised of (1) a Group V metal fluoride such as antimony pentafluoride and (2) fluorosulfonic acid, the improvement wherein the formation of undesirable products by disproportionation is suppressed by employing hydrogen gas with an olefin and/or an alkyl fluorosulfonate such as ethyl fluorosulfonate.

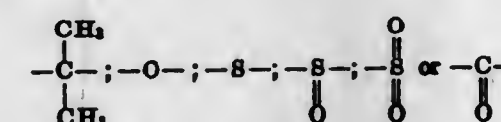
3,594,446
HEAT-RESISTANT, LINEAR, AROMATIC COPOLYMERS AND PROCESS FOR THEIR PRODUCTION
 Rudolf Gabler, Uetikon, and Josef Studinka, Zurich, Switzerland, assignors to Inventa A.G. für Forschung und Patentverwertung, Zurich, Switzerland
 No Drawing. Filed Feb. 26, 1969, Ser. No. 802,635
 Claims priority, application Switzerland, Feb. 29, 1968, 3,005/68
 Int. Cl. C08g 23/00, 33/00
 U.S. Cl. 260—823 **17 Claims**

Heat-resistant, linear, aromatic copolymers containing thioether groups and ether groups as polymer forming

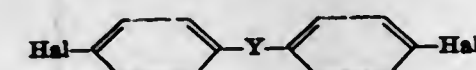
connecting links, produced by reacting (a) 0.9–1.1 mole of a mixture of sodium or potassium salts of at least one aromatic dithiol and one aromatic diphenol of the formulae:



where X is $-\text{CH}_2-$;



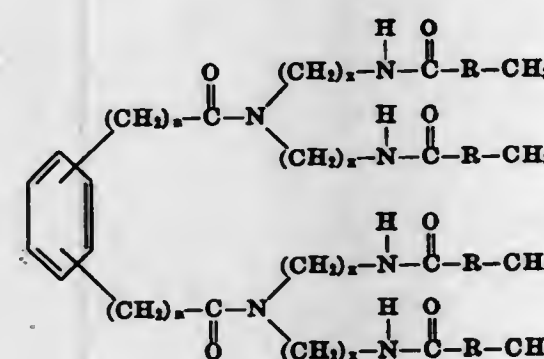
with (b) 1 mole of an aromatic dihalide of the formula



where Y is sulfonyl, disulfonyl, keto, diketone, azo, vinylene, alkyl phosphine or perfluoroethyl and Hal stands for halogen. The reaction is conducted at a high temperature, with oxygen excluded, in a strongly polar, aprotic solvent.

3,594,447
POLYAMIDES AND POLYESTERS CONTAINING ISOPHTHALATE AMIDES OF DIALKANOYL POLYALKYLENE POLYAMINES AS ANTISOILING AGENTS
 Robert C. Winkhofer, Richmond, and Lamberto Crescentini, Chester, Va., assignors to Allied Chemical Corporation, New York, N.Y.
 No Drawing. Filed Oct. 31, 1968, Ser. No. 772,383
 Int. Cl. C08g 41/04 **13 Claims**

A filament, having improved resistance to soiling, of a synthetic polymer having mixed therethrough about 0.02 to 5 weight percent, based on the weight of the synthetic polymer, of an amide having the general formula:



wherein the hexagon represents the benzene nucleus, R is a divalent radical containing up to about 30, preferably about 3 to 18, carbon atoms which can be linear or branched aliphatic, n is an integer from 0 to about 6 but preferably is 0, x is an integer from 1 to about 6 but preferably is about 2 to 3, and the



radicals connected to the benzene nucleus are relatively disposed in the ortho, meta, or para positions but preferably in the meta position.

3,594,448
FILAMENT COMPRISING A POLYMER BLEND OF POLYESTER AND POLYAMIDE CONTAINING A STERICALLY HINDERED PHENOLIC COMPOUND
 Amnon Birenzvi, Gene C. Weedon, and Richard E. Mayer, Richmond, Va., assignors to Allied Chemical Corporation, New York, N.Y.
 No Drawing. Filed Apr. 16, 1969, Ser. No. 816,840
 Int. Cl. C08g 41/04 **16 Claims**

A process for increasing the whiteness of a filament extruded from a polymer blend comprised of polyester and polyamide which comprises incorporating in the polymer blend, prior to extrusion thereof, about 0.1 to 5 weight percent, based upon the weight of the polyamide and polyester, of a sterically hindered phenolic compound and melt extruding the polymer blend to form a filament having increased whiteness.

3,594,449
POLYURETHANE CROSS-LINKED CHLORINATED POLYETHYLENES
 Charles R. Binder, Romeo, Mich., assignor to General Motors Corporation, Detroit, Mich.
 No Drawing. Filed Sept. 15, 1969, Ser. No. 858,145
 Int. Cl. C08g 41/04 **3 Claims**

A mixture containing 50 to 80 parts, by weight, chlorinated polyethylene, 20 to 50 parts, by weight, of an isocyanate terminated prepolymer and sufficient organic diamine to provide a slight excess of amine groups over isocyanate groups is readily moldable and will co-react at normal molding temperatures to form a polyurethane cross-linked chlorinated polyethylene having high strength and other desirable physical properties.

3,594,450
THERMOPLASTIC POLYESTER MOULDING COMPOSITIONS CONTAINING DIENE-ACRYLATE COPOLYMER
 Walter Herwig and Ludwig Brinkmann, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Luecke & Bruning, Frankfurt am Main, Germany
 No Drawing. Filed July 16, 1968, Ser. No. 745,114
 Claims priority, application Germany, Aug. 30, 1967, F 53,355
 Int. Cl. C08g 39/04 **10 Claims**

Thermoplastically workable moulding compositions of particularly high impact strength, comprising a mixture of saturated linear polyesters with copolymers of conjugated aliphatic dienes and acrylic acid esters.

3,594,451
CHLOROSULFONATED POLYETHYLENE GRAFT POLYMERS
 Robert William Keown, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
 No Drawing. Filed Oct. 26, 1967, Ser. No. 678,210
 Int. Cl. C08f 15/00 **9 Claims**

An elastomeric graft polymer of an amorphous, homogeneously chlorosulfonated polyethylene having grafted thereon polymer chain units derived from the monomers styrene, vinyl chloride, chlorostyrene, lower-alkyl substituted styrene, vinylidene chloride, methacrylonitrile, lower-alkyl methacrylates, or a mixture of 2,3-dichlorobutadiene-1,3 and chloroprene, the weight of said poly-

mer chain units being from 10% to 40% (preferably 15% to 30%) of said graft polymer, and said chlorosulfonated polyethylene containing 0.5 to 5 (preferably 1 to 2) weight percent sulfur and 25 to 45 (preferably 28 to 35) weight percent chlorine.

ERRATUM

For Class 260—880 sec:
Patent No. 3,594,543

3,594,452

POLYMERS PREPARED FROM MONOLITHIUM-TERMINATED BLOCK COPOLYMERS AND CERTAIN DIESTERS

Harold E. De La Mare, El Cerrito, and Edwin F. Bullard, Oakland, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Feb. 6, 1968, Ser. No. 703,239
Int. Cl. C08f 15/14, 27/00

U.S. Cl. 260—880

7 Claims

Block polymers of high molecular weight result from the reaction of styrene-butadiene block copolymers terminated with lithium radicals and diesters of dicarboxylic acids in which each of the two carboxyl radicals is directly attached to a carbon atom and monohydric alcohols.

3,594,453

METHOD OF PRODUCING ALPHA-METHYL-STYRENE RESIN

Carmen M. Cusano, Poughkeepsie, N.Y., assignor to Texaco Inc., New York, N.Y.

No Drawing. Filed July 25, 1968, Ser. No. 747,485
Int. Cl. C08f 15/04, 1/13

U.S. Cl. 260—880

5 Claims

A method of producing a synthetic graft polymer resin at an improved rate under aqueous emulsion polymerization conditions comprising polymerizing an aqueous dispersion of a member selected from the group consisting of butadiene and a mixture of butadiene and methacrylic acid to form a first polymer selected from the group consisting of polybutadiene and poly(butadiene-methacrylic acid) and polymerizing an aqueous latex of the first formed polymer together with alpha-methylstyrene, and acrylonitrile under aqueous emulsion polymerization conditions to form a synthetic resin composed of a polybutadiene or poly(butadiene-methacrylic acid) backbone having grafted thereon alpha-methylstyrene and acrylonitrile copolymers, said polymerizations being conducted in the presence of a quaternary ammonium chloride cationic emulsifier at a pH between about 6 and 8.

3,594,454

2-ALKOXYCARBONYL-2-CHLORO OR LOWER ALKYL VINYL DILOWERALKYL PHOSPHATES

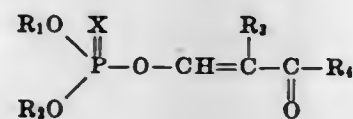
Ernst Beriger, Allschwil, and Ladislaus Pinter, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed July 24, 1967, Ser. No. 655,289
Claims priority, application Switzerland, July 25, 1966, 10,735/66

Int. Cl. C07f 9/08; A01n 9/36

U.S. Cl. 260—941

Compounds of the formula



in which R_1 and R_2 are identical or different lower alkyl groups, X is an oxygen or a sulphur atom, R_3 represents a hydrogen atom, an alkyl group or a halogen atom and R_4 represents a lower alkoxy group, an alkyl group or an unsubstituted or substituted aryl group. These compounds are useful in combating pests and insects such as beetles, crickets, cockroaches and ants.

3,594,455

METHODS FOR MANUFACTURING CARBON AND/OR GRAPHITE MATERIALS

Boris Vasilievich Polovoi, Ulitsa Degtyareva 41-a, kv. 33; Jury Ivanovich Barkov, Ulitsa Timiryazeva 28, kv. 1; Ivan Fedorovich Sukhorukov, Pereulok Artilleriyskiy 6, kv. 69; and Stanislav Gavrilovich Rodionov, Ulitsa Kasiinskaya 25, kv. 148, all of Chelyabinsk, U.S.S.R.

No Drawing. Filed July 2, 1969, Ser. No. 838,649
Int. Cl. C01b 31/08

U.S. Cl. 263—52

10 Claims

Carbon and/or graphite materials having high density and mechanical strength are prepared by impregnation of a solid carbonaceous material with a solution of a chemically active compound which is an inorganic compound containing nickel, manganese, barium, sulfur or NO_3 , NO_2 , ClO_3 or ClO_4 groups or an organic compound containing nitro, phenol, peroxide or acid groups, followed by impregnation with a fluid carbonaceous material, e.g. coal tar pitch, and heat treatment.

3,594,456

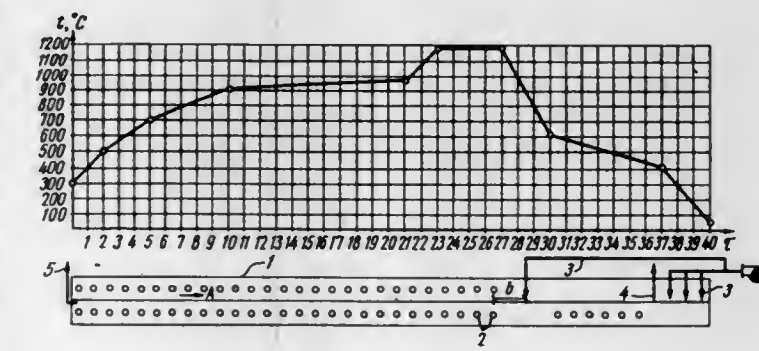
METHOD OF CALCINING CERAMIC ARTICLES

Peysya Iosifovich Berenshtein, Ulitsa Institutskaya 22a, kv. 4, Salytkovka Moskovskaya Oblast, U.S.S.R.

Filed Jan. 14, 1970, Ser. No. 2,801
Int. Cl. B01j 6/00

U.S. Cl. 263—52

3 Claims



A method of calcining ceramic articles such as tiles characterized in that during the dehydration of the ceramic mass at temperatures ranging from 500–700° C. to a temperature which is below the maximal temperature of calcination by not more than 300° C., the calcination process is effected with the rate of the hydrate mass removal constituting 2–40% per 1 minute.

3,594,457

METHOD OF PRESS FORMING BIREFRINGENT TRANSPARENT POLYETHYLENE TEREPHTHALATE SHEETS

Richard F. Wright, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

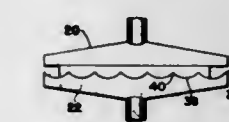
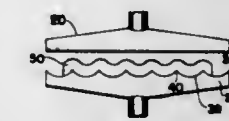
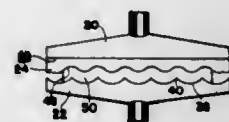
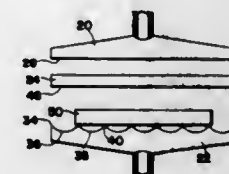
Filed June 12, 1967, Ser. No. 645,237
Int. Cl. B29d 11/00; B29c 1/04

U.S. Cl. 264—1

12 Claims

This disclosure concerns a process for press-forming lenticular or prismatic configurations in one side of a

sheet of dimensionally stable material, such as a polyethylene terephthalate composition of the type commonly



known as Mylar, and the improved optical device produced thereby.

3,594,458

METHOD OF PRODUCING POLYVINYL FLUORIDE WEBS

George N. Foster, Somerville, and William Sacks, Gillette, N.J., assignors to Union Carbide Corporation

No Drawing. Filed Nov. 24, 1967, Ser. No. 685,336
Int. Cl. B29c 25/00; B29d 7/24

U.S. Cl. 264—22

6 Claims

Vinyl fluoride polymer webs including film, in the absence of solvent can upon irradiation and heating to orientation temperature, be readily biaxially oriented, in tubular or nontubular form, to a clear, durable web.

3,594,459

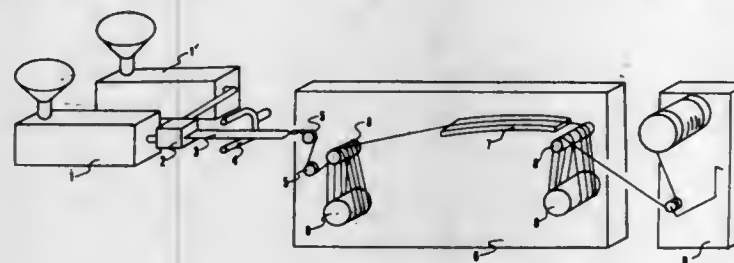
PROCESS FOR THE PRODUCTION OF CONJUGATE FOAM FIBRILLATED STRUCTURES

Herbert W. Keuchel, Charlotte, N.C., assignor to Celanese Corporation, New York, N.Y.

Filed Apr. 3, 1967, Ser. No. 628,030
Int. Cl. B29d; B29f 3/10

U.S. Cl. 264—47

5 Claims



Processes for the preparation of conjugate fibrillated extrudates and the products produced thereby, the process involving extruding a conjugate extrudate, at least one component of said extrudate containing a foaming agent and then attenuating the foamed extrudate. Attenuation of the extrudate encompasses processes wherein said extrudate is maintained at temperatures sufficiently high to inhibit orientation and produce fibrillation while the polymer is in unoriented configuration and processes wherein the extrudate is cooled to a temperature sufficiently low to induce orientation, oriented and fibrillated.

888 O.G.—35

3,594,460

METHOD FOR PREPARING A LABORATORY COUNTER TOP

Harold L. Rechter, Chicago, and Murray A. Schwartz, Glencoe, Ill., assignors to E. H. Sheldon & Company, Muskegon, Mich.

No Drawing. Filed Aug. 5, 1968, Ser. No. 750,013
Int. Cl. B29h 7/20

U.S. Cl. 264—48

3 Claims

A non-warping inorganic counter top sufficiently plastic and tough to permit cutting and bolting in the field, while at the same time being heat and acid resistant, is prepared by extruding, pressing or casting a sand, bentonite and silicate mixture into the desired counter top form and then sealing the pores in the upper portion of the top with epoxy novolak resin and curing the resin.

3,594,461

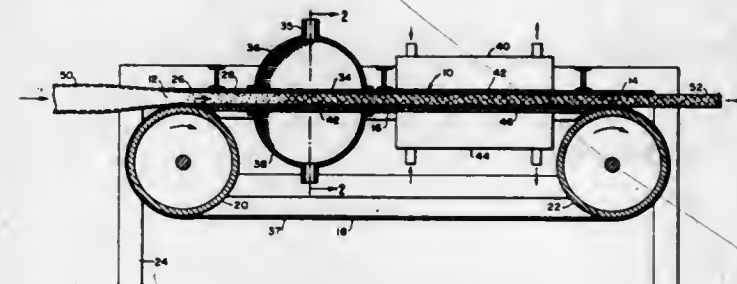
METHOD AND APPARATUS FOR CONTINUOUSLY MOLDING SHEETS FROM EXPANDABLE POLYMERIC MATERIALS

Francis J. Jacob, New Castle, Pa., assignor to W. R. Grace & Co., Cambridge, Mass.

Filed Jan. 21, 1969, Ser. No. 792,312
Int. Cl. B29c 5/00, 5/10; B29d 7/14

U.S. Cl. 264—51

16 Claims



An apparatus and method for continuous molding of heat expandable thermoplastic granules into an agglutinated body including an open-ended molding channel which has only a single moving surface for conveying the agglutinated continuous body formed after the application of heat to the granules. The single moving surface is preferably a woven wire belt or equivalent which is foraminous over its entire width. The apparatus also includes a means for adjusting the height of the molding channel while the machine is in operation. Means are provided for evacuating feed air or heating fluid from the molding channel between feeding and heating of the granules.

3,594,462

METHOD OF MAKING ARTICLES FROM MATERIAL IN A PLASTIC STATE

Berend Vrijma, Vuren, Netherlands, assignor to Fabriek van Bouwmaterialen "Loevestein" N.V., Gorinchem, Netherlands

Continuation-in-part of application Ser. No. 523,183, Jan. 26, 1966. This application May 13, 1969, Ser. No. 824,228

Claims priority, application Netherlands, Feb. 3, 1965, 6501347

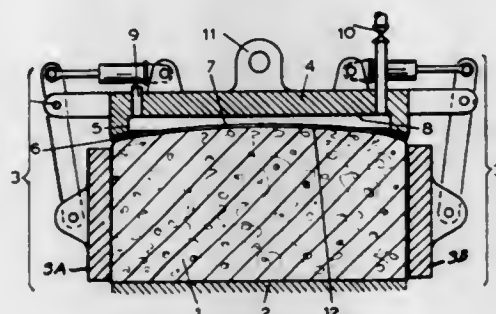
Int. Cl. B28b 13/06

U.S. Cl. 264—90

2 Claims

The method is provided wherein a block of material in the plastic state, e.g. lightweight concrete, is prepared in a mould, is transferred by a lifting device from the bottom of the mould to a cutting table, the opposite sides of the block being supported by panels or clamping jaws. At the cutting station, the block is cut into pieces and allowed to set. The method is characterized by the use

of suction means, whereby a lifting suction is applied to the top surface of the block to aid in lifting the block defining a score line or lines to form the scored sheet. The sheet material is also shaped in peripheral areas by



in a relatively soft state without destroying it during transport.

3,594,463

PROCESS FOR INJECTION-BLOW MOLDING HOLLOW ARTICLES

Borge Hestehave, 3148 Padre St.,
Lafayette, Calif. 94549

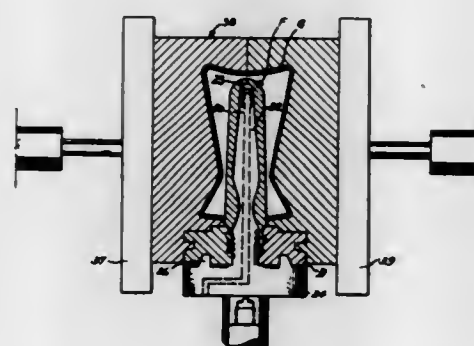
Continuation of application Ser. No. 689,563, Dec. 11, 1967, which is a division of application Ser. No. 203,569, June 19, 1962. This application Nov. 28, 1969, Ser. No. 876,190

Claims priority, application Great Britain, June 19, 1961, 22,115/61

Int. Cl. B29c 17/17

U.S. Cl. 264—97

2 Claims



A method of manufacturing hollow articles of synthetic resinous material which comprises the steps of injection-molding a parison and integral neck portion, withdrawing the mandrel together with the parison mold thereon in the axial direction relative to the parison mold while maintaining the neck mold portion closed over the neck, transferring the mandrel to a blow mold together with the closed neck portion, blowing the article in the blow mold and thereafter opening the neck mold and removing the article.

3,594,464

METHOD FOR SCORING SYNTHETIC PLASTIC SHEET MATERIAL

Richard C. Ihde, Parma Heights, Ohio, assignor to U.S. Plywood-Champlon Papers Inc., Hamilton, Ohio

Filed Jan. 31, 1968, Ser. No. 702,082

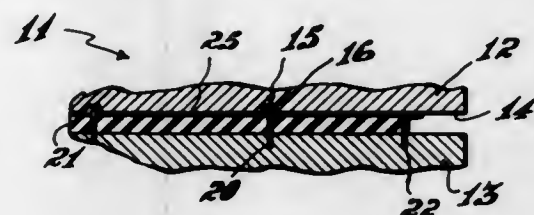
Int. Cl. B29c 1/14, 17/02

U.S. Cl. 264—163

12 Claims

A process for scoring synthetic plastic sheet material by permanently distorting the sheet material in an area

defining a score line or lines to form the scored sheet. The sheet material is also shaped in peripheral areas by



cutting through its thickness to form a scored blank useful for fabricating containers and the like.

3,594,465

METHOD FOR THE PRODUCTION OF ARTICLES FROM MATERIAL IN A PLASTIC STATE

Berend Vrijma, Vuren, Netherlands, assignor to Fabriek van Bouwmaterialen "Loevestein" N.V., Gorinchen, Netherlands

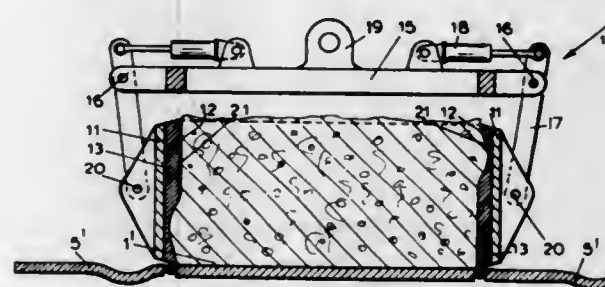
Continuation-in-part of abandoned application Ser. No. 523,184, Jan. 26, 1966. This application May 19, 1969, Ser. No. 825,626

Claims priority, application Netherlands, Feb. 3, 1965, 6501346

Int. Cl. B28b 13/06

U.S. Cl. 264—313

2 Claims



A method is disclosed for making articles from material in the soft plastic state, such as lightweight concrete, wherein an aerated concrete mix is poured into a mould, the mix allowed to set to form a large block in a soft aerated plastic state, and the soft aerated block gripped between a set of clamping panels, the inner surfaces of which are provided by means for effectively and positively gripping the sides of the soft plastic block, preparatory to transporting the block to a cutting station.

3,594,466

IMMUNOLOGICAL TEST SYSTEM AND PROCESS FOR PREPARING SAME

René Auguste Denis Guffroy, Lille, Nord, France, assignor to Laboratoires Polypharma, Ile-Saint-Denis, Seine-Saint-Denis, France

No Drawing. Filed Oct. 24, 1966, Ser. No. 588,747

Claims priority, application France, Apr. 19, 1966, 58,156

Int. Cl. G01n 33/16

U.S. Cl. 424—12

5 Claims

A stable diagnostic for rheumatoid arthritis is provided by processing red blood cells, processing a hemolytic

antiserum to the red cells, and formulating and combining the red cells and the hemolytic antiserum.

3,594,467

LONG-LASTING TROCHE

George L. Christenson, Cincinnati, and Harold E. Huber, Goshen, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

Filed Oct. 9, 1968, Ser. No. 766,291

Int. Cl. A61k 27/12

U.S. Cl. 424—19

8 Claims

A compressed powder, long-lasting, troche containing 4% to 17% of carboxypolymethylene, 15% to 70% of sodium caseinate and from about 13% to 81% of a water-soluble pharmaceutically acceptable tableting diluent.

3,594,468

GERMICIDAL COMPOSITIONS

Vincent R. Saurino, 708 NW. 5th St., Boca Raton, Fla. 33432, and Vladimir Tuma, 416 NW. 2nd Ave., Boynton Beach, Fla. 33435

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,303

Int. Cl. A61l 23/00

U.S. Cl. 424—25

17 Claims

Broadly stated, the present spermicidal and germicidal compositions comprise, in combination, the following ingredients:

- (A) 2[(2-hydroxy-5-nonyl-benzyl)-methylamino]ethane sulfonic acid and the pharmaceutically acceptable salts thereof (hereinafter referred to as the unsubstituted sulfonic acid),
- (B) {[3 - (dimethyl - amino - methyl) - 2 - hydroxy - 5 - nonyl-benzyl]methyl-amino}ethane sulfonic acid and the pharmaceutically acceptable salts thereof (hereinafter referred to as the substituted sulfonic acid),
- (C) Coco-benzyl-dimethyl ammonium halide, e.g. the chloride, bromide and iodide, and especially the chloride.

The above composition have been found to be biologically active against a wide range of organism including the venereal type organisms such as *Neisseria gonorrhoea*, *Treponema pallidum* and other spirochetes, *Hemophilus ducrey*, flagellates, such as *Trichomonas vaginalis* and related organisms.

The compositions exhibit unexpected and unusual properties of being spermicidal and, therefore, are particularly useful as a contraceptive which also controls and/or prevents infection with venereal disease organisms, e.g. *Neisseria gonorrhoea* and *Treponema pallidum*.

3,594,469

PELLETS FOR SUPPLYING BIOLOGICALLY ACTIVE SUBSTANCES TO RUMINANTS CONTAINING MAGNESIUM AND IRON

Derek James Whitehead and Peter Darlen Demaine, Manchester, England, assignors to Pfizer Inc., New York, N.Y.

Filed Nov. 23, 1965, Ser. No. 509,265

Claims priority, application Great Britain, Nov. 30, 1964, 48,589/64

Int. Cl. A61j 3/00, 3/07, 3/08

U.S. Cl. 424—22

13 Claims

Pellets for administration to ruminants for supplying the animals over an extended period of time with biologically active substances selected from the group consisting of magnesium and magnesium base alloys, together with particles of a metallic substance non-harmful to ruminants and of a higher specific gravity than that of said biologically active substance, said biologically active substance and said particles being in such proportions that the pellet has a specific gravity of at least 2.2.

CHEWABLE TABLETS INCLUDING COATED PARTICLES OF PSEUDOEPHEDRINE-WEAK CATION EXCHANGE RESIN

Saul Borodkin, Libertyville, and Dean Paul Sundberg, Lake Forest, Ill., assignors to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed Feb. 19, 1968, Ser. No. 706,679

Int. Cl. A61k 9/00

U.S. Cl. 424—32

8 Claims

Pharmaceutical tablets containing basic-reacting drugs are made chewable and palatable by adsorbing the drug on a weak cation exchange resin of specific particle size and coating these particles thereafter but before tableting.

3,594,471

NOVEL ADJUVANT VACCINE AND METHOD OF PRODUCING THE SAME

Ellis Hertzberger, Weesp, and Roderick Louis Stephens, Amsterdam, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.

No Drawing. Filed Nov. 13, 1968, Ser. No. 775,509

Claims priority, application England, Nov. 13, 1967, 51,507/67

Int. Cl. C12k 5/00

U.S. Cl. 424—89

8 Claims

An adjuvant vaccine is provided wherein a dry antigenic material is dispersed in a dry oily vehicle.

3,594,472

ASPIRIN SOLUBILIZING AGENT AND METHOD FOR PREPARING SAME

Samuel W. Sopp, San Mateo, Calif., and Jack R. Anderson, Ridgewood, N.Y., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 651,687, July 7, 1967. This application June 17, 1968, Ser. No. 737,357

Int. Cl. A61k 27/00

U.S. Cl. 424—156

4 Claims

Novel aspirin solubilizing agents comprising co-forms of magnesium and calcium carbonate or hydroxy carbonate are prepared from magnesium hydroxide and calcium hydroxide. Compositions containing aspirin combined with co-forms of magnesium and calcium carbonate or hydroxy carbonate.

3,594,473

ANTI-HAEMORRHOIDALLY ACTIVE PREPARATIONS AND THE USE OF A D-GLUCOFURANOSIDE IN SUCH PREPARATIONS

Alfred Hunger and Anne-Marie Ory, Basel, and Max Schrenzel, Munchenstein, Switzerland, assignors to Ciba Corporation, Summit, N.J.

No Drawing. Filed July 8, 1969, Ser. No. 840,023

Claims priority, application Switzerland, July 19, 1968, 10,817/68

Int. Cl. A61j 3/04, 9/02, 9/06

U.S. Cl. 424—180

20 Claims

The invention provides anti-haemorrhoidally active preparations for rectal or local administration containing ethyl-3,5,6-tri-O-benzyl-D-glucofuranoside.

3,594,474

GRANULAR MATERIAL CONTAINING OILY OR LIQUID THERAPEUTICALLY USABLE FURANOSIDES, A PROCESS FOR ITS MANUFACTURE, AND ITS USE FOR THE MANUFACTURE OF TABLETS OR DRAGEES

Guenther Mueller, Arlesheim, Switzerland, assignor to Ciba Corporation, Summit, N.J.

No Drawing. Filed July 25, 1969, Ser. No. 845,038

Claims priority, application Switzerland, Aug. 5, 1968, 11,704/68

Int. Cl. A61j 3/06, 3/10

U.S. Cl. 424—180

8 Claims

The invention provides a process of manufacture of a free-flowing, solid, granular material, wherein an oily or

liquid, therapeutically usable furanose, such as ethyl-3,5,6-tri-O-benzyl-D-glucofuranoside or ethyl-3-O-propyl-5,6-di-O-para-chlorobenzyl-D-glucofuranoside, is mixed with a film-forming agent and a lower alkanol, the mixture is worked up with magnesium trisilicate to form a plastic mass and the latter granulated while drying it; the free-flowing granular material obtained by this process and the use thereof to form tablets or dragées containing said furanose.

3,594,475

METHOD OF TREATING AND PREVENTING THE SIDE EFFECTS OF ANTIBIOTICS

Masatoyo Akiyoshi, Yokohama, Kiichi Satoh, Tokorozawa-shi, and Ken Hamaguchi, Tokyo, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
Filed Sept. 11, 1968, Ser. No. 759,017

Claims priority, application Japan, Apr. 24, 1968,

43/27,045

Int. Cl. A61k 21/00

U.S. Cl. 424—181

14 Claims

The present disclosure is directed to a method of treating and preventing the adverse side effects resulting from the administration of antibiotics such as streptomycin, kanamycin, etc., in treating diseases such as tuberculosis which comprises treating said diseases with said antibiotics together with an effective amount of nicotinamide adenine dinucleotide. Among the side effects resulting from the administration of said antibiotics, hearing impairment is frequently included. The nicotinamide adenine dinucleotide can be administered to a patient already affected by the side effects resulting from a previous treatment with antibiotics or can be administered together with the particular antibiotic to prevent the said side effects.

3,594,476

SUBMICRON AQUEOUS AEROSOLS CONTAINING LECITHIN

Edward W. Merrill, Cambridge, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.
No Drawing. Filed May 12, 1969, Ser. No. 823,972

Int. Cl. A61j 3/02; A61k 13/00

U.S. Cl. 424—199

4 Claims

Aerosols of aqueous particles of submicron diameter which are stable against evaporation and suitable to be readily transmitted to the alveoli of the lung by inspiration, may be prepared from aqueous lecithin dispersions nebulized, as by an ultrasonic nebulizer, at temperatures greater than about 25° C. Lecithin aerosols thus prepared are useful for the treatment of lung disorders, and may optionally contain other therapeutic agents such as antibiotics.

3,594,477

OPTICALLY ACTIVE PYRIDINE DERIVATIVES IN PHARMACEUTICAL COMPOSITIONS AND THEIR USE AS ANALGESICS AND STIMULANTS

Hartmund Wollweber and Rudolf Hiltmann, Wuppertal-Elberfeld, Friedrich Hoffmeister, Wuppertal-Vohwinkel, and Hans-Günter Kroneberg, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer AG, Leverkusen, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 566,255, July 19, 1966. This application Jan. 14, 1969, Ser. No. 791,135

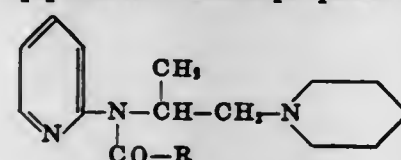
Claims priority, application Germany, July 24, 1965, F 46,713

Int. Cl. A61k 27/00

U.S. Cl. 424—263

16 Claims

Dextro-rotatory and levo-rotatory isomers of N-acyl-N-(2'-pyridyl)-1-piperidino-2-aminopropanes of the formula:



wherein R is methyl or ethyl or a pharmaceutically acceptable non-toxic acid salt thereof exhibit pharmaceutical properties which differ qualitatively from the racemate. The L-isomer exhibits approximately the same analgesic activity as the racemate but also exhibits a strong sedative effect. The D-isomer exhibits approximately the same analgesic activity as the racemate but exhibits also a central nervous system stimulant effect.

3,594,478

PHARMACEUTICAL COMPOSITIONS CONTAINING BENZOTHIOPHENE DERIVATIVES

Arne Elof Brandstrom, Goteborg, and Stig Ake Ingemar Carlsson, Molnlycke, Sweden, assignors to Aktiebolaget Hassle, Goteborg, Sweden

No Drawing. Division and Continuation-in-part of application Ser. No. 553,016, May 31, 1966. This application Nov. 24, 1969, Ser. No. 879,516

Claims priority, application Sweden, June 1, 1965, 7,128/65

Int. Cl. A61n 27/00

U.S. Cl. 424—248

16 Claims

Benzothiophene derivatives having the structural formula described below, a method for their preparation and pharmaceutical preparations containing them. These preparations are useful as analgesic, antipyretic, antiinflammatory, antitussive agents, as local anaesthetics and antispasmodic and antihistaminic agents. They have these properties combined with relatively low toxicity. They may, therefore, be used for the relief of pain, inflammation, pyresis of various origins, or tussive irritation.

3,594,479

COMPOSITION AND METHOD FOR PREVENTING BRONCHOSPASMS USING PYRAZINE DERIVATIVES

John Anthony Maguire and Francis Leslie Rose, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Original application Jan. 2, 1968, Ser. No. 694,816. Divided and this application Jan. 29, 1970, Ser. No. 12,534

Claims priority, application Great Britain, Feb. 3, 1967, 5,356/67

Int. Cl. A61v 27/00

U.S. Cl. 424—250

2 Claims

Novel s-triazolo[4,3-a]pyrazine derivatives bearing alkyl substituents in the pyrazine ring and an amino, hydroxy, acetamido or formamido substituent in the triazole ring, which prevent bronchospasm and are useful in the treatment of asthma.

3,594,480

NITROGEN HETEROCYCLES FOR THERAPEUTIC ADMINISTRATION

Timothy H. Cronin, Niantic, and Hans-Jürgen E. Hess, Old Lyme, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Application Oct. 26, 1967, Ser. No. 678,191, now Patent No. 3,517,005, which is a continuation-in-part of application Ser. No. 590,494, Oct. 31, 1966. Divided and this application Mar. 12, 1970, Ser. No. 19,082

Int. Cl. A61k 27/00

U.S. Cl. 424—250

23 Claims

Substituted 6,7-dialkoxyquinazolines, 4-(6,7-dialkoxyquinolin-4-yl)-piperazine-1-carboxylic acid, esters and 1-amino-6,7-dialkoxyisoquinolines and their pharmaceutically-acceptable acid addition salts. Compounds manifest bronchodilator activity and antihypertensive response with minimal adverse effects upon administration to afflicted subjects.

3,594,481

METHOD FOR THE PROTECTION OF PEOPLE AND ANIMALS FROM BITING AND BLOOD SUCKING INSECTS

Ulf Hendrik Anders Lindberg, Sodertalje, Sweden, and Guy Henry Yeoman, Cuffley, England, assignors to Aktiebolaget Astra, Sodertalje, Sweden

No Drawing. Filed June 7, 1967, Ser. No. 644,080

Claims priority, application Sweden, June 15, 1966,

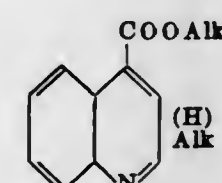
8,199/66

Int. Cl. A01n 9/22

U.S. Cl. 424—258

5 Claims

Insect repellants containing relatively nonvolatile esters of alkyl cinchoninic acids of the formula



effective over a long time, particularly against ovipositing, biting, or blood sucking pests as blowflies, mosquitoes, biting flies, fleas, chiggers, ticks and mites, and being non-irritating and easy to apply with the hands or a swab or as a spray, relatively insoluble in water and free from odour, and especially such odours as may be regarded as unpleasant or disagreeable, and difficult to mask. Preferably, also, the repellant has little or no solvent action on various finishes, paints, varnishes, lacquers, plastics, synthetic fibres, and the like.

3,594,482

METHOD OF TREATING A PATHOLOGICAL FIBRINOLYTIC STATE IN MAMMALS

Larry J. Loeffler, North Wales, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Feb. 28, 1968, Ser. No. 708,769, now Patent No. 3,526,657, dated Sept. 1, 1970. Divided and this application July 28, 1969, Ser. No. 872,786

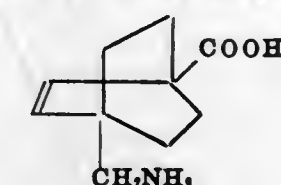
Int. Cl. A61k 27/00

U.S. Cl. 424—319

1 Claim

The method of treating a pathological fibrinolytic state

in mammals which involves the daily oral administration of from 1 to 20 mg./kg. of body weight of the compound:



3,594,483

METHOD OF FUNGUS CONTROL EMPLOYING CERTAIN FLUORINE-CONTAINING SULFIDES

Edward L. Mutsch, Woodbury Township, Washington County, and Jerold W. Bushong, North Oaks, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Apr. 29, 1968, Ser. No. 725,125

Int. Cl. A01n 9/12

U.S. Cl. 424—337

8 Claims

Method for inhibiting the growth of fungi, particularly *Sclerotium rolfsii*, by contacting the fungi with a compound of the formula:



wherein Ar is phenyl, substituted phenyl, naphthyl or substituted naphthyl, the substituents being lower alkyl, lower alkoxy, halo or nitro; —alk— is an alkylene group, being straight or branched chain, or cyclic and containing from 1 to 6 carbon atoms; m is an integer of from 1 to 8, preferably 2, 3 or 4 and X is hydrogen or fluorine.

3,594,484

1-CHLORO-1,1,3,3,3-PENTAFLUORO-2-PROPYL METHYL ETHER AS INHALATION ANESTHETIC

Everett E. Gilbert and Benjamin Veldhuis, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Jan. 10, 1967, Ser. No. 608,276

The portion of the term of the patent subsequent to Oct. 10, 1984, has been disclaimed

Int. Cl. A61k 27/00

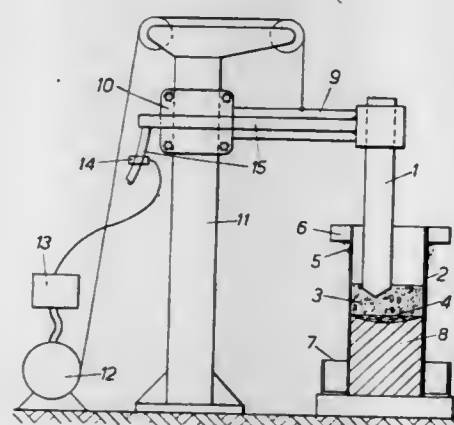
U.S. Cl. 424—342

1 Claim

This application relates to the novel compound 1-chloro-1,1,3,3,3-pentafluoro-2-propyl methyl ether and its use as a potent general inhalation anesthetic having a high margin of toxic safety.

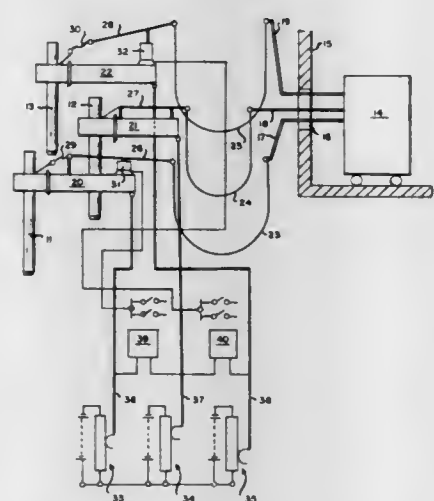
ELECTRICAL

3,594,485
INGOT PRODUCTION
 Frank Tinker, Sheffield, England, assignor to Associated Electrical Industries Limited, London, England
 Filed Apr. 5, 1968, Ser. No. 719,170
 Claims priority, application Great Britain, Apr. 7, 1967, 16021/67
 Int. Cl. H05b 3/60
 U.S. Cl. 13—13 11 Claims



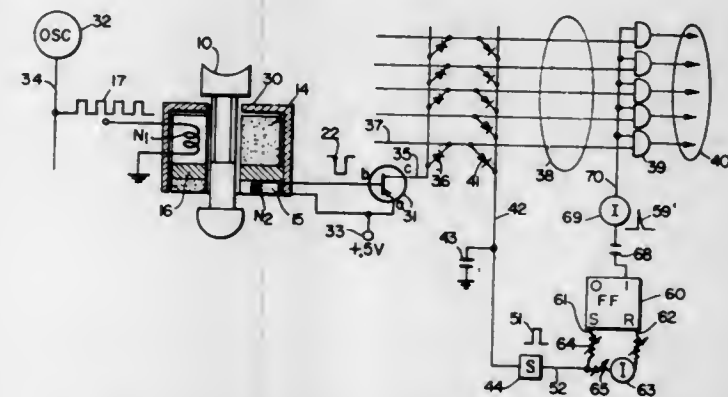
An electrosag plant for ingot production from a plurality of electrodes connectable to a common supply for contemporaneous melting is arranged for control of the progressive feeding of the electrodes during the process by a single controller responsive to electrode current. If separate mechanical arrangements are provided for supporting and progressing the electrodes individually the single controller can be arranged to be switched for controlling each of the electrodes in turn. Alternatively the several electrodes can be supported on a common feed carriage controlled by the single controller in dependence on an electrode current reference which may be either the current drawn by one electrode or the average or summation of the electrode currents.

3,594,486
PROCESS AND EQUIPMENT FOR OPERATING ELECTRIC ARC FURNACES
 Manfred Jellinghaus, Rheinhausen, Germany, assignor to Heppenstall Company, Pittsburgh, Pa.
 Filed Sept. 25, 1969, Ser. No. 861,059
 Int. Cl. H05b 7/10
 U.S. Cl. 13—13 5 Claims



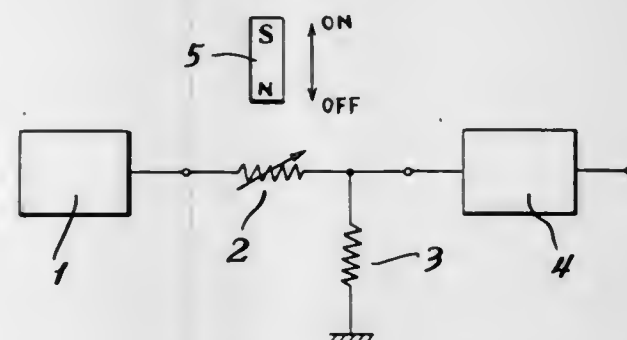
A process and apparatus are provided for operating three-phase electric arc furnaces by maintaining equal impedance in all of the three electrode circuits. This may be accomplished by adjusting the relative sag of the circuit wires.

3,594,487
CONTACTLESS ELECTRONIC KEYBOARD ARRAY
 John Paul Jones, Jr., Wayne, Pa., assignor to Navcor, Inc.
 Filed Aug. 25, 1969, Ser. No. 852,590
 Int. Cl. G01h 3/00
 U.S. Cl. 84—1.1 5 Claims



An electronic keyboard system includes a key structure comprising primary and secondary coils coupled together by a magnetic shaft when moved to produce primary signals from a pulse train in the secondary. A magnetic shield between the coils produces a sharp transition between no-signal and signal condition in the secondary winding as the shaft is moved past a critical position. Electronic circuitry provides for converting the pulse train into a single output pulse for each key depression, by use of a single Schmidt trigger circuit coupled into an encoding matrix to produce a coded signal for each separate key.

3,594,488
ELECTRONIC MUSICAL SYSTEM WITH MAGNETIC FIELD RESPONSIVE SWITCH AND VOLUME CONTROL
 Junji Ohno, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
 Filed Mar. 12, 1969, Ser. No. 806,574
 Claims priority, application Japan, Mar. 18, 1968, Mar. 22, 1968, 43/21336; 43/22491
 Int. Cl. G01h 1/02
 U.S. Cl. 84—1.27 7 Claims



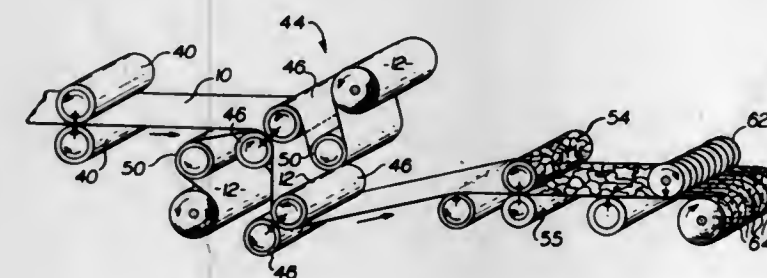
An electronic musical system has a tone generator and a tone coloring circuit with a first resistance connected in series between them. A second resistance has one end connected to the series circuit between the tone coloring circuit and the tone generator and the other end connected to ground. One of the resistances is a magnetoresistor, the electrical resistance of which varies in accordance with the intensity of the magnetic field applied thereto. A key is movably mounted above the magnetoresistor with a magnet element mounted thereon close to the magnetoresistor, so that movement of the key controls the electrical resistance of the magnetoresistor depending on the amount the key is moved.

JULY 20, 1971

ELECTRICAL

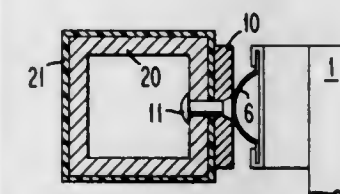
963

3,594,489
EXTRA HIGH VOLTAGE CABLES
 Carlos Katz, Bayonne; George S. Eager, Jr., Upper Montclair, and George Bahder, Edison, all of, N.J., assignors to General Cable Corporation, New York, N.Y.
 Filed Oct. 7, 1968, Ser. No. 765,447
 Int. Cl. H01b 7/02
 U.S. Cl. 174—25 11 Claims



For extra high voltage power cables this invention provides insulation consisting of synthetic plastic material with paper bonded to both sides to form a laminated strip. In place of the porous paper previously used, this invention uses very thin paper such as "capacitor tissue"; space for the thermal expansion of the synthetic and passages for the removal of moisture and the introduction of oil are obtained by embossing the strip. To prevent locking of overlying strips when bending the cable, the embossing is preferably embossed with a random pattern, or plain unembossed strips are wrapped alternately between embossed strips. The invention includes the novel strip, cable made with the strip and the method of making the strip.

3,594,490
ELECTRONIC GROUNDING SYSTEM
 Leonard A. Mitchell, Endwell, N.Y., and Arvindlal M. Shah, Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed July 17, 1970, Ser. No. 55,871
 Int. Cl. H05k 9/00
 U.S. Cl. 174—35 MS 10 Claims

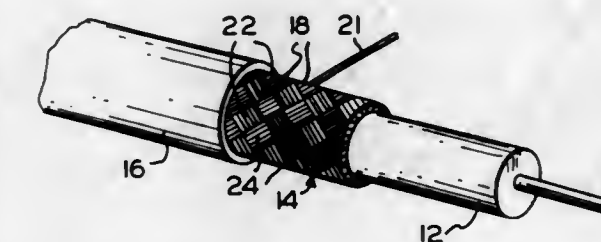


A grounding system for electronic unit. A metallic frame has a protective coating of nonmetallic conductive paint. Metal strips, having a substantial area in contact with the conductive paint, coact with the conductive paint to provide a low-impedance path to the frame.

3,594,491
SHIELDED CABLE HAVING AUXILIARY SIGNAL CONDUCTORS FORMED INTEGRAL WITH SHIELD
 Donald F. Zeidlhack, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
 Filed June 26, 1969, Ser. No. 836,693
 Int. Cl. H01b 11/06
 U.S. Cl. 174—36 11 Claims

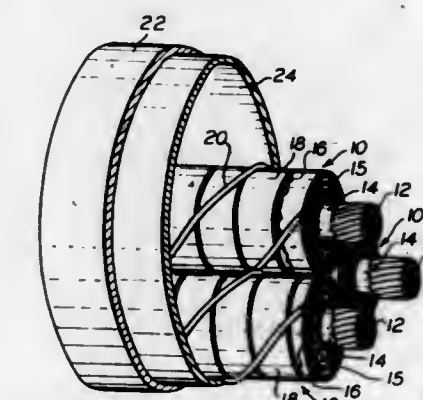
A shielded flexible coaxial cable is described in which auxiliary outer signal conductors are formed integral with the shield surrounding the inner conductor. The shield is formed by a plurality of uninsulated shield wires wrapped about a dielectric core so that they are in electrical contact. The shield wires may be woven together to form a braided shield, or wound in a spiral to form a spiral-wrapped shield. The auxiliary outer conductors are in the form of insulated wires

wrapped together with the shield wires simultaneously with the forming of the shield so that the resulting cable is not in-



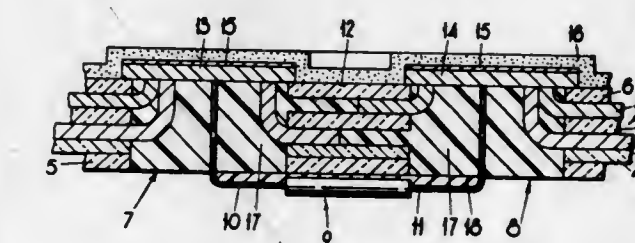
creased in diameter. A metal foil layer may also be provided beneath the wires to increase the shielding attenuation.

3,594,492
PIPE-TYPE CABLE SYSTEMS WITH REDUCED AC LOSSES
 George Bahder, Edison, and Carlos Katz, Bayonne, both of, N.J., assignors to General Cable Corporation, New York, N.Y.
 Filed Sept. 30, 1969, Ser. No. 862,353
 Int. Cl. H01b 9/02
 U.S. Cl. 174—36 16 Claims



A magnetic, low-loss liner in a metal pipe reduces the AC loss of high-voltage electrical cable enclosed within the pipe; or the cable in the pipe can be wrapped with a sheet or tapes of the magnetic low-loss material. Tapes used for the purpose can be plastic with suitable metal, such as ferromagnetic material of high permeability distributed through the plastic.

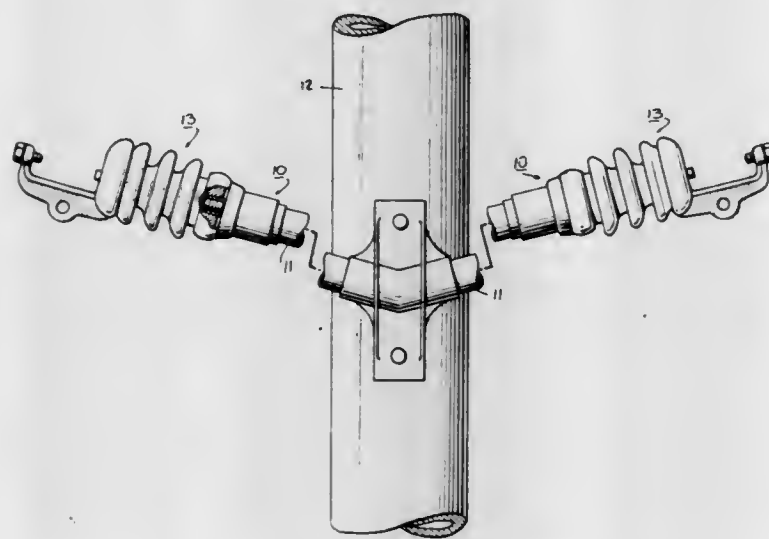
3,594,493
PRINTED CIRCUIT ASSEMBLIES AND METHOD
 Alan Michael Kauffman, Edgeware, and James Bond, Camberley, both of, England, assignors to Elliott Brothers Limited, London, England
 Filed Oct. 2, 1969, Ser. No. 866,075
 Claims priority, application Great Britain, Oct. 2, 1968, 46,773/68
 Int. Cl. H05k 1/18, 3/36
 U.S. Cl. 174—68.5 3 Claims



A multilayer printed circuit assembly has connections between the layers formed by extending a printed circuit conductor from each layer through a number of aligned holes in the different layers to the outer surface of the assembly where the end faces of the conductors terminate in the same plane. A plated layer then interconnects the end faces. Com-

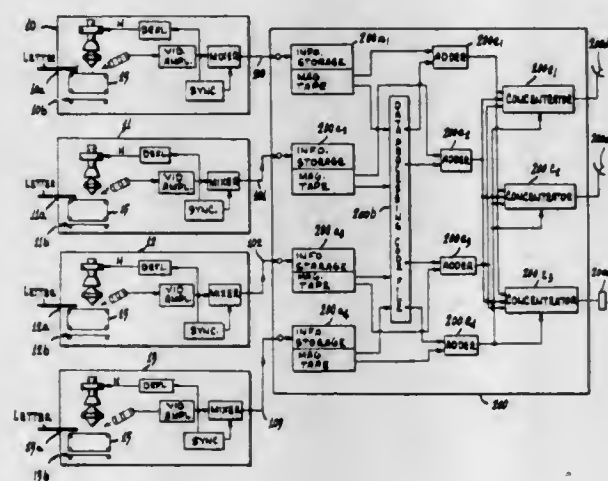
ponent leads may also extend through holes to the connection plane. The assembly is potted in stages.

3,594,494
AN ASSEMBLAGE FOR SUPPORTING AN INSULATOR ON A SUPPORT ROD
Ross J. Sullivan, Columbia, S.C., assignor to C/P Corporation, Columbia, S.C.
Filed Sept. 24, 1969, Ser. No. 860,537
Int. Cl. H01b 17/14
U.S. Cl. 174-158 R 21 Claims



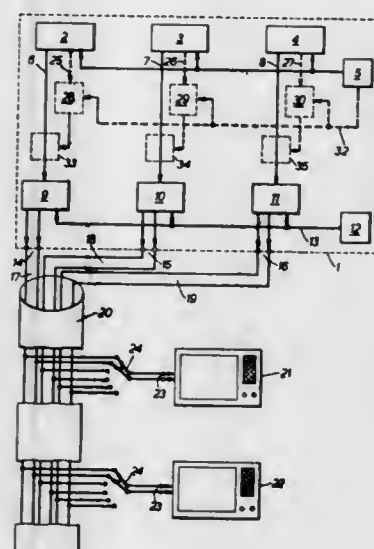
The support is constructed of a fitting which fits over the end of a glass fiber rod, a threaded member which extends out of the fitting to threadably receive an insulator and spring washers within the recess of the fitting which serve to urge the fitting against the insulator in a frictional locking relation. Upon threading the insulator against the fitting, the spring washers flatten so as to create the locking force between the insulator and fitting.

3,594,495
RADIO FACSIMILE POSTAL SYSTEM
Donald S. Bond, Princeton, N.J., assignor to RCA Corporation
Filed Jan. 30, 1968, Ser. No. 701,642
Int. Cl. H04n 7/16
U.S. Cl. 178-5 4 Claims



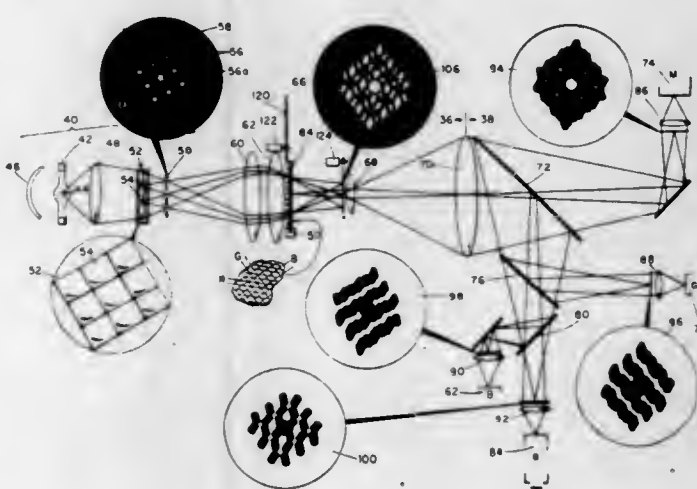
A radio facsimile postal system including means for transmitting image signals representative of a written message to be communicated together with code signals uniquely identifying the addressee, and means for receiving the transmitted image and code signals and for reproducing the message from the image signals upon a radio facsimile recorder conditioned to respond only to the code signals identifying the assigned addressee.

3,594,496
WIRED BROADCASTING SYSTEMS
Gabriel Ralph Parton, Cobham, nr. Woking, Surrey, England, assignor to Communications Patents Limited
Filed Mar. 10, 1969, Ser. No. 805,692
Claims priority, application Great Britain, Mar. 13, 1968, 12181/68
Int. Cl. H04n 9/02, 5/04
U.S. Cl. 178-5.2 R 14 Claims



A wired television transmission system is disclosed for conveying a plurality of programs over a communication channel while reducing interference patterns. Thus, several program sources are synchronized and modulated with common signals. This eliminates beat signal patterns. The signals are sent out in a common cable through twisted pairs, each having a different pitch to minimize cross-coupling.

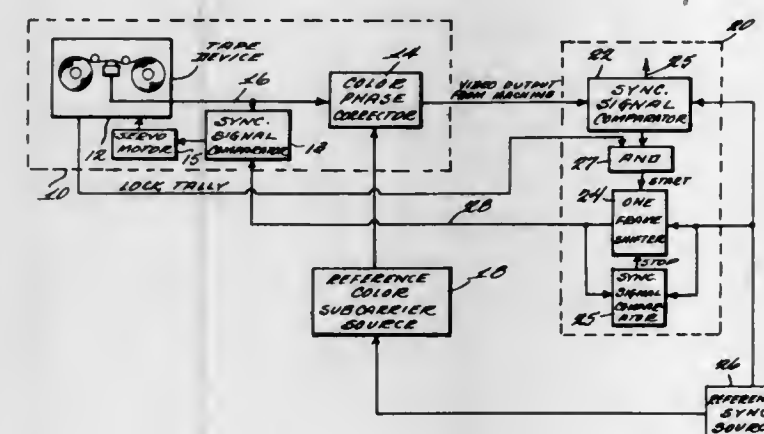
3,594,497
COLOR TV FILM REPRODUCTION SYSTEM
COMPATIBLE WITH DIFFRACTION PROCESS COLOR
PROJECTION SYSTEMS
Michael Graser, Jr., Bedford, Mass., assignor to Technical Operations, Incorporated, Burlington, Mass.
Filed Jan. 28, 1969, Ser. No. 794,709
Int. Cl. G02b 27/38; H04n 9/08
U.S. Cl. 178-5.4 11 Claims



This disclosure depicts improved color television film reproduction systems and methods for displaying either conventional color transparency cine film, or cine records on which color separation information is stored as signals modulating separately detectable spatial carriers. The illustrated system comprises, inter alia, novel light source means for producing a plurality of highly spatially coherent light sources and a source of less coherence, and means employing the source of less coherence for establishing a wideband luminance channel through the system. The disclosed system

further includes novel spatial filtering means and methods for enabling detection of red, blue, green, and luminance information without the need for spectral filtering in either the projector or camera stages.

3,594,498
COLOR-PHASE-CORRECTING CIRCUITRY WITH ONE-HUNDRED EIGHTY DEGREE AMBIGUITY ELIMINATION
Peter W. Smith, Beaconsfield, Quebec, Canada, assignor to Central Dynamics, Ltd., Pointe Claire, Montreal, Quebec, Canada
Filed Oct. 9, 1969, Ser. No. 865,155
Int. Cl. H04n 5/24, 5/78, 9/46
U.S. Cl. 178-5.4 CD 5 Claims

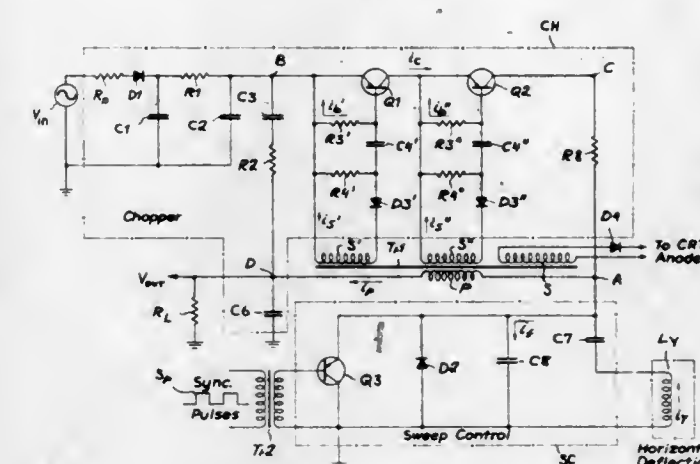


Color-phase-correcting circuitry for use with a color video tape machine is disclosed. Such machines typically include (1) a tape drive, (2) means for controlling the speed of the tape which are responsive to the vertical synchronizing pulses derived from a video reference signal (3) a read/write head for reading a signal from the tape to thereby derive a composite color signal, (4) means for adjusting the phase of the composite signal so that the horizontal and vertical synchronizing pulses of the composite signal are in phase with the horizontal and vertical pulses of the video reference signal, and (5) means for adjusting the phase of the composite signal so that the color subcarrier of the composite signal will be in phase with the color subcarrier of the reference signal. This adjustment is made following the adjustment described in (4) and under some circumstances can cause the phase adjustment described in (4) to be destroyed. The improvement includes a sync signal comparator which compares the phase of the horizontal synchronizing pulses of the composite color signal with the phase of the horizontal synchronizing pulses of the video reference signal after the correction described in (5) has taken place. If any phase deviation exists, an appropriate signal is applied to circuitry which controls the tape speed to shift the video signal one picture frame. Phase synchronism is then obtained with respect to both the vertical and horizontal synchronizing pulses and with respect to the color subcarrier signals.

3,594,499
VOLTAGE-STEPDOWN CIRCUIT ARRANGEMENT FOR TELEVISION POWER SUPPLY
Vincenzo Sansone, and Franco Gatti, both of Pavia, Italy, assignors to Ates Componenti Elettronici S.P.A., Milan, Italy
Filed Feb. 27, 1969, Ser. No. 802,868
Claims priority, application Italy, Mar. 8, 1968, 13,734
Int. Cl. H04n 5/00 9 Claims

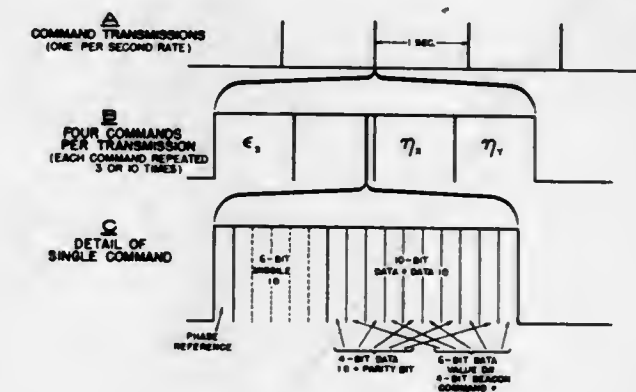
In order to provide a reduced output voltage for feeding a transistorized load, a rectified supply voltage from an AC utility outlet is chopped under the control of a recurrent pulse in the load circuit, specifically the flyback pulse of the horizontal sweep circuit of a television receiver, with the aid of a normally blocked transistor connected to be unblocked

by an intermittent biasing current from a secondary winding of a transformer whose primary winding acts as an in-



ductance of a smoothing network for the chopped supply voltage.

3,594,500
MISSILE COMMUNICATIONS LINK
James L. James, Woodbine, and Hillary H. Nall, Beltsville, both of, Md., assignors to The United States of America as represented by the Secretary of the Navy
Filed Oct. 11, 1961, Ser. No. 144,511
Int. Cl. H04l 9/00 11 Claims

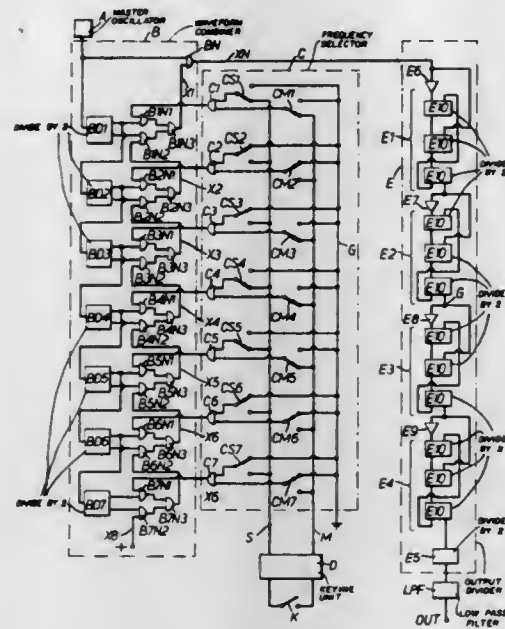


The system provides for the simultaneous control of a plurality of missiles and comprises a missile receiver system for handling a large quantity of data. The receiver performs a parity check for handling an error detecting code, is able to handle phase-coded digital transmission, and contains means for distinguishing between different data signals.

3,594,501
SELECTIVE MULTIPLE PAIR FREQUENCY SHIFT TELEGRAPH ENCODER
Boleslaw Marian Sosin, Essex, England, and Alec J. Prime, New South Wales, Australia, assignors to The Marconi Company Limited, London, England
Filed July 18, 1968, Ser. No. 745,856
Claims priority, application Great Britain, July 19, 1967, 33,136/67
Int. Cl. H04l 27/00 9 Claims

In a frequency shift telegraph system any pair of a number of pairs of frequency values is derived from a single-master oscillation source. Oscillations from the source are divided and combined in pairs so as to produce, on selection, equal

multiples of the required "mark" and "space" frequencies. A keying arrangement determines when the "mark" and "space" frequencies are produced, and a frequency divider converts the frequencies to the desired values.

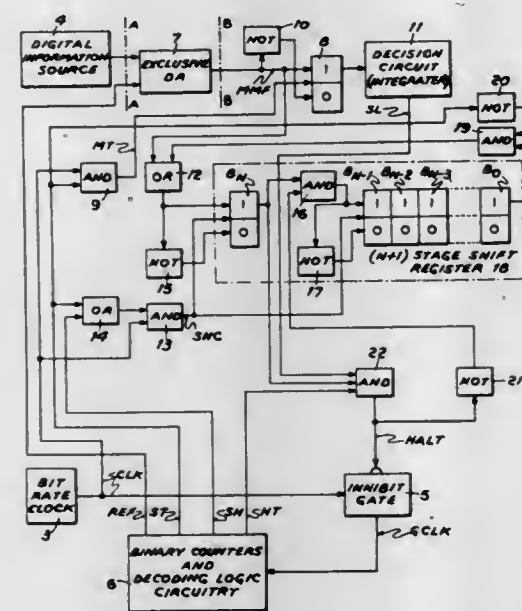


3,594,502

A RAPID FRAME SYNCHRONIZATION SYSTEM
James M. Clark, Cedar Grove, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Dec. 4, 1968, Ser. No. 780,981
Int. Cl. H04n 1/36

U.S. Cl. 178—69.5 R

10 Claims



A binary information signal having a given bit rate and a local binary synchronization reference signal are applied to a digital comparison circuit, the output signal thereof indicating a match or mismatch between the binary condition of successive adjacent bits of the information signal and the reference signal. A flip flop samples the output signal of the comparison circuit. A decision circuit responds to the samples from this flip flop to produce binary "0" when the decision level is exceeded and binary "1" when the decision level is not exceeded. This output signal is also coupled through an OR gate to an (N+1) bit shift register which is triggered by a burst of pulses at the bit rate. The previous inputs to the shift register are stored therein and the output thereof is also coupled through the OR gate. An AND-gate is coupled to the output of the first flip-flop of the shift register and the decision circuit and produces an output signal only when this flip flop indicates a mismatch and the decision circuit produces

binary "1" during halt time. This output signal is coupled to an INHIBIT-gate disposed between a bit rate clock and binary counters to change the counting of the counters, to achieve synchronization in less time than required by prior art frame synchronization systems.

3,594,503

DECODING CIRCUIT FOR TELEPHONE TRANSACTION SYSTEM

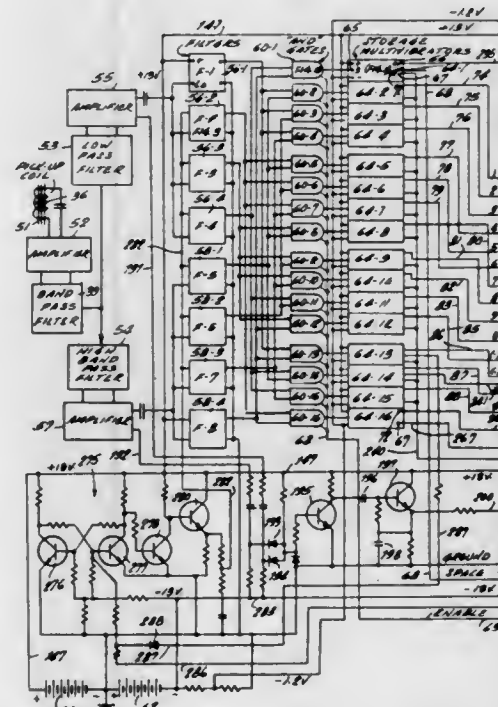
Arnold M. Wolf, Brooklyn, and John G. Richter, Yonkers, both of N.Y., assignors to Electrospace Corporation, Glen Cove, N.Y.

Filed Mar. 12, 1969, Ser. No. 806,439

Int. Cl. H04I 27/30

U.S. Cl. 178—88

10 Claims



A system is described for buying materials or services by transferring funds in a bank from the buyer's deposit account to the seller's account. The transfer of funds is accomplished by means of a "touch-tone" telephone receiving set equipped with a printing means. A computer at the bank receives digital orders from the receiving set, decodes the orders and records the transfer at that location. Each purchaser is provided with a secret purchaser number on a telephone operating card and the entire operation is performed in the presence of the purchaser and a representative of the seller or store.

3,594,504

DIGITAL ACOUSTIC VOLUME INDICATOR

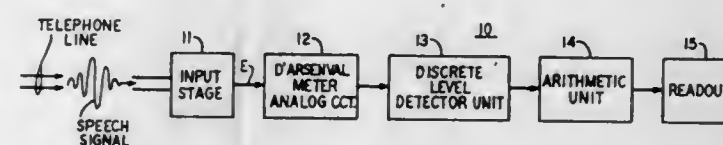
Verne E. Munson, Brielle, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed May 13, 1969, Ser. No. 824,142

Int. Cl. H04r 29/00

U.S. Cl. 179—1 N

9 Claims



This disclosure describes a digital volume indicator that replaces a conventional VU meter for speech level measurement. The indicator operates on speech-produced peak voltages. A voltage function analogous to the dynamic meter movement characteristic of the conventional VU meters is quantized in a series of threshold detectors. Suitable gating provides for a detector output only for the highest threshold exceeded for a given analog voltage excursion. Over a

specified time, the detector outputs representing the quantized peaks are characterized as by averaging in an arithmetic section to produce a representative VU reading for the speech analyzed.

3,594,505

INFORMATION DISTRIBUTION SYSTEM

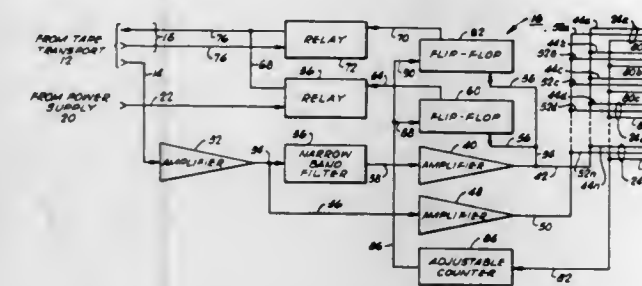
David D. Price, Jr., 3429 Partridge, Oklahoma City, Okla., and Ford C. Price, 1909 NW 56 Terrace, Oklahoma City, Okla.

Filed Sept. 18, 1967, Ser. No. 668,627

Int. Cl. G09b 19/06

U.S. Cl. 179—1 B

2 Claims



Apparatus for presenting information to a group in attention in a manner whereby the rate of information presentation is variable with respect to the group as a whole; the apparatus consists of a reproducing device for generating both an information signal and a control tone for distribution to a plurality of information-receiving stations. The distribution system provides for the reproduction of a series of predetermined amounts of information, each amount or serially occurring portion being terminated by a control tone which ceases reproduction and enables a listener response tally. Thereafter, each listener signifies readiness to continue by means of a switch closure, and after a predetermined number of such switch closures the reproducing device is restarted to generate the next segment of its information.

3,594,506

LOUDNESS LEVEL INDICATOR

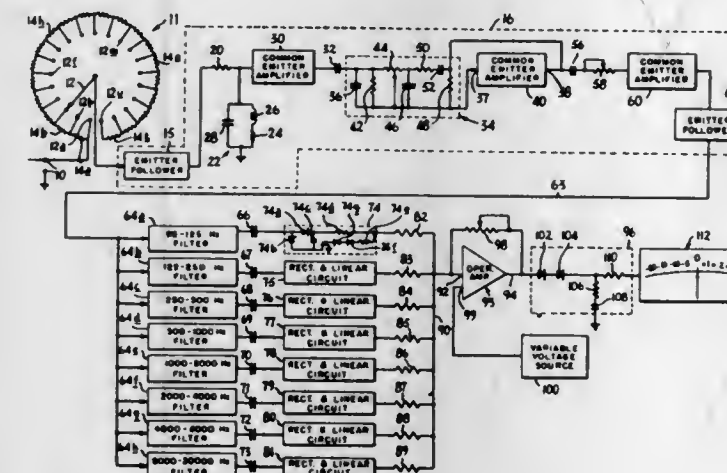
Benjamin B. Bauer, Stamford, Conn.; Emil L. Torick, Darlen, Conn.; Richard G. Allen, Pound Ridge, N.Y., and Allen J. Rosenheck, Stamford, Conn., assignors to Columbia Broadcasting Systems, Inc., New York, N.Y.

Filed Apr. 1, 1968, Ser. No. 717,695

Int. Cl. G01h 5/00

U.S. Cl. 179—1 P

1 Claim



As described herein, a loudness level indicator for measuring the loudness levels of broadcast (and other) sounds includes an equalizing network having a transfer characteristic which is the inverse of an equal loudness contour representative of the loudness levels of broadcasting sounds over a selected range of pressure levels. Signals corresponding to the broadcast sounds are equalized by the equalizing network such that sounds of any particular frequency having equal

loudnesses are provided as voltage signals having equal amplitudes. These equalized signals are separated by a plurality of filters and the separated signals are then combined linearly by a combining network. A ballistics shaping network shapes the combination signals and supplies the combination signals to an indicating instrument which provides a visual indication of the amplitudes of the combination signals and, accordingly, the loudness levels of the broadcast sounds.

3,594,507

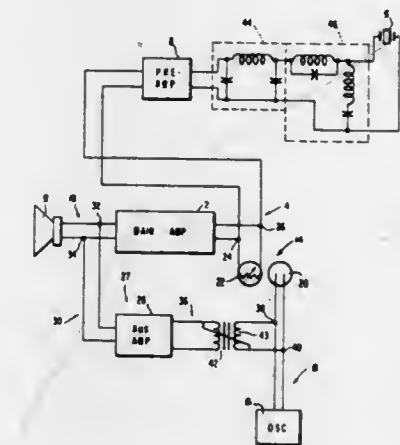
FEEDBACK ELIMINATING DEVICE FOR AUDIO AMPLIFYING SYSTEMS

William T. Clark, III, 6 Davis Blvd., New Orleans, La. Continuation-in-part of application Ser. No. 617,324, Feb. 20, 1967, now abandoned. This application Oct. 22, 1969, Ser. No. 870,414

Int. Cl. H04m 1/20

U.S. Cl. 179—1 FS

11 Claims



An audio amplifying system, including a loud speaker from which an acoustical signal would normally be fed back to a microphone, is provided with an oscillator so coupled to the input of the amplifier so as to disable the amplifier at a super-sonic rate, during periods in which the acoustical feedback signals from the loudspeaker arrive back at the microphone. An amplitude discrimination system inhibits operation of the amplifier disabling oscillator when signals of predetermined amplitude are output from the amplifier, and one or more filters in the amplifier input circuit exclude amplification of acoustical feedback signals of the frequency at which the amplifier is disabled.

3,594,508

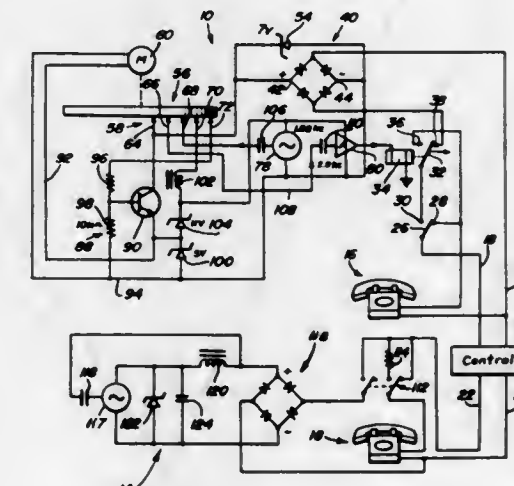
DATA REPORTING SYSTEM

Roger C. Gildden, 12 Pleasant, Wenham, Mass. Filed Aug. 21, 1969, Ser. No. 851,878

Int. Cl. H04m 11/04

U.S. Cl. 179—5 R

16 Claims



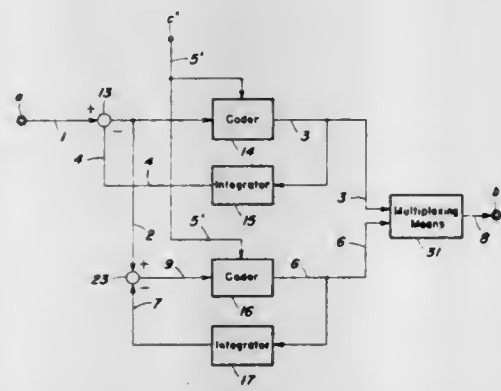
A motor-driven code wheel programs the supply of electrical energy from telephone lines to the code wheel-driving

motor through a switching device to intermittently load the telephone lines during a dialing period producing dialing pulses through the code wheel. The lines are continuously loaded by the motor, an oscillator and a frequency-tuned amplifier during a message period when the output of the oscillator is gated onto the lines through the code wheel. Recycling is stopped when a return signal tone in the lines is recognized by the frequency-tuned amplifier.

3,594,509

DELTA MODULATOR APPARATUS

Tadao Shimamura, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Aug. 5, 1969, Ser. No. 847,622
Claims priority, application Japan, Aug. 6, 1968, 43/55290
Int. Cl. H04j 3/18
U.S. Cl. 179-15 AV 10 Claims

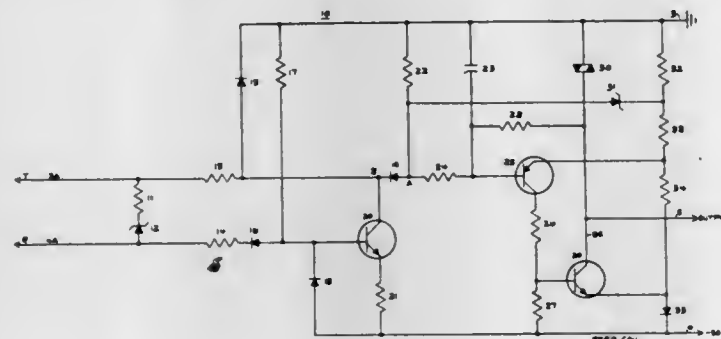


Delta modulator apparatus is provided in accordance with the teachings of the present invention. In one exemplary embodiment of the present invention high-speed delta modulator apparatus is provided wherein a plurality of relatively low speed delta modulator means are arranged so that one of such plurality of low speed delta modulator means adapted to receive an input signal to be modulated while each succeeding one of said plurality of low speed delta modulator means is connected to a preceding one of such plurality of low speed delta modulator means in a manner to receive an error signal therefrom as an input thereto. The plurality of relatively low speed delta modulator means each includes commonly timed coder means whose outputs may be combined in a multiplex manner whereby the resulting modulator apparatus exhibits an equivalent sampling rate equal to the sampling rate of each of said plurality of relatively low speed delta modulator means multiplied by the number of relatively low speed delta modulator means present in said plurality.

3,594,510

DIAL PULSE RECEIVER CIRCUIT

William H. Blasfield, Galion, Ohio, assignor to North Electric Company, Galion, Ohio
Filed Feb. 11, 1969, Ser. No. 798,296
Int. Cl. H04g 3/04
U.S. Cl. 179-16 AA 7 Claims

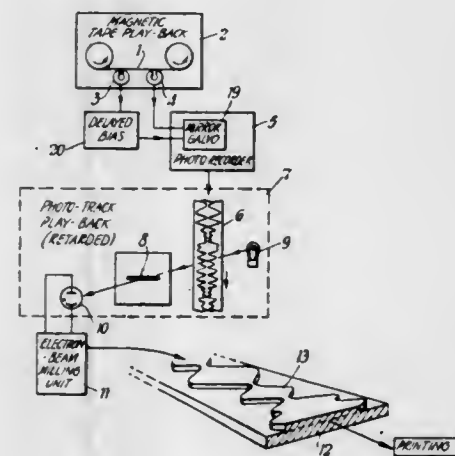


A solid-state dial pulse receiving circuit for use with an incoming pulsing loop in a telephone system comprising a solid-state circuit which provides sensitive response to direct current pulses, talking balance, common mode rejection of

alternating current signals spuriously induced from adjacent powerlines and protection against false operation from transients. The circuit comprises an input transistor, associated circuitry and an output circuit which may operate a dial pulse receiving relay.

3,594,511

METHOD OF MANUFACTURING A STRIP-FORM PRINTING PLATE FOR TAPE-FORM RECORDINGS
David Alexander Pollock, "Woodhurst," Westhall Road, Warlingham, Surrey, England
Filed Sept. 23, 1968, Ser. No. 761,626
Claims priority, application Great Britain, Sept. 26, 1967, 43821/67
Int. Cl. G11b 5/84, 5/86
U.S. Cl. 179-100.2 2 Claims

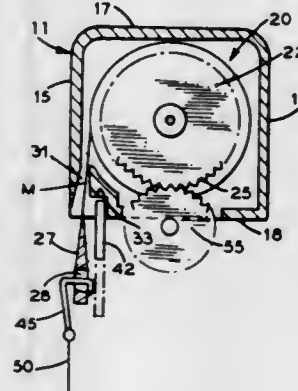


A strip-form printing plate, for printing along a base tape a variable-width recording of information, for example of music, is manufactured by making at a first speed an intermediate recording of the information, for example a disc or photorecording, and reading the intermediate recording at a lower speed to produce signals which are used to control a continuous forming method of producing the required strip-form printing plate at a linear speed that is lower than the linear speeds of making and reading the intermediate recording. If on disc the intermediate recording may be read by means of a novel pickup head described herein. The printing plate may be used to print the variable width recording in magnetic or nonmagnetic ink. If in nonmagnetic ink the printed recording may be read by causing it to modulate the output of a high frequency oscillator in a novel manner described herein.

3,594,512

MAGNETIC TAPE CARTRIDGE SYSTEM

John F. Castagna, 835 Remsen Ave., Brooklyn, N.Y.
Filed Oct. 7, 1968, Ser. No. 765,482
Int. Cl. G11b 15/34, 5/00
U.S. Cl. 179-100.2 Z 7 Claims

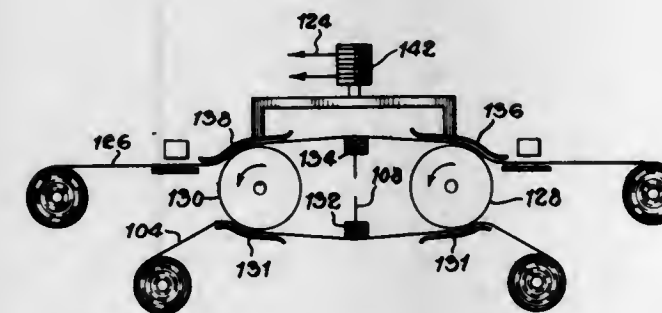


A combination magnetic tape cartridge and playback device where the cartridge carries a tape on which is recorded musical material or the like as a very large number

of individual selections and arranged for convenience of selection; the playback device being adapted to accommodate cartridges of varying size.

3,594,513

APPARATUS FOR ELIMINATING SILENT INTERVALS BETWEEN SIGNALS
Sanford David Greenberg, Buffalo, and Bert B. Norvell, Tuckahoe, both of, N.Y., assignors to Cambridge Research and Development Group, Westport, Conn.
Division of Ser. No. Mar. 8, 1966, Pat. No. 3,480,737
Filed Apr. 25, 1969, Ser. No. 856,507
Int. Cl. G11b 5/86, 27/08
U.S. Cl. 179-100.2 E 5 Claims

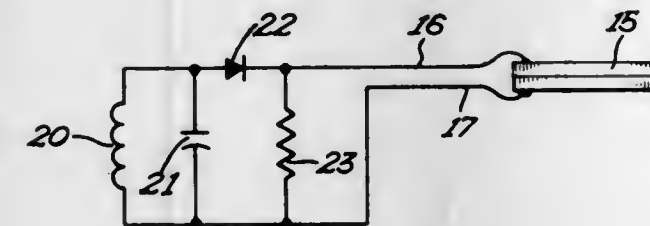


Apparatus for transferring signals from a first magnetic tape to a second magnetic tape in different relative positions including a common capstan drive for both tapes with means controlled by the signals on the first tape for engaging the second tape with the capstan, a pickup head and a recording head associated respectively with the first tape and the second tape and means including a signal delay network coupling the two heads.

3,594,514

HEARING AID WITH PIEZOELECTRIC CERAMIC ELEMENT

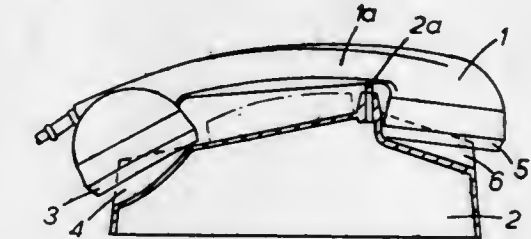
Robert C. Wingrove, Minneapolis, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.
Continuation of application Ser. No. 625,042, Mar. 22, 1967, now abandoned. This application Jan. 2, 1970, Ser. No. 489
Int. Cl. H04r 25/00
U.S. Cl. 179-107 R 13 Claims



Implantable hearing aid apparatus having a piezoelectric ceramic element mounted adjacent to the auditory conductive system of the middle ear for imparting vibration thereto. The piezoelectric element being electrically connected to electrical circuitry for providing electrical signals representative of sound waves. The electrical circuitry and the piezoelectric element being properly encapsulated for implantation within the body.

3,594,515

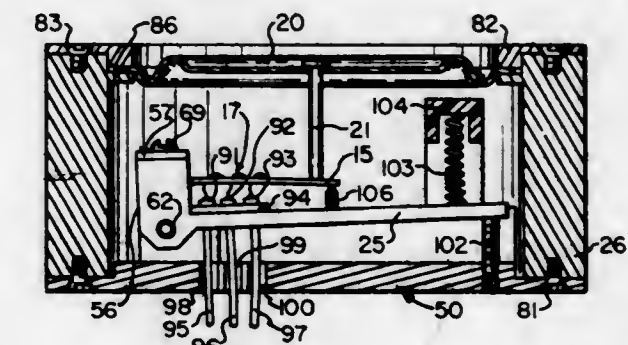
SOUND REFLECTING TELEPHONE CASING
Ronald Ernest Charles Brown, Orpington, England, assignor to Associated Electrical Industries Limited, London, England
Filed July 12, 1968, Ser. No. 744,430
Claims priority, application Great Britain, July 12, 1967, 32021/67
Int. Cl. H04m 1/02
U.S. Cl. 179-100 3 Claims



A telephone instrument in which either the microphone or the receiver transducer is used in the "on-hook" condition to emit tone calling signals. The instrument casing is shaped to provide recesses for the microphone and receiver housings such as to define, with the housing of the tone-emitting transducer, a cavity which provides acoustic enhancement of the emitted tone. The transistor amplifier within the casing is connected to act as an oscillator to generate the calling tone in the "on-hook" condition and as a speech current amplifier in the "off-hook" condition.

3,594,516

SEMICONDUCTOR MICROPHONE WITH CANTILEVER-MOUNTED SEMICONDUCTOR
Frederick G. Storz, Elmhurst, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Dec. 18, 1968, Ser. No. 784,804
Int. Cl. H04r 23/00
U.S. Cl. 179-121 R 8 Claims



A semiconductor microphone includes a strip, on which a transistor is formed, mounted within the microphone case and coupled to a diaphragm by a rod. The strip, clamped to a member movably mounted within the case, is urged against the rod so as to flex the strip and stress a junction of the transistor. The diaphragm, in response to acoustical forces, moves the rod, modulating the stress on the transistor junction.

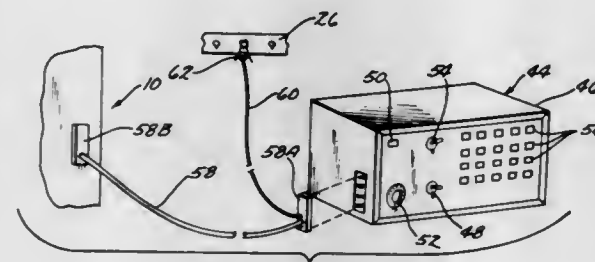
3,594,517

VERIFIER FOR WIRING OF NUMBER IDENTIFIERS

Charles L. Woodruff, 1109 East 15th Street South, and Ruben L. Wienke, 1290 First Avenue West, both of Newton, Iowa
Filed May 12, 1969, Ser. No. 823,816
Int. Cl. H04m 3/22; H04q 3/72
U.S. Cl. 179-175.25 13 Claims

A device for verifying the core panel wiring of identifier equipment for direct-dial long distance telephone equipment

comprising plurality of lamps connected through two groups of relays to the output of the core panel of the identifier equipment, wherein the first of said two groups of relays are operatively connected to one of the sequencing relays of the identifier equipment which selectively provide input voltage to the core panel, and the second group of relays being connected to a source of energy independent of the sequencing



relays to hold in an illuminated condition any lamps lighted in response to output from the first sequential output from the core panel. An additional lamp operatively connected to the identifier equipment to indicate that the equipment is in use, a party selection switch connected to the party identification relays of the identifier equipment, and a starting switch to connect the verifying device to the circuitry of the identifier equipment.

3,594,518 ELECTRIC SWITCHES

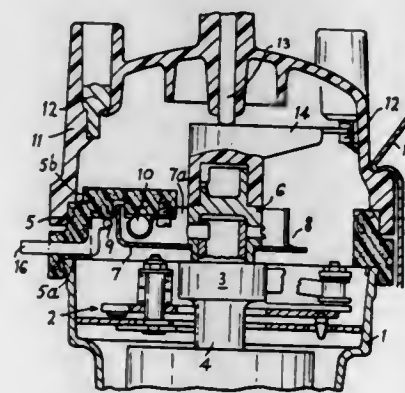
Gordon Frederick Bates, Coventry, England, assignor to Brico Engineering Limited, Coventry, England
Filed Dec. 1, 1969, Ser. No. 881,078

Claims priority, application Great Britain, Dec. 13, 1968, 59548/68

Int. Cl. H01h 19/00

U.S. Cl. 200—19 M

6 Claims

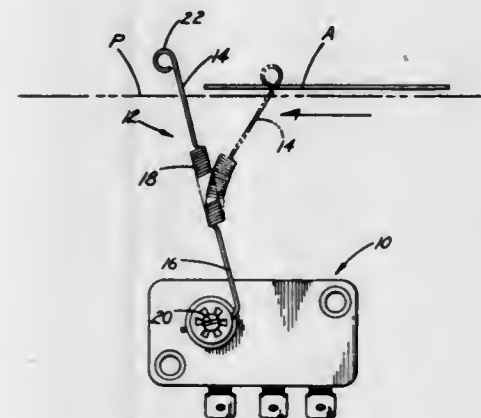


This invention relates to electric switches which are suitable for use as a trigger switch in a fuel injection system for a spark ignition internal combustion engine, in order to determine the instant of opening of one or more electrically actuated fuel injection valves. The invention provides the combination of an ignition distributor and contact breaker assembly with an electric switch having a movable member for effecting operation of the switch, the arrangement being such that rotation of a part of the ignition distributor causes movement of the movable member of the switch to effect its operation. Embodiments are described wherein the electric switch comprises one or more magnetically operable reed contact switches in combination with one or more magnet members for actuating the reed contact switch or switches.

3,594,519
SWITCH ASSEMBLY FEELER
Raymond J. Schmidlin, Lyndhurst, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio
Filed Jan. 9, 1970, Ser. No. 1,577
Int. Cl. H01h 3/16

U.S. Cl. 200—61.41

1 Claim

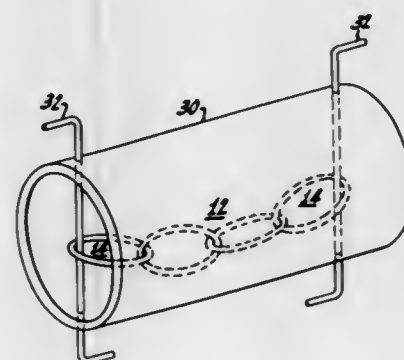


The present invention provides a feeler device for a switch assembly which has a nonhelical workpiece-engaging end portion and a switch-engaging portion with a helically formed spring portion intermediate the work-engaging portion and the switch-engaging portion.

3,594,520
AGITATION SWITCH
James R. Hall, Canoga Park, and Peter B. Korda, Los Angeles, both of, Calif., assignors to RCA Corporation
Division of Ser. No. 682,121, Nov. 13, 1967.
Filed Oct. 22, 1969, Ser. No. 870,840
Int. Cl. H01h 35/14

U.S. Cl. 200—61.45

8 Claims



Disclosed is a switch element, primarily for use within a detection system. The switch is formed of electrically conductive links intercoupled in a loose chain and exhibits a through impedance, as measured across its terminals, which changes significantly when it is agitated from a state of quiescence.

3,594,521
ELECTRIC SNAP SWITCH WITH FLUID-ACTUATED TOGGLE MECHANISM
Karl Roll, Leinfelden-Oberaichen, Germany, and Carl A. H. M. Waskowsky, Oberglatt, Zurich, Switzerland, assignors to Patinvest Patent- und Investment A. G., Chur, Switzerland
Filed June 6, 1969, Ser. No. 830,973

Claims priority, application Switzerland, June 18, 1968, Nov. 20, 1968, 9395/68, P 18 09 964.4

Int. Cl. H01h 35/34

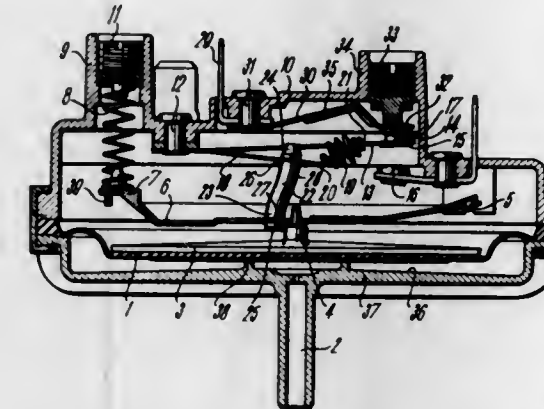
U.S. Cl. 200—83 R

13 Claims

A pressure-controlled snap switch in which the free end of a contact spring projecting between two spaced switch contacts is pivotable with a toggle motion from one contact

against the other when a diaphragm in the switch housing is moved by the pressure of a liquid or gas. The movement of the diaphragm is transmitted to an adjustable control lever and the resulting swing of this lever is transmitted by a resilient link to a pivotable control spring whose free end is

the bridging contact include respective interengaged formations for rocking the bridging contact about such fulcrum

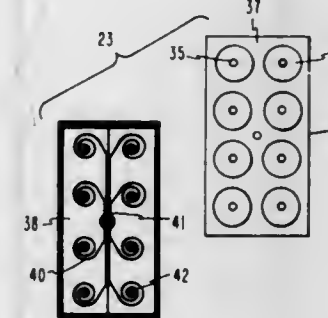


connected by a snap spring to the contact spring. The resilient link, whose opposite ends are connected to fixed points of the control lever and the control spring, may consist of a rod of rubber or plastic, or of an angular leaf spring or a torsion coil spring.

3,594,522
ELASTIC DIAPHRAGM SWITCH
Donald F. Colglazier, and Myron E. Snesrud, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 24, 1969, Ser. No. 844,349
Int. Cl. H01h 35/34

U.S. Cl. 200—83 B

9 Claims



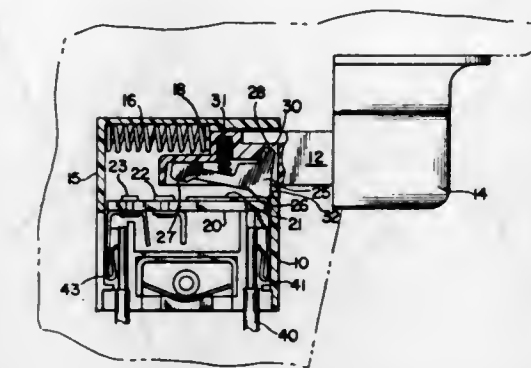
An elastic diaphragm switch has a diaphragm assembly formed as an airtight interface between a substantially rigid substrate material and a diaphragm of highly flexible film to which is adhered a copper conductive pattern designed to withstand large deflections without fatigue. This is accomplished by an extended length conductor such as a spiral conductor path extending from the diaphragm supported contact to a stationary conductor. Thus the diaphragm switch may be formed of a single thin film and activated by very low-pressure levels.

3,594,523
ELECTRIC SWITCH WITH BRIDGING CONTACT
Carl J. Frenzel, Chicago, Ill., assignor to Skil Corporation, Chicago, Ill.
Filed May 8, 1969, Ser. No. 822,909
Int. Cl. H01h 13/64

U.S. Cl. 200—157

8 Claims

An actuator in the form of a trigger moves a bridging contact back and forth between bridging and nonbridging positions with respect to a pair of fixed contacts mounted in spaced relation on a dielectric base. A fixed abutment surface is provided adjacent one of the fixed contacts. The bridging contact includes an abutment surface arranged to engage the fixed abutment surface for defining a fulcrum about which the bridging contact is rocked. The actuator and

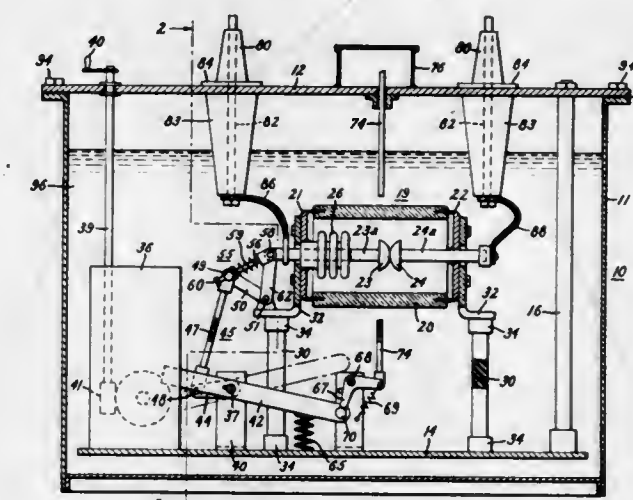


thereby to swing a portion of the bridging contact into and away from engagement with the other fixed contact.

3,594,524
VACUUM-TYPE ELECTRIC CIRCUIT BREAKER
Milton Louis Heintz, Newtown Square, Pa., assignor to General Electric Company
Filed Feb. 9, 1970, Ser. No. 9,618
Int. Cl. H01h 33/66

U.S. Cl. 200—144

5 Claims



A vacuum-type circuit breaker comprising a grounded metal tank having a tubular body portion and a top cover. Within the tank, there is a horizontally extending metal base plate at ground potential suspended from the cover by vertical rods. Attached to the baseplate are upwardly extending post-type insulators carrying at their upper ends horizontally extending vacuum interrupters. High-voltage bushings extend through the cover and are electrically connected to the interrupters by flexible conductors that prevent mechanical forces from being transmitted between the interrupters and the bushings. A closing device is mounted on the baseplate at the movable contact end of the interrupters and is connected to the interrupters by an insulating linkage for transmitting closing force thereto.

3,594,525
COMMON PARALLEL OPERATING MEANS FOR SERIES-CONNECTED, LATERALLY OFFSET VACUUM SWITCHES

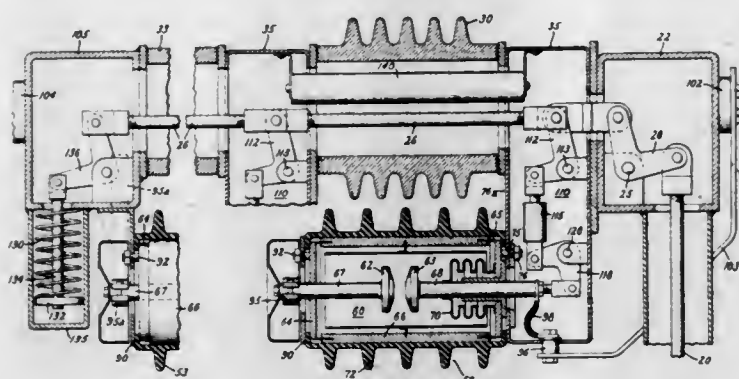
Richard H. Miller, Berwyn, and Bruno C. Rudolph, Broomall, both of, Pa., assignors to General Electric Company
Filed Apr. 21, 1969, Ser. No. 817,849
Int. Cl. H01h 33/66

U.S. Cl. 200—144 B

10 Claims

Discloses a high voltage vacuum-type circuit breaker which comprises a plurality of vacuum interrupters electrically connected in series. The interrupters are mounted on a skeletonlike structure that comprises a plurality of aligned tu-

bular insulators respectively associated with the interrupters in laterally spaced, generally longitudinally aligned relationship with respect to the associated interrupter. Adjacent ones of the interrupters in the series circuit are disposed in



laterally offset relation relative to each other. An operating rod extends through the aligned insulators, and a plurality of linkages respectively couple the operating rod to the interrupters.

3,594,526

ELECTRICAL CONTACT ASSEMBLY WITH PERMANENT MAGNET BLOWOUTS

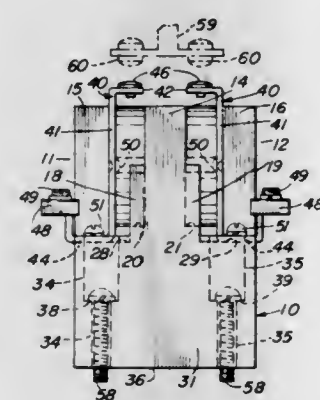
David L. Swindler, Northfield, Ohio, assignor to Square D Company, Park Ridge, Ill.

Filed Jan. 17, 1969, Ser. No. 791,951

Int. Cl. H01h 33/18

U.S. Cl. 200—147 A

6 Claims



A pair of disc-shaped permanent magnets are held in complementary recesses on opposite sides of an insulating contact block by respective contact arms which carry stationary contacts. Direct current arcs formed when a bridging contact separates from the stationary contacts are driven by the magnets in opposite directions with roots of the arcs moving along respective conductive rims surrounding the magnets.

3,594,527

ROTOR ASSEMBLY FOR ELECTRICAL SWITCH

Roy G. Brant, Huntington Beach, and Lloyd E. Hall, Fullerton, both of, Calif., assignors to Beckman Instruments, Inc.

Filed Jan. 30, 1970, Ser. No. 7,116

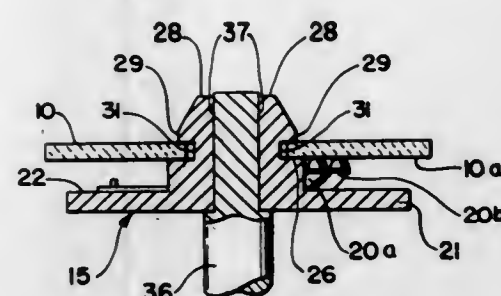
Int. Cl. H01h 9/00

U.S. Cl. 200—166 BH

13 Claims

In a rotary switch having a plurality of switch contact pads disposed in an arcuate array around an aperture formed through a base member, a rotor and switch contact assembly mounted for rotation in the aperture. The assembly includes a nonconductive disc having a flat surface thereon and a hub section extending outwardly substantially normal to the surface of the disc. The hub is divided into at least two separate hub sections which extend through the aperture. The protruding ends of the hub sections are barb shaped thereby

preventing withdrawal of the hub and rotor disc from the aperture of the base. A shaft is positioned within an opening in the disc and between the hub sections thereby locking the



rotor within the aperture. A resilient contact member, supported on the surface of the disc, traverses an arcuate path on the surface of the base to sequentially contact the switch pads on rotation of the rotor assembly.

3,594,528

MINIATURE SWITCH HAVING INDICATING MEANS

Jean C. Viau, Basel, Switzerland, assignor to Sibalco W. Siegrist & Co., Basel, Switzerland

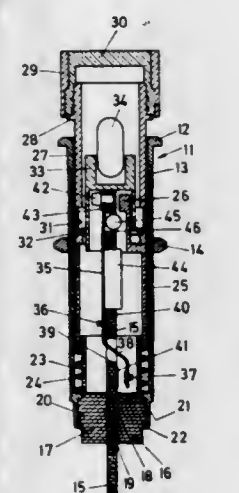
Filed June 16, 1969, Ser. No. 833,347

Claims priority, application Switzerland, June 29, 1968, 9741/68

Int. Cl. H01h 9/18

U.S. Cl. 200—167 A

12 Claims



The movement of a pushbutton or of a knob causes a ball to be pressed against a tensed flat, ferromagnetic spring attracted to a permanent magnet, forcing the spring, which carries the movable break and make contacts, away from the magnet and to snap close the make contacts, the stationary one of which is mounted on a plate with conductive paths. When the ball is released, the magnet attracts the spring and snaps the switch back to its rest position.

3,594,529

ACTUATING ASSEMBLIES AND COMPONENTS THEREFOR PARTICULARLY SUITABLE FOR ELECTRICAL SWITCHES

John Anthony Cartwright, Northampton, England, assignor to Painton & Company Limited, Kingsthorpe, Northampton, England

Filed July 24, 1969, Ser. No. 844,594

Claims priority, application Great Britain, Aug. 6, 1968, 37487/68

Int. Cl. H01h 3/12

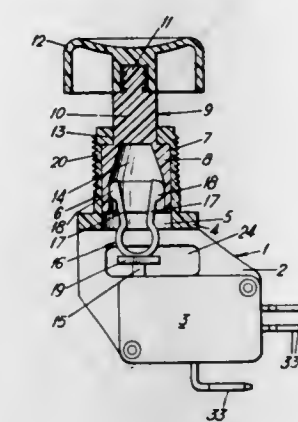
U.S. Cl. 200—172 A

9 Claims

A switch assembly comprises an actuating member and a biasing assembly movable along a common longitudinal axis. Initial movement of the actuating member causes deforma-

tion of the biasing assembly thereby to energize the same. A position is reached where the biasing assembly moves

tained within the interior of said internally viewable microwave induction heater. A microwave susceptible



towards a less stressed condition, such movement being adapted to actuate the device provided with the actuating assembly.

3,594,530

METHOD OF AND APPARATUS FOR HEATING OF DIELECTRIC MATERIALS IN A MICROWAVE FIELD

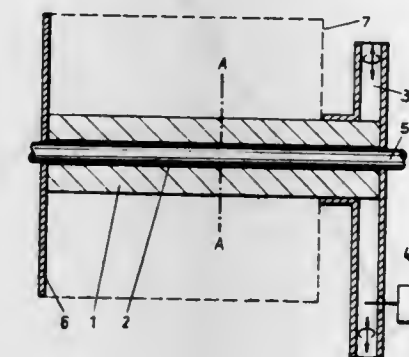
Fritz Wiegmann, Dresden, and Hans Wagner, Sebnitz, both of, Germany, assignors to Sachsische Glasfaser-Industrie Wagner & Co. K.G., Sebnitz, Germany

Filed Sept. 10, 1969, Ser. No. 856,789

Int. Cl. H05b 9/06, 5/00

U.S. Cl. 219—10.55

5 Claims



A method of and apparatus for heating, particularly dielectric materials by exposing them to the electromagnetic energy of a microwave field in a waveguide which is energized by a microwave generator and short-circuited at one end, which comprises the steps of heating dielectric material in a waveguide made of a solid dielectric nonmetallic material and containing a channel extending through its entire length. The channel is used for shaping and calibrating the dielectric material during the process of heating, continuously conveying axially through the waveguide in the direction of energy flux the dielectric material to be heated, and shielding the waveguide against radiant heat loss.

3,594,531

INTERNALLY VIEWABLE MICROWAVE INDUCTION HEATER

Ralph L. Hough, 708 Rice St., Springfield, Ohio

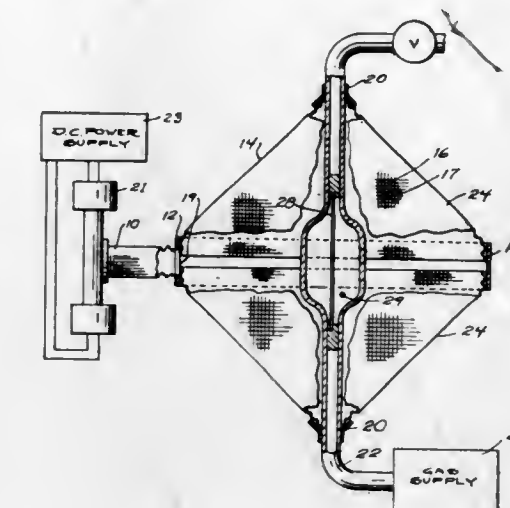
Filed Nov. 10, 1969, Ser. No. 875,195

Int. Cl. H05b 9/06, 5/00

U.S. Cl. 219—10.55

6 Claims

The present invention relates to an internally viewable microwave induction heater comprised of conductive screen, the width and height of whose meshes are small compared to the wavelength of selected microwaves within said internally viewable microwave induction heater. The selected microwaves do not pass through said meshes but remain con-



material within said internally viewable microwave induction heater can be visually observed while it is being inductively heated.

3,594,532

HEATING APPARATUS

Frank W. Lunau, Kingston, and Keith B. Weatherald, Reigate, both of, England, assignors to The British Oxygen Company Limited, London, England

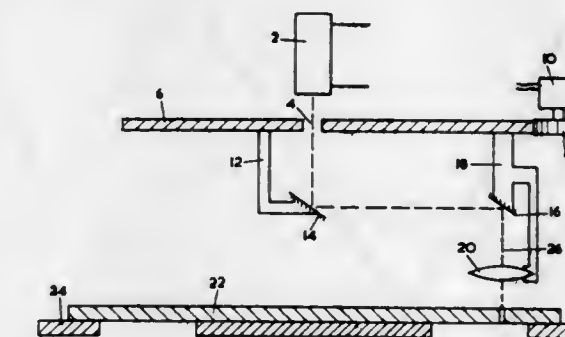
Filed Dec. 30, 1968, Ser. No. 787,711

Claims priority, application Great Britain, Jan. 8, 1968, 1101/68

Int. Cl. B23k 27/00

U.S. Cl. 219—121 L

3 Claims



Apparatus for heating a workpiece by a radiant energy beam utilizing two mirrors to direct the beam. The first mirror which intercepts the beam from its source is rotatably mounted on a fixed support, and the second mirror is rotatably mounted and is controlled by an electrical system. The second mirror intercepts the beam from the first mirror and transmits the beam to the workpiece.

3,594,533

WELDING APPARATUS

Hubert J. Anderson, Pewaukee, Wis., assignor to The McKay Company, Pittsburgh, Pa.

Filed July 12, 1968, Ser. No. 744,473

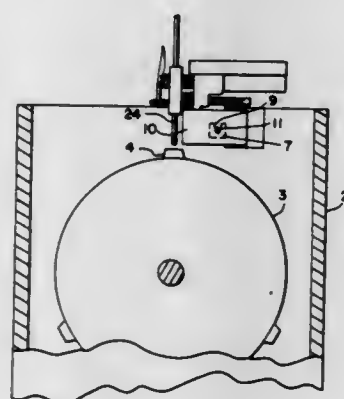
Int. Cl. B23k 9/04

U.S. Cl. 219—76

13 Claims

Welding apparatus comprising a mounting structure, means for mounting the mounting structure upon two opposed walls so that the mounting structure spans the space between the walls, guide means carried by the mounting structure, the guide means extending generally parallel to the mounting structure and almost spanning the space between the walls, means for adjustably automatically the guide means and fastening the same transversely desired angular positions between the two opposed walls and weld depositing means movable along the guide means to deposit a bead of weld metal on a surface between the two opposed walls. The

means for mounting the mounting structure upon the two opposed walls may include brackets applicable, as, for example, by welding, to the walls. The brackets may be designed to provide for horizontal adjustment of the mounting structure parallel to the two opposed walls. The mounting structure is preferably turnable between the two opposed walls to adjustably position the guide means in desired angular positions and the mounting structure may have means operable to engage at least one of the two opposed walls to fasten the mounting structure in position with respect thereto. The mounting structure may be trunnioned in the brackets to turn relatively thereto to adjustably position the guide means in desired angular position, and friction clamping means may be



provided acting between the mounting structure and at least one of the two opposed walls to fasten the mounting structure in position with respect thereto. The friction clamping means may comprise opposed friction clamps carried by the mounting structure adapted to engage the respective opposed walls.

Means are preferably provided for adjustably positioning the weld depositing means transversely of the guide means so that beads of weld metal may be deposited at different controlled locations upon successive passes of the weld depositing means along the guide means for each position in which the guide means are fastened. Means may be provided automatically adjusting the position of the weld-depositing means transversely of the guide means.

3,594,534

WELDING APPARATUS

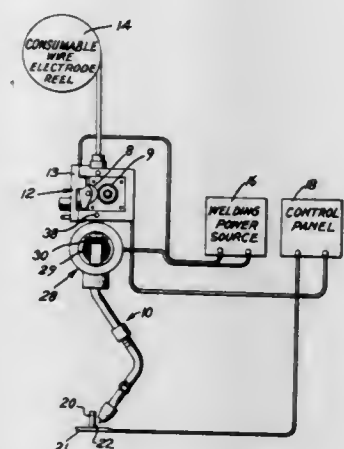
Edward Andrew Benfield, Chicago, Ill., assignor to Compak-O-Matic, Inc.

Filed Mar. 21, 1969, Ser. No. 809,215

Int. Cl. B23k 9/12

U.S. Cl. 219-125

8 Claims



A welding device including a welding head and circular welding mechanism detachably secured thereto. The circular welding mechanism includes a barrel and a housing. The barrel is detachably secured to the housing and rotatably driven by a drive therein so as to make circular inside or outside welds on a workpiece. The barrel comprises a first connection end adapted to be secured to the housing and a second remote end telescopically and angularly adjustable with respect to the connection end.

3,594,535
IMAGE TRANSFER MACHINE FOR GRAPHIC ARTS
PHOTOPOLYMER FILM

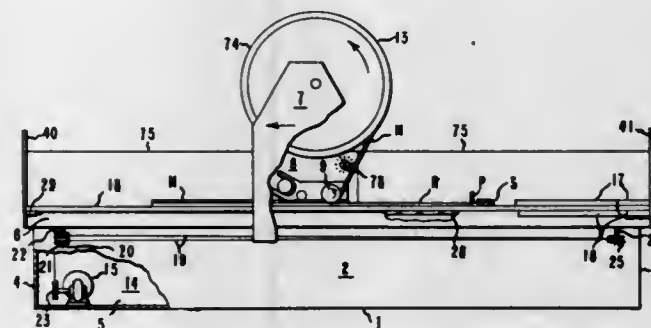
Victor Fu-Hua Chu, East Brunswick; Abraham Bernard Cohen, Springfield, and Herbert Albert Tobias, New Brunswick, all of N.J., assignors to E.I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 24, 1968, Ser. No. 700,117

Int. Cl. H05b 1/00

U.S. Cl. 219-216

12 Claims



Apparatus for achieving dry image transfer employing photohardenable elements for surface transfer to suitable image-receptive supports. The apparatus comprises

1. means for supporting and holding an image-receptor element in a fixed position with respect to the image-wise exposed photohardenable matrix, and

2. a carriage which moves along the laminae of the image-receptor element and matrix element, and which has means for pressing or laminating the elements in surface register, and means for stripping the matrix element from the image-receptor element after lamination.

3,594,536

METHOD AND APPARATUS FOR THE SPARK
MACHINING OF WORKPIECES AND A SPARK-
MACHINING ELECTRODE FOR USE THEREIN

Irvin Holroyd, Barnoldswick, near Colne, England, assignor to Rolls-Royce Limited, Derby, Derbyshire, England

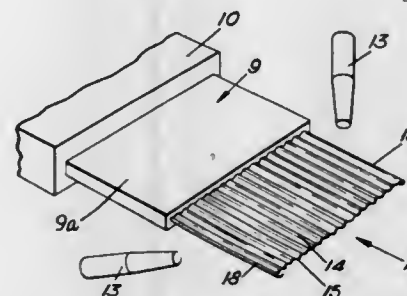
Filed May 12, 1969, Ser. No. 823,767

Claims priority, application Great Britain, May 14, 1968, 22720/68

Int. Cl. B23k 9/16

U.S. Cl. 219-69 M

12 Claims



A spark-machining electrode comprises an electrode plate which is corrugated in at least a portion thereof, the corrugations being of greater height than the thickness of the plate and having parallel axes such that, in a spark-machining operation, relative approaching movement between the electrode and a workpiece parallel to the axes of the corrugations will produce at least one narrow elongated cavity having a cross-sectional dimension less than the height of the corrugations.

3,594,537
ANGULARLY ADJUSTABLE HOLDER FOR MACHINE-
TOOL BITS

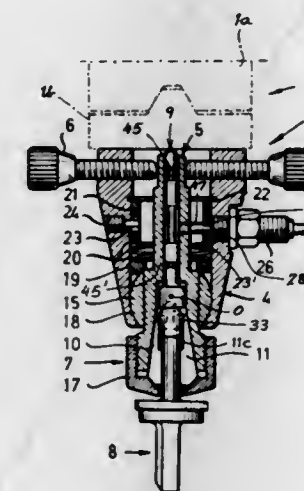
Fritz Morgenegg, Neuhausstrasse, 3422 Kirchberg, Bern, Switzerland

Filed Jan. 29, 1969, Ser. No. 794,855

Claims priority, application Switzerland, Jan. 31, 1968, 1515/68

Int. Cl. B23p 1/08

U.S. Cl. 219-69



A bit holder depending from a cross-slide or other movable support has a socket with a spherically curved seat for a tubular shaft terminating at the bottom in a chuck designed to clamp a tool bit, specifically a channeled spark-erosion electrode, in alignment with its axis passing through the center of curvature of the spherical seat. The shaft has a spherically curved bulge resting on the seat, under pressure from a spring-loaded retaining ring, and is tiltable about the aforesaid center of curvature under the control of several adjusting screws bearing from different sides upon the upper end of the shaft within the socket. The interior of the shaft above the stem of the electrode is occupied by an ejector rod forming passages for a scavenging fluid between the channeled stem and a flexible hose slidably extending from a lateral opening of the shaft through a nipple seated in a side aperture of the socket.

3,594,538

METHOD OF MOULDED WELDING WITH
CONSUMABLE NOZZLE

Johannes Jacobus Broodman, Breskens, Netherlands, assignor to N. V. Koninklijke Maatschappij "De Schelde", Flushing, Netherlands

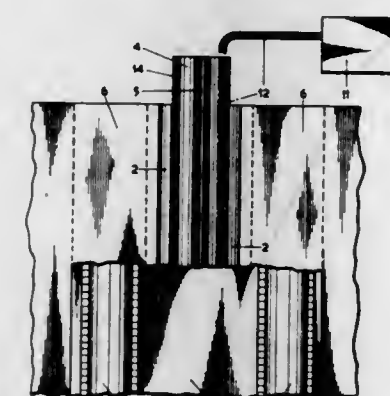
Filed July 5, 1968, Ser. No. 742,637

Claims priority, application Netherlands, July 5, 1967, 6,709,353

Int. Cl. B23k 9/18

U.S. Cl. 219-73

5 Claims



A process of arc welding comprises providing a consumable nozzle disposed at the gap where a butt joint is to be made and disposing a separate electrical conductor wire at

the gap to define a measuring probe. The measuring probe measures the arc voltage across the slag pool and the welding current is controlled by the aforesaid measured voltage to maintain the arc voltage or voltage across the slag pool substantially constant.

3,594,539

TEMPLATE FOLLOWER

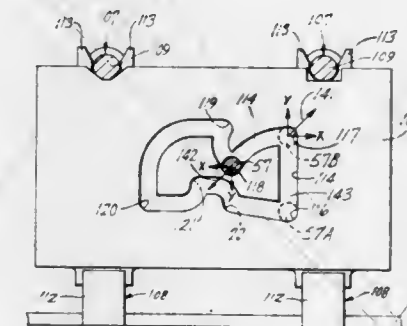
Thomas J. Geiermann, Bay City, Mich., assignor to Newcor, Inc., Bay City, Mich.

Filed Aug. 25, 1969, Ser. No. 852,700

Int. Cl. B23k 11/24

U.S. Cl. 219-108

11 Claims



A multiple station workpiece positioning device for positioning a workpiece at different stations relative to welding apparatus for permitting the performance of a plurality of welding operations thereon. The workpiece is mounted on a worktable and is guided for movement in a predetermined pattern by guide means. The guide means comprises a template having guide groove means therein receiving and guiding a follower member secured to the worktable. The guide groove means has a plurality of obstruction means therein to prevent a continued movement of the follower member and to accurately position the worktable at a plurality of stations relative to the welding apparatus. The obstruction means are bypassable by a movement of the worktable so that the follower member moves away from and around the obstruction means to permit a continued movement of the follower member and the worktable in the pattern defined by the guide groove means to the next obstruction means. At each location of the obstruction means, the worktable is accurately positioned relative to the welding apparatus so that appropriate energization of the welding apparatus will accurately place a weld onto a workpiece.

3,594,540

TRACKING TRANSDUCER FOR WELDING APPARATUS

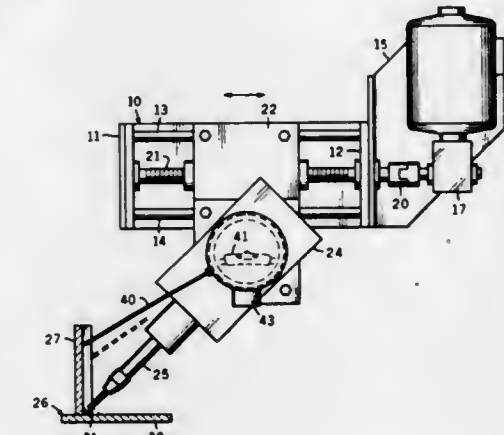
Edward J. Weinfurt, c/o The Pandjiris Weldment Co., 5151 Northrup Ave., St. Louis, Mo.

Filed July 7, 1969, Ser. No. 839,392

Int. Cl. B23k 9/12

U.S. Cl. 219-125 PL

9 Claims



A tracking transducer for welding apparatus having a sensing means carried by a welding head, the sensing means including a follower that engages the workpieces to be joined

together and follows the edge contour, means that oscillatively mounts a follower housing so that the angle of the follower can be varied transversely of the edge, and a variable resistor, responsive to angle of tilt, that is carried by and oscillatively movable with the follower housing as the follower engages the workpiece. Means operatively connect the variable resistor to a motor means for moving the welding head transversely of the edge in a direction to hold the head on the edge in response to any transverse deviation sensed by the follower and at a speed proportional to the deviation. The variable resistor is of a type that causes an increased voltage output proportional to the degree of angle tilt in either direction from a substantially null position. The relative angular position of the variable resistor and follower can be adjusted, whereby the resistor can be located in a substantially null position in any angular position of the follower.

3,594,541

AC SHIELDED ELECTRODE ARC WORKING

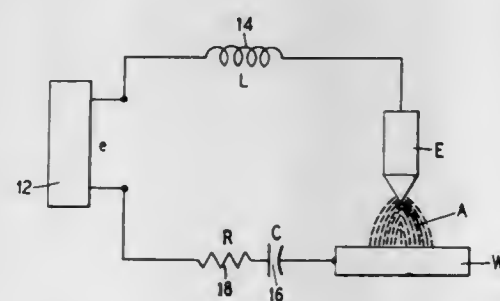
Eugene Francis Gorman, 4 DrumlIn Drive, Morris Plains, N.J.; John Kochis, 206 Allentown Road, Parsippany, N.J., and George Kassotakis, 4 Woodcrest Court, South Weymouth, Mass.

Continuation-in-part of application Ser. No. 787,120, Dec. 26, 1968. This application Jan. 9, 1970, Ser. No. 1,890

Int. Cl. B23k 9/00

U.S. Cl. 219-137

8 Claims



A method of AC electrode shielded arc working wherein an RLC circuit is included in series with the AC supply source and the electrode for maintaining a continuous AC arc, the magnitudes of the components in the RLC circuit being correlated with the required reignition potential of the shielded atmosphere and the metal oxide surface of the workpiece.

3,594,542

CONTINUOUS LAY DOWN ARC WELDING METHOD

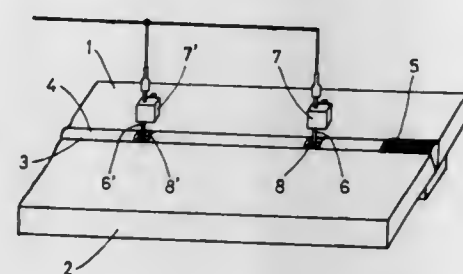
Nobuaki Miyao, Osaka Prefecture; Makoto Shiraki, Osaka Prefecture; Kunihiko Kosuge, Osaka Prefecture; Yukihiko Nanba, Osaka Prefecture; Sajiyo Yoshida, Osaka Prefecture; Tatsuo Nakamura, Hyogo Prefecture; Takamichi Uehara, Hyogo Prefecture; Kazushige Matsubara, Hyogo Prefecture; Kanaaki Uchiyama, Osaka Prefecture, and Masajiro Nakata, Hyogo Prefecture, all of Japan, assignors to Sumikin Welding Electrode Company Limited, Amagasaki, Hyogo Prefecture, Japan

Filed July 11, 1969, Ser. No. 841,159

Int. Cl. B23k 9/00

U.S. Cl. 219-137

26 Claims



This invention is a continuous lay down arc welding method wherein current supplying points are provided at

proper intervals on a connected welding electrode or non-connected long welding electrode and current supplying apparatus operated by the arc light or arc heat are set so that unmanned welding may be automatically made only by switching the welder.

ERRATUM

For Class 219-222 see:
Patent No. 3,594,453

3,594,543

HAIR-SETTING DEVICE

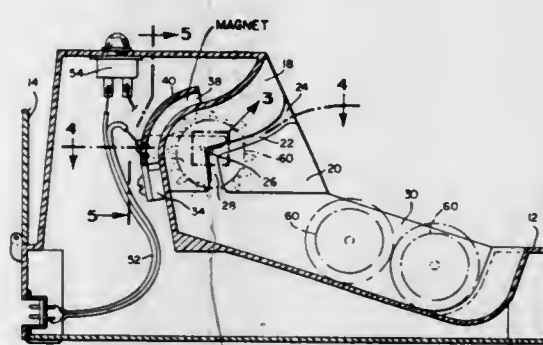
Gus Wallin, Waterbury, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn.

Filed Aug. 11, 1969, Ser. No. 848,954

Int. Cl. A45d 4/12; H05b 1/02

U.S. Cl. 219-222

13 Claims



A hair-setting device comprises a roller containing an electric heating element with exposed contacts and a ferrous alloy having a selected Curie temperature. The device also comprises a charging station having electric current supply contacts and a magnet adjacent the contacts. In use, the roller is held with its contacts in charging engagement with the contacts of the charging station by the attraction of the magnet to the alloy. When the heating element delivers sufficient heat to the alloy, the alloy is no longer attracted to the magnet and the roller drops, ready for use.

3,594,544

FLUID REACTOR PREHEATER

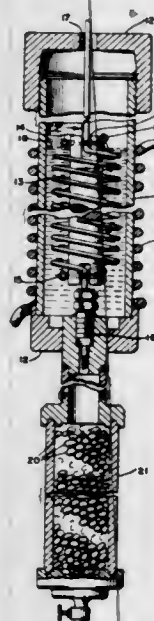
Donald K. Wunderlich, Riverdale, Ill., assignor to Atlantic Richfield Company

Filed Aug. 30, 1968, Ser. No. 756,549

Int. Cl. F24h 1/16, 7/00

U.S. Cl. 219-302

5 Claims



An improved small-scale reactor preheater for heating fluid reactants. The reactants enter the preheater and downflow through a coiled tube immersed in a molten lead bath which is heated by an electrical heater.

3,594,545

RADIANT HEAT PANEL

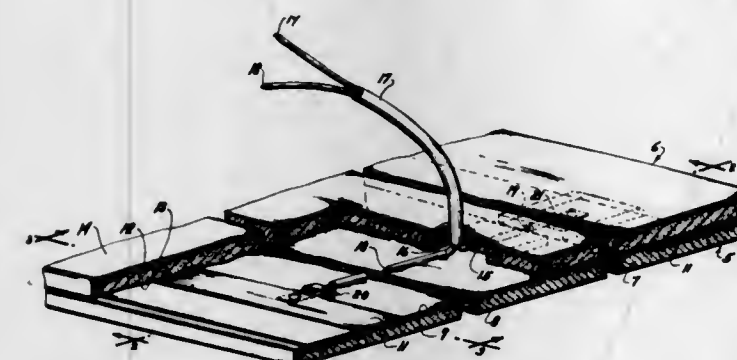
George W. Green, Portland, Oreg., assignor to Georgia-Pacific Corporation, Portland, Oreg.

Filed July 29, 1969, Ser. No. 845,836

Int. Cl. H05b 1/00, 3/34

U.S. Cl. 219-345

10 Claims



A radiant heat panel comprising two plasterboards in face-to-face relation, one board having an electrically conductive paper sheet adhesively secured thereto, and current supply means including spaced contact strips laminated with the conductive paper sheet, and power connections attached to the contact strips and lying between the planes of the opposite faces of the other of the two plasterboards of which the panel is formed.

3,594,546

AIR TEMPERATURE CONTROL APPARATUS

George Horn Smille, and Frank Johnstone, both of Glasgow, Scotland, assignors to Tronapples Limited, East Kilbride, Scotland

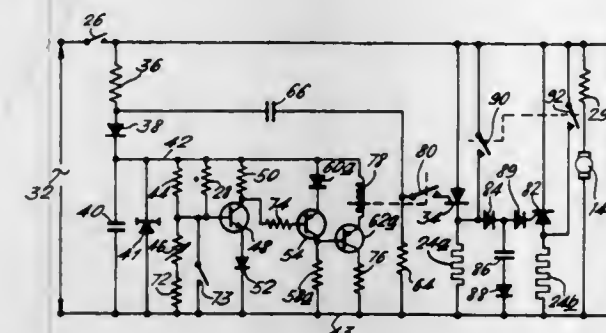
Filed Sept. 10, 1969, Ser. No. 856,587

Claims priority, application Great Britain, Sept. 13, 1968, 43,742/68

Int. Cl. H05b 1/02

U.S. Cl. 219-501

18 Claims



Apparatus to regulate the temperature of the air in a room comprises a fan to circulate a portion of the air through a heater and to thereafter return the portion of air to the space, a first temperature sensor to sense the temperature of the air in the space, a second temperature sensor to sense the temperature of the said portion of the air before it is returned to the space and control means to control the heater in response to the first and second temperature sensors. The control means employs transistorized voltage-sensitive switching, and thyristors in series with the heater elements.

3,594,547

ELECTRICAL HEATERS

Joseph Thomas Quinn, Irvine, Scotland, assignor to Space Age Products (Sales) Limited, Nassau, Bahamas

Filed Dec. 17, 1968, Ser. No. 784,431

Claims priority, application Great Britain, Dec. 23, 1967, 58,578/67

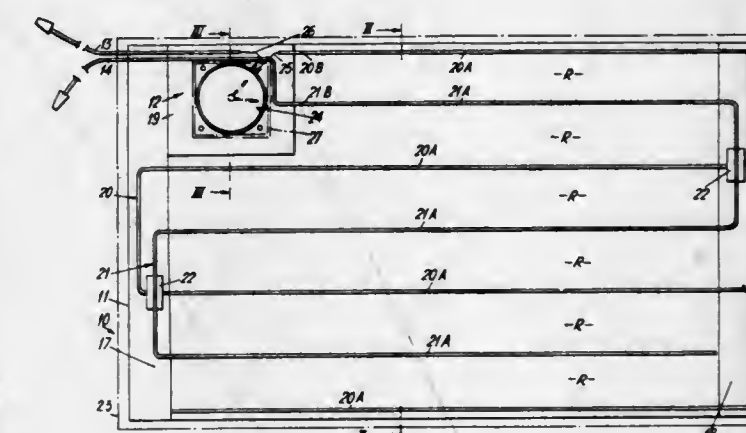
Int. Cl. H05b 1/02, 3/34

U.S. Cl. 219-529

5 Claims

An electrical heater for use in heating the engine, battery, seat or rear window of an automobile includes a thin, flexible

rectangular heating pad embodying a composite electrical resistance sheet, a time switch mounted on the pad at a corner thereof and a pair of leads extending from the corner to provide for the operative connection of the heater to the vehicle battery. The pad comprises a resistance sheet composed of a flexible substrate of glass cloth having a coating of electrically resistive material on one surface. Header and distributor conductors an electrical contact with the face of the coat-



ing and connectable to said leads through the time switch are formed by a pair of elongated flexible braided wire electrodes extending sinuously across the coating and stitched to the sheet. Each electrode forms a plurality of U-shaped portions. The electrodes cross each other near their U-bases so that longitudinal stretches of one electrode alternate with longitudinal stretches of the other. The electrodes are electrically insulated from each other at the crossings.

3,594,548

DIGITAL PRINTOUT DEVICE

Ettore Abblati, Ivrea (Torino), Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea (Torino), Italy

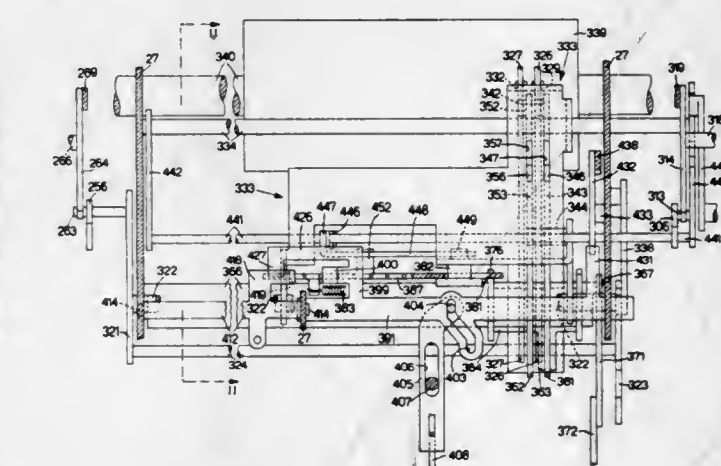
Filed June 16, 1969, Ser. No. 833,506

Claims priority, application Italy, June 28, 1968, 52,214-A/68

Int. Cl. G06c 29/00; G06f 5/02

U.S. Cl. 235-61

10 Claims



Printout device comprising a store for storing the values of each order in a code having a plurality of digits and a series of characters corresponding to the different values of an order arranged so that a selected character is brought to a printing position by moving the characters according to a plurality of coordinates, the movement along each coordinate being controlled by a corresponding code digit.

provided for supplying this count-adjusting output signal from the comparator to the numerical control system for adjusting the offset value being employed by the numerical control system to the new or input offset value.

3,594,564

DECIMAL-TO-BINARY CONVERTER WITH CROSSBAR SWITCH

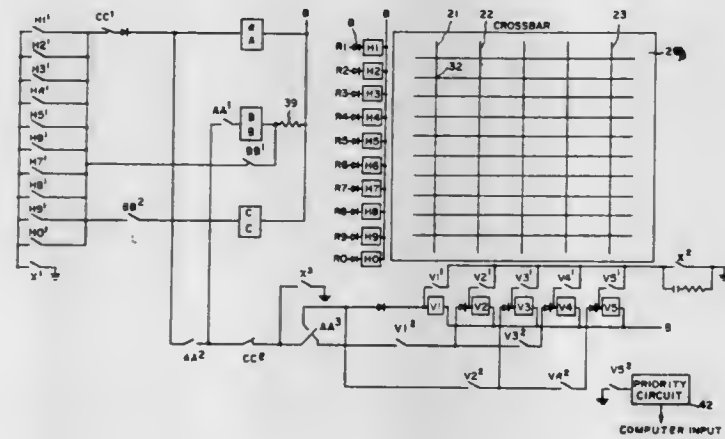
Robert F. Kane, New York, N.Y., assignor to Dialscan Systems, Inc., New York, N.Y.

Filed Jan. 29, 1969, Ser. No. 794,923

Int. Cl. H04I 3/00; G06F 3/00

U.S. Cl. 235-154

9 Claims



A decimal-to-binary or alpha-numeric-to-binary converter is described for converting telephone dial pulses or tones into binary coded form for transmission to a computer for processing. A crossbar switch is used, whose horizontals are associated with particular characters and whose verticals are operated in succession upon receipt of the next digit. The horizontal movable contacts are prewired in the desired binary code, which is derived by preferably scanning in succession all of the outputs of each vertical unit.

3,594,565

ROUND OFF APPARATUS FOR ELECTRONIC CALCULATORS

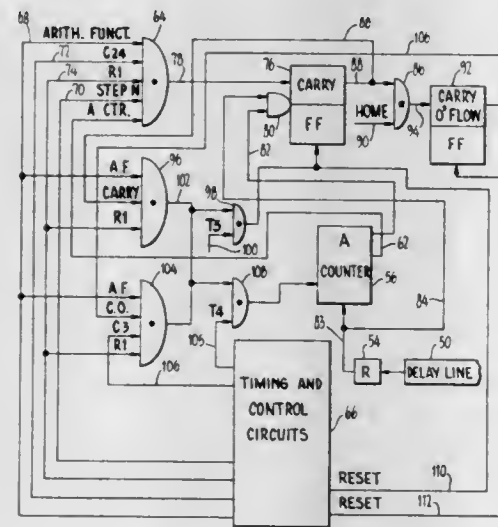
Robert A. Ragen, Hayward, Calif., assignor to The Singer Company

Filed May 31, 1968, Ser. No. 733,515

Int. Cl. G06F 7/38

U.S. Cl. 235-160

10 Claims



Rounding off numbers in a desk top electronic calculator having a data train that recirculates in accordance with a predetermined sequence is accomplished by sensing whether the numeral in the next least significant digit position following the least significant digit position of interest is five or greater when it occurs in a predetermined location of the data train. When the numeral is five or greater, this condition

is temporarily stored. Gating means coupled to the storage and to control signals indicative of the occurrence of the least significant digit position of interest in a predetermined location of the data train enables the numeral in the least significant digit position of interest to be increased by one. Much of the circuitry utilized to perform round off is also used to perform a carry function as arithmetically required.

3,594,566

LIGHT PROJECTOR

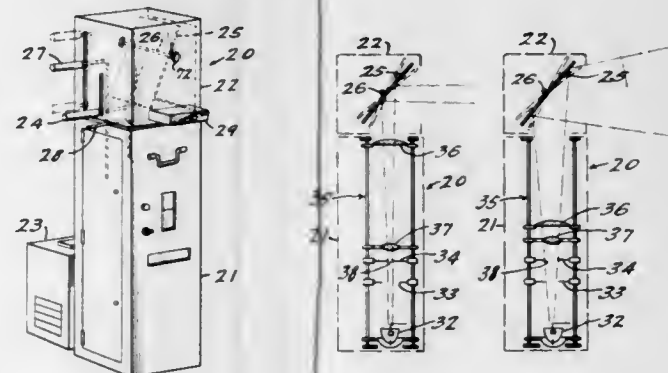
Richard F. Kneisley, Toledo, Ohio, assignor to The Kneisley Electric Company, Toledo, Ohio

Filed Oct. 13, 1969, Ser. No. 865,858

Int. Cl. F21p 5/00

U.S. Cl. 240-3

7 Claims



A theatrical spotlight for directing an adjustable diameter focused beam of light at either fixed or moving objects. A high-intensity beam of light passes upwardly from a xenon lamp through a shutter, an iris diaphragm and an adjustable lens system. A mirror is positioned to reflect the light beam to the target. The beam diameter and focus are adjusted with a single control lever which simultaneously adjusts the lens system and the iris diaphragm. The shutter is adjustable to cut off either a portion of or all of the light beam.

3,594,567

VEHICLE LAMPS

Dennis Joseph Holmes, Hall Green, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

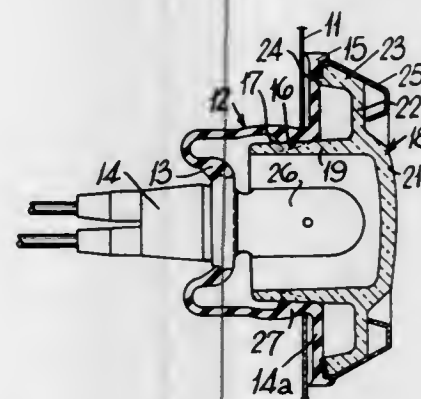
Filed June 17, 1969, Ser. No. 833,919

Claims priority, application Great Britain, June 28, 1968, 30903/68

Int. Cl. B60q 3/04

U.S. Cl. 240-8.16

2 Claims



A vehicle lamp includes a flexible cup-shaped body which supports a bulb and has an outwardly directed flange at its open end. Engageable with the body is a relatively rigid lens member including a portion received as a close fit within the body. The body is inserted through a hole in a panel, with the flange engaged with one face of the panel. The lens member is then engaged with the body and deforms said portion of the lens member to retain the lamp in position.

3,594,568

LUMINAIRE

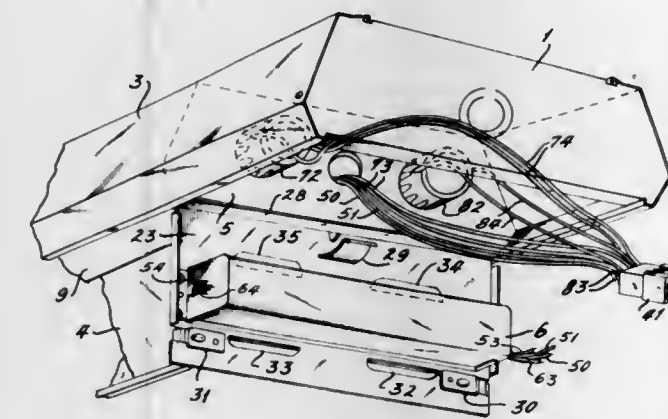
Edwin F. Guth, Jr., St. Louis, Mo., assignor to The Edwin F. Guth Company, St. Louis, Mo.

Filed July 16, 1968, Ser. No. 745,219

Int. Cl. H05b 33/02

U.S. Cl. 240-51.11 R

2 Claims



Luminaire for fluorescent lamps in which the ballast is housed in a compartment of the luminaire at one end of the lamps, and the compartment is provided with a downwardly opening, detachably hinged, door upon which the ballast is mounted. When the door is in closed position, the ballast casing is in heat-conductive contact with a metallic part which is exteriorly exposed at the top of the compartment for dissipating heat from the ballast.

3,594,569

RECTANGULAR ADJUSTABLE HEADLAMP ASSEMBLY FOR ROAD VEHICLES

John Webster Cranmore, Moseley, Birmingham, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

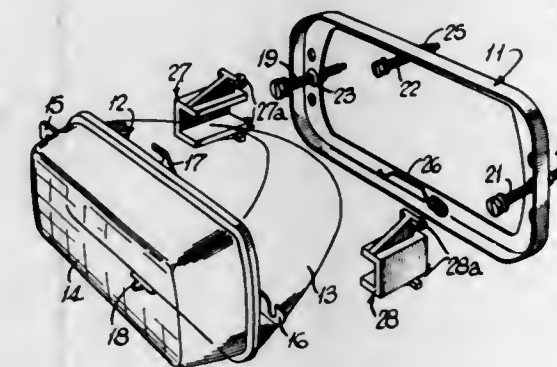
Filed Oct. 21, 1968, Ser. No. 769,170

Claims priority, application Great Britain, Oct. 27, 1967, 48871/67

Int. Cl. F21v 21/14

U.S. Cl. 240-44

5 Claims



A headlamp assembly includes a rectangular lamp unit having a pair of flanges which project from opposite sides of the unit respectively. The flanges lie on an imaginary line parallel with the horizontal axis of the lamp unit, and has engaged therewith respective screws. The screws are engaged at one end with the flanges for angular movement relative to the flanges, and are engaged at their opposite ends with respective nuts which are affixed to a support member. The arrangement is such that rotation of one of the screws in a direction to move its respective flange towards the support member while rotating the other screw through the same angular distance but in a direction to move its respective flange away from the support member, so as to adjust the attitude of the lamp unit with respect to the support member about a vertical axis passing through the midpoint of said imaginary line.

3,594,570

VEHICULAR GUIDANCE SYSTEM WITH COLLISION PREVENTION

Horst Schonbrodt, Stenwarde, Hamburg, and Volkmar Listing, Hamburg, both of, Germany, assignors to H. Jungheinrich & Co. Maschinenfabrik, Hamburg, Germany

Filed Mar. 21, 1968, Ser. No. 714,927

Claims priority, application Germany, Mar. 23, 1967, J 33 283

Int. Cl. B61I 23/10

U.S. Cl. 246-66

5 Claims



An improved installation for automatically guiding transportation vehicles along a track by means of a guide element defining and determining the track, wherein the improvement comprises means effectively preventing a collision of vehicles moving along the track at different speeds, without protruding into the path between the vehicles; the invention also comprises a guide rail and a transportation vehicle adapted to be used in such an installation.

3,594,571

VEHICULAR GUIDANCE SYSTEM WITH COLLISION PREVENTION

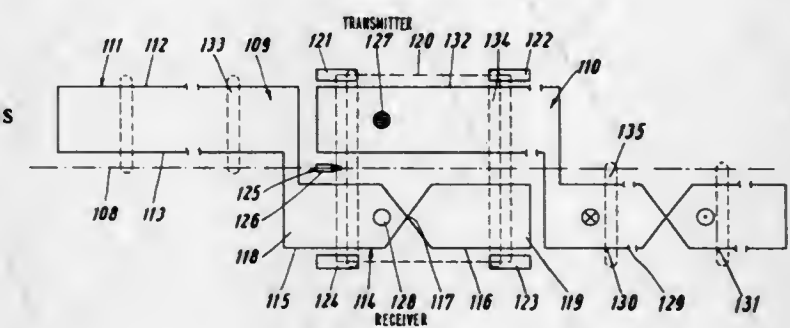
Horst Schonbrodt, Stenwarde, Hamburg, and Volkmar Listing, Hamburg, both of, Germany, assignors to H. Jungheinrich & Co. Maschinenfabrik, Hamburg, Germany

Continuation-in-part of application Ser. No. 714,927, Mar. 21, 1968. This application Sept. 19, 1968, Ser. No. 760,848

Int. Cl. B61I 23/16

U.S. Cl. 246-66

5 Claims



A vehicular guidance system for self-propelled vehicles moving along a track includes a series of elongate conductors following one another in overlapping relationship, each conductor having a leading portion on one side and a trailing portion on the other side of the track for cooperation with a high frequency transmitter and a corresponding receiver, respectively, aboard each vehicle. With the length of each conductor portion exceeding that of a vehicle, signals picked up by the receiver of one vehicle indicate the presence of another vehicle immediately ahead.

3,594,572

WAYSIDE CONTROL SYSTEM

Geza Horeczky, Pacific Palisades, Calif., assignor to The Dashaveyor Company, Venice, Calif.

Filed Apr. 10, 1969, Ser. No. 815,005

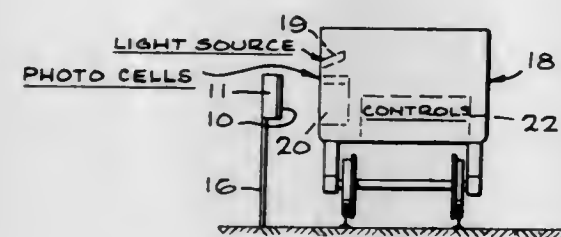
Int. Cl. B61I 3/22

U.S. Cl. 246-187 B

12 Claims

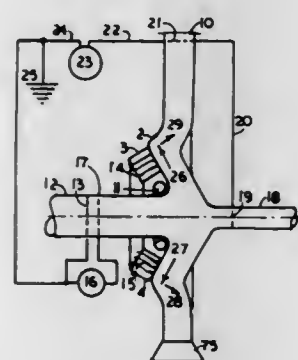
A system for automatically controlling a train employs a control means extending parallel to and along the length of the track wayside which represents information for controlling the train motion, for example. Means are provided on the train for scanning the control means and producing a

velocity control signal based on the ratio of two different light radiations provided by the control means for example.



This control signal is applied to the motor control system of the train to determine motor speed and thus, train velocity.

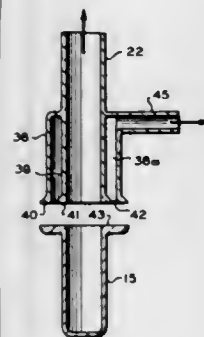
3,594,573
ELECTROMAGNETIC DEVICE FOR SEPARATION OF FLUID ISOTOPES
Henry Greber, 225 West, 80 St., Apt. 8-D, New York, N.Y.
Filed June 20, 1968, Ser. No. 738,542
Int. Cl. H01j 39/34
U.S. Cl. 250-41.9



This invention is related to an electromagnetic device for separation of the heavier isotopes from the lighter from a mixture of the two in fluid, particularly in gaseous state. This device consists of an essentially cylindrical enclosure with at least one of its circular walls covered with n coils, whose centerlines are spaced from each other by angles equal to $360^\circ/n$, and are fed from an n -phase source of AC, with each phase passed at least through a half-wave rectifier. Said coils create a radial magnetic field which rotates around the longitudinal axis of said cylindrical enclosure. The rotating magnetic field acting on positive ions of the gas pushes them toward the periphery of said enclosure. The ionization of said gas is brought about by means of a radioactive material emanating ionizing radiation, and/or a corona, or arc discharge between two electrodes, with the space between them passed by the gas. The ions of the lighter isotope, due to its smaller mass, have a larger velocity than have the ions of the heavier isotope. Therefore, the ions of lighter isotope are gathered at the periphery of said enclosure, from where they are directed through pipes, whereas the ions of the heavier isotope leave said enclosure near its center. Said difference in velocities of the ions of the different isotopes can also be achieved by means of a toroidal coil arranged at an entrance nozzle to said enclosure.

3,594,574
ALL-GLASS HEATED INLET SYSTEM FOR MASS SPECTROSCOPE WITH SAMPLE CHAMBER VACUUM SEAL
Thomas D. Morgan, and Robert J. Brunfeldt, both of Bartlesville, Okla., assignors to Phillips Petroleum Company
Filed Feb. 27, 1969, Ser. No. 802,936
Int. Cl. H01j 39/34
U.S. Cl. 250-41.9 S

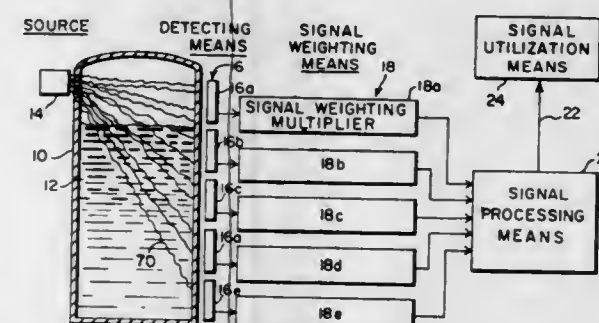
4 Claims



An all glass heated inlet system for a mass spectroscopy. The inlet system includes a valved manifold and a vacuum lock for sealingly connecting a sample container to the manifold.

3,594,575
LINEARIZATION OF RADIATION GAUGES FOR MEASURING THE QUANTITY OF FLUIDIC MATERIALS IN CONTAINERS
David J. Shoemaker, Columbus, Ohio, assignor to Industrial Nucleonics Corporation
Filed Aug. 30, 1968, Ser. No. 756,471
U.S. Cl. 250-43.5

15 Claims



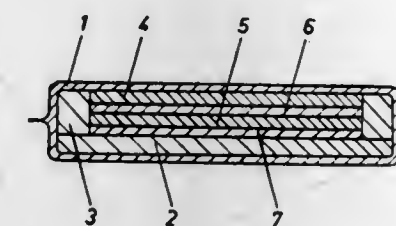
Specifically disclosed is a method and apparatus for linearizing the output of a nuclear radiation tank level gauge. A plurality of radiation detectors are vertically spaced along one side of the tank to produce separate signals which are fed to a summing amplifier and a point source is located on the opposite side of the tank. The summing amplifier has individually adjustable input resistors whereby each signal is individually weighted to produce an amplifier output signal which is linearized with respect to the liquid level in the tank. For standardization, when the liquid level is below the top detector, the signal from the top detector is separately fed to the amplifier input in substitution for the multiple input signals, and the gain of the measuring system is adjusted to compensate for changed parameters of the system.

3,594,576
X-RAY FILM HOLDER INCLUDING AN EVACUABLE ALUMINUM ENVELOPE
Hans Josef Muller-rech, Schrobenehausen, and Theodor Fischer, Hannover, both of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed June 4, 1969, Ser. No. 830,325
Claims priority, application Germany, Dec. 4, 1968, P 18 12 664.2
Int. Cl. G03b 41/16
U.S. Cl. 250-68

4 Claims

An X-ray film holder comprising a cover of laminated foil, prepared from an aluminum bag coated on both sides, and of

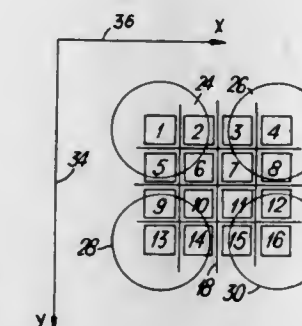
a bottom plate for supporting the X-ray film which is arranged between two intensifying foils, the bottom plate being system is used for orientation purposes either by (1) forming



provided on at least three sides thereof with a raised border or edge, which edges are tightly joined to one of the reinforcing foils.

3,594,577
INDICATING OR DETECTING APPARATUS FOR NUCLEAR RADIATION SUCH AS GAMMA RAYS
George Christopher Loveday, Southend-on-Sea, England, assignor to Ekco Electronics Limited, Southend-on-Sea, England
Filed Dec. 2, 1968, Ser. No. 780,465
Claims priority, application Great Britain, Dec. 7, 1967, 55591/67
Int. Cl. G01t 1/20
U.S. Cl. 250-71.5

13 Claims

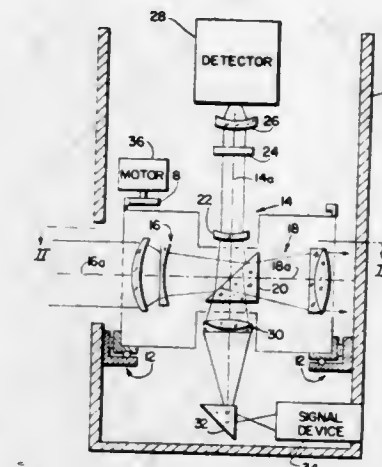


A gamma ray indicating or detecting apparatus comprising a mosaic of scintillation elements adapted to produce scintillations, a plurality of scintillation detectors arranged to view the elements, the field of view of each detector extending over a plurality of the elements, and overlapping the field of view of neighboring detectors, each detector being adapted to produce a respective detector pulse in response to a scintillation detected thereby, the peak amplitude of the respective pulse being dependent on the position of the scintillation relative to the detector, the detectors being arranged in parallel rows with reference to a cartesian coordinate system, each row being defined by a respective constant value of one of said coordinates, the detectors being arranged in rows parallel to the elements, the outputs of the detectors in each row being respectively summed to provide a respective row output pulse, the said row output pulses having peak amplitudes falling within predetermined amplitude ranges, and being indicative of the position of the particular scintillation element in the mosaic in which any particular scintillation occurs.

3,594,578
LINE SCANNER FOR INFRARED RADIATION
Claes Thomas Ohman, Taby, Sweden, assignor to AGA Aktibolag, Lidingo, Sweden
Filed Nov. 19, 1969, Ser. No. 878,069
Claims priority, application Sweden, Nov. 29, 1968, 16280/69
Int. Cl. H01j 3/14
U.S. Cl. 250-83.3

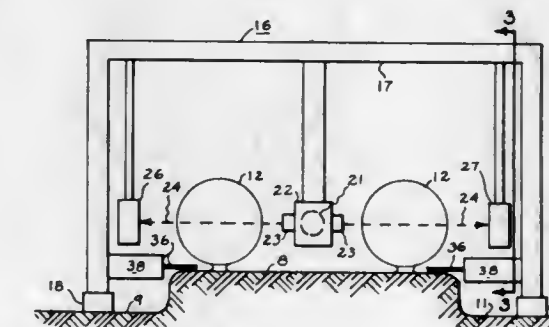
13 Claims

A line scanner for infrared radiation includes a rotatable unit which houses two optical systems, each responsive to different ranges of wavelength. A deflector arrangement deflects the optical axes of these systems in two directions along the axis of rotation of the unit. The first optical system



3,594,579
DEVICE AND METHOD USING GAMMA RAYS FOR SIZE AND DENSITY PRODUCE SELECTION
Roger E. Garrett, and Wilson K. Talley, both of Davis, Calif., assignors to The Regents of the University of California, Berkeley, Calif.
Filed June 6, 1968, Ser. No. 735,083
Int. Cl. G01t 1/202; G01n 9/24, 23/06
U.S. Cl. 250-83.3

1 Claim



A produce selector for harvesting produce moves a radiation source (viz. gamma rays) relative to the produce with a collimated pencil of radiation travelling through the produce to a receiver on the other side of the produce. The response of the receiver is a direct signal. This may be integrated to provide an indirect signal. These signals are used individually or together to afford a final response. A response exceeding a threshold value can be used to actuate a harvester. The method of selecting produce involves sending a signal through the produce, the signal being attenuated in accordance with the density and size (viz. thickness), and determining the value of the attenuated signal.

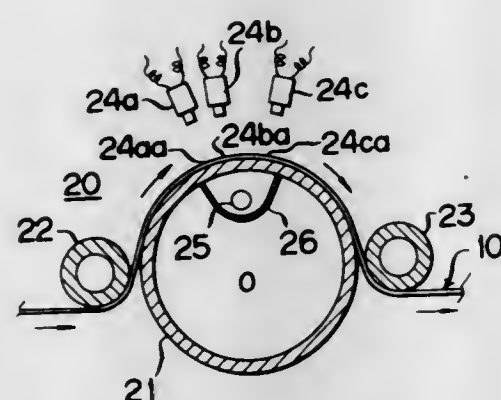
3,594,580
CHLORINE DIOXIDE PROCESS II
Göthe Oscar Westerlund, Vancouver, British Columbia, Canada, assignor to Chemtech Engineering Ltd., Vancouver, British Columbia, Canada
Division of Ser. No. 675,272, Oct. 2, 1967, Pat. No. 3,524,728.
Filed Apr. 16, 1969, Ser. No. 832,530
Int. Cl. C01b 11/02
U.S. Cl. 252-187

10 Claims

A continuous recyclic process and apparatus for the production of chlorine dioxide from an aqueous chlorination solution of gaseous hydrochloride. The hydrogen chloride is formed in situ by combustion of hydrogen gas and chlorine gas. The chlorine dioxide is used for bleaching pulp.

3,594,581

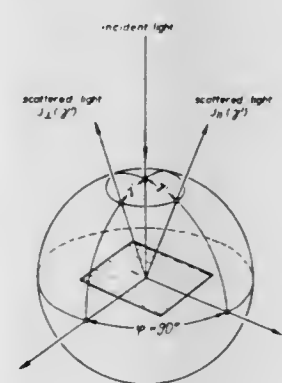
ROLL MICROFILM AND RETRIEVING DEVICE AND METHOD OF RETRIEVING
Hajime Yamashita, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Nov. 20, 1968, Ser. No. 777,301
Claims priority, application Japan, Nov. 27, 1967, 75988/67
Int. Cl. G01n 21/30; G03b 23/12; G06k 7/14
U.S. Cl. 250-219 8 Claims



A roll microfilm-retrieving device wherein a plurality of small signal marks disposed in a predetermined unequally spaced relation with respect to each other in each side edge portion of each of frames of the film are detected by a detecting device wherein a plurality of detecting elements whose number is the same with that of signal marks are disposed in the same relation with said relation of said marks, whereby a desired frame is located or retrieved by a number or counts of detection of said detecting device.

3,594,582

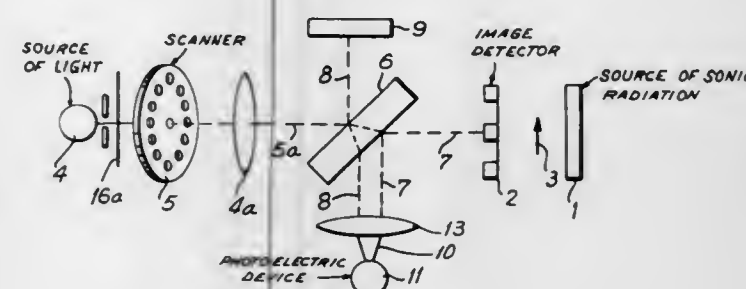
PROCESS FOR DETERMINING FLUCTUATIONS IN LEVEL IN MAGNETIZABLE LAYERS
Wilhelm Abeck, Leverkusen; Richard Menold, Leverkusen; Erich Muller, Neukirchen, and Burkhard Nippe, Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed June 6, 1969, Ser. No. 831,040
Claims priority, application Germany, June 26, 1968, P 17 72 725.2
Int. Cl. G01n 21/32
U.S. Cl. 250-219 DF 4 Claims



The invention relates to a process for optical detecting fluctuations in level in magnetizable layers of recording materials, wherein a beam of electromagnetic waves is made to fall on the moving magnetizable layer and the intensity of the scattered radiation emitted is measured. The variations in the structure of the magnetizable layers reach the surface and thus alter the optical behavior of the magnetizable layer. The process is suitable for continuous checking of magnetizable tapes during the manufacturing process.

3,594,583

ELECTRO-OPTICAL DEVICES FOR DETECTING IMAGES OF INVISIBLE RADIATIONS USING INTERACTION OF LIGHT BEAMS
Edward Emanuel Sheldon, 30 East 40th St., New York, N.Y.
Filed Aug. 22, 1966, Ser. No. 573,932
Int. Cl. H011 17/00
U.S. Cl. 250-220 18 Claims

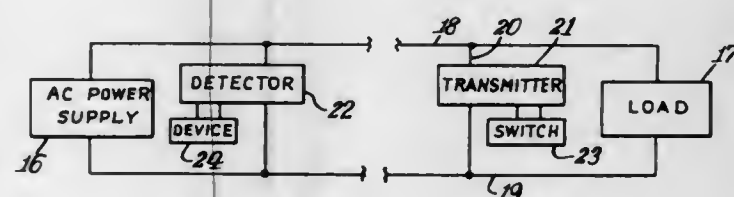


This invention relates to devices for detecting images of invisible radiations and reproducing them as visible images. These devices are provided with detecting means which upon irradiation by a beam of invisible radiation carrying the image of the examined body exhibit various "optical" changes. These changes are analyzed in a scanning mode point after point by a monochromatic light beam which after recombination with nonmodulated part of said monochromatic light beam provides readout information about said invisible image. This scanning readout is characterized by means providing the same angle of incidence of light beams on all successive points of said detecting means. The above readout information is received and subsequently converted by photoelectric means into an image.

In another embodiment of this invention instead of scanning readout means are provided to produce simultaneously a plurality of combined monochromatic light beams for simultaneous readout of said optical changes. It is also characteristic for this embodiment that photoelectric means receive said plural combined light beams simultaneously.

3,594,584

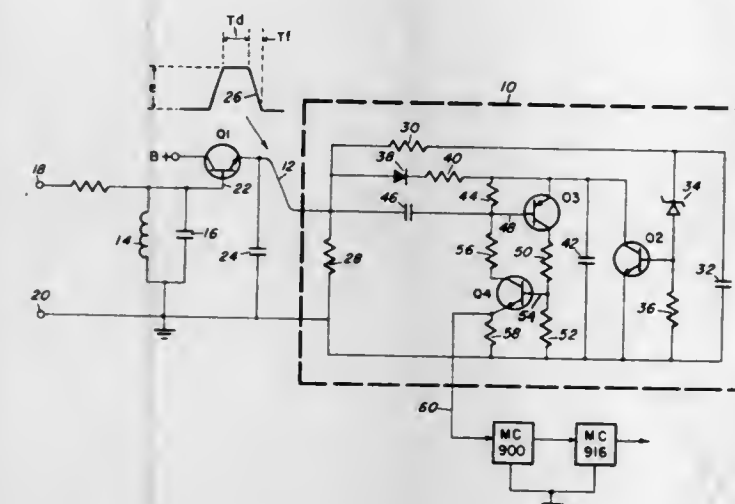
TELEMETRY CIRCUIT FOR AN AC POWER SYSTEM
Richard E. Woods, Markle, Ind., assignor to Franklin Electric Co., Inc., Bluffton, Ind.
Filed Sept. 3, 1968, Ser. No. 756,931
Int. Cl. H02j 3/02
U.S. Cl. 307-3 16 Claims



This disclosure deals with an electric system including an alternating current power supply, at least a pair of power lines adapted to connect the power supply to a load, a pulse transmitter connected across the power lines, and a pulse detector connected to the power lines. The pulse transmitter includes a potential breakdown device and a potential storage device. As the AC potential across the two power lines, which is also the potential across the transmitter, changes, the breakdown device responds to the instantaneous potential drop across the power lines and fires. Either charging or discharging current then flows through the breakdown device and the storage device, such current flow resulting in a pulse appearing on the two power lines. This pulse is picked up by the detector.

3,594,585

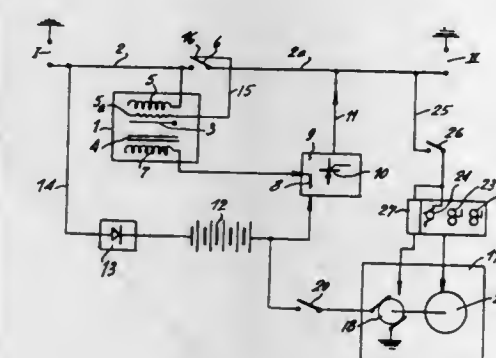
PULSE RECOGNITION CIRCUIT
Joseph A. Bourget, Glencoe, Md., assignor to Chesapeake Systems Corporation, Cockeysville, Mo.
Filed May 31, 1968, Ser. No. 733,405
Int. Cl. H03k 5/20
U.S. Cl. 307-234 13 Claims



The disclosure describes a circuit capable of recognizing a succession of changes in an electrical signal and of discriminating against signals having amplitude, duration or fall times which lie outside predetermined values. The circuit requires no separate power supply, relaying on the input signal for its power supply and thus consuming no power during standby, and provides a combination of elements which is sensitive to voltage level changes appearing at discrete time intervals.

3,594,586

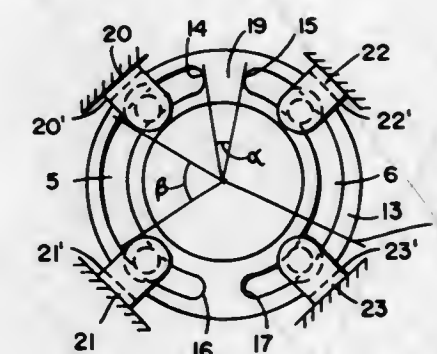
INSTALLATION FOR FURNISHING CURRENT WITHOUT DISCONTINUITY IN CASE OF POWER FAILURE
Rene A. M. Toesca, Boyertown, Pa., assignor to Energy Transformation Corporation, Boyertown, Pa.
Continuation of application Ser. No. 542,531, Apr. 14, 1966.
This application May 23, 1969, Ser. No. 828,108
Claims priority, application France, Apr. 16, 1965, 13660
Int. Cl. H02j 9/00
U.S. Cl. 307-66 11 Claims



This emergency standby power system includes a battery which is constantly charged whenever the normal AC source is functioning. The battery supplies power to an inverter which is coupled to one of the output terminals and which is synchronized by induced voltages applied to the inverter input in response to the vibrations of a vibrating magnetic element. The vibrating element responds to the AC source when it is functioning and to an auxiliary winding connected to the output of the inverter when the AC source is not functioning. When the AC source is not functioning, a turbine-driven DC generator applies current to power the inverter.

3,594,587

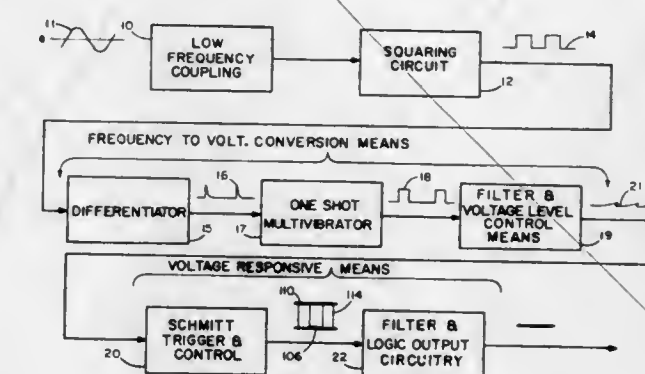
DEVICE FOR TRANSMITTING SIGNALS BETWEEN A ROTATABLE MEMBER AND A FIXED MEMBER
Gerhard Martens, and Herbert Turk, both of Remscheid-Lennep, Germany, assignors to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany
Filed Dec. 18, 1969, Ser. No. 886,087
Claims priority, application Germany, Dec. 24, 1968, P 18 16 936.3
Int. Cl. G01k 13/08
U.S. Cl. 307-149 5 Claims



A device for the transmission of two or more signals, such as control signals, between a rotatable member such as a roller and a fixed or stationary member, e.g. as required in textile machines for the control of heated godets or rollers which convey thread on a heated surface maintained at a predetermined temperature, said device including at least two elongated arcuate signal transmitting elements carried rotatably on an annular planar support secured to the godet or roller and preferably two stationary transmitting elements for each of the rotatably carried transmitting elements wherein at least one of the stationary transmitting elements always remains in an operative coupling position with a rotatably carried transmitting element to form an individual transmitting unit for one of the signals.

3,594,588

FREQUENCY DETECTION SYSTEM
Philip C. Evans, Phoenix, and Robert J. Haver, Tempe, both of Ariz., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Apr. 1, 1969, Ser. No. 811,720
Int. Cl. H03k 5/00
U.S. Cl. 307-233 7 Claims



A frequency-detecting system which includes frequency-to-voltage conversion circuitry operative to convert a fixed frequency signal into a DC ripple voltage, the level of which may be varied by varying system resistance. A Schmitt trigger is connected to receive the DC ripple voltage and provide in response thereto either: (1) one or the other of two fixed DC output voltages, or (2) an output pulse waveform which alternates between the two fixed DC voltage levels. An output circuit is connected to the Schmitt trigger to provide one output voltage if the Schmitt trigger output signal is an alternating voltage and another output voltage if the Schmitt trigger output signal is a fixed DC voltage.

3,594,589

SAMPLE AND HOLD CIRCUIT

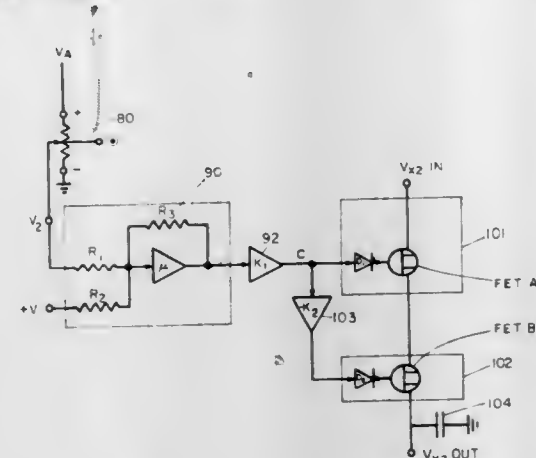
Robert L. Hail, Marblehead, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 660,436, Aug. 14, 1967
Filed Mar. 23, 1970, Ser. No. 21,992

Int. Cl. H03k 5/20, 17/60

U.S. Cl. 307-235

5 Claims



A circuit for maintaining the level of an output signal at a value which is essentially equal to the value of a periodically sampled input signal, said circuit including a pair of gates which are made simultaneously conductive over a controlled sampling time interval whereby an input signal is applied to a storage device which thereupon produces an output signal, the level of which is maintained for a particular time period at the level of the sampled input signal.

3,594,590

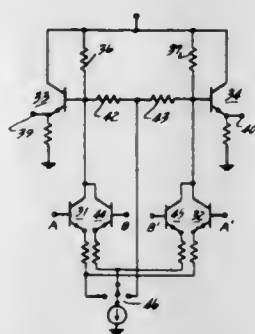
MEMORY SENSE AMPLIFIER

Kirk W. Smith, West Acton, Mass., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 9, 1968, Ser. No. 782,305
Int. Cl. H03k 17/60

U.S. Cl. 307-243

4 Claims



A multiple channel gated computer memory sense amplifier is provided having a multiplicity of inputs which are amplified by a multiplicity of preamplifiers in a predetermined timed sequence prior to linear amplification and buffering. The amplifier is gated in its preamplifier unit such time as the preamplifier is to be rendered operative. Switching transients are eliminated by providing a bridge circuit to carry the biasing current when the preamplifiers are in standby condition.

3,594,591

ALTERNATING CURRENT CONTROL DEVICE

Robert R. Laupman, Wijchen, Netherlands, assignor to N. V. Auco, Wijchen, Netherlands

Filed Jan. 15, 1969, Ser. No. 791,262

Claims priority, application Netherlands, Jan. 15, 1968, 6800603

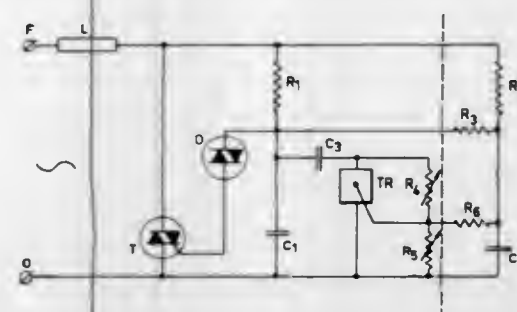
Int. Cl. H03k 17/00

U.S. Cl. 307-252B

11 Claims

A device for controlling AC flowing through a load by means of an AC thyristor which is triggered through a trigger control network arrangement comprising an AC diode and a

network arrangement known per se which functions as a bilateral transistor. In order to obtain an automatic compensation for inequalities of the transistors used in the aforesaid



network arrangement, and also in order to extend the range over which the AC current value can be controlled, a capacitor is included between said AC diode and said network arrangement known per se.

3,594,592

PULSE SHAPER

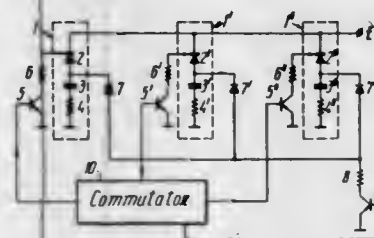
Vyacheslav Ivanovich Denisko, ulitsa Moskovskaya, 305, kv. 51; Valery Andreevich Morschakov, ulitsa Shkolnaya, 14, kv. 24, and Eduard Abramovich Gershenzon, ulitsa Shkolnaya, 14, kv. 24, all of Riga, U.S.S.R.

Filed Aug. 22, 1968, Ser. No. 754,590

Int. Cl. H03k 5/00

U.S. Cl. 307-260

4 Claims



A pulse shaper for shaping pulses which are time-lagged with respect to each other, including a plurality of shaper circuits, each of the shaper circuits being provided with a charging and a discharging circuit, and a control circuit for alternately energizing the charging and discharging circuit of each shaper and for energizing each of the shapers successively. The discharging circuit of each shaper is connected through a keyed circuit which is supplied with control signals from the control circuit.

3,594,593

ACTIVE IMPEDANCE MATCHING OF MICROWAVE ACOUSTIC DEVICES

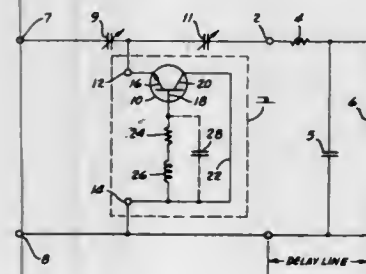
Raymond Y-C Ho, Menlo Park, and Alfred J. Bahr, Mountain View, both of, Calif., assignors to Stanford Research Institute, Menlo Park, Calif.

Filed May 2, 1969, Ser. No. 821,269

Int. Cl. H03h 7/38

U.S. Cl. 307-295

4 Claims



The impedance of delay lines (particularly acoustic delay lines) is matched to the microwave source utilizing active networks synthesized from inverted common collector

3,594,596

HOMOPOLAR ELECTRICAL MACHINES

John Frederick Eastham, Long Ditton, Surry, England, assignor to National Research Development Corporation, London, England

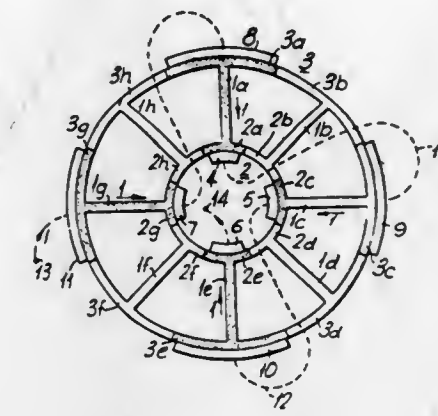
Filed Apr. 1, 1969, Ser. No. 812,203

Claims priority, application Great Britain, Apr. 9, 1968, 16983/68

Int. Cl. H02k 31/00

U.S. Cl. 310-178

4 Claims



3,594,594

TUNNEL DIODE FREQUENCY-TRANSFORMING CIRCUIT

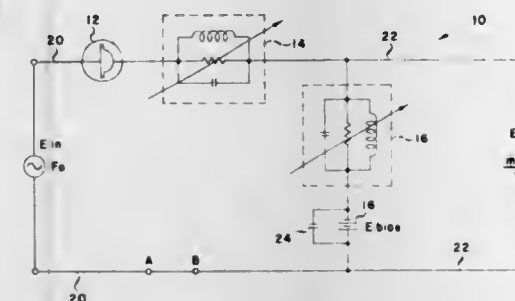
Peter S. Castro, Los Altos, Calif., assignor to Lockheed Aircraft Corporation, Burbanks, Calif.

Filed Dec. 12, 1968, Ser. No. 783,785

Int. Cl. H03b 19/00; H03k 3/31

U.S. Cl. 307-322

1 Claim



Frequency division of an RF input signal is provided by a circuit having a tunnel diode and resonant circuitry tuned to the input frequency and also tuned to a selected output frequency, which is a ratio or subharmonic of the input frequency. The tunnel diode is biased so that no oscillation and no output signal occurs in the circuit in the absence of the input signal. When an input signal is applied selected subharmonic signals extend into the negative resistance region of the tunnel diode and are sustained.

A homopolar electrical machine having a sectorially subdivided rotor wherein there are two magnetically separate current paths in each sector, which current paths are magnetically coupled to a corresponding current path of an adjacent sector at either side to reduce commutation induced voltages.

3,594,597

DEVICE FOR FIXING STATOR WINDING BARS IN THE SLOTS OF ELECTRIC MACHINES

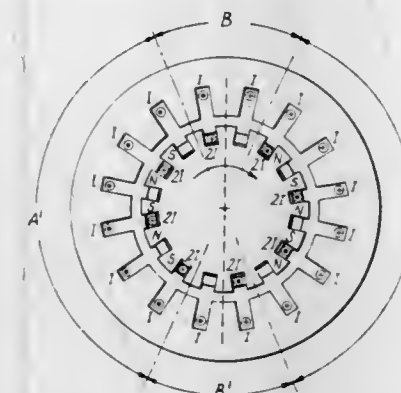
Vasily Semenovich Kildishev, ulitsa Plekhanovskaya, 41/43, kv. 55; Boris Leonidovich Kononov, ulitsa 12 Aprelya, 10, kv. 16; Alexandr Abramovich Chigirinsky, ulitsa Kuibysheva, 11, kv. 8; Lazar Yankelevich Stanislavsky, ulitsa Mayakovskogo, 11, kv. 24; Boris Volkovich Spivak, ulitsa Kosiora, 56, kv. 55, and Vladimir Grigorievich Rakogon, ulitsa Bairona, 146/2, kv. 19, all of Kharkov, U.S.S.R.

Filed Dec. 24, 1969, Ser. No. 888,013

Int. Cl. H02k 3/48

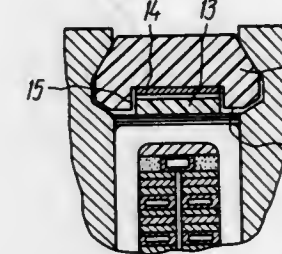
U.S. Cl. 310-214

8 Claims



An inductor alternator the stator member of which carries a DC excitation winding and an output winding, which may be multiphase, and a rotor member carrying a short-circuited winding. The short-circuited winding may be a squirrel cage or may comprise conductor bars connected in series with each other between end rings or else may be connected to form short-circuited coils. The action of the machine is that circulating currents are generated in the rotor winding as the rotor rotates the direction of these currents reversing over pole pitches of the excitation winding and the multipole field so generated causes alternating currents to be generated in the output winding.

A device for fixing stator winding bars in the slots of electrical machines, comprises a wedge constituted of two portions of which one is placed into a longitudinal groove in the other portion; an elastic member is provided between the wedge portions to create an interference between the wedge and the bar, the elastic member being adapted, while in operation, to press one of the wedge portions against the winding bar.



3,594,598

SPARK-SUPPRESSING COMMUTATOR ARRANGEMENT FOR ELECTRIC MOTOR

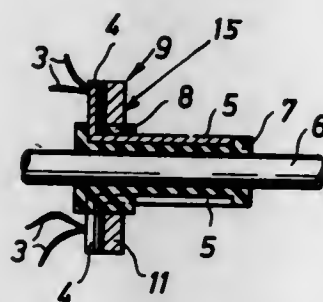
Gerhard Schaub, Nurnberg, Germany, assignor to Gebr. Buhler NACHF. GmbH, Nurnberg, Germany
Filed Oct. 6, 1969, Ser. No. 863,842

Claims priority, application Germany, Oct. 23, 1968, G 68 03 418

Int. Cl. H02k 13/10

U.S. Cl. 310-220

8 Claims



An electric motor with quenching capacitors, particularly a miniature motor of this type, has a carrier ring supporting the capacitors and seated on the rotor shaft concentric therewith. The ring is secured to soldering flags which also connect the capacitors with the commutator segments of the rotor whereby all the capacitors can be assembled as a structural unit on the rotor without causing imbalances and can also be conveniently connected to the commutator segments of the rotor.

3,594,599

DIRECT CURRENT DYNAMOELECTRIC MACHINES

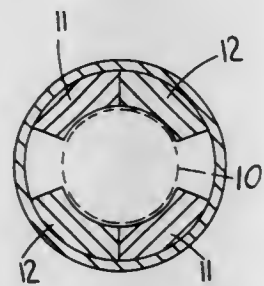
John Godfrey Wilson West, Sutton Coldfield, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Aug. 4, 1969, Ser. No. 847,249
Claims priority, application Great Britain, Aug. 16, 1968, 39,324/68

Int. Cl. H02k 1/12

U.S. Cl. 310-258

5 Claims



A direct current dynamoelectric machine has poles in the usual way, but each pole has a first portion formed from steel and a second portion formed from ferrite material. The steel has a lower reluctance than the ferrite material, but in use the flux density is increased by armature reaction in the vicinity of the steel portion, and reduced by armature reaction in the vicinity of the ferrite portion, so that the required characteristics of the machine are obtained with a saving in material. The same effect, utilizing the armature reaction to increase flux density beneath a pole part which has a lower reluctance than the other part of the pole, can be achieved in other ways.

3,594,600

CONVERGENCE MEANS FOR A PLURAL BEAM COLOR PICTURE TUBE

Hiroshi Murata; Akiyoshi Inose; Masahide Sawai, and Yuzo Fuse, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

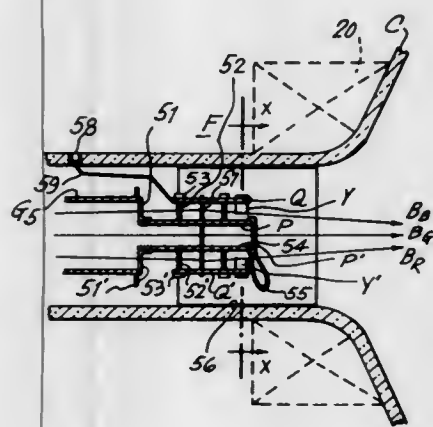
Filed Dec. 29, 1969, Ser. No. 888,338

Claims priority, application Japan, Dec. 30, 1968, 43/96500

Int. Cl. H01j 29/50, 29/76

U.S. Cl. 313-79

7 Claims



In a color cathode-ray tube of the plural-beam type wherein the beams originate on a horizontal or vertical straight line and are directed into fields produced by a horizontal-vertical electromagnetic deflection yoke at predetermined incident angles to each other so as to converge at a color screen, magnetic shielding means, for example, secured to electron beam convergence plates, are disposed for selectively shielding at least one of the beams from the leakage flux produced by the horizontal-vertical electromagnetic deflection yoke in deflecting the beams in the direction of the line of origination thereof, whereby such leakage flux acts selectively on only the unshielded beam or beams for correcting a deviation between the positions of rasters on the color screen produced by the plural beams.

3,594,601

HOLDER AND MOUNTING MEANS FOR CERAMIC CRT CATHODE RING

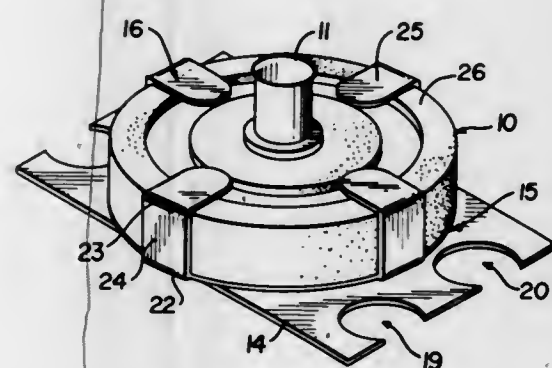
Horst H. Blumenberg, Owensboro, Ky., assignor to Kentucky Electronics Corporation, Owensboro, Ky.

Filed Jan. 28, 1970, Ser. No. 6,398

Int. Cl. H01j 1/94, 29/02

U.S. Cl. 313-82 R

9 Claims



An electron gun for a cathode-ray tube has a cathode centrally mounted in a ceramic ring. The ring has a metal holder comprising a flat plate with means extending about the periphery of the ring and forming a clamp against the other side. The cathode assembly is held in the electron gun assembly by embedding the edges of a flat plate extending from the ring into a pair of glass beads. The cathode is critically spaced from a grid comprising a flat apertured plate by having edges of the plate embedded in the same glass beads.

3,594,602

DISPLAY DEVICE INCLUDING RESILIENT MOUNTING MEANS

Norman Lee Lindburg, Berkeley Heights, N.J., assignor to RCA Corporation

Filed May 13, 1969, Ser. No. 824,057

Int. Cl. H01j 61/66

U.S. Cl. 313-109.5

9 Claims



A display device comprises an envelope having a stem including leads therethrough. Mounted on the leads within the envelope is a rigid substrate having a plurality of light sources thereon. To prevent movement of the substrate relative to the envelope, leaf springs are provided rigidly affixed to the substrate and in spring-flexed engagement with the inside wall of the envelope.

3,594,603

FIELD EMISSION CIRCUIT ELEMENT AND CIRCUIT

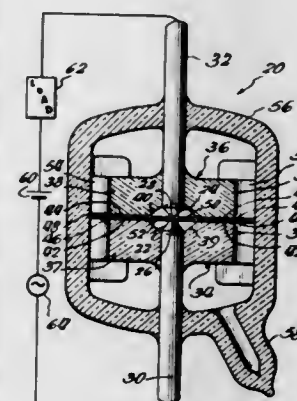
Walter P. Guckenburgh, Linthicum, Md., assignor to DeSoto, Inc., Des Plaines, Ill.

Filed Apr. 29, 1968, Ser. No. 724,845

Int. Cl. H01j 25/74; H04b 1/04

U.S. Cl. 313-214

12 Claims



A field emission circuit element adaptable for use at the millimeter wave range of the frequency spectrum. The field emission element may take the form of a diode embodiment including a pair of electrodes presenting opposing emitter and collector surfaces bounding a vacuum gap having a configuration defining a regular field region terminating at the surfaces. The circuit element is characterized by minute gaps and high vacuums whereby the regular field region is capable in the presence of applied electric potential of providing an electric field for producing at the emitter surface electron field emission controllable at the millimeter wave range.

3,594,604

HIGH-POWER ELECTRON TUBE HAVING TWO LONGITUDINALLY DISPLACED CATHODE SECTIONS

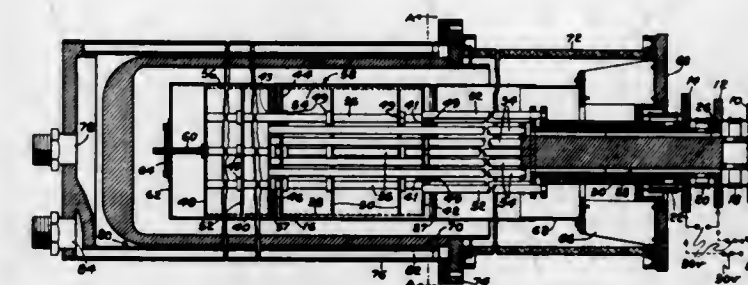
Joseph J. Trichter, Bethlehem, and Paul Merrick, Easton, both of, Pa., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed May 17, 1968, Ser. No. 730,140

Int. Cl. H01j 1/94, 19/48

U.S. Cl. 313-278

10 Claims



A split cathode and support structure for a high-power triode permit operation at increased voltages and relatively low currents. Longitudinal conductive support members maintain dimensional stability of the elements while providing a common connection to both portions of the cathode.

3,594,605

MODE SUPPRESSION MEANS FOR A CLOVER-LEAF SLOW WAVE CIRCUIT

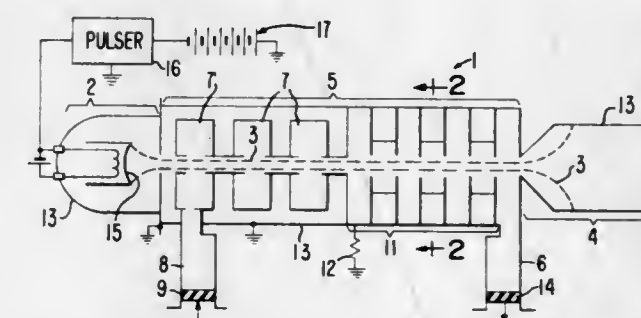
Charles E. Blinn, Sunnyvale, CA, assignor to Varian Associates, Palo Alto, Calif.

Filed Oct. 31, 1969, Ser. No. 872,887

Int. Cl. H01j 25/34

U.S. Cl. 315-3.5

6 Claims



A microwave velocity modulation electron tube employing a cloverleaf slow wave structure has a mode suppression cavity resonator provided in the conductive nose portions of the slow wave circuit. The mode suppression cavities are coupled through a pair of elongated coupling slots provided in the sidewalls of the noses. The mode suppression cavities are coated with a lossy wave energy attenuating material for absorbing wave energy coupled thereto. The mode suppression cavities are capacitively loaded by post structures and stagger tuned for suppressing undesired modes of oscillations.

3,594,606

VELOCITY MODULATION TUBE EMPLOYING CASCADED HARMONIC PREBUNCHING

Erling L. Lien, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Apr. 15, 1970, Ser. No. 28,791

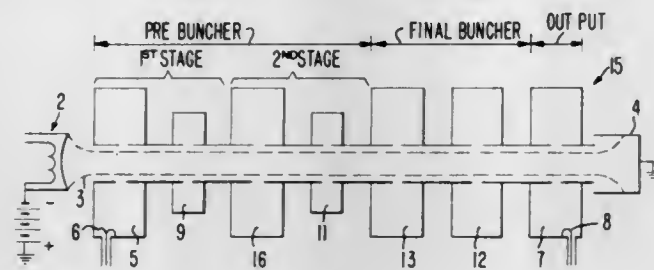
Int. Cl. H01j 25/12

U.S. Cl. 315-5.43

7 Claims

A velocity modulation microwave tube is disclosed. The tube includes an input circuit, an output circuit and a penultimate resonator circuit disposed along the beam. A pair of second harmonic floating prebuncher resonators are disposed along the beam path intermediate the input circuit and the penultimate resonator. The second harmonic resonators improve the bunching of the beam by moving electrons from

the interbunch region of the beam into the bunched region of the beam. A resonator tuned for a fundamental mode of resonance at the fundamental frequency of the tube is interposed between the pair of second harmonic resonators for



rebunching the electron bunches of the beam downstream of the first second harmonic cavity. The second harmonic resonators with the fundamental resonator interposed therebetween substantially improve the conversion efficiency of the microwave tube.

3,594,607

DIRECT VIEWING BISTABLE STORAGE TUBE HAVING FAST ERASE SPEED

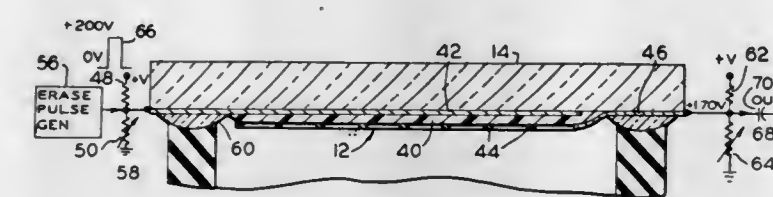
Roger A. Frankland, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Continuation-in-part of application Ser. No. 816,576, Apr. 16, 1969. This application Apr. 10, 1970, Ser. No. 27,383

Int. Cl. H01j 29/31

U.S. Cl. 315-12

15 Claims



A direct viewing bistable storage tube is described having a storage dielectric layer of phosphor material supported on the glass faceplate of such tube with a light transparent target electrode provided beneath such phosphor layer and a collector electrode in contact with the opposite side of such phosphor layer. High image resolution results from providing the collector electrode as a very fine mesh coating on the phosphor layer. The target electrode may be used as an erase electrode and because it is separate from the collector electrode the tube is provided with a faster erase speed, of about 1 to 50 milliseconds. Thus, the voltage on the collector electrode can be set for optimum secondary electron collection during erasure, as well as during storage, while the voltage of the erase electrode can be varied to provide an erase pulse of the proper amplitude and time for optimum erasure. The erase electrode can be split into a plurality of insulated conductive areas to provide independent operation of different portions of the storage dielectric in a storage or nonstorage mode. An intermediate layer of light transparent insulating material, such as silicon dioxide, may be provided between the target electrode and the phosphor layer to increase the voltage breakdown strength of the dielectric.

3,594,608

ELECTRON BEAM DISPLAY SYSTEM HAVING LIGHT DETECTOR PEN WITH ASSOCIATED SAMPLING AND MEMORY CIRCUITS

Jon C. Mutton, Tigard, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed May 12, 1969, Ser. No. 823,898

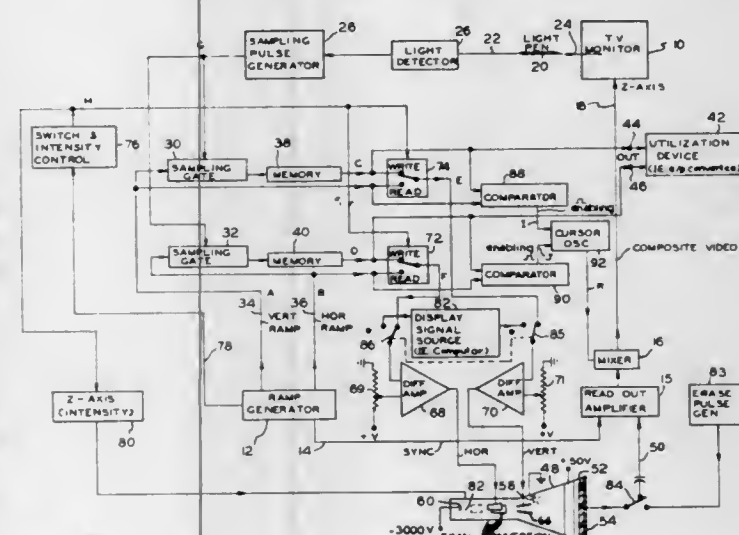
Int. Cl. H01j 29/74

U.S. Cl. 315-24

14 Claims

A cathode-ray tube display system is described in which a light pen is employed to indicate the position of and to write

on a selected portion of a display on a television monitor by detecting the light trace of the electron beam as it is deflected by the raster signal past such pen at the selected display portion. The system employs a sampling gate and an analog memory circuit for sampling horizontal and vertical ramp signals synchronized with the raster signal when a trigger signal is produced by the light detector, and for storing horizontal and vertical sample voltage levels corresponding to the position of the light pen. These sample voltages are



employed to write a light pen spot on the display during the retrace time of the horizontal raster signal, either by generating a cursor signal which is applied directly to the TV monitor or by applying such sample voltages to the deflection circuits of a scan conversion storage tube. Charge images of the display and the pen spot are written on the storage tube and stored so that during reading such tube supplies an electrical readout signal corresponding to such charge images to the TV monitor.

3,594,609

PLASMA GENERATOR WITH MAGNETIC FOCUSING AND WITH ADDITIONAL ADMISSION OF GAS

Alexandru Vas, Timisoara, Romania, assignor to Ministerul Industriei Constructiilor De Masini Calea Victoriei, Bucharest, Romania

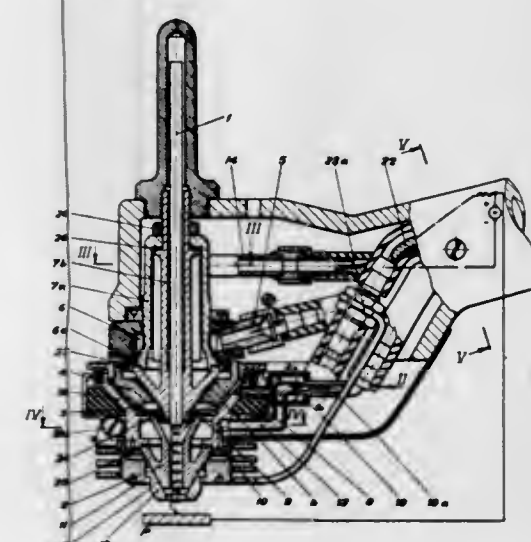
Filed Apr. 16, 1968, Ser. No. 721,843

Claims priority, application Romania, Apr. 17, 1967, 53571

Int. Cl. H05b 31/28

U.S. Cl. 315-111

3 Claims



This invention relates to a plasma arc generator, operating with a DC or AC supply and having improved characteristics by virtue of arrangements for rotating the arc and the injected gas, which may be air or nitrogen for example. The

plasma arc generator, is suitable for cutting, welding, built-up welding, (i.e. welding, in which a deposit of metals is built-up), metallizing and promoting chemical reactions.

3,594,610

DISPLAY PANEL WITH CORONA DISCHARGE CONTROL

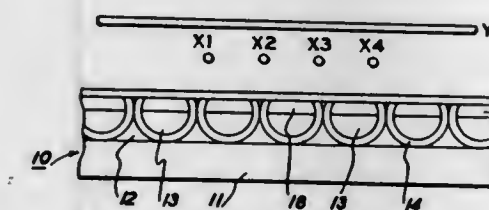
Paul F. Evans, Pittsford; Harold D. Lees, Rochester, and Martin S. Maltz, Fairport, all of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Apr. 14, 1969, Ser. No. 815,569

Int. Cl. H01j 1/62; H05b 43/00

U.S. Cl. 315-169

9 Claims



An electroluminescent display panel having solid state storage layers, an excitation current source and an ion generating source. When excitation current is applied to the panel luminescence is induced. A corona discharge created by addressing a matrix of conductors with a coincident voltage injects ions into the semiconductor control layer of the panel and alters the impedance state thereof. The change in the impedance state of the control layer alters the current flow through the panel resulting in a corresponding change in the state of panel luminescence. By selectively writing into an addressed matrix element either sequentially or simultaneously a pattern or image is formed on the panel face. The panel may be selectively erased by the addressing voltage source or by a separate erasing voltage source.

3,594,611

NOISE-FREE STATIC DISCHARGER

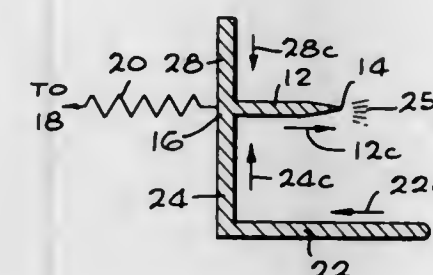
Robert L. Tanner, and Robert Michael Tanner, both of Palo Alto, Calif., assignors to Technology for Communications International, Mountain View, Calif.

Filed Oct. 9, 1968, Ser. No. 766,113

Int. Cl. B64d 45/02

U.S. Cl. 317-2 E

12 Claims



A noise-free static discharger including a conductive structure connected to a body in which static voltage builds up, by a high resistance element to provide DC connection therebetween is disclosed. The conductive structure includes at least one discharge pin with a sharp discharge point, to which are connected one or more conductive members which provide paths for the flow of RF currents, inducted therein by corona discharges, taking place at the sharp discharge point. These conductors have lengths and spatial orientations such that the RF currents induced in them create a sum of dipole moments which cancels the dipole moments of the currents in the corona discharge and in the discharge pin. The conductive members, which have blunted or rounded free tips, are preferably covered with insulating material to limit all static discharging to occur at the sharp point of the discharge pin.

3,594,612

OVERVOLTAGE PROTECTOR FOR THE LOAD OF FAST-SLEWING REGULATED POWER SUPPLIES

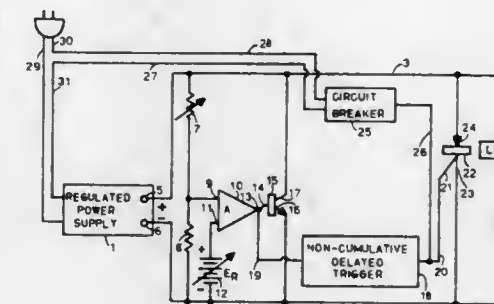
Joseph R. Gately, Woodside, N.Y., assignor to Forbro Design Corp., New York, N.Y.

Filed Feb. 24, 1970, Ser. No. 13,510

Int. Cl. H02b 3/20

U.S. Cl. 317-16

6 Claims



Fast-slewing regulated power supplies exhibit very short duration transient overvoltage conditions. These overvoltage spikes are attenuated when above a predetermined level. Overvoltage conditions of longer duration activate further clamping means and means for turning off the power supply.

Regulated power supplies are designed to supply predetermined voltage or current to a load. Highly regulated, stable power supplies are available. During normal steady-state operation the regulated voltage or current remains constant and no problems exist. Many loads for which such power supplies are used are extremely sensitive to overvoltage conditions, even those of extremely short duration. Power supplies having large capacitors across the output terminals tend to absorb short duration overvoltage tendencies or "spikes." For such power supplies overvoltage protective devices are designed to respond after a short delay so that, for example, turn-on transients will not trip the power supply off at once. This leaves a source of possible trouble, i.e. the turn-on transient unprovided for. In addition, fast-slewing rate power supplies have little or no capacity across their output terminals and turn-on and similar transients are greater than in conventional power supplies. Such transients may not be tolerable with some types of overvoltage sensitive loads.

3,594,613

TRANSFORMER CONNECTION

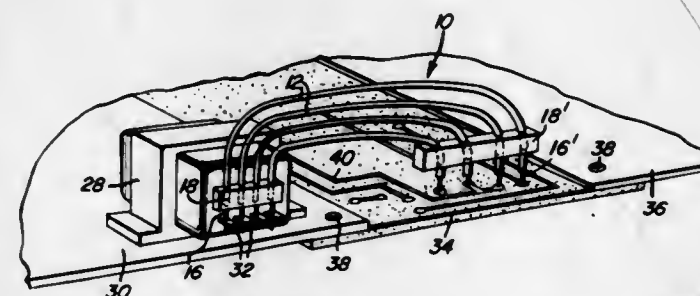
Joseph A. Prietula, Rensselaer, Ind., assignor to Woodward-Schumacher Electric Corporation

Filed Apr. 15, 1969, Ser. No. 816,357

Int. Cl. H02b 1/04; H01f 27/04

U.S. Cl. 317-101

4 Claims



A plurality of electrical leads retained in spaced parallel relation and passing through apertured guide blocks disposed at both ends of the leads. The conductor portions of the leads extend through the apertures for connection at one end to terminal lugs on a transformer housing. The opposite ends of the leads are stripped to permit the connection thereof to a circuit board.

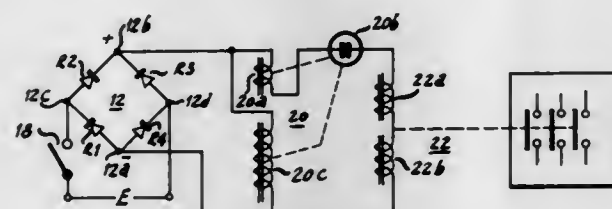
3,594,614 ENERGIZING CIRCUIT FOR THE DC OPERATING WINDING OF AN ELECTROMAGNETIC CONTACTOR OR THE LIKE

Werner B. Halbeck, Cedarburg, and John A. Quaal, Milwaukee, both of Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Feb. 26, 1970, Ser. No. 14,445
Int. Cl. H01h 47/02

U.S. Cl. 317-123

5 Claims



An improved circuit for energizing and quickly deenergizing the DC operating winding of an electromagnetic contactor from sources of AC supply having a wide range of frequencies. It employs a full wave rectifier bridge, an auxiliary electromagnetic switch having a pair of low-inductance operating windings and normally open contacts. One of the auxiliary switch windings of high resistance is connected across the DC output terminals of the rectifier bridge while the other thereof of low resistance is connected across the same terminal in series with the normally open contacts and the operating winding of the electromagnetic contactor.

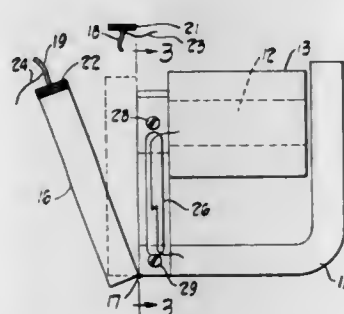
3,594,615 DIRECT-CURRENT MAGNET WITH ECONOMIZING REED CONTACT

John A. Cortelli, Old Mill Road P. O. Box 22, Gates Mills, Ohio

Filed Apr. 2, 1970, Ser. No. 25,170
Int. Cl. H01h 47/04

U.S. Cl. 317-154

7 Claims



In a contactor or other movable armature device a direct current magnet with an iron core is employed. Economizing means are provided. For instance, an economizer resistor is connected in series with the magnet winding and a reed switch, subject to magnet flux before the armature has picked up and sealed, is connected to shunt out the economizing resistor or other economizing means until the armature has picked up and sealed.

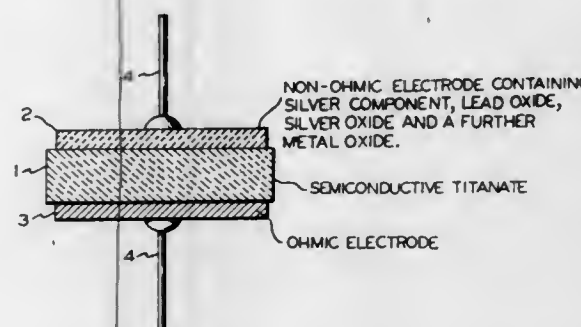
3,594,616 CERAMIC CAPACITOR COMPRISING SEMICONDUCTIVE BARIUM TITANATE BODY AND SILVER ALLOY ELECTRODES CONTAINING MINOR AMOUNTS OF LEAD OXIDE AND BISMUTH OXIDE

Tsuneharu Nitta, Osaka; Hiromitsu Taki, Osaka; Kaneomi Nagase, Kyoto, and Shigeru Hayakawa, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

Filed June 5, 1969, Ser. No. 830,607
Claims priority, application Japan, June 19, 1968, June 20, 1968, Sept. 25, 1968, 43/43044; 43/43207; 43/70654; 43/74056

Int. Cl. H01g 9/04; H01l 3/08
U.S. Cl. 317-230

nonohmic electrode on one surface thereof and an ohmic electrode on the other surface. The nonohmic electrode consists essentially of 93-55 percent by weight of silver component, 6.5-25 percent by weight of lead oxide and bismuth oxide and 0.5-38.5 percent by weight of at least one metal oxide selected from the group consisting of boron, copper,



cadmium, zinc, nickel, cobalt, iron, titanium, niobium and tantalum. The thickness of the nonohmic electrode after firing it onto the titanate plate is 40-250 microns. The titanate plate comprises barium titanate of a means grain size of 5 to 50 microns and has an electrical resistivity less than 10 ohm-cm. Such voltage dependent resistors are suitable for use in varistors.

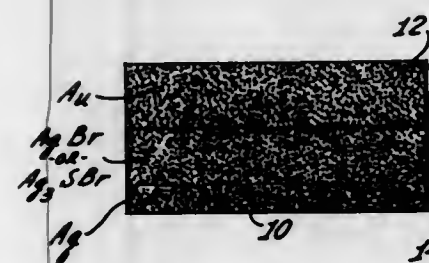
3,594,617 SOLID ELECTROLYTE ELECTROLYTIC CELL INDURING SILVER BROMIDE THEREIN

John H. Kennedy, Santa Barbara, Calif., assignor to The Bissett-Berman Corporation, Santa Monica, Calif.

Filed Aug. 25, 1969, Ser. No. 852,572
Int. Cl. H01g 9/00

U.S. Cl. 317-230

6 Claims



An electrolytic cell using a solid electrolyte such as polycrystalline silver bromide or silver sulfide bromide. A first electrode is formed from a powdered active metal such as powdered silver and the solid electrolyte is also formed from a powdered substance such as silver bromide or silver sulfide bromide. A second electrode is formed from a powdered inert metal such as powdered gold and the entire structure including the two electrodes sandwiching the solid electrolyte is then pressed together at a very high pressure to form the solid electrolyte electrolytic cell.

3,594,618 ELECTRONIC LOGIC ELEMENT

Hans Ludwig Hartnagel, Sheffield, England, assignor to National Research Development Corporation, London, England

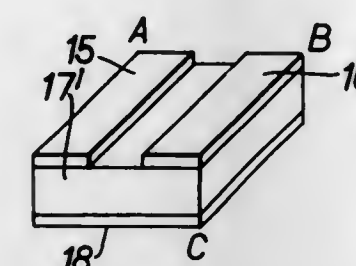
Filed June 21, 1968, Ser. No. 738,880
Claims priority, application Great Britain, June 22, 1967, Nov. 30, 1967, 28933/67; 54527/67
Int. Cl. H01l 9/00

U.S. Cl. 317-234 R

18 Claims

A logic element is described utilizing a travelling field domain phenomenon, such as the Gunn effect, which occurs in a body of material when a field is produced in the body above a first threshold value to nucleate a domain and is maintained above a second threshold value to sustain the domain. A plurality of contact means are carried on the body together with output means for detecting a field domain in the body and for deriving an output signal therefrom, and the

arrangement is such that application between a predetermined number of the contact means of a potential just sufficient to create a field domain in the body produces an output signal at the output means, but the application of the same potential between a number of the contact means greater



than the said predetermined number does not produce an output signal at the output means. One arrangement of the invention provides a comparator logic element having one primary electrode, and two secondary input electrodes, and a number of circuits utilizing this comparator are described.

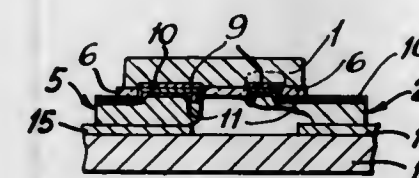
3,594,619 FACE-BONDED SEMICONDUCTOR DEVICE HAVING IMPROVED HEAT DISSIPATION

Mototaka Kamoshida, and Takashi Okada, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Sept. 25, 1968, Ser. No. 762,490
Claims priority, application Japan, Sept. 30, 1967, 42/62975
Int. Cl. H01l 1/12, 1/14

U.S. Cl. 317-234

2 Claims



A semiconductor device is described of the face bond type wherein beam leads in electrical contact with a semiconductor circuit located in a semiconductor pellet with a pellet region located between the circuit and an edge of the pellet outwardly project in cantilever fashion from the pellet edge. Special heat-conducting contacts are formed in between the beam leads in the pellet region to provide an improved heat-dissipating device.

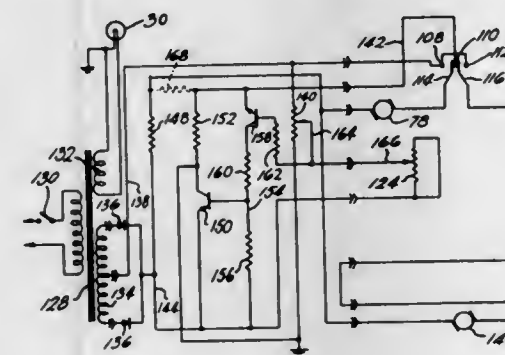
3,594,620 REAR LIGHTED PROJECTOR WITH DUAL ELECTRIC MOTOR DRIVE

David W. Husted, Ann Arbor, Mich.; James A. Holbrook, St. Petersburg, Fla., and Frederick K. Soll, Ann Arbor, Mich., assignors to Bala Corporation, Jackson, Mich.

Filed Dec. 30, 1968, Ser. No. 787,795
Int. Cl. H02p 5/46

U.S. Cl. 318-7

7 Claims



The invention pertains to viewing apparatus for motion-picture film and particularly concerns rear- or back-lighted

motion-picture viewing devices of the type commonly known as viewers, editors, and the like, and may include microreaders and other film magnifying and projecting apparatus wherein the film image is projected upon the rear surface of a translucent screen. The projecting and viewing apparatus includes a substantially horizontal deck upon which film reels are supported and the projector includes a front screen panel receiving the projected image. The film spindles are individually powered by electric motors associated with speed reduction gear trains, and the motor control circuit connects the motors in series such that both motors will be driven in either direction of reel spindle rotation and a supplemental current is maintained upon the motor winding film in order to insure the existence of a tension within the film.

3,594,621 CONTROL SYSTEM FOR OSCILLATORY MOVEMENTS

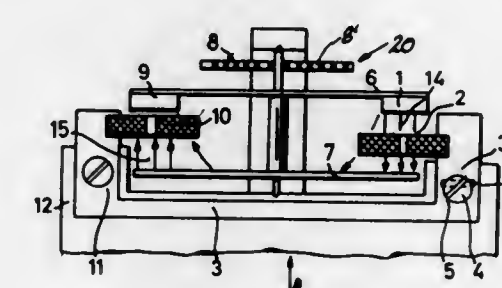
Helmut Stechmann, Schwennlingen Am Neckar, Germany, assignor to Klenzle Uhrenfabriken G.m.b.H., Schwennlingen am Neckar, Germany

Filed Nov. 24, 1969, Ser. No. 879,023
Claims priority, application Germany, Nov. 23, 1968, P 18 10 523.2

U.S. Cl. 318-128

Int. Cl. H02k 33/02

8 Claims



The invention concerns a device for adjusting or controlling the oscillation amplitude of a directly driven mechanical oscillating system which is equipped with at least one permanent magnet, which performs oscillations over a control coil, producing therein an induction voltage, which effects over an electronic circuit flow in an operating coil whose magnetic field has a drive effect on the oscillating system, the electronic circuit as a control circuit regulating the current flow in dependence on the induced voltage, so that the oscillation amplitude remains constant.

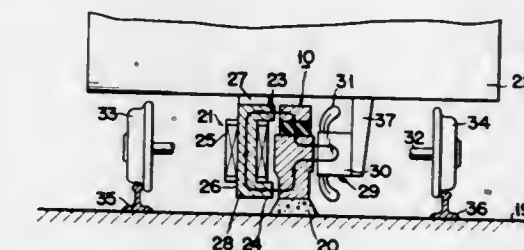
3,594,622 LINEAR COMB-SHAPED SYNCHRONOUS MOTOR

Junpei Inagaki, Yokohama, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Feb. 24, 1970, Ser. No. 13,733
Claims priority, application Japan, Feb. 24, 1969, 44/13165
Int. Cl. H02k 41/02

U.S. Cl. 318-135

13 Claims



In a linear comb-shaped synchronous motor, there is provided a linear comb-shaped reaction rail which includes a pair of elongated linear comb-shaped members, each of which also comprises an elongated yoke made of magnetic material and a plurality of poles similarly made of magnetic material integrally mounted on the yoke such that they are respectively positioned on the yoke apart from each other with a predetermined interval are placed.

There is also provided DC exciting means having core the legs of which are respectively directed to the yokes in order to supply the DC excitation for the poles. All the poles integral with one of the comb-shaped members are excited to make the north poles, and on the other hand, all of the poles integral with the other of the comb-shaped members are similarly excited to make the south poles.

There is also provided an armature having an armature winding and positioned opposite the functional surface of the pole surfaces. The armature winding is energized from an AC power supply in such a manner that the directions of the armature currents are varied each time the armature passes through the alternately magnetized poles.

3,594,623

AC MOTOR CONTROL SYSTEM WITH ANTICOGGING CIRCUIT

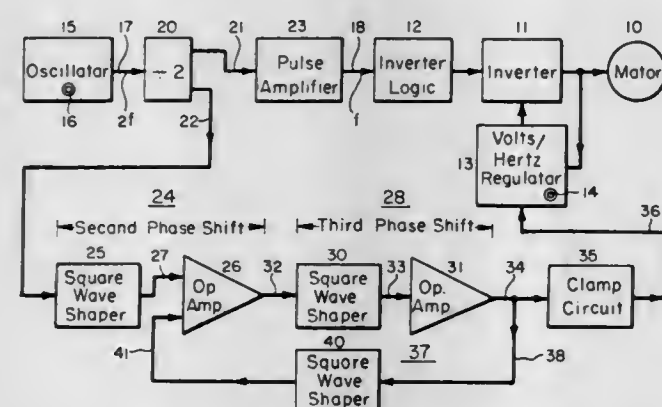
Donald M. Lamaster, Tustin, Calif., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Mar. 13, 1970, Ser. No. 19,170

Int. Cl. H02p 3/40

U.S. Cl. 318-227

8 Claims



A motor control system including conventional components such as a volts/hertz regulator to modify the inverter voltage amplitude, a logic stage to regulate inverter voltage frequency, and an oscillator for supplying timing pulses for the logic stage. To compensate undesired "cogging" at low operating frequencies, a square wave signal is produced and then integrated. An additional circuit is provided to incorporate additional phase shift in the signal which modulates the voltage passed from the inverter to the motor to prevent cogging. As the frequency of system operation increases, integration of the correction signal provides a modulating signal of decreasing amplitude. Thus the anticogging circuit is only effective at the lower end of the system operating range.

3,594,624

ELECTRICAL MOTOR CONTROLS INCLUDING NON-LINEAR SERIES RESONANT CIRCUITS

Ernst Lueder, Stuttgart sur, Germany, assignor to Firma Gebr. Buhler Nachfolger G.m.b.H., Kornerstrasse, Nurnberg, Germany

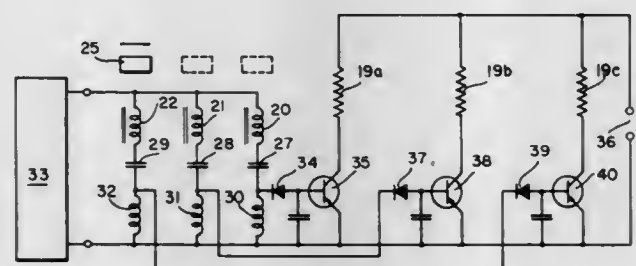
Filed Feb. 13, 1967, Ser. No. 615,517

Claims priority, application Germany, Feb. 15, 1966, L52862

Int. Cl. H02k 29/00

U.S. Cl. 318-254

1 Claim



Electrical controls which include a resonance circuit connected electrically to an oscillator and having a plurality of

circuit elements to one of which an output means is connected in parallel. A regulating means coacts with one of the circuit elements for influencing at least one of the parameters of the circuit. For example, the circuit may include an inductance coil and the regulating means may take the form of a permanent magnet which is moved in a predetermined manner with respect to the inductance coil so as to achieve in this way the controls of the invention. The output means is connected through a transistor, for example, to an element such as a stationary coil section of a commutator-less direct current motor, or the structure may act as a switch for controlling a circuit, so that in this way the structure will form an incorporeal switch.

3,594,625

DUAL SPEED MOTOR CONTROL

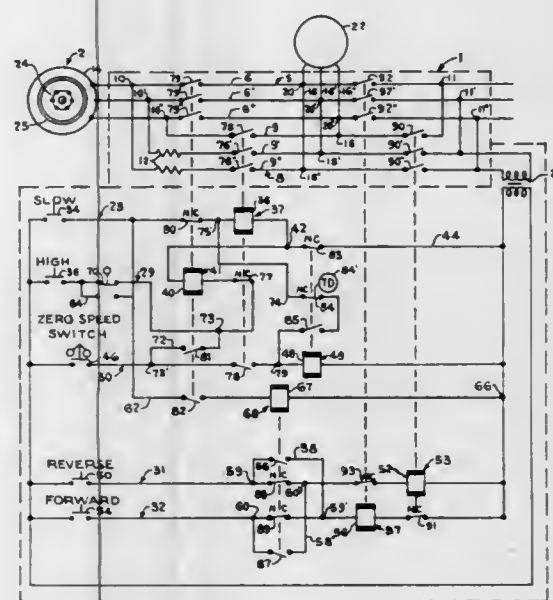
Raymond H. Richardson, Chicago, Ill., assignor to Interlake Steel Corporation

Filed Aug. 29, 1969, Ser. No. 854,217

Int. Cl. H02p 7/54

U.S. Cl. 318-257

10 Claims



A motor control circuit for operating a motor at a high speed and a substantially slower speed than the high speed which includes a plurality of relay operated switches which are selectively operated to operate the motor either in the fast forward or reverse directions or in the slow forward or reverse directions. A zero speed switch acts in conjunction with a time delay switch to operate the motor in the slow forward or reverse direction by continuously shutting off and starting the motor. The motor may be of the dual rotor AC induction-type and relay circuitry is provided to rapidly decrease the speed of the motor from the high speed to the slower speed by reversing the motor.

3,594,626

TEMPLATE FOLLOWER MULTIAxes SERVOSYSTEM

Charles G. Palmer, 945 W. Collins Ave., Orange, Calif.

Filed Apr. 21, 1969, Ser. No. 817,877

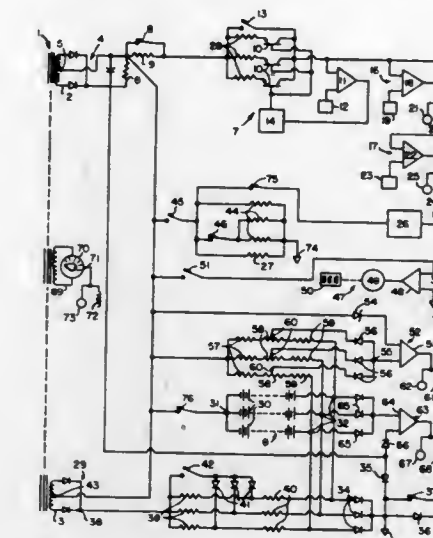
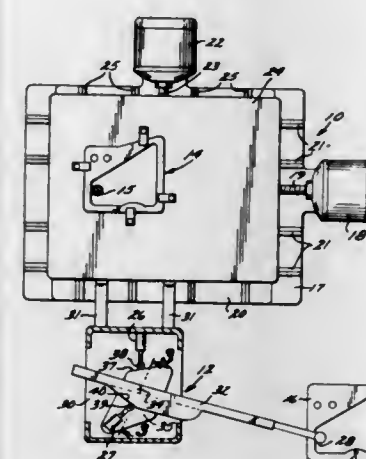
Int. Cl. G05b 19/36

U.S. Cl. 318-578

4 Claims

This invention relates to improvements in servosystems, particularly position servosystems. The specification discloses, and the drawing depicts, a two axis positioning system

having an analog input structure and a digital positioner. failure of the AC source. Indicating means in the form of an Novel electric circuitry is disclosed by which the analog input overdischarge indicator and an under voltage indicator in the



form of a "lowest of" selector are provided. For a full disclosure of the invention, reference should be made to the body of the disclosure.

information is conditioned for application to the digital positioner. Two forms of manually operable input structures are shown.

3,594,627

CAPACITOR DISCHARGE BATTERY CHARGER

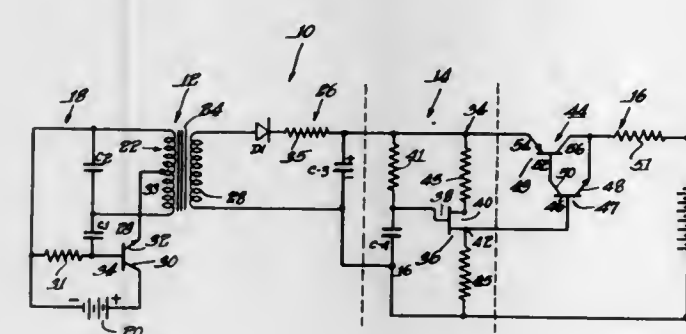
John C. Leshner, Erie, Pa., assignor to Teledyne, Inc., Los Angeles, Calif.

Filed Oct. 20, 1969, Ser. No. 867,679

Int. Cl. H02j 7/02

U.S. Cl. 320-21

11 Claims



A capacitor discharge charger for charging a battery comprising: a capacitor electrically connected intermediate a source of power and the battery to be charged, a source of power for charging the capacitor, and means for alternately charging the capacitor from said power source and discharging it to the battery and therefore to charge said battery.

3,594,628

POWER SUPPLY SYSTEM FOR PROCESS CONTROL INSTRUMENTATION

Alfred N. Gutzmer, Webster, and David A. Willett, Penfield, both of N.Y., assignors to Sybron Corporation

Division of Ser. No. 576,629, Sept. 1, 1966, Pat. No. 3,483,393.

Filed Oct. 8, 1969, Ser. No. 871,166

Int. Cl. H02j 7/00

U.S. Cl. 320-13

2 Claims

A power supply system for process control instrumentation includes a regulator providing regulated DC from an AC source and has an emergency battery supply operative upon

3,594,629
POWER REGENERATION SYSTEM FOR CHOPPER CIRCUITS

Chuji Kawakami, and Ichiro Kouzuma, both of Tokyo, Japan, assignors to Kabushiki Kaisha Meldensha, Tokyo, Japan

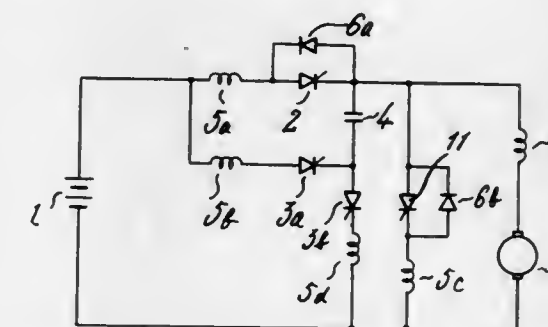
Filed Dec. 2, 1969, Ser. No. 881,517

Claims priority, application Japan, Dec. 9, 1968, 43/90438

Int. Cl. H02m 3/32; H02p 7/28; G05f 1/00

U.S. Cl. 321-2

5 Claims



The conventional use of an electromechanical switching device in a DC-DC chopping circuit is avoided by a chopper circuit including a main switching device and first and second auxiliary switching devices for controlling the main switching device and for providing charging and discharging paths for the commutation capacitor.

3,594,630

COMMUTATION CIRCUIT FOR SCR'S

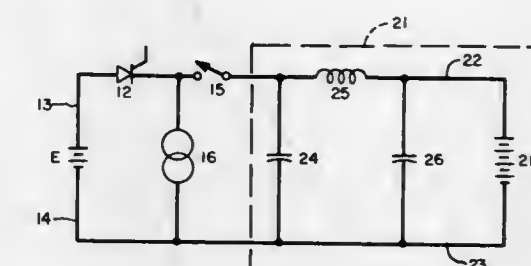
George H. Studtmann, Mount Prospect, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Nov. 6, 1969, Ser. No. 874,553

Int. Cl. H02m 7/48

U.S. Cl. 321-45 R

10 Claims



An inverter circuit includes a pair of conventional commutating capacitors, coupled in series between the input con-

ductors. Additional pair of commutating capacitors is provided, and an inductor is coupled between the common connection of the additional capacitors and the common connection of the conventional commutating capacitors.

3,594,631

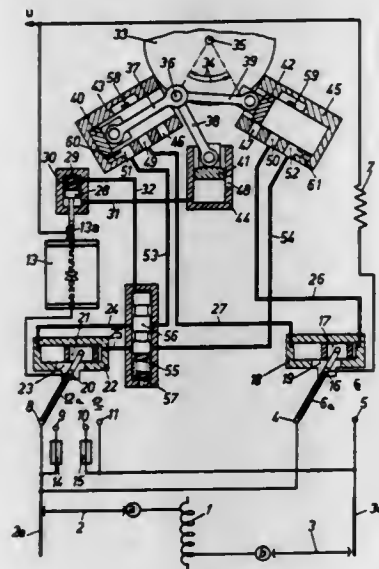
HYDRAULIC TAP CHANGER

Heinz Trachsel, Nussbaumen, Switzerland, assignor to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland
Filed Mar. 25, 1970, Ser. No. 22,532
Claims priority, application Switzerland, Apr. 2, 1969, 5046/69

Int. Cl. H01f 29/04

U.S. Cl. 323-43.5 R

5 Claims



A step-switching arrangement for changing the taps on a transformer winding without interrupting the flow of current from the winding to a load line includes a precontact switch and a current-limiting resistance connected in a series circuit extending from the transformer tap changing contacts to the load line, this circuit being paralleled by a circuit containing a changeover switch and vacuum switch connected in series and also extending from the tap-changing contacts to the load line. A circulating current through the switches and resistance and part of the transformer winding occurs during a change in taps, and this circulating current is interrupted by opening the contacts of the vacuum switch. All of the switches are actuated by hydraulic motors of the linear type, the motors being supplied from hydraulic pumps of the linear type which are operated in synchronism with the tap-changing mechanism so as to obtain the necessary operating sequence for the various switches in changing over from one tap to another.

3,594,632

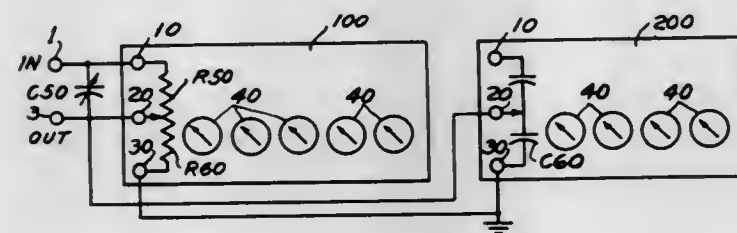
ADJUSTABLE ATTENUATORS AND FILTER APPARATUS

Paul P. Luger, 801 Tenth Ave., Seattle, Wash.
Continuation-in-part of application Ser. No. 562,996, now Patent No. 3,541,430. This application Mar. 13, 1970, Ser. No. 19,303

Int. Cl. G05f 3/00

U.S. Cl. 323-74

9 Claims



Three types of potentiometer circuits, resistive, capacitive and inductive are employed in overall adjustable attenuator

systems. Each element in a switching network is either a single-terminal element or a double-terminal element and minimum contact between networks follow a switch rule principle.

3,594,633

GEOPHYSICAL EXPLORATION METHOD AND APPARATUS USING THE VERTICAL ELECTRIC COMPONENT OF A VLF FIELD AS A REFERENCE

Anthony Rene Barringer, Willowdale, Ontario, Canada, assignor to Barringer Research Limited, Rexdale, Ontario, Canada

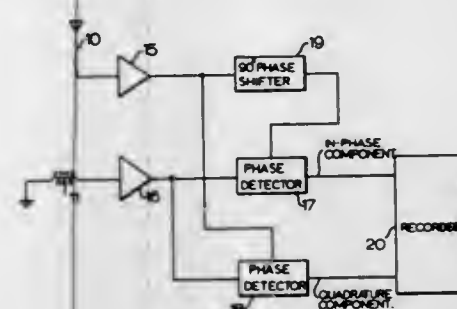
Filed Mar. 6, 1969, Ser. No. 804,780

Claims priority, application Great Britain, Mar. 9, 1968, 11,625/68

Int. Cl. G01v 3/12, 3/16

U.S. Cl. 324-6

10 Claims



A geophysical exploration method and apparatus utilizing VLF fields produced by distant transmitters as a source of primary field. The vertical electric alternating field component of the primary field is used as a stable reference against which variations in magnetic alternating field components caused by inhomogeneities in earth conductivity can be measured.

3,594,634

METHOD AND APPARATUS FOR MEASURING DWELL TIME IN INTERNAL COMBUSTION ENGINES

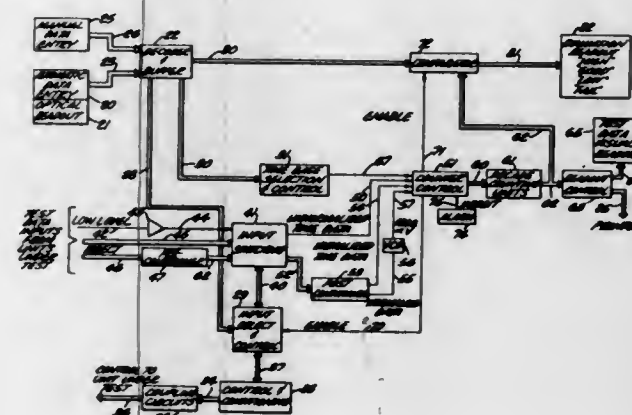
Don M. Muller, Lavar E. Whittle, and Victor Chartrand, Chatsworth, all of, Calif., assignors to Allen Electric and Equipment Company, Chicago, Ill.
Division of Ser. No. 687,390, Dec. 1, 1967, Pat. No. 3,485,093, and a continuation-in-part of 487,861, Sept. 16, 1965, now abandoned.

Filed Jan. 21, 1969, Ser. No. 810,890

Int. Cl. G01m 15/00

U.S. Cl. 324-16

6 Claims



A method and apparatus for analyzing the ignition system of an internal combustion engine, or similar system whereby the analysis is not affected by the speed of the engine. The apparatus includes a means for obtaining a digital signal indicative of the speed of the engine and a second means for generating a pulse in response to distributor point operating and then a means for counting the speed signal pulses during the duration of the distributor point pulses.

3,594,635

MULTICONDUCTOR-ELECTRIC-CABLE TESTING DEVICE HAVING TWO CONNECTION ADAPTERS FOR DIVIDING THE CABLE CONDUCTORS INTO A PLURALITY OF GROUPS OF SERIES-CONNECTED CONDUCTORS

Mitsuo Minamii, Yokohama-shi; Kimiyoshi Sasaki, Sagami-hara-shi, and Takashi Saito, Hatano-shi, all of, Japan, assignors to Stanley Denki Kabushiki Kaisha (a/k/a Stanley Electric Co., Ltd.), Tokyo-to, Japan

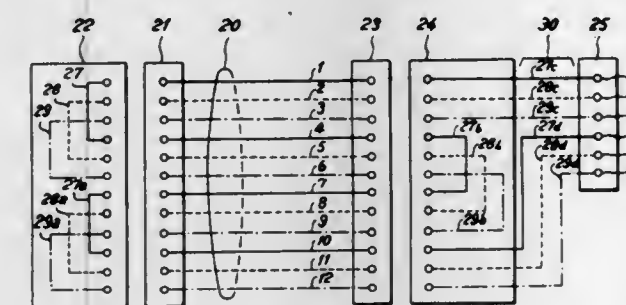
Filed Jan. 5, 1970, Ser. No. 772

Claims priority, application Japan, May 13, 1969, 44/36317

Int. Cl. G01r 31/02

U.S. Cl. 324-51

4 Claims



An automatic testing device for a multiconductor electric cable two ends of which are respectively connected to two connectors, where conductors of the multiconductor electric cable are divided into a plurality of groups of series-connected conductors by connecting respectively two connection adapters to said two connectors. Respective paired terminals of the groups of series-connected conductors are connected to a plurality of testing means successively testing in an automatic manner whether or not each of the series-connected conductors forms a complete series connection. The test results of the testing means are displayed by display means.

3,594,636

ADJUSTABLE LENGTH FLUORESCENT BALLAST, SOCKET AND CIRCUIT ANALYZER

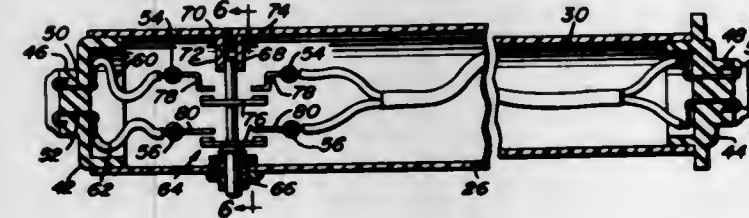
Milton E. Gibbs, Kearns, Utah, assignor to Rainbow Neon Sign Company

Filed May 21, 1969, Ser. No. 826,327

Int. Cl. G01r 31/02

U.S. Cl. 324-51

2 Claims



An elongated adjustable length body provided with terminals on its opposite ends and electrically connectable between the opposing sockets of a fluorescent light fixture in lieu of the associated fluorescent tube thereof. Corresponding end terminals of the body are electrically connected by conductors each having an electrical switch serially disposed therein and the conductors each have a pair of test terminals electrically connected therewith on opposite sides of the associated switch.

3,594,637

VARIABLE-PHASE POWER FREQUENCY GENERATOR-AMPLIFIER

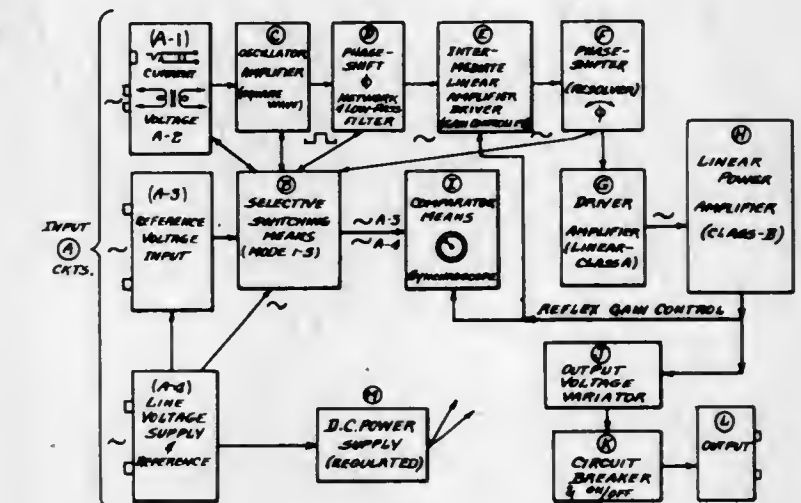
Robert W. Beckwith, 1002 Greenfield Lane, Mount Prospect, Ill.

Filed July 1, 1968, Ser. No. 741,599

Int. Cl. G01r 25/00; H03b 5/24

U.S. Cl. 324-83 R

11 Claims



The disclosure relates to a power frequency generator-amplifier and solid-state circuitry and equipment affording test apparatus of highly compact, stable and versatile character adapted for use in either rack-mounting or portable embodiments, and capable of performance in selectable operating modes to effect a variety of tests and functions of particular interest to workers in the electric utilities field involving power frequencies in the 45 to 65 Hz. range commonly employed for power distribution and to function (among other capabilities) as a variable power and frequency generator, a phase meter and phase rotator and comparator and as a highly stable, linear power source and amplifier useful in testing and adjusting voltage, phase and frequency-sensitive equipment.

3,594,638

PHASE MEASURING APPARATUS

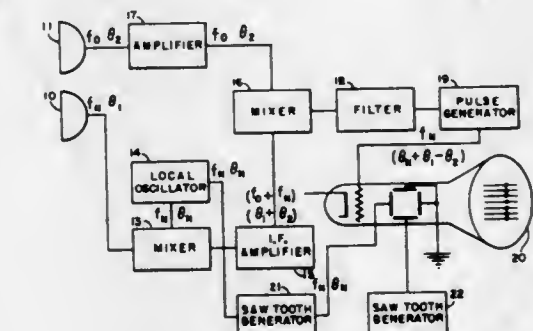
Robert H. Quint, Dorchester, Mass., assignor to The United States of America represented by the Secretary of the Navy

Filed Mar. 25, 1954, Ser. No. 418,795

Int. Cl. G01r 25/00

U.S. Cl. 324-85

1 Claim



A two-channel phase difference determination system in which the signal component in one channel is mixed with a local oscillator signal and the same signal component appearing in the second channel is mixed with the output of the first mixer. The resultant is filtered to phase only the local oscillator.

tor frequency, which now contains the phase difference information, and is compared with the phase of the local oscillator signal on the screen of a cathode-ray tube.

3,594,639

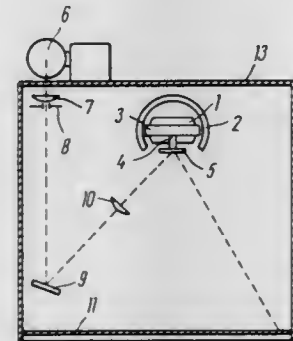
LIGHT-SPOT ELECTRICAL MEASURING INSTRUMENT
Abram Markovich Damsky, ulitsa Bratlev Vasillevykh, 7/4, kv. 6, and Boris Abelevich Selber, ulitsa Rentgena, 15/31, kv. 53, both of Leningrad, U.S.S.R.

Filed Jan. 23, 1970, Ser. No. 6,029

Int. Cl. G01r 13/38, 13/40

U.S. Cl. 324-97

8 Claims



A switchboard light-spot electrical measuring instrument having an instrument movement with a permanent core magnet wherein an axial aperture is provided, an annular soft iron yoke surrounding the core magnet and having an aperture for passage of a light beam produced by an optical system, a moving coil being placed in the air gap formed between the core magnet and the annular yoke so that the core magnet is inside the moving coil, the moving coil being rotatably supported by means of a pair of taut bands passing through the axial aperture and arranged within the moving coil; the moving coil supporting a mirror near the aperture in the annular yoke between the core magnet and the annular yoke essentially within the height of the moving coil to reflect the light beam back through the aperture and onto a translucent screen with an adjacent scale plate.

3,594,640

CIRCUIT AND METHOD FOR MEASURING THE AMPLIFICATION FACTOR OF AN IN-CIRCUIT OR OUT-OF-CIRCUIT TRANSISTOR

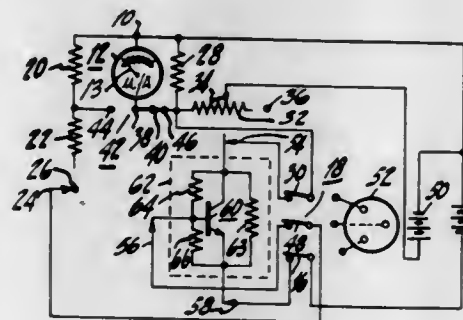
Sander L. Knanishu, Tappan, N.Y., assignor to RCA Corporation

Filed Feb. 14, 1968, Ser. No. 705,356

Int. Cl. G01r 31/22

U.S. Cl. 324-158 T

10 Claims



A method and a circuit for measuring the amplification factor (beta) of an in-circuit transistor is disclosed. A first

potential of one polarity is applied across a first fixed resistor and the collector-emitter path of the transistor. A second potential of opposite polarity is applied across a first variable resistor and the first fixed resistor, the resistance of the first variable resistor being adjusted until the net voltage across the first fixed resistor is zero. The first potential is also applied through a second fixed resistor, a second variable resistor, and the base-emitter path of the transistor, and the second variable resistor is adjusted until a predetermined current flows through the first fixed resistor and the collector-emitter path of the transistor. A meter is provided for measuring the current through the first and second fixed resistors and obtaining their ratio.

3,594,641

ARRANGEMENT FOR INDICATING BACK CURRENTS IN A DIODE MATRIX BUILT UP BY MEANS OF BISTABLE ELEMENTS IN THE CROSSING POINTS
Harald Hoel, Vestby, Norway; Bertil Noro, Alvsjo, and Rolf Eriksson, Huddinge, Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

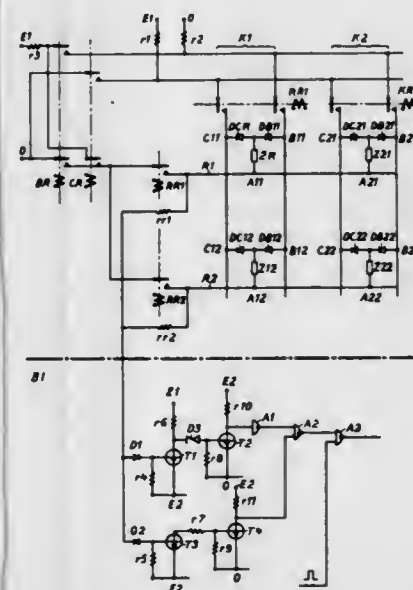
Filed Oct. 29, 1969, Ser. No. 872,112

Claims priority, application Sweden, Nov. 8, 1969, 15171/68

Int. Cl. G01r 31/22, 15/12

U.S. Cl. 324-158 D

2 Claims



Arrangement for indicating back currents in a viz. matrix built up by means of bistable elements in the crossing points. In diodes of the type generally used in diode matrices normally a certain back current is existing. As long as the back current is low it will not disturb the function of the diode matrix, but if it should be too high it can occur that faulty crossing points are indicated. The arrangement makes it possible to indicate back currents in a diode matrix of a special type, viz. built up by means of a bistable element and two diodes in each crossing point.

3,594,642

VEHICLE CHARGING, BATTERY, AND STARTING SYSTEM ANALYSIS METHOD AND APPARATUS

William B. Wright, Des Plaines, Ill., assignor to Sun Electric Corporation

Continuation-in-part of application Ser. No. 584,391, Oct. 5, 1966, now abandoned. This application Feb. 27, 1969, Ser. No. 803,043

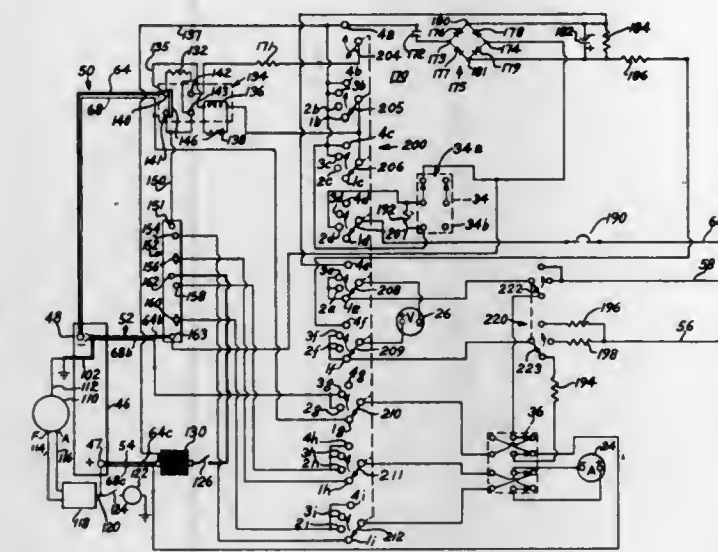
Int. Cl. G01r 31/00, 15/12

U.S. Cl. 324-158 R

21 Claims

A method and apparatus for analyzing the charging, starting and battery systems of a vehicle by using an analyzer connected by three cables to the systems being analyzed. The apparatus includes a DC voltmeter, an AC voltmeter, a DC ammeter, a load resistor, and an isolating resistor that are interconnected in the systems under test in various combinations by a single master switch to enable measurement of various parameters in the systems under test. Each cable preferably

includes a current conductor and a voltage-sensing lead to enable measurement of voltage drops across elements of the



systems under test without introducing errors resulting from voltage drops in the current conductors.

3,594,643

ELECTRICAL TIMING APPARATUS WITH INTERRUPTIBLE TIME PRESENTATION

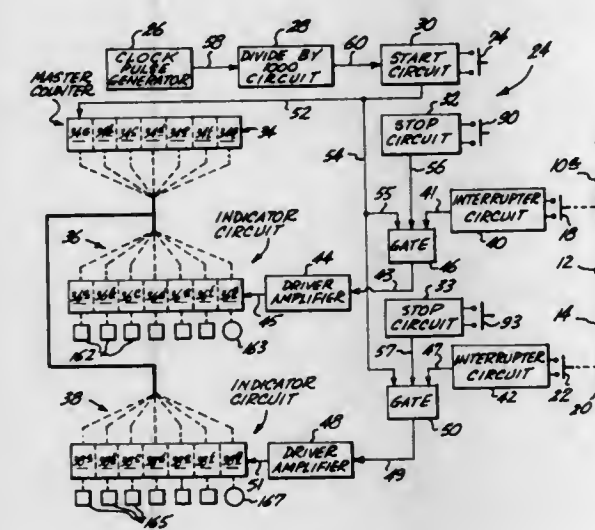
Theodore R. Hunt, Aloha, Oreg., assignor to Data Time, Inc., Beaverton, Oreg.

Filed May 22, 1969, Ser. No. 826,999

Int. Cl. G04f 9/00, 11/06

U.S. Cl. 324-186

3 Claims



Electronic timing apparatus which, upon being started, maintains and normally presents for observation a running indication of the elapsed time of an event. The apparatus includes circuitry which may be triggered in response to some selected occurrence during the event to produce a short term interruption in the running time presentation, whereby the particular time presentation marking the occurrence is sustained for observation. After such an interruption, the time presentation automatically updates and continues to run.

3,594,644

ELAPSED TIME REGISTERING APPARATUS WITH LEVEL DETECTORS

Harold A. List; Charles C. Pullen, and Richard S. Hostetter, Jr., all of Bethlehem, Pa., assignors to Bethlehem Steel Corporation

Filed Apr. 16, 1968, Ser. No. 721,651

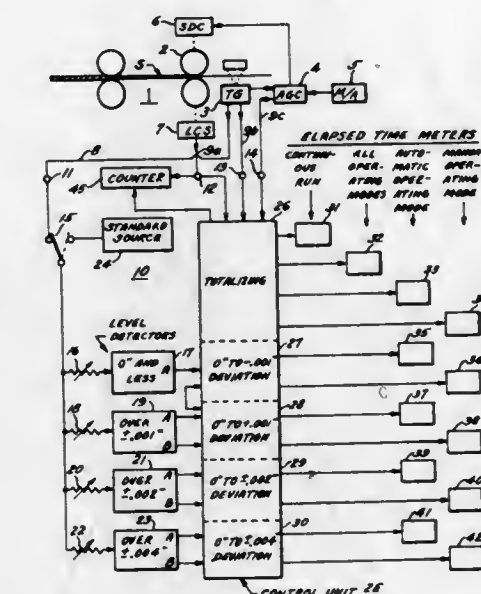
Int. Cl. G04f 9/00; G01r 19/16

U.S. Cl. 324-181

9 Claims

A variable process signal is fed to several level detectors which send individual time variable signals to a control unit

for the duration the variable process signal is maintained within each of several specified limits. Correlated time variable operating mode signals are also fed to the control unit. The control unit classifies each level of variable process signal according to duration under one or more operating



modes. Individual time meters register the elapsed time of each classified signal, thereby providing performance data on apparatus associated with the process signal. Means are provided for calibrating the level detectors and for counting apparatus operations.

3,594,645

MEANS FOR TESTING A SIGNAL TRANSMITTING CIRCUIT

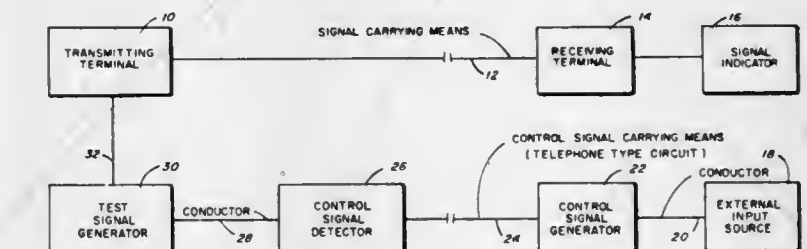
Clyde E. Hallmark, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 18, 1968, Ser. No. 768,873

Int. Cl. H04b 1/00

U.S. Cl. 325-31

13 Claims



Means for testing a signal-transmitting circuit having a transmitting terminal, a signal-carrying means and a receiving terminal including a signal indicator connected to the receiving terminal to indicate the characteristics of the received signals, a control signal-carrying means paralleling the signal-transmitting circuit, a control signal generator located adjacent the transmitting terminal connecting to the control signal-carrying means for imparting a control signal onto the control signal-carrying means, a control signal detector located at the receiving terminal and connected to the control signal-carrying means for detecting the control signal and a test signal generator located at the transmitting terminal having an output connected to the transmitting terminal and an input connected to the control signal-carrying means whereby an operator at the receiving terminal may sequentially select test signals having different frequency and time domain characteristics for transmission over the signal-transmitting circuit, the performance of the signal-transmitting circuit being revealed by the signal indicator.

3,594,646

ANTENNA MATCHING DEVICE

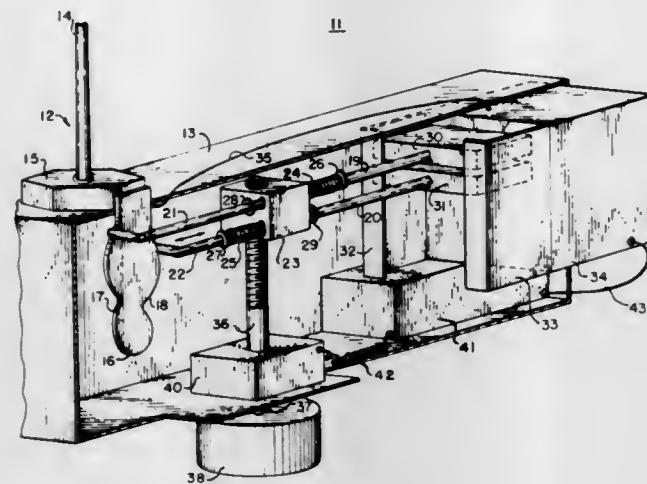
Dieter R. Lohrmann, Eatontown, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed Oct. 21, 1969, Ser. No. 868,238

Int. Cl. H04b 1/00

U.S. Cl. 325-160

3 Claims



A radio including an antenna and an impedance-matching network for adjusting the impedance of the radio to match the impedance of the antenna over a range of operating frequencies. The antenna includes a radiating arm, a base portion and a cam surface attached to the base portion for indicating the impedance of the antenna over the range of operating frequencies. The impedance matching network is adjusted by a pair of cam followers which mate with the cam surface. A frequency tuning knob is connected by a threaded arm to the cam followers for moving the cam followers over the cam surface while the radio is being tuned by rotating the knob.

3,594,647

VHF TUNER SWITCHING SYSTEM ROTATING DISC TYPE UHF-VHF TUNER SWITCHING DEVICE

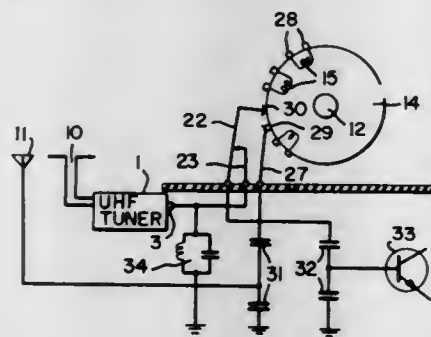
Koichi Ishigaki, Osaka-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 18, 1967, Ser. No. 661,623

Int. Cl. H04b 1/06

U.S. Cl. 325-461

6 Claims



This invention concerns a VHF tuner switching system designed for selecting from among signals in the VHF and the UHF band waves in a combined VHF-UHF tuner. Said switching system comprises a first disc, a pair of discs and a second disc, all secured to a rotor shaft of the tuner. Each of said discs has a plurality of rotor contacts, having coils connected thereto, located around its periphery. The coils positioned on said first disc are for input circuits of the VHF tuner; those positioned on said pair of discs are for an inter stage double tuning circuit; and those positioned on said second disc control a local oscillator circuit. The selection of a signal in the VHF band is achieved by the engagement between said plurality of rotor contacts and a pair of stator contacts which are in contact with each of said discs during

the rotation of said shaft. Said pair of stator contacts of said first disc are connected to an amplifier of the VHF tuner and to a VHF antenna, respectively. A third stator contact is connected to the output of the UHF tuner so that, when said rotor shaft is positioned for selecting signals from the UHF band wave, said output of the UHF tuner is connected to a first stage amplifier of the VHF tuner. Said pair of stator contacts of the second disc are connected to a local oscillator and to a power supply, respectively. They are accompanied by a third stator contact connected to the UHF tuner in such a way that a power supply is switched from said VHF tuner to said UHF tuner when said rotor shaft is in position for selecting signals from the UHF band wave.

3,594,648

PROGRAMMED PULSE SWITCH AND CONTROL SYSTEM HAVING SAME

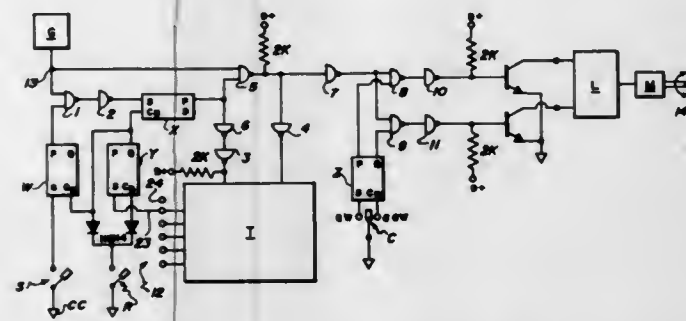
Richard A. Rappaport, Henrietta, N.Y., assignor to Sybron Corporation

Filed Jan. 5, 1968, Ser. No. 696,049

Int. Cl. H03k 21/32

U.S. Cl. 328-48

14 Claims



A first flip-flop, on being set enables gating a pulse train to a second flip-flop, and the second flip-flop enables gating the pulse train to a counter. The counter is set to emit a control signal upon counting the n th pulse of a predetermined number, n , of pulses. A third flip-flop has its set output connected to the direct clear inputs of the other flip-flops, and its set input connected to receive the control signal. Since the second flip-flop flips on the trailing edge of a pulse, the counter begins its count on a whole pulse. The control signal disables the gating to the counter, when it sets the third flip-flop. Accordingly, what it gates to the counter is n whole pulses, these whole pulses being also gated to set point changing means, or the like.

3,594,649

VOLTAGE-CONTROLLED OSCILLATOR

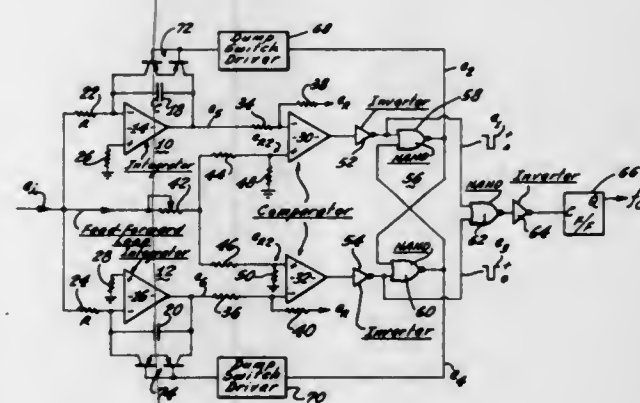
Charles Rauch, Sherman Oaks, Calif., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 14, 1969, Ser. No. 799,161

Int. Cl. H03k 3/00, 3/72

U.S. Cl. 328-150

16 Claims



The disclosure is directed to a voltage-controlled oscillator using a pair of integrators coupled to a pair of voltage comparators and wherein the outputs of the voltage comparators

control a flip-flop. The output from the flip-flop is used to alternately control the individual ones of the integrators to operate in response to an analog input signal so as to produce an output signal from the flip-flop which has a frequency in accordance with the input signal to the integrators. In addition, the invention includes the use of a feed forward signal which is coupled to the comparators to control the time of operation of the comparators to compensate for fixed delays in the system.

3,594,650

BAND SELECTION FILTER WITH TWO ACTIVE ELEMENTS

Bengt Torkel Henoch, Alvsjo, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

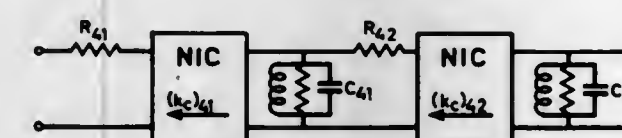
Filed May 5, 1969, Ser. No. 821,726

Claims priority, application Sweden, May 10, 1968, 6328/1968

Int. Cl. H03f 1/00

U.S. Cl. 328-167

9 Claims



The invention relates to active band-selection filters with a band-selection transfer function of the second order. The filter contains resistances and lossy resonant circuits. A significant feature for filter circuits constructed in accordance with the invention is that they contain two active elements connected in such a way that the denominator of the transfer function has certain well-defined symmetry properties related to the circuit parameters of the two active elements and to the passive elements. In filters with these symmetry properties changes in the transfer function caused by variations in the active and passive filter elements are minimized and the manufacture of band-selection filter is simplified.

3,594,651

QUADRI-PHASE MODEM

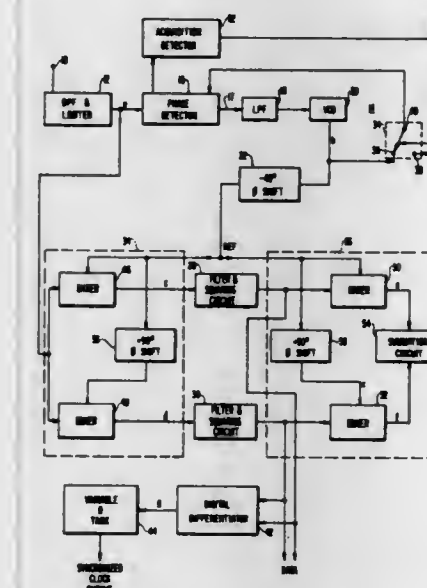
Chester J. Wolejsza, Jr., Rockville, Md., assignor to Communications Satellite Corporation

Filed Oct. 15, 1969, Ser. No. 866,676

Int. Cl. H04l 27/22

U.S. Cl. 329-104

5 Claims



Apparatus responsive to a quadriphase modulated carrier generates a coherent reference signal having a fixed phase relation to the received carrier. The reference signal demodulates the received quadriphase modulated carrier.

Prior to acquisition a phase-locked loop operates to lock the locally generated reference signal in phase with a received unmodulated portion of the carrier. Subsequent to acquisition the data detected by the demodulator remodulates the locally generated reference signal which is phase compared with the received quadriphase modulated carrier in the phase comparator of the phase-locked loop.

3,594,652

LOW IMPEDANCE INPUT, VARIABLE ATTENUATION AMPLIFIER

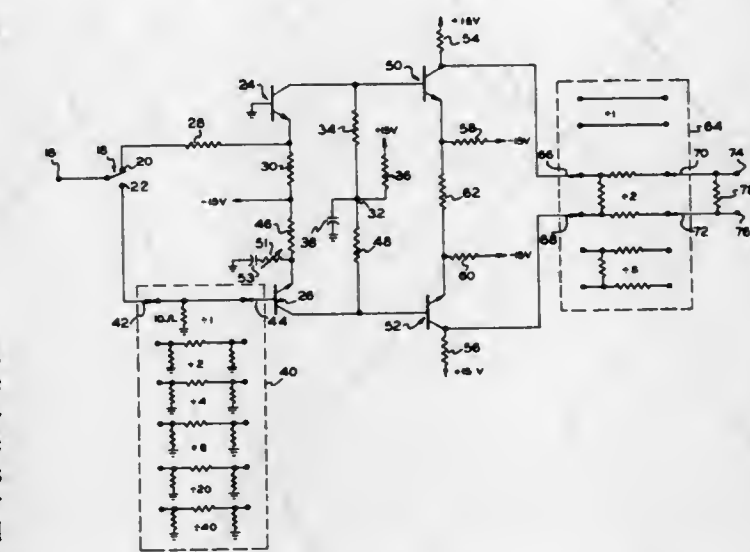
Johannes L. Springer, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Apr. 7, 1969, Ser. No. 813,944

Int. Cl. H03f 3/68

U.S. Cl. 330-20

5 Claims



A variable attenuation amplifier includes a common base transistor stage and a common emitter transistor stage which are selectively connected to an input terminal. The common base state is employed to provide higher gain with low noise, while the common emitter stage is selected in the higher attenuation positions of the circuit.

3,594,653

CROSS-COUPLED DIFFERENTIAL AMPLIFIER

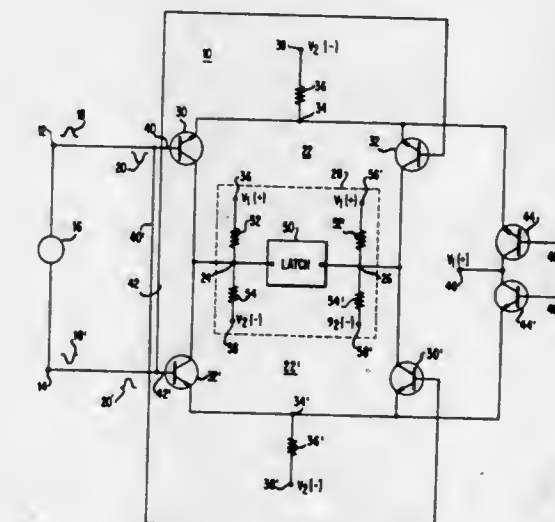
James J. Tomczak, Burlington, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,384

Int. Cl. H03f 3/68

U.S. Cl. 330-30 D

9 Claims



A monolithic cross-coupled differential amplifier circuit for amplifying a bipolar input signal having a low signal-to-noise ratio. The differential amplifier circuit comprises two

transistor differential amplifiers having cross-coupled inputs and a common output. Both amplifiers are normally biased on so that all differential mode and common mode input signals are normally rejected. Means is provided for cutting off one of the differential amplifiers when a differential or bipolar information signal appears at the input of the circuit, thereby permitting the other differential amplifier to provide at the common output an amplified version of the input signal. By selectively controlling which of the differential amplifiers is cutoff, the polarity of the differential output signal is made independent of the polarity of the input signal.

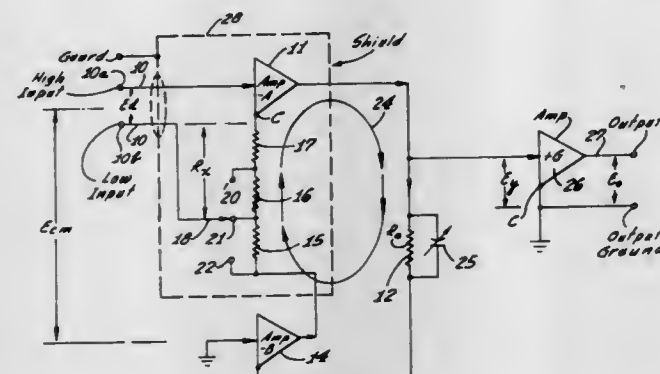
3,594,654

DIRECT-COUPLED DIFFERENTIAL AMPLIFIER

Ralph D. Hasenbalg, Thousand Oaks, Calif., assignor to Delaware SDS, Inc., El Segundo, Calif.
Filed Sept. 13, 1968, Ser. No. 759,588
Int. Cl. H03F 1/00, 3/68

U.S. Cl. 330-69

9 Claims



The differential amplifier system as disclosed includes a loop of high-gain amplifier, resistor, medium gain amplifier and another resistor, using output and reference terminals of the amplifier for making the connections. Input is applied to the input of the high-gain amplifier and across the resistor connected to the reference terminal of the latter, the input of the other amplifier is grounded. The output is taken from across the other resistor.

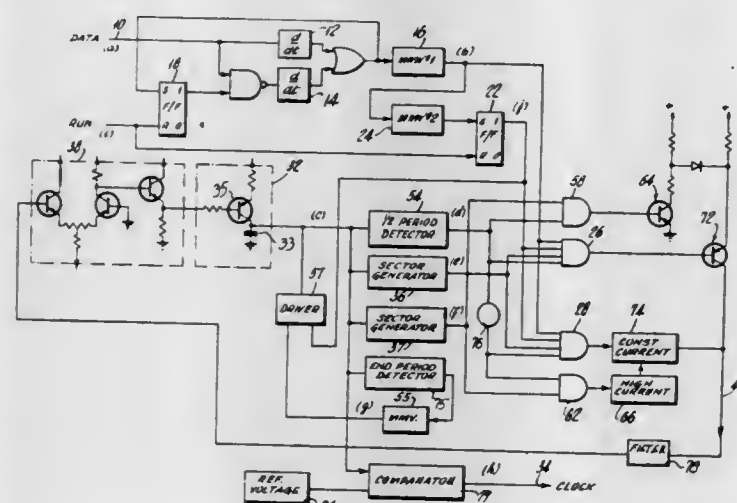
3,594,655

CLOCK SIGNAL GENERATOR USING A SAWTOOTH OSCILLATOR WHOSE FREQUENCY IS CONTROLLED IN DISCRETE STEPS

Frederick Reisfeld, Commack, N.Y., assignor to Potter Instrument Company, Inc., Plainville, N.Y.
Filed July 8, 1969, Ser. No. 839,927
Int. Cl. H03B 3/04

U.S. Cl. 331-14

7 Claims



A clock signal generator for generating timing signals in response to more or less regularly occurring signals in which

the frequency of a sawtooth oscillator is varied in discrete steps in accordance with the time relationship between the oscillator output and the regular occurring signal.

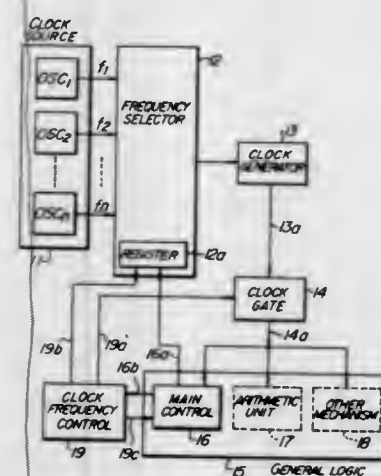
3,594,656

AUTOMATIC CLOCK FREQUENCY-SWITCHING SYSTEM

Yoshihiro Tsukamoto, Hatano, Japan, assignor to Kogyo Gijutsuin, Tokyo, Japan
Filed Mar. 24, 1970, Ser. No. 22,182
Claims priority, application Japan, Apr. 8, 1969, 44/26590
Int. Cl. H03B 3/00

U.S. Cl. 331-49

9 Claims



An automatic clock frequency-switching system for electric systems such as electronic computer systems comprising a clock source including a plurality of oscillators generating frequencies different from one another, and a clock frequency control capable of performing a stable operation even during the period when clock is interrupted. While the clock frequency is being switched, the supply of clock to a mechanism which is operative in response to clock pulses is stopped. After the clock frequency has been switched clock is supplied to the mechanism to resume the operation thereof.

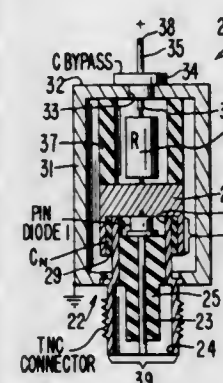
3,594,657

HIGH FREQUENCY COAXIAL LINE CIRCUIT FOR AN AVALANCHE DIODE NOISE GENERATOR

Edward J. Cook, Hamilton, Mass., assignor to Varian Associates, Palo Alto, Calif.
Filed Apr. 11, 1969, Ser. No. 815,465
Int. Cl. H03B 7/14, 29/00

U.S. Cl. 331-78

8 Claims



The coaxial line circuit for an avalanche diode noise generator is disclosed. The coaxial line circuit includes a short at one end thereof with the avalanche diode connected in series with the inner conductor at the shorted end of the coaxial line. The short preferably includes a block of ther-

mally conductive material closing off the end of the coaxial line with one terminal of the diode being connected to the block for heat sinking the diode. In addition, the shorting block includes a portion concentric to and axially coextensive with the end portion of the outer conductor of the transmission line to form a relatively high capacitance between the outer conductor and the shorting block. This capacitance stores the energy for the relaxation oscillator mode of the avalanche diode which is preferably operated as a noise generator. In another embodiment, a wave-reflective member is placed within the coaxial line a distance from the short-circuited end thereof to produce a subharmonic cavity for increasing the power density of the noise spectrum output at higher harmonics of the cavity. In another embodiment, a varactor diode is placed in the coaxial transmission line at a point of maximum electric field of the output mode for tuning the output frequency of the noise.

3,594,658

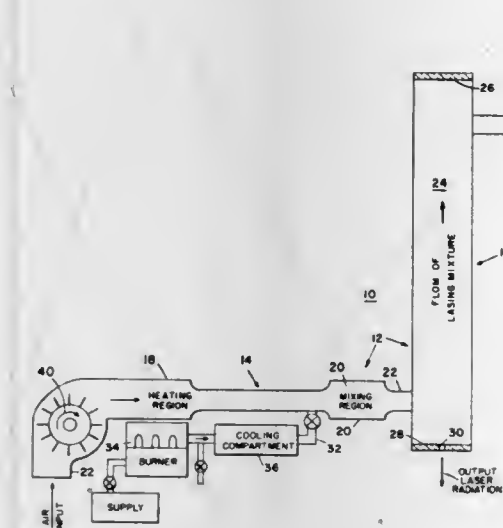
HIGH-PRESSURE LASER HAVING THERMAL-PUMPING MEANS

Charles M. Cason, III, 7114 Criner Road, S.E., Huntsville, Ala.; James F. Perkins, 1808 Melbourne Ave., N.E., Huntsville, Ala., and Thomas A. Barr, Jr., 7803 Martha Drive, S.E., Huntsville, Ala.

Filed Nov. 27, 1967, Ser. No. 690,045
Int. Cl. H01S 3/09

U.S. Cl. 331-94.5

9 Claims



Apparatus, including an optical cavity, in which a thermally heated gas is mixed with a relatively cold gas of different chemical or isotopic composition. The cold gas is disposed for excitation (pumping) by the hotter gas for providing lasing action. In the present invention the gases are mixed at their respective equilibrium temperatures, in a ratio which will provide the necessary population inversion to produce coherent energy. The apparatus includes a housing having first and second sections. The pumping gas is admitted and heated in the first section and the second or lasing gas is mixed with the heated gas in a mixing chamber and expanded into a lasing chamber in a second section of the housing. Optical feedback means, such as a pair of mirrors are disposed at opposite ends of the second housing section. One of the mirrors covers the entire cross section of the housing to reflect coherent energy to the second mirror which may be partially transmitting or provided with a slit therein to direct the coherent energy from the housing.

The interaction of the gases in the mixing and lasing chambers results in an inversion of population of energy levels in the gases to provide optical gain at a frequency or frequencies corresponding to differences in energies of levels which are totally or partially inverted.

The invention described herein may be manufactured, used, and licensed by or for the Government for governmental purposes without the payment to us of any royalty thereon.

3,594,659

DEVICE FOR THE FREQUENCY STABILIZATION OF A GAS LASER OSCILLATOR

Hanspeter Brandli, Munchenbuchsee, and Rene Dandliker, Munsingen, both of, Switzerland, assignors to Institut fur Angewandte Physik der Universitat, Bern, Bern, Switzerland

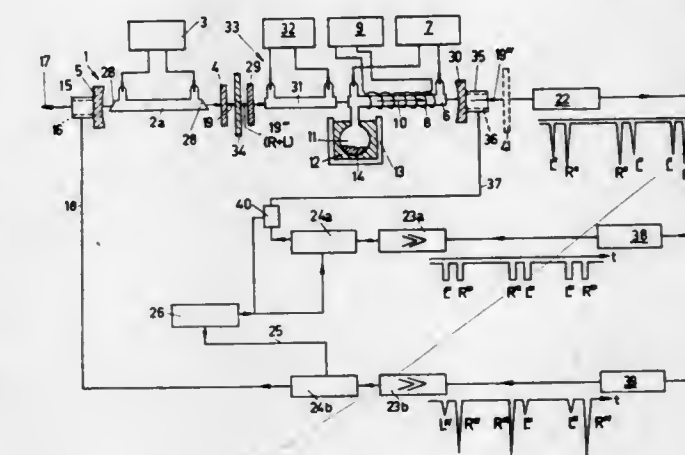
Filed Jan. 12, 1968, Ser. No. 697,488

Claims priority, application Switzerland, Feb. 8, 1967,
1,878/67

Int. Cl. H01S 3/10; H01S 3/22

U.S. Cl. 331-94.5

3 Claims



A device for the frequency stabilization of a gas laser oscillator, wherein the oscillator is formed by a laser between two reflectors, the laser consisting of a tube filled with helium and neon, the latter free of isotopes. An error signal is obtained corresponding to the deviation of a resonant frequency from its standard value in that a right and a left circularly polarized component of the laser beam are absorbed when passing the tube wherein a magnetic field and a gas discharge are maintained. Absorption of the two components occurs to different degree due to the Zeeman effect, and a magnitude corresponding to this difference is established as a function of the frequency. The error signal controls the distance of the two reflectors from each other.

3,594,660

MODE-LOCKED LASERS

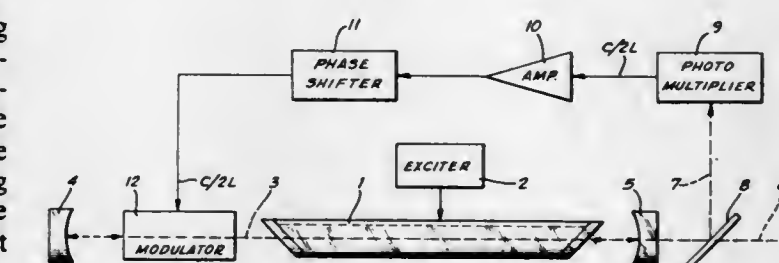
George R. Huggett, Sunnyvale, Calif., assignor to Spectra-Physics, Inc., Mountain View, Calif.

Filed Aug. 29, 1968, Ser. No. 756,252

Int. Cl. H01S 3/00

U.S. Cl. 331-94.5

1 Claim



A mode-locked laser in which a beat signal of the longitudinal modes is amplified and applied to an intracavity modulator to form a self-oscillator for driving the modulator at a frequency which automatically changes to compensate for changes in mode spacing resulting from environmental perturbations of the resonator.

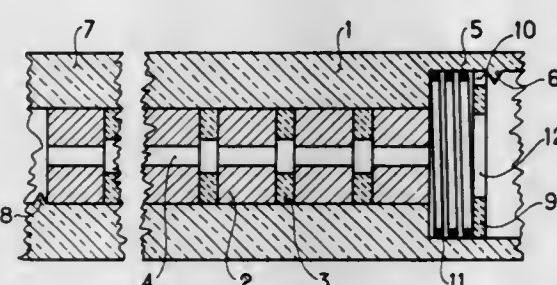
3,594,661 GAS LASER TUBE

Maurice Roulot, Orsay, France, assignor to Compagnie Generale D'Electricite, Paris, France
Filed Nov. 27, 1968, Ser. No. 779,513
Claims priority, application France, Nov. 30, 1967, 130,482

Int. Cl. H01s 3/02

U.S. Cl. 331—94.5

1 Claim



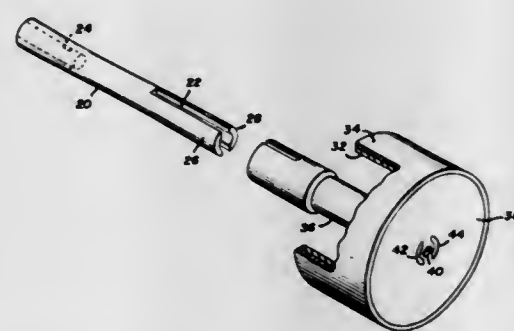
A gas laser comprises an outer tube and a plurality of graphic and ceramic rings placed inside the tube. The rings are in the form of a stack which is blocked on one end by lugs welded to the inner surface of the tube. The other end of the stack emerges into a free space formed by an enlarged area arranged in the inner surface of the tube and is held by a disc which is biased against lugs placed on the inner surface of the enlargement.

3,594,662 HIGH FREQUENCY CAVITY OSCILLATOR

John D. Crawford, Sr., Owensboro, Ky., assignor to General Electric Company
Filed Dec. 22, 1969, Ser. No. 887,194
Int. Cl. H03b 5/18

U.S. Cl. 331—97

8 Claims



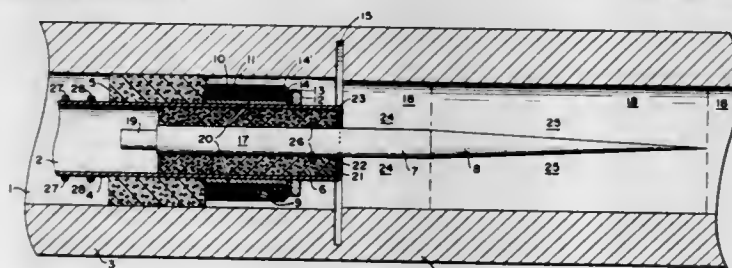
A high frequency coaxial cavity oscillator is provided having improved tuning stability when subject to high vibration conditions. The oscillator is constructed to provide a maximum of coaxial symmetry to reduce the effects of vibrations. The oscillator further provides an improved heat radiating path from the internal portions of the oscillator.

3,594,663 DUAL-POLARIZED DUAL-FREQUENCY COUPLER

Daniel C. Allen, Kennebunkport, Maine, assignor to Marmont Corporation, Saco, Maine
Filed Mar. 16, 1970, Ser. No. 19,668
Int. Cl. H01p 5/12; H03h 7/04; H01p 1/16

U.S. Cl. 333—1

10 Claims



A waveguide transition coupler having a coaxial waveguide and a first circular waveguide formed inside the center con-

ductor of the coaxial waveguide for coupling with a second circular waveguide. Two frequencies of two orthogonally polarized waves in the TE 11 mode are propagated together through the second circular waveguide while each frequency is propagated separately by the first circular and coaxial waveguides. Isolation of the two frequencies is secured in the coaxial and first circular waveguide by dimensioning the first circular waveguide so that it is beyond cutoff for the lower frequency, and by placing a distributed choke-transformer in the coaxial waveguide to attenuate the higher frequency electromagnetic waves. Unwanted mode conversion is inhibited in the energy transfer by a tapered pin inserted through both circular waveguides and impedance-matching elements are provided.

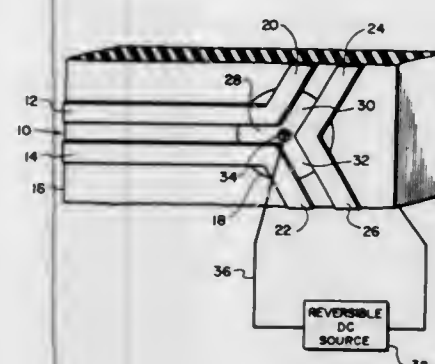
3,594,664 SLOT-LINE CIRCULATOR

Nathan Lipetz, Oakhurst, N.J., assignor to The United States of America as represented by the Secretary of the Army
Filed Apr. 11, 1969, Ser. No. 815,430

Int. Cl. H01p 1/32, 5/12

U.S. Cl. 333—1.1

5 Claims



A slot-line circulator having a ferrite disc either coated on or embedded and integral with a dielectric substrate on one surface of which there is provided a narrow gap in a conductive coating to form a slot line adapted to propagate microwave energy. The energy-propagating slot line extends substantially halfway across the surface of the ferrite disc at which point the conductors forming the slot-line gap are branched outwardly to form an angle of substantially 120°. Respective conductive coatings are provided parallel to and spaced from each of the branched conductors to form two slot-line arms, or channels, which connect to the wave-propagating slot line to form a Y-junction. The width of the conductive coatings and the spacing or gap therebetween for each of the Y-junction channels is identical. A current-carrying latching wire is provided through the center of the ferrite disc and is connected to a reversible DC source of to establish a circumferential DC magnetic bias field in the ferrite in either of two directions.

3,594,665 DELAY LINES WITH ADDED SHUNT CONDUCTANCE

Eric Metcalf, and Edward A. Martin, both of Farnborough, England, assignors to The Solartron Electronic Group Limited, Farnborough, England
Filed Nov. 14, 1968, Ser. No. 775,725

Claims priority, application Great Britain, Nov. 22, 1967, 53239/67

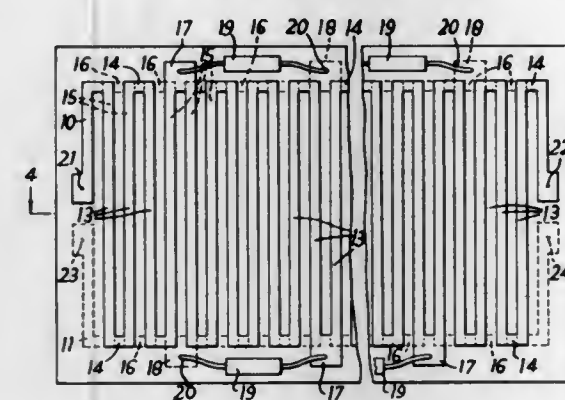
Int. Cl. H03h 9/30

U.S. Cl. 333—31

9 Claims

A delay line in which resistors or resistive films are connected between conducting strips so to shunt-load the line

that L/R is substantially equal to C/G, where for a predetermined unit length of line L is the series inductance, R is the



series resistance, C is the shunt capacitance and G is the shunt conductance.

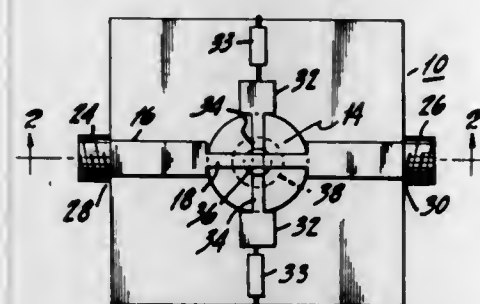
3,594,666 GYROMAGNETIC NOTCH FILTER

Anastas Boornard, Barrington, N.J., assignor to RCA Corporation
Filed Sept. 6, 1968, Ser. No. 757,951

Int. Cl. H03h 13/00; H01p 5/04, 1/32

U.S. Cl. 333—73 S

6 Claims



A notch filter is disclosed which includes a pair of conductors extending transversely of each other in a crosslike configuration, the conductors being insulated from each other. A ball of ferri- or ferromagnetic material is positioned between the two conductors where they cross. A magnetic field is applied to the ball and, by variation of the field, a band of waves that is applied to one end of one of the conductors does not arrive at the other end of said conductor but is dissipated in resistors connected to the ends of the other conductor.

3,594,667 MICROWAVE WINDOW HAVING DIELECTRIC VARIATIONS FOR TUNING OF RESONANCES

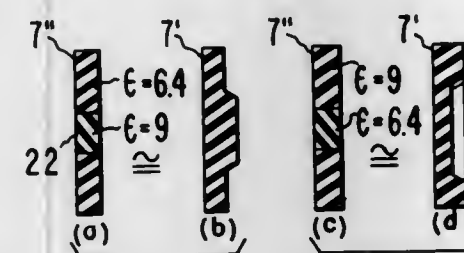
Joseph K. Mann, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Nov. 15, 1968, Ser. No. 776,088

Int. Cl. H01p 1/08

U.S. Cl. 333—98 P

4 Claims



A high-power microwave window structure is disclosed. The window structure includes a hollow waveguide having a dielectric wave permeable gastight partition sealed thereacross to form the window assembly. The window structure is capable of being impedance matched to the waveguide structure to provide a relatively wide passband. In certain windows the passband can be as wide as the recommended bandwidth for the waveguide itself. Such window

structures are plagued by "trapped" and "ghost" resonant modes which are excited into resonance by slight asymmetries in the window structure. At their resonant frequencies, these modes couple energy from the main propagating mode to produce an impedance mismatch and at high-power levels, overheating and failure of the window structure. Thus, operation at high-power levels is typically restricted to frequency ranges between a pair of such resonant modes. The frequency separation between the resonant modes is increased to provide broader band operation by selectively tuning the resonant frequencies of these modes by selectively varying the electrical path length through the window structure for one or more of these modes. For example, the window is made thicker near the periphery where one of the resonant modes has its most intense electric fields and made thinner near the center where another of the modes has its intense electric fields to tune one of the modes higher in frequency, while the other mode is being tuned lower in frequency. The mean thickness of the window is maintained approximately constant such as not to change appreciably the passband for the main propagating mode. Alternatively, the dielectric constant for various portions of the window can be changed for changing the electrical path length through the window as aforesaid.

3,594,668 REMOTE CONTROL CIRCUIT BREAKER

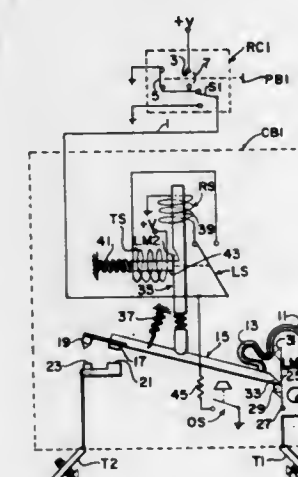
David E. Clarke, Attleboro, and William G. Foley, Dorchester, both of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 2, 1970, Ser. No. 000,473

Int. Cl. H01h 77/02

U.S. Cl. 335—13

18 Claims



A miniature remote control circuit breaker in which a movable contact member including a movable contact is engageable with a fixed contact. Motor means, such as a solenoid and an armature actuated thereby, move the contact member from a contacts-open position to a contacts-closed position when the solenoid is energized by remote switch means. Preferably a linkage including two resiliently connected driving members is employed to couple the motor means to the contact member. Condition-sensing (e.g. current-sensing) latch means retain the contact member in its contacts-closed position until the condition sensed varies beyond a predetermined value whereupon the latch means releases the contact member, thereby opening the contacts independently of the energization of the motor means. Further latch means are provided to retain the contact member in its closed position. The latter latch means are responsive to further actuation of the remote switch means thereby to release the contact member and separate said contacts. A further solenoid and armature are preferably provided to effect the release of the further latch means in response to further actuation of the remote switch means.

3,594,669

CONTROL DEVICE FOR REED SWITCH

Mitsunori Yamane, and Masayuki Hayashi, both of Fukuoka, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

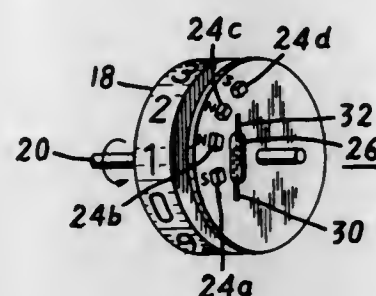
Filed July 31, 1969, Ser. No. 846,355

Claims priority, application Japan, Aug. 7, 1968, 43/55956

Int. Cl. H01h 41/00

U.S. Cl. 335-207

3 Claims



Four permanent magnets are disposed at predetermined angular intervals equal to an angle of 36° on a circular magnetic substrate by having the S pole faces of the first and fourth magnets and the N pole faces of the second and third magnets fixed to the substrate on a circle concentric to it. With the substrate rotated, a reed switch above it faces successively the first and second magnets to close the switch, the second and third magnets to open the switch, and the third and fourth magnets to again close the switch to permit pulses to be generated.

3,594,670

TUNING COIL ASSEMBLY

Morton L. Weigel, Bloomington, Ind., assignor to Sarkes Tarzian, Inc., Bloomington, Ind.

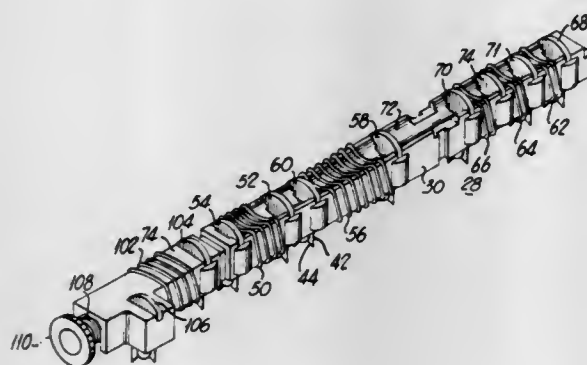
Division of Ser. No. 845,630, July 7, 1969, Pat. No. 3,521,677 which is a continuation of Ser. No. 660,983, Aug. 16, 1967, abandoned.

Filed May 13, 1970, Ser. No. 36,807

Int. Cl. H01f 27/30

U.S. Cl. 336-20

3 Claims



Tuning coil units for use in television tuners are provided which have been automatically aligned to the desired channel frequency by deforming the turns of the respective tuning coils in such manner as to cause them to take a permanent set at the proper inductance value to receive a desired television channel. The coil turns are deformed inwardly into a recess in the coil form so that the coil turns are tightly stretched about the coil form and maintain their adjusted inductance value during assembly and usage in the television tuner.

3,594,671

TRANSDUCER MEANS

Amotz Frenkel, Lansdale, Pa., assignor to Transducer Systems, Inc., Willow Grove, Pa.

Filed May 22, 1969, Ser. No. 826,859

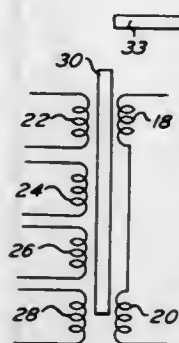
Int. Cl. H01f 21/06

U.S. Cl. 336-130

12 Claims

A transducer of the proximity type having a primary winding, a plurality of separate secondary windings, and a core.

The secondary windings are positioned with respect to the primary winding so that each of the secondary windings has a different output signal created by the same input signal to the



primary winding. The different output signals are also caused to change in amplitude differently when a metal member is moved toward and away from the core of the transducer.

3,594,672

TRANSDUCER DEVICE

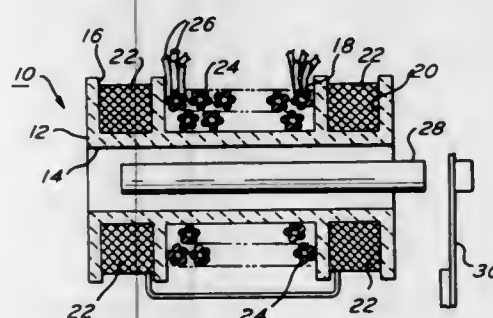
Amotz Frenkel, Lansdale, Pa., assignor to Transducer Systems, Inc., Willow Grove, Pa.

Filed July 10, 1969, Ser. No. 840,776

Int. Cl. H01f 21/06

U.S. Cl. 336-132

5 Claims



A transducer device having a primary winding, a plurality of secondary windings and a core electrically coupling the secondary windings with the primary winding. The secondary windings comprise a plurality of insulated wires bundled together and wound as a helical winding so that when an input signal is applied to the primary winding a separate output signal is induced in each of the secondary windings.

3,594,673

FLASHER SWITCH

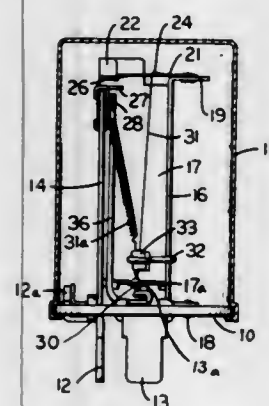
Cleon F. Frey, Sebastian, Fla., assignor to International Flasher Corporation, Bayamon, P.R.

Filed Dec. 10, 1969, Ser. No. 883,914

Int. Cl. H01h 37/50

U.S. Cl. 337-136

3 Claims



A "hot-wire"-type thermally responsive flasher switch in which a channel-shaped support member carries a snap vane

3,594,676

ELECTRICAL CUTOUT

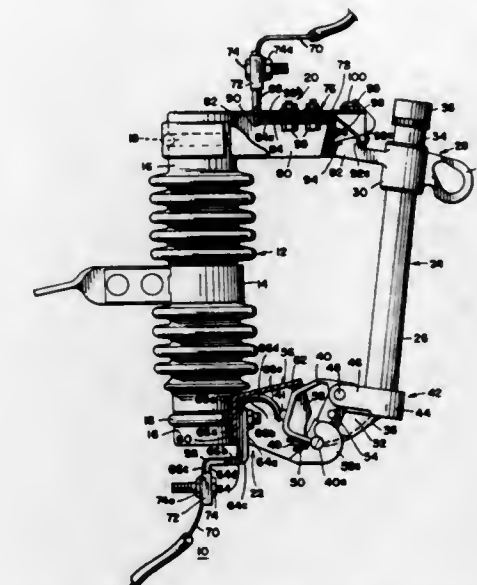
Donald O. Mlsare, Riverside, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.

Filed Aug. 14, 1969, Ser. No. 850,078

Int. Cl. H01h 71/08, 71/10, 85/54

U.S. Cl. 337-180

6 Claims



An electrical cutout comprising a first terminal and a of terminal movable on a path into and out of contact therewith. The first terminal includes a contact member having a free end portion extending generally transversely across said path and deflectable along the path during the making and breaking of contact with said second terminal. The second terminal includes a contact surface extended generally transversely of said path adapted to provide a low resistance current interchange point when in contact against the deflectable free end portion of the first terminal. The first terminal includes a terminal support bracket having stop means extended transversely across said path for limiting the movement of the free end portion of the contact member and a sleeve hood on which the bracket is mounted, which sleeve hood includes integrally formed top, side, and end walls.

3,594,674

TEMPERATURE-RESPONSIVE CONTROL DEVICES ADJUSTABLY RESPONSIVE TO VARIOUS OPERATING TEMPERATURES

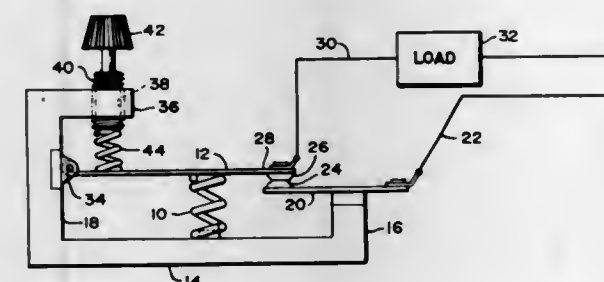
James R. Willson, Garden Grove, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Aug. 13, 1969, Ser. No. 849,835

Int. Cl. H01h 37/32, 37/46

U.S. Cl. 337-139

25 Claims



Temperature-responsive control device including a control member constructed of a material having a temperature-actuated shape memory and means for adjustably changing the operating temperature of the control device. The operating temperature may be adjusted by varying the stress on the control member with deadweights or springs, by maintaining a constant high rate spring load on the control member while adjusting the operating point of the control member, or by maintaining a constant operating point and a constant load on the control member while varying the rate of the load as it is applied to the control member.

3,594,675

TEMPERATURE-SENSING PROBE

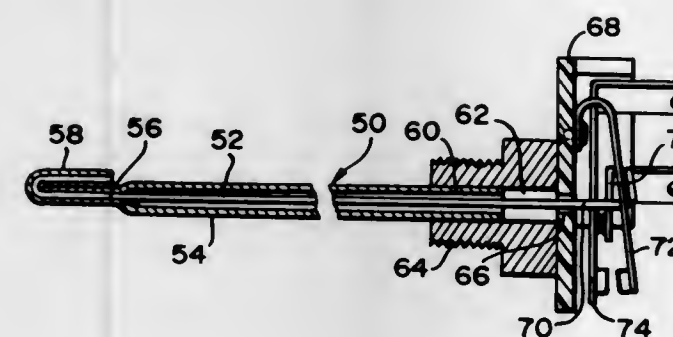
James R. Willson, Garden Grove, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed May 28, 1969, Ser. No. 828,629

Int. Cl. H01h 37/50; G01k 5/48

U.S. Cl. 337-140

9 Claims



A temperature-sensing probe in the form of a rod or wire body is made from an alloy composition exhibiting a characteristic of mechanical shape memory as a result of martensitic-type transformation. Such body is possessed with a shape memory upon which a selected controlled shape has been previously impressed and is deformable at temperatures below a selected shape memory transition temperature. It is capable of doing work while returning to such selected control shape at the selected shape memory transition temperature from a deformed shape. There is a control device upon which it performs such work.

3,594,677

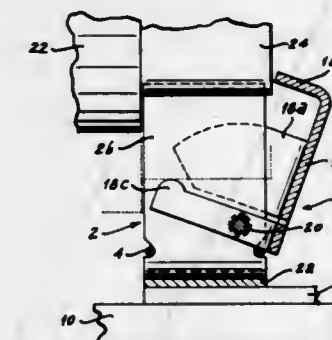
RETAINER FOR BLADE-TYPE ELECTRICAL FUSE CLIP
Frank A. De Backer, Wichita, Kans., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Feb. 20, 1970, Ser. No. 12,959

Int. Cl. H01h 85/48

U.S. Cl. 337-215

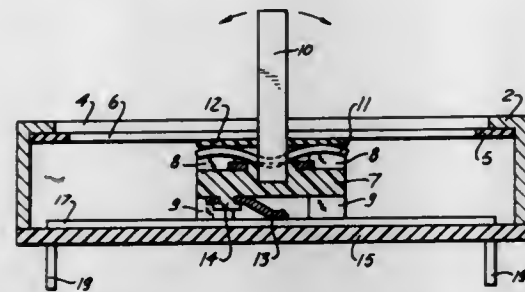
5 Claims



A connector clip for a blade-type electrical fuse has a steel bracket pivotally attached by a rivet passing through both legs of the clip near the closed end. The bracket has legs disposed closely adjacent the outer sides of the clip to prevent lateral distortion of the clip. A third bracket leg extends inside the clip to lie under the fuse blade and an arm of the bracket extends upward and over the fuse blade. Upon insertion of the fuse blade into the clip the blade engages the third leg to pivot the arm over the top of the blade. Outward movement of the blade is prevented by the overlying arm which must be manually pivoted out of the way to permit removal. No tool is required to either install or remove the fuse.

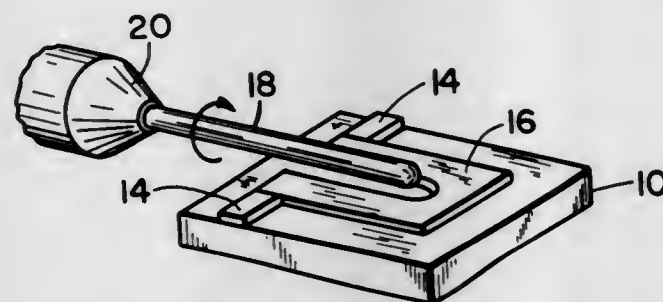
3,594,678 ADJUSTING RESISTANCE

Yukihiko Nomura, Tokyo, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan
Filed Apr. 17, 1970, Ser. No. 29,443
Claims priority, application Japan, Dec. 23, 1969, 44/122844
Int. Cl. H01c 9/02
U.S. Cl. 338—183 20 Claims



An adjustable resistance comprising a box-shaped body including an upper wall having an elongated slit and a bottom plate provided with a resistance element and a conducting element on the inside surface of the bottom plate, a fixed insulating plate being located beneath the upper wall of the body and having an elongated slit substantially aligned with said elongated slit in that upper wall, a movable insulating plate and a spring member both having registering apertures, a sliding contact support or carrier made of an insulating material and having a knob which is passed through said registering apertures of the spring member and the movable insulating plate to project outwardly through said aligned slits, a plurality of projections being provided on the sliding contact support, and a sliding contact piece mounted on the lower surface of the sliding contact support, whereby under the resilience of the spring member said sliding contact piece is urged against said resistance element and said conducting element.

3,594,679
METHOD OF MAKING LOW NOISE FILM RESISTORS
AND ARTICLE
Robert T. Seay, and Terry P. Smith, both of Raleigh, N.C., assignors to Corning Glass Works, Corning, N.Y.
Filed Apr. 18, 1968, Ser. No. 722,439
Int. Cl. H01c 9/00
U.S. Cl. 338—195 5 Claims

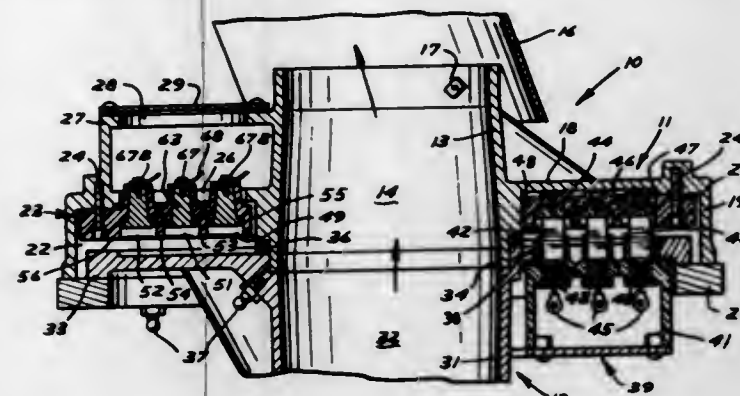


A method of forming a low current noise, thin film resistor having a thin electroconductive or resistive film applied to a dielectric substrate with a portion of the film thereafter being removed so as to increase the length to width ratio thereof. The method includes the step of rubbing, smoothing, or polishing the edges of the remaining film surrounding the area where said portion was removed with a rubberlike member whereby resistor current noise is significantly decreased.

3,594,680
SLIPRING UNIT
Floyd E. Buschbom, Long Lake, Minn., assignor to VanDale Corporation, Wayzata, Minn.
Division of Ser. No. 501,159, Oct. 22, 1965, Pat. No. 3,438,123.
Filed Oct. 23, 1968, Ser. No. 793,212
Int. Cl. H01r 39/34
U.S. Cl. 339—8 10 Claims

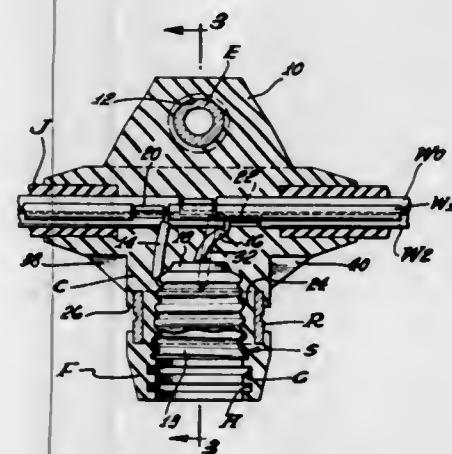
An electrical slipring having a nonconductive support with a plurality of circular recesses and bores open to the bottom

of each recess. A flat annular electrical conductive member is located in each recess. Each member has a boss located in



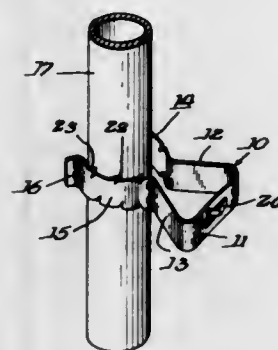
a bore in the support. Fasteners projected through the support secure the annular members to the support.

3,594,681
SOCKET STRUCTURE FOR LAMP STRING
Hubert L. Weiss, c/o American Construction Equipment Co.
Inc. 5055 W. Jefferson Blvd., Los Angeles, Calif.
Filed Aug. 5, 1968, Ser. No. 750,095
Int. Cl. H01r 3/06, 33/34
U.S. Cl. 339—14 3 Claims



The lamp string L (FIG. 4) has a series of identical socket assemblies A (FIGS. 1 and 2) each including a rubber case C cast about a standard screw socket S. A bulb cage B (FIG. 4) is carried on a ground ring R. The ground ring R is closely located about the socket S and positioned to shield the socket S from destructive forces. Grooves G and H trap moisture.

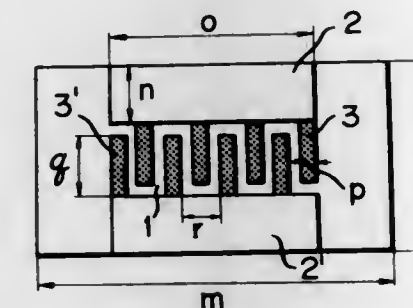
3,594,682
GROUNDING CLAMP
Dale G. Oleson, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa
Filed Aug. 7, 1968, Ser. No. 750,864
Int. Cl. H01r 3/06
U.S. Cl. 339—14 8 Claims



The grounding clamp is formed from a single strip of spring metal and is so shaped as to employ to a considerable

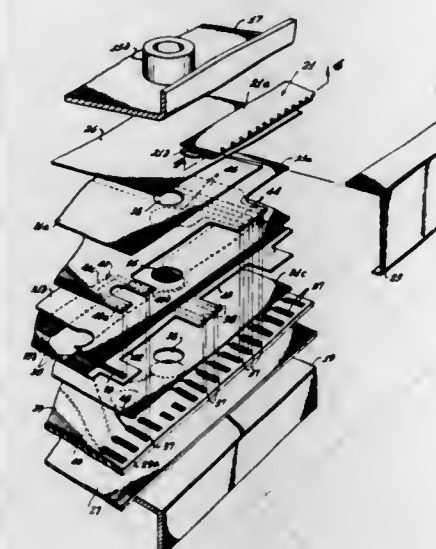
extent the inherent resiliency of the metal in the attaching of the clamp to a conductive member. At least one edge of the clamp is formed with sharp barbs for good electrical conductivity.

3,594,683
PHOTOCONDUCTIVE CELL
Kazuhiko Ihaya, Tokyo, Japan, assignor to Canon Camera Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 21, 1968, Ser. No. 707,263
Claims priority, application Japan, Feb. 27, 1967, Mar. 9, 1967, May 31, 1967, 42/12412; 42/14902; 42/34711
Int. Cl. H01c 7/08
U.S. Cl. 338—15 8 Claims



This invention provides a photoconductive cell and means for producing the same for use in photometry having the specific property that current flowing through the cell is substantially proportional to the logarithm of the intensity of illumination of luminous flux. The electrodes of the cell have a resistance value corresponding to a value intermediate the value of specific resistance which the photoconductive body exhibits between the upper and lower limits of the photometric range. The electrodes of the cell have no rectifying property or only a slight rectifying property relative to the photoconductive body, and when it is difficult to obtain the desired specific resistance from a production point of view or for any other reason, material of the electrodes may be selected from one or more kinds of materials whose work function is the same or similar to that of the photoconductive body.

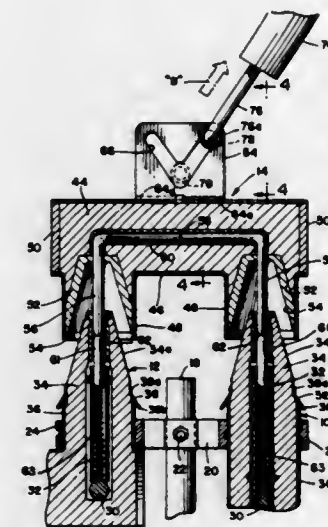
3,594,684
ELECTRICAL INTERCONNECTION SYSTEM FOR
MULTILAYER CIRCUITRY
Meryl E. Miller, Palos Verdes Peninsula, Calif., assignor to Datanetics Corporation, Redondo Beach, Calif.
Filed May 12, 1969, Ser. No. 823,793
Int. Cl. H05k 1/04
U.S. Cl. 339—17 LM 36 Claims



A multilayer electrical circuit package wherein interconnections between various thin circuit layers lying in different planes are accomplished by selectively located overlying electrically conductive peripheral contact tabs in the planes

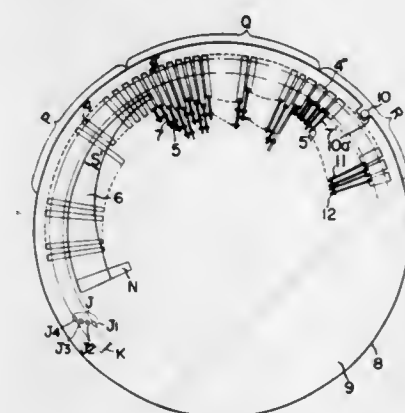
of the thin circuit layers, the contact tabs of each layer being spring biased into electrically contacting engagement with the tabs of other layers.

3,594,685
ELECTRICAL COUPLER
Francis V. Cunningham, Western Springs, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.
Filed July 14, 1969, Ser. No. 841,265
Int. Cl. H01r 13/62, 31/08
U.S. Cl. 339—19 6 Claims



A coupler for making or breaking contact with the end of a fixed terminal comprising a body having terminal means on one side adapted for contact with the fixed terminal and bracket means extending outwardly on an opposite side. An elongated slot is formed in the bracket means for slideably receiving the pin of a hot stick used for moving the coupler toward and away from the fixed terminal to make and break contact therewith, the slot extending in a general direction toward and away from the end of the fixed terminal and including stop surfaces at opposite ends. The hot stick pin is freely movable between the stop surfaces and is engageable therewith to exert force on the coupler to make or break contact with the fixed terminal.

3,594,686
SLIDING-TYPE VARIABLE RESISTOR HAVING THIN
FILM RESISTOR LAYER COMPRISING STRAP
RESISTORS
Tatsuo Fujii, Tokyo; Yutaka Watano, Tohyo, and Masaaki Tsukamoto, Kawasaki-shi, all of Japan, assignors to Nippon Kogaku K. K., Tokyo, Japan
Filed Jan. 22, 1970, Ser. No. 4,987
Claims priority, application Japan, Jan. 31, 1969, 42/7905
Int. Cl. H01c 9/02
U.S. Cl. 338—89 1 Claim



The sliding-type variable resistor including thin film strap resistor layers formed by vacuum deposition, spattering, etc.

upon an insulating material base, a plurality of tap electrodes and a sliding brush slidable thereover. Tap electrodes are arranged in the path of travel of the brush and extended in one direction from the path. Strap resistors are arranged with the same pitch as that of the tap electrodes and one end of the resistor overlays on the extended portion of the corresponding tap electrode. Each strap resistor overlays on the ends of two strap connectors, and each strap connector overlays on two adjacent strap resistors.

3,594,687

CONNECTOR FOR COUPLING A COAXIAL CABLE TO A PRINTED CIRCUIT BOARD OR THE LIKE

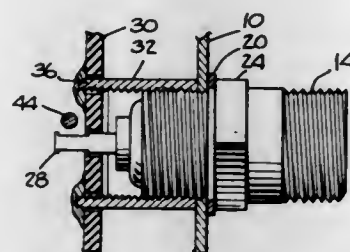
Donovan C. Alderfer, Lansdale, Pa., assignor to Jerrold Electronics Corporation, Philadelphia, Pa.

Filed Mar. 28, 1969, Ser. No. 811,489

Int. Cl. H01r 11/28, 15/14

U.S. Cl. 339-14

4 Claims



A device for coaxial cable connection to a planar circuit is described. A receptacle having a suitable bore is provided at one end with ears which project into apertures of a circuit board. The ears protrude through the circuit board for electrical grounding of the receptacle. The ears provide a rotational lock of the receptacle to therewith permit a firm stable connection to a coaxial cable at the other end of the receptacle.

3,594,688

LOW-RESISTANCE GROUNDING MEMBER

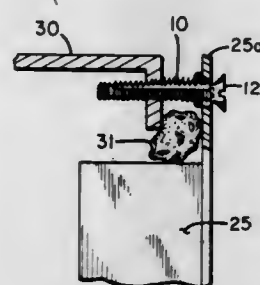
William A. Muska, 1378 Ryan, Roseville, Minn.; James C. Schacker, 1504 Edgewater, Arden Hills, Minn., and Earl E. McHattie, 2129 Midlothian Road, Roseville, Minn.

Filed Apr. 16, 1969, Ser. No. 816,666

Int. Cl. H01r 3/06

U.S. Cl. 339-14 R

7 Claims



A threaded fastening and grounding member having an upward projecting lip for frictionally engaging a threaded recess in a flush-mounting box to provide a low-resistance electrical-grounding connection between the fastening member and the threaded recess.

BUILDING BLOCK FOR ELECTRICAL OR ELECTRONIC CONSTRUCTION KITS

Rudolf Hopt, Rottweil; Rudolf Mayer, Rottweil; Lothar Volkheimer, Trossingen, and Peter Hengstler, Deisslingen, all of, Germany, assignors to R. & E. Hopt KG., Rottweil, Germany

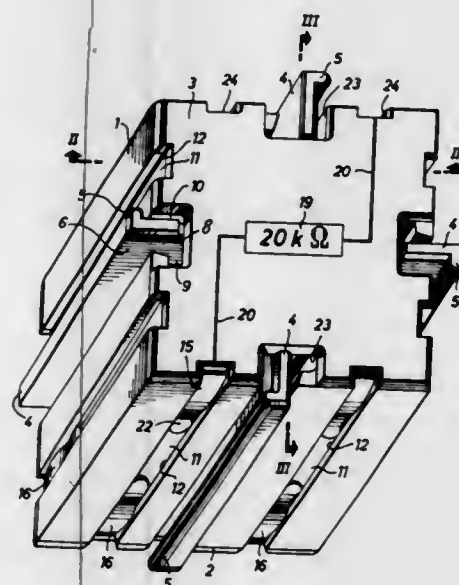
Filed July 12, 1968, Ser. No. 744,483

Claims priority, application Germany, Sept. 23, 1967, June 1, 1968, P 16 03 375.3; P 17 03 517.5

Int. Cl. H01r 23/08

U.S. Cl. 339-17

26 Claims



A building block for electrical or electronic construction kit is formed of a boxlike member having electrical contacts disposed on the outer surface thereof and contains electrical or electronic components within its interior portion. A plurality of blocks may be slideably attached together by an engaging web which protrudes perpendicular to the surface of the sides of the block from a recessed portion in the surface of the block. The shape of a section of the recessed portion and the protruding web coincide so that the blocks may be interlocked with each other.

3,594,690

CONNECTION SOCKET

Malte Ljungner, Vasteras; Lemblt Jaaksoo, Hokasen, and Arne Johansson, Vasteras, all of, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

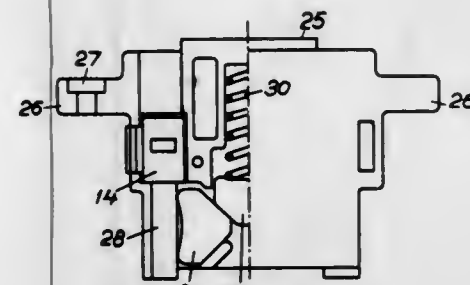
Filed Dec. 26, 1968, Ser. No. 787,178

Claims priority, application Sweden, Dec. 29, 1967, 17972/67

Int. Cl. H01r 31/08, 17/20, 9/08

U.S. Cl. 339-19

5 Claims



A socket for mounting and connecting electrical devices having pin outputs is formed of a lid and a boxed-shaped bottom part. The lid has a plurality of holes arranged in pairs for receiving pins, while the bottom part has a hollow opposite each pair of holes for receiving a connecting element formed with pairs of tongues for detachable locking contact elements inserted from the lower side of the bottom part. Between rows of pairs of holes on the top part are three holes arranged in a vertical row, opening into a recess in the bottom

side of the bottom part. A short-circuiting device insertable into the recess has a pair of contacts for receiving pins inserted through the two outermost of the three holes and a movable short-circuiting contact engageable by a pin passing through the central hole.

3,594,691

METHOD AND MEANS FOR CONNECTING CABLE SHIELDING

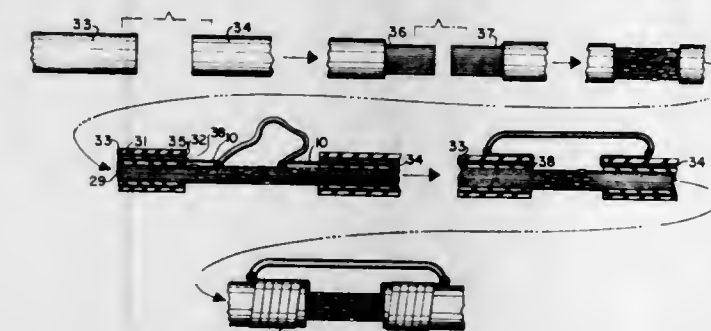
Ronald G. Neal, de Kalb, Ill., assignor to Anaconda Wire and Cable Company

Filed Aug. 11, 1969, Ser. No. 848,804

Int. Cl. H01r 9/08, 11/00, 15/12

U.S. Cl. 339-29

6 Claims



A metal strip connector with a convex pronged surface is inserted under the shielding of a cable, pulled forward to cause the prongs to pierce the shielding and the free end folded back over the jacket and bound down, thus locking the prongs in their piercing position. The extreme free end of the connector is formed into a loop that is pressed onto the flexible conductor of a harness.

3,594,692

EXPANDABLE ELECTRIC PLUG ADAPTER

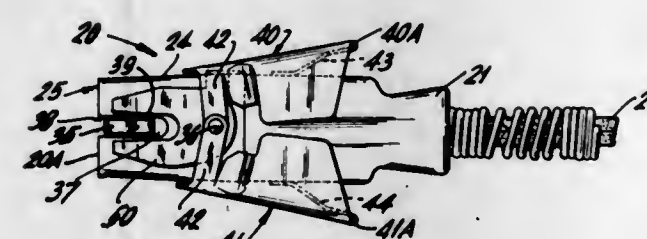
George W. Oakes, Crystal City, Mo.

Filed June 9, 1969, Ser. No. 831,365

Int. Cl. H01r 29/00

U.S. Cl. 339-32

6 Claims



An electric plug adapter mating with a complementary electric service cord plug to form a strong unitary-type construction and having expandable sockets to accommodate various sized and positioned appliance electrode prongs to form positive electrical contact therewith including improved means for facilitating disengaging and engaging the adapter to the appliance electrodes.

3,594,693

WATERPROOF ELECTRICAL CONNECTION BOX COVER

Alfred Robbins, 80 E. Gates Avenue, Lindenhurst, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,276

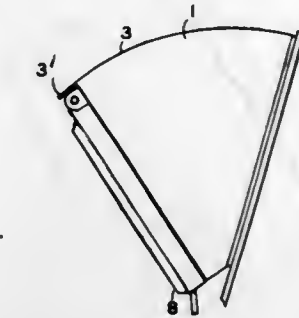
Int. Cl. H01r 13/44

U.S. Cl. 339-44 R

4 Claims

An outdoor electrical connection box cover which is protected against rain and snow. The cover is mounted on a conventional junction box mounted in a wall. The face of the

cover containing the electrical sockets is angled down at a substantial angle and the cover has a hood or shield to protect the face from rain and snow. Snap-type covers are mounted over the electrical sockets.



3,594,694

QUICK DISCONNECT CONNECTOR

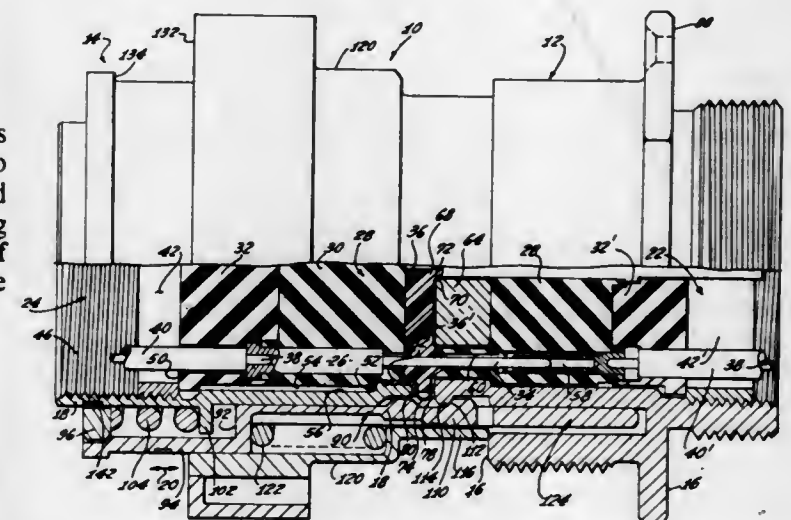
Thomas A. Clark, Mountain View, Calif., assignor to G & H Technology, Inc., Santa Monica, Calif.

Filed Nov. 8, 1968, Ser. No. 774,347

Int. Cl. H01r 13/54, 13/62

U.S. Cl. 339-45 M

15 Claims



A fluidtight electrical connector is disclosed herein which has a lock for releasably securing a pair of mating sections together. The lock is adapted to secure the sections together when a first portion thereof is axially moved a predetermined distance in the direction of engagement, and to unlock the connector sections and cause them to separate when a second portion thereof is axially moved a predetermined distance opposite the direction of engagement. The connector includes means for producing a consistent interface pressure between the connector sections and means for indicating when the electrical terminals of the locked connector sections are not in complete engagement.

3,594,695

HERMAPHRODITIC ELECTRICAL CONNECTORS

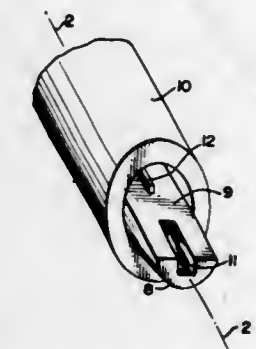
Delbert R. Wofford, Owensboro, Ky., assignor to Texas Gas Transmission Corporation, Owensboro, Ky.

Filed Feb. 12, 1969, Ser. No. 798,738

Int. Cl. H01r 13/62, 25/00

U.S. Cl. 339-49

7 Claims



An elongated semicylindrical or plate insulating member has disposed along it in two different positions along the

length contacts comprising a male and a female plug connector so that two similar members can be slid together longitudinally along mating surface portions to contact and register the plug connectors. Locking means is provided to hold the connectors in place. The male contact is protected from damage by an enveloping hood and the protruding insulating member portion has a female contact so that the contact surfaces are not easily touched or damaged.

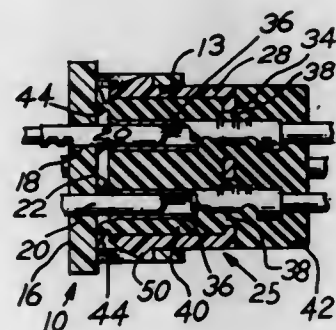
3,594,696

ELECTRICAL TERMINAL CONNECTOR

Roman J. Witek, Jr., Romulus, Mich., assignor to Essex International, Inc., Fort Wayne, Ind.
Filed June 21, 1968, Ser. No. 738,875
Int. Cl. H01r 13/52, 13/54

U.S. Cl. 339—60

7 Claims



A connector including a terminal carrying block housing having a one or more electrical terminals mounted therein and a plug. The plug is adapted to be inserted in the block housing and includes a relatively rigid housing closed at one end by a wall, the rigid housing being latched into the block housing. One or more electrical terminals are inserted through an aperture in the wall and are fixed in place in the plug housing by being embedded in a soft resilient moulded mass which fills the plug housing, the plug terminals being adapted to mate with the block housing terminals. The unitary resilient mass extends beyond one end of the plug housing to form a resilient sealing lip which surrounds the plug terminals and seals the plug against the block housing.

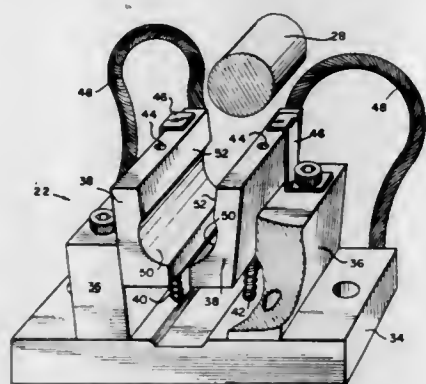
3,594,697

ELECTROPLATING TANK SADDLE

Wendell Azbell, 2877 Streamside Drive, Columbus, Ind.
Filed Nov. 1, 1968, Ser. No. 772,697
Int. Cl. H01r 13/62

U.S. Cl. 339—64 R

12 Claims



An electroplating tank saddle for supporting, and making electrical contact with, the support bar on which racks of parts to be plated are carried. The saddle has jaws which are spring pressed to upwardly open position to receive a support bar, and which close in response to the weight of such bar

and its load to grip the support bar and make good electrical conductive engagement therewith. The jaw mounting permits the jaws to tilt or otherwise adjust themselves to accommodate misalignment commonly resulting from bending of the support bar under its load and from bending of the tank rim on which the saddle is mounted. The good electrical contact provided by the saddle under practical conditions improves the plating operation and reduces the reject rate.

3,594,698

LOW INSERTION FORCE CONNECTOR ASSEMBLY

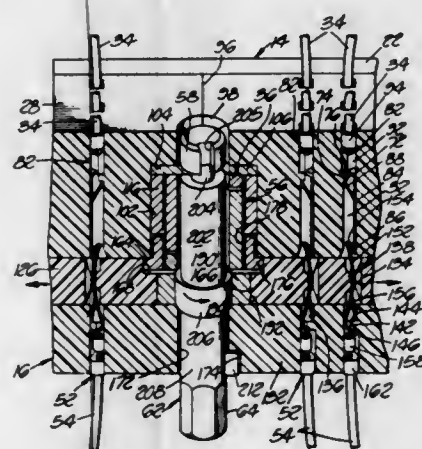
John W. Anhalt, La Crescenta, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed June 30, 1969, Ser. No. 837,400

Int. Cl. H01r 13/54

U.S. Cl. 339—75 M

5 Claims



An electrical connector assembly having a low insertion force upon mating of a first connector member and a second connector member. Each of the connector members contains contacts mounted in bores formed therein. The contacts of one of the connector members extends forwardly from the bore. A split insulator member in one of the connector members forms a pair of actuating plates with centrally mounted drive for moving the actuating plates in opposite directions. The actuating plates move the contacts of the connector in which it is mounted so as to mate the contact surfaces of the connector members. The centrally mounted drive may comprise a shaft member having an actuating cam mounted on it which, upon rotation of the shaft, causes a cam bearing to be displaced. Further, the shaft member may have a polarizing device mounted thereon coaxial with the shaft for engagement with a polarizing device on the other connector.

3,594,699

ARTICULATED PRINTED CIRCUIT EDGE CONNECTOR

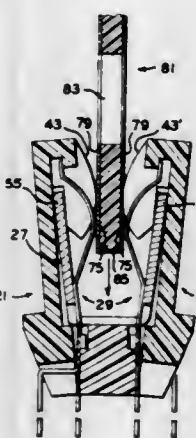
Max L. Jayne, North Warren, and Gregory C. Yehl, Warren, both of, Pa., assignors to Sylvania Electric Products, Inc.

Filed Dec. 15, 1969, Ser. No. 885,047

Int. Cl. H01r 13/54

U.S. Cl. 339—75 MP

10 Claims



A printed circuit edge connector having an insulating body comprising two opposing members mating at their respective

base portions with a longitudinal spacing member, and at their respective upper portions with the upstanding sides of a U-shaped spring, thereby forming a channel for receiving the edge of a printed circuit board, and making it possible to assemble and disassemble the entire connector while the metallic contacts whose upper portions are retained within the connector and whose lower portions are retained in established positions within a board upon which the connector is mounted are allowed to remain in this established relationship, making it possible to replace one or more of these contacts without having to remove all of them.

3,594,700

ELECTRICAL CONNECTOR WITH THREADED COUPLING NUT LOCK

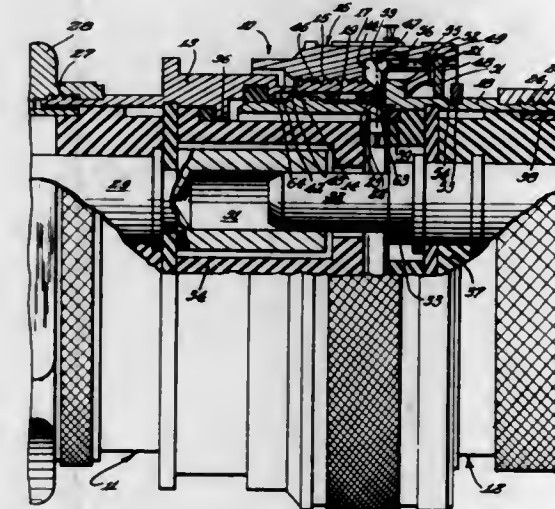
Jopseh A. Nava, Villa Park, and Charles W. Smaczny, Chicago, both of, Ill., assignors to The Pyle-National Company, Chicago, Ill.

Filed Aug. 20, 1969, Ser. No. 851,543

Int. Cl. H01r 13/54

U.S. Cl. 339—89 R

13 Claims



An electrical connector comprising a pair of telescopically assembled parts for joining axially aligned male and female conductors and having a coupling nut threaded onto one of the parts and engaging portions of the other part for coupling the interfitted parts in an assembled relationship, wherein resilient locking means are interposed between the coupling nut and the pair of parts for restraining uncoupling movement of the nut and for producing an audible sound indicating proper joinder of the parts.

3,594,701

SEAL FOR WELLBORE INSTRUMENT

Terry Leroy Ramsey, and Reginald G. Ford, both of Tulsa, Okla., assignors to Cities Service Oil Company, Tulsa, Okla.

Filed June 6, 1968, Ser. No. 735,052

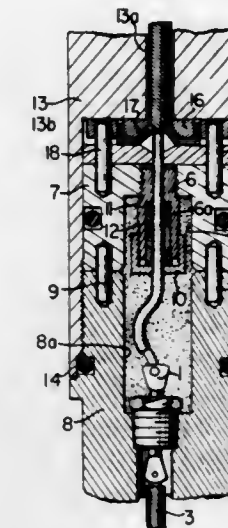
Int. Cl. H01r 13/52

U.S. Cl. 339—94 R

9 Claims

The electrical connection between a downhole wellbore instrument and a single conductor is isolated from the wellbore environment by a sealing mechanism in which a pressure-deformable sealing ring is pressed into sealing contact with the conductor. The sealing ring is positioned in a packing gland affixed to a supporting block. A locking nut is removably secured to the packing gland. As the locking nut is secured to the packing gland, an annular ring positioned on the locking nut is moved inwardly in an opening in the packing gland, said packing ring establishing pressure contact with the sealing ring as the locking nut approaches its fully secured position. The pressure of the annular pressure ring upon the ring causes the sealing ring to deform so as to fill the seat in the packing gland in which it is positioned and to establish sealing contact with the conductor. The supporting block is affixed to a cable head connector to which the downhole instrument may be removably secured. The cable head connector has an axial opening in the upper portion thereof. The electrical connection and the packing gland are located in the space confined by the cable head connector

and the supporting block attached thereto. An outer enclosing block, which is removably secured to the cable head connector, has an annular opening therein through which the conductor passes and in which the supporting block and the packing gland are positioned. Sealing means are provided



between the outer enclosing block in both the cable head connector and the supporting block so as to prevent ingress of well fluids into the space confined by the cable head connector and the supporting block along the point of contact between these two members.

3,594,702

CONNECTOR

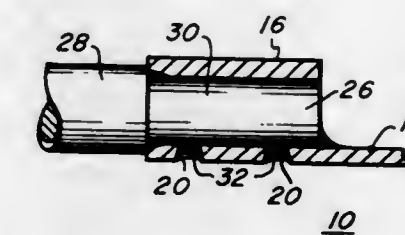
William G. Frey, Union, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed July 31, 1969, Ser. No. 846,426

Int. Cl. H01r 11/20

U.S. Cl. 339—95 R

15 Claims



A connector for coupling an electrical conductor to a terminal comprising a wire barrel arranged to be mechanically deformed about the portion of an electrical conductor from which the insulation has been removed to provide an electrical and mechanical connection therewith and a terminal-engaging means coupled to said wire barrel. A plurality of apertures extend through the wire barrel to permit the extrusion of adjacent portions of the metal of the conductor into such apertures to improve the mechanical and electrical coupling therewith. Further, the apertures will permit the breakdown of surface oxides to insure a good electrical connection with the conductor. An insulating jacket may be placed atop the wire barrel and deformed portions of the insulating jacket will also penetrate the apertures to securely, mechanically lock the jacket to the wire barrel.

3,594,703

ELECTRICAL TAPOFF CONNECTOR

Clyde Norman Holtzapfel, Duncannon, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 13, 1969, Ser. No. 865,836

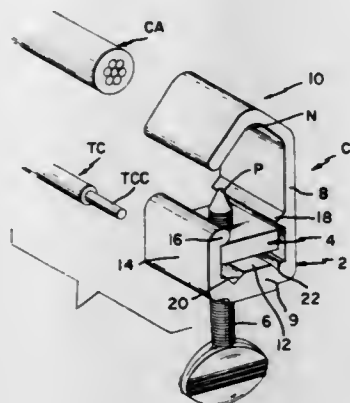
Int. Cl. H01r 11/20

U.S. Cl. 339—97 R

24 Claims

A tapoff connector adapted to be secured to existing line cables and further adapted to receive lead wires from street lights or other electrical devices is disclosed. The connector has insulation-piercing screw means which, when tightened onto an insulated line cable, pierces the insulation of the

cable and mechanically and electrically engages the conductor thereof. Means are provided in the connector whereby the conductors of tap wires are gripped and held in another portion of the connector when the screw is tightly in place on



the line cable. Electrical current is then transmitted from the line cable to the tap wires via the connector. Alternate embodiments are also shown, one of which includes a connector which may be secured to prestripped insulated line cable.

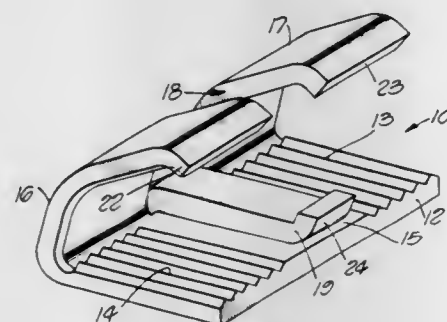
3,594,704

IN-LINE CONNECTOR FOR ELECTRICAL CONDUCTORS OR THE LIKE

Christopher L. Fischer, Sunnyvale, Calif., assignor to Raychem Corporation, Menlo Park, Calif.
Filed Oct. 2, 1969, Ser. No. 863,132
Int. Cl. H01r 11/20

U.S. Cl. 339-97

3 Claims



A connector for making an in-line electrical connection between two or more insulated electrical wires or conductors in which a pair of spaced teeth on an upper jaw member cooperate with a tooth positioned on a lower jaw member such that meshing of the teeth cause the conductors to be bent around the lower tooth and the insulation to be stripped therefrom along planes parallel to the planes of movement of the teeth.

3,594,705

LAMP SOCKET

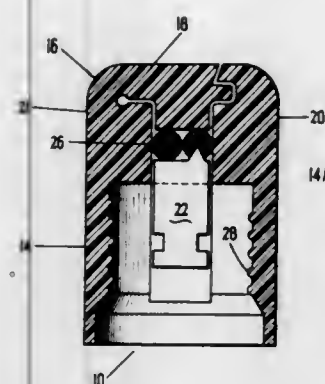
George D. Levy, Jamaica Plain, Mass., assignor to Beacon Electric Manufacturing Co., Boston, Mass.
Filed Sept. 29, 1969, Ser. No. 861,949
Int. Cl. H01r 11/20

U.S. Cl. 339-97 L

7 Claims

A socket assembly including a hollow socket housing into which a lamp can be inserted and a set of contacts affixed

within the socket housing. The single-piece housing of a



yieldable material is adapted for connection to an electric cord.

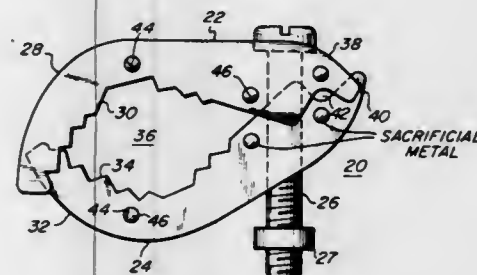
3,594,706

GROUND CONNECTOR

Tomas Julio Sotolongo, Long Branch, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
Filed May 21, 1969, Ser. No. 826,460
Int. Cl. H01r 13/20

U.S. Cl. 339-114

14 Claims



The disclosure is directed to devices for protecting the ground connection between a conduit and a grounding conductor wherein the ground connector, conductor and conduit may be of dissimilar materials. The invention consists of the use of sacrificial metals functionally united with the ground connector in such a manner as to prevent, or greatly minimize, corrosion caused by galvanic action. The ground connector is fabricated, according to the various embodiments of the invention, to contain sacrificial metals placed in the external surface of the connector, placed with the connector, with exposure to the outer surface thereof, or impregnated directly into the connector with access from the outer surface to such sacrificial metal contained therein. The basic concept of operation of the clamp, in each of these configurations is that the electrolyte such as salt water, bathes, at the same time, the connector, the conductor, the conduit and sacrificial metal. The configuration of the connector is so chosen as to facilitate such uniform bathing of the materials involved.

3,594,707

CIRCUIT BOARD WITH FLUID PRESSURIZED INSERT STRIP

William Donald Peterson, II, 1996 E. 4675 South, Salt Lake City, Utah

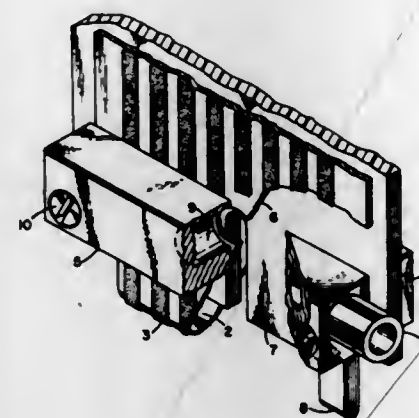
Filed Oct. 20, 1969, Ser. No. 867,655
Int. Cl. H01r 33/82

U.S. Cl. 339-17 L

2 Claims

An electronic circuit board having a collapsible insert strip with a sealed pressurizable pocket between the insert strip conductors, by varying the amount of fluid in the pocket

being able to contract thinner for insertion into a connector lic contact portion. The plug has two connecting devices for and expanding thicker to make electrical contact. A system



having a multitude of these circuit boards to connect to a multitude of connectors of an electronic assembly.

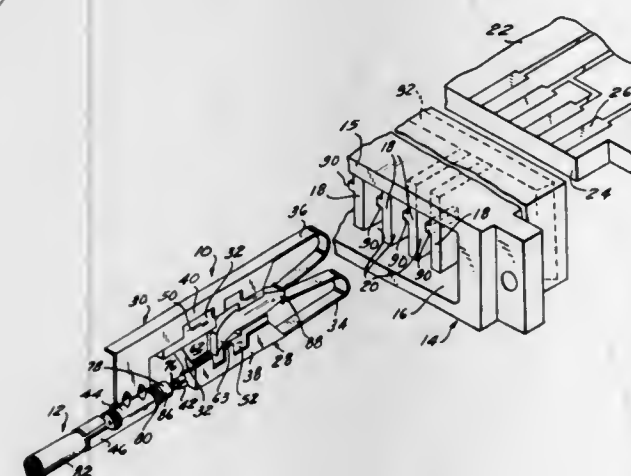
3,594,708

PRINTED CIRCUIT BOARD COAXIAL CONNECTOR

Guy John Lalonde, Bethpage, N.Y., assignor to Industrial Electronic Hardware Corp., New York, N.Y.
Filed Mar. 5, 1969, Ser. No. 804,565
Int. Cl. H01r 13/34, 5/08; H05k 1/07

U.S. Cl. 339-176

24 Claims



A connector for use in connecting a coaxial cable or shielded wire conductor to a printed circuit board comprises a pair of contacts. One contact is adapted to be crimped about the inner signal conductor of the coaxial cable, and the other contact is adapted to be crimped to the braid or shielded wire of that cable. The two contacts are secured to an insulator by means of securing parts extending from each contact and received in spaced slots formed in the insulator.

3,594,709

ELECTRIC SERIES TERMINAL

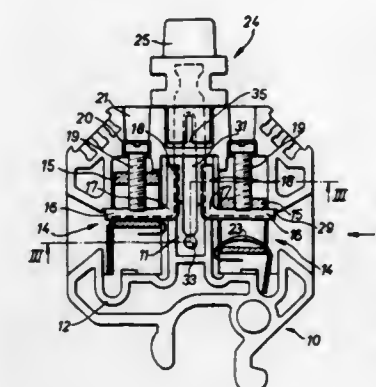
Hans Woertz, Basel, Switzerland, assignor to Messrs. Oskar Woertz, Inh. H. & O. Woertz, Basel, Switzerland
Filed Dec. 11, 1968, Ser. No. 783,020

Claims priority, application Switzerland, Feb. 13, 1968, 2,135/68
Int. Cl. H01r 9/00

U.S. Cl. 339-198

8 Claims

An electric series terminal having a releasable and insertable isolating plug with an insulated grip portion and a metal-



3,594,710

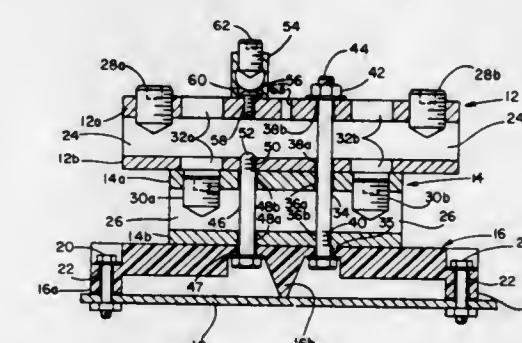
NEUTRAL BAR ASSEMBLY

Harris I. Stanback, Lexington, Ky., assignor to Square D Company, Park Ridge, Ill.

Filed Jan. 27, 1970, Ser. No. 6,172
Int. Cl. H02r 9/00

U.S. Cl. 339-198

11 Claims



A system of components which can be grouped into sets for assembly in various configurations to provide electrical neutral bar assemblies of different shapes and having different numbers of neutral-wire-receiving openings. The system, which is particularly suitable for use with neutral wires of relatively large ampacity, includes a plurality of insulating bases, a plurality of neutral bars of different lengths, and an interconnecting plate. One or more of the bases and one or more of the neutral bars with or without the interconnecting plate are arranged to be secured together in different configurations by bolts.

3,594,711

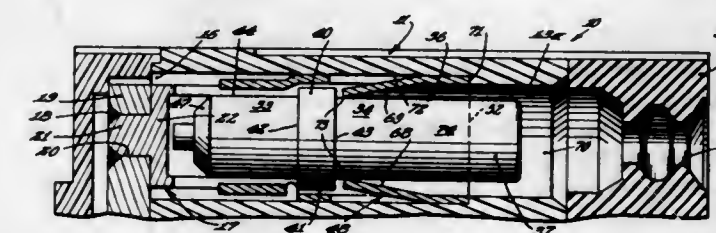
TERMINAL BLOCK

Joseph A. Nava, Villa Park, and Charles W. Smaczny, Chicago, both of, Ill., assignors to The Pyle-National Company, Chicago, Ill.

Filed Apr. 3, 1969, Ser. No. 813,247
Int. Cl. H01r 7/12

U.S. Cl. 339-198

11 Claims



A terminal block for receiving and electrically interconnecting a plurality of pin contacts. The pin contacts are in-

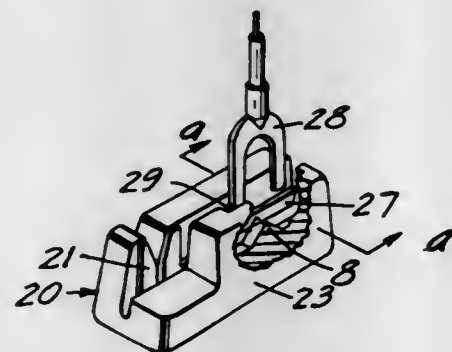
serted into bores formed in the body of the terminal block and the forward or nose portions thereof are telescopically received in mating socket contacts securely disposed within the bores. Also disposed within each bore is a sheet-form member rolled into a generally tubular configuration and having a collet portion which retains its respective pin contact in its corresponding bore and a clamping ring portion which provides a radial reactive force to its socket contact when the nose of the pin contact is inserted therein. A bridging portion interconnects the collet portion and the clamping ring portion and is located at the neutral axis of the sheet-form member to enable the collet portion and the clamping ring portion to radially expand and contract independently of one another.

3,594,712 CONNECTOR

Dennis J. Enright, and Leonard H. Schrenkler, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Nov. 7, 1968, Ser. No. 774,027
Int. Cl. H01r 9/08, 9/12

U.S. Cl. 339-221

9 Claims



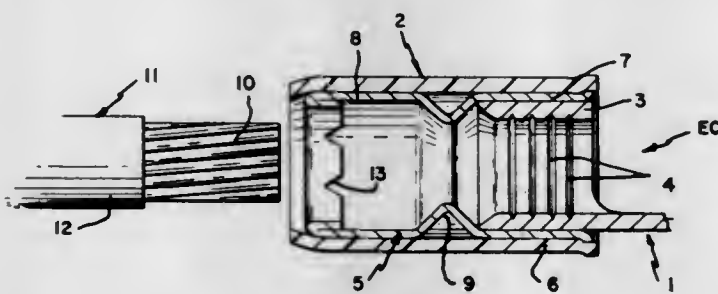
A solderless wire-connector comprises a slotted thin resilient metal plate supported against a correspondingly slotted rigid base having a wire cutoff anvil surface.

3,594,713 ELECTRICAL CONNECTOR

Woodrow William Thoman, Glen Rock, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Continuation-in-part of application Ser. No. 878,115, Nov. 19, 1969, now abandoned. This application Mar. 6, 1970, Ser. No. 17,238
Int. Cl. H01r 15/12

U.S. Cl. 339-223

1 Claim



An electrical connector is provided with a sleeve having one section secured on a wire-crimping section of a contact member and another section extending outwardly from the wire-crimping section which has an inwardly directed annular projection having a V-shape in cross section. The annular projection is located adjacent an entrance to the wire-crimping section to define funnel means to guide a stripped end of an electrical conductor within the wire-crimping section. The annular projection has a diameter less than the diameter of the wire-crimping section to provide stop means against which the insulation engages to prevent the conductor from

being improperly positioned in the connector prior to the connector being crimped to the conductor.

In a modification of the invention the wire crimping section is deformed to form a projection extending axially along the wire-crimping section. This projection provides a stop against which the insulation engages.

3,594,714 TERMINAL STRIP

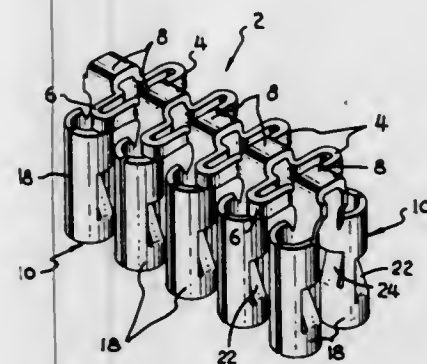
Clarence Leonard Paullus, Camp Hill, and John Aaron Zimmerman, Jr., Hershey, both of, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 4, 1967, Ser. No. 658,368

Int. Cl. H01r 13/12

U.S. Cl. 339-242

11 Claims



Terminal strip for use in an interconnection system comprises two spaced-apart parallel carrier strips connected together by transversely extending rungs. Contact sockets are integral with the carrier strips on opposite sides of the rungs and extend laterally therefrom. Portions of terminal strip extending between rungs are folded to shorten the pitch of the strip and adapt it for use in housings in which contacts are close together. Strip may be used for feed-through applications, in which the two sockets of each pair are in axial alignment with each other, or for junction blocks in which strip is bent so that the two contacts of each pair extend parallel to each other on each side of the carrier strips.

3,594,715 CONNECTION DEVICE FOR ELECTRICAL INSTALLATION

Gerard Paul Louis Dumesnil, 17 Rue Saint Marc, Epinay (Seine Saint Denis), France

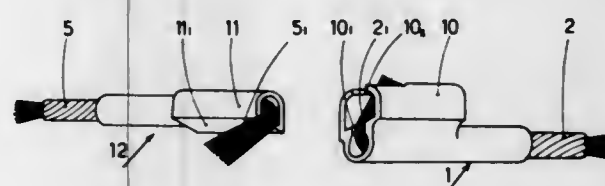
Filed May 9, 1969, Ser. No. 823,288

Claims priority, application France, May 22, 1968, 152843

Int. Cl. H01r 7/06

U.S. Cl. 339-244

9 Claims

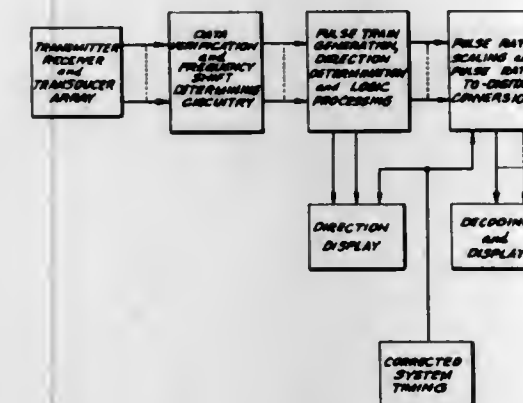


The invention relates to a connection device which can be used to make connections, either between a wire and a terminal, or between two wires, said device being composed of a dielectric pressed part bearing a guide allowing the nesting of the end of one of the two wires to be connected to a terminal or to another wire, said guide being fitted with a parallel sleeve, the cross section of which is identical to that of the plug or the pin secured to the end of the other wire to be connected with, in such way that the bare end of the wire inserted into the guide of the device will be allowed to be folded over at 180° so as to get housed in its sleeve, the plug or terminal being then inserted in said sleeve in such way as to come in contact with the bare wires, thus providing the electrical connection between the two wires.

3,594,716
ELECTRONIC DOCKING GUIDANCE SYSTEM
Glenn N. Waterman, Salt Lake City, Utah, assignor to Edo Western Corporation, Salt Lake City, Utah
Filed Apr. 24, 1969, Ser. No. 818,893
Int. Cl. G01s 9/66

U.S. Cl. 340-3 D

17 Claims

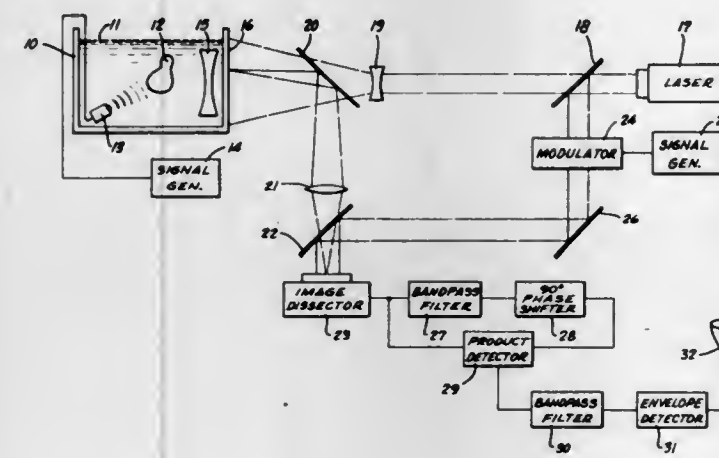


A vessel docking system employs transmitting and receiving transducers for developing Doppler frequency shifted signals indicative of velocity components along particular ship's axes. The signals are converted to digital form, and processed to yield speed and direction information along the sensed axes. The velocity information is corrected to compensate for variations in the acoustical propagating characteristic of the ocean medium.

3,594,717
SONIC TRANSDUCER
Albert Macovski, Palo Alto, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.
Filed Oct. 7, 1969, Ser. No. 864,351
Int. Cl. H04b 11/00; G01n 29/04

U.S. Cl. 340-5 H

6 Claims

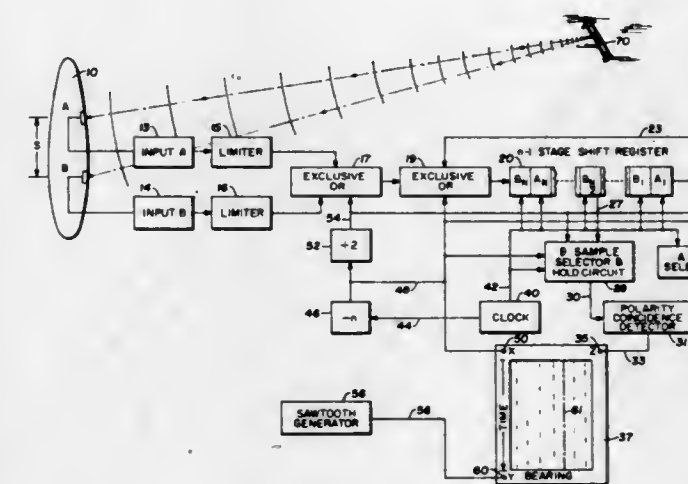


An object is acoustically illuminated and the acoustic image of the object is incident on and deforms an elastic surface. The elastic surface is illuminated with a first portion of light from a coherent source whereby the light is scattered to form an object beam. A second portion of the light from the coherent source is cyclically temporally offset by a modulator to form a modulated reference beam. The object and modulated reference beams are combined to form a light interference pattern which is optically scanned by an electron beam of an image dissector. The interference pattern and the electrical signal derived therefrom by the image dissector contain information relating to incidental variations in the elastic surface as well as the desired image vibrational signal. Electrical detectors and filters separate out the desired image vibrational signal which is applied to a cathode-ray tube for viewing. Alternatively, the cathode-ray tube display may be recorded on a photosensitive surface to create a holographic transparency which, when illuminated with coherent light, produces a hologram.

3,594,718
SHIFT REGISTER TIME COMPRESSOR FOR SONAR SIGNAL CORRELATION
Charles I. Black, and Ralph M. DuVall, both of Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 30, 1966, Ser. No. 606,210
Int. Cl. G01s 3/00

U.S. Cl. 340-6 R

7 Claims

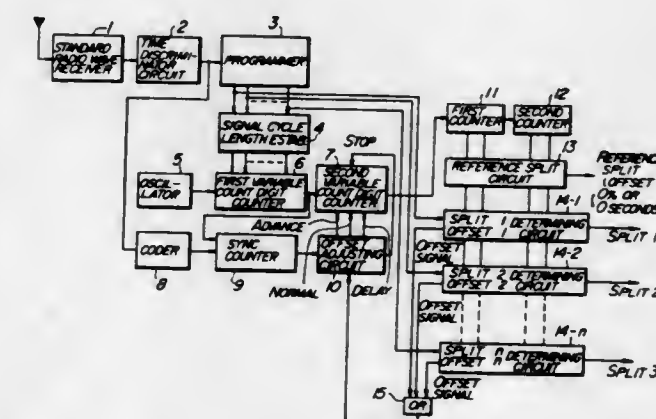


Successive signal samples from one detecting station are each compared for polarity coincidence with all samples in a train of samples of signals from a second detecting station with visual display means provided for integration with time. New samples of signals from both detecting stations are injected into the system at controlled sample rates synchronized with the display unit.

3,594,719
SYSTEM OF CONTROLLING TRAFFIC SIGNALS
Tadao Endo, Kyoto, and Tosiaki Arima, Otokuni-gun, both of, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan
Filed June 3, 1969, Ser. No. 829,968
Claims priority, application Japan, June 20, 1968, 43/42228
Int. Cl. G08g 1/07

U.S. Cl. 340-40

8 Claims



A coordinated traffic signalling control system comprises a plurality of local controllers having no interconnecting cables. Each controller includes a radio receiver tuned to receive a standard frequency and time transmission, broadcast by a preexisting standard signal services station, such as WWV; and a time signal discriminator coupled to the receiver generates time signals from the received radio signals. A programmer circuit, responsive to the generated time signals, in turn generates traffic pattern instruction signals. Circuits responsive to the generated timing signals and to the generated pattern instruction signals, automatically control the offset and split selection for that controller.

junction diodes formed from a common body of semiconductive material. Various constructions and materials are used for the cross-point switches. A number of ways of illuminating the individual diodes discretely are shown together with different ways of switching the light from one diode to another.

3,594,729

DATA RETRIEVAL SYSTEM

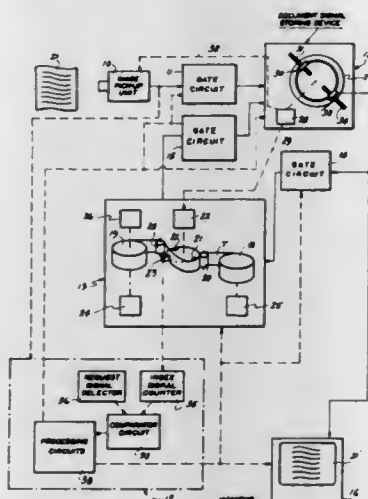
Saburo Uemura, Yokohama-shi, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 19, 1967, Ser. No. 691,787

Claims priority, application Japan, Dec. 19, 1966, 41/83365
Int. Cl. G11b 5/02

U.S. Cl. 340—172.5

8 Claims



In a data retrieval system employing a magnetic tape or other recording medium having index signals at intervals therealong for identifying respective tape portions and being moved past a head which is cyclically displaced to scan stripelike areas extending across the tape, the tape is driven at a high speed to rapidly bring a selected index signal near to the head and then the movement of the tape is continued at a low speed at which a plurality of the areas scanned by the head are in overlapping relation, and the head is operated to record or reproduce data signals only during one of its cyclical displacements upon the selected index signal reaching a predetermined position in the course of the continued low speed movement of the tape.

3,594,730

INFORMATION PROCESSING SYSTEM INCLUDING MULTIPLE FUNCTION TRANSLATORS

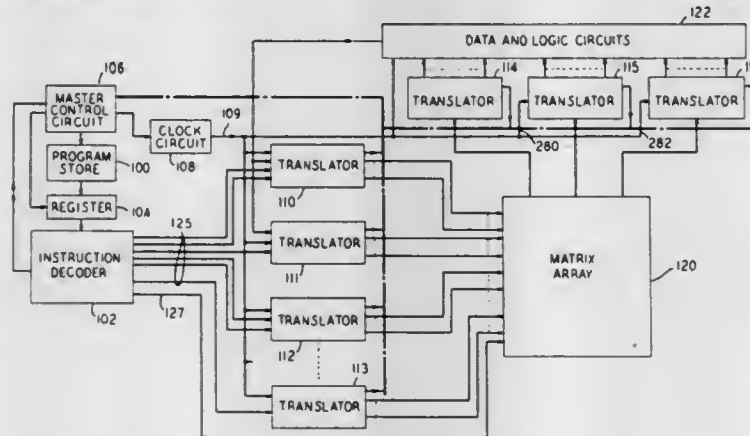
Wing N. Toy, Glen Ellyn, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed June 7, 1968, Ser. No. 735,297

Int. Cl. G06f 5/00

U.S. Cl. 340—172.5

11 Claims



An information processing system characterized by modularity of design and good maintenance features includes a

plurality of one-out-of-N translators each of which includes double-output detection circuitry. Some of the translators are operated in a conventional manner to convert a multidigit input word into energization of one particular one of N output lines emanating therefrom. Others of the translators are supplied with periodic clock signals, steady-state reference signals and instruction signals. In response to such a set of signals, these other translators are operated in a unique manner to provide a specified plurality of sequential control signals which are applied to a matrix array to cause the readout therefrom of a corresponding plurality of stored words.

3,594,731

INFORMATION PROCESSING SYSTEM

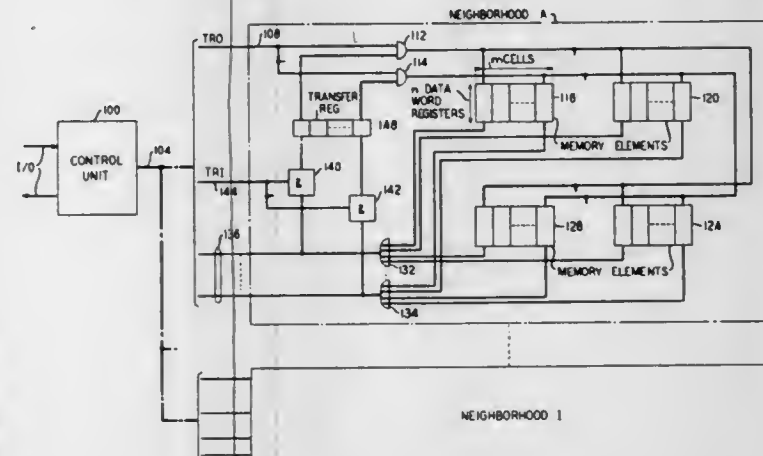
Lawrence Bernstein, Livingston, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed July 26, 1968, Ser. No. 748,103

Int. Cl. G06f 3/00

U.S. Cl. 340—172.5

6 Claims



An arrangement for enabling the transfer of data words from any data word register in any element of a neighborhood of elements of an associative memory system to any other data word register in any element of the neighborhood. Each element comprises a plurality of data word registers. The neighborhoods, in turn, comprise a plurality of elements. A transfer register is located in each neighborhood of elements and is connected to the output leads of each element of the neighborhood such that a word retrieved from any element in that neighborhood may be registered in the transfer register. The transfer register is also connected to the input leads of the elements of the corresponding neighborhood so that any data words stored in the transfer register may be applied to any data word register of any element in the neighborhood. By utilizing the transfer register in this manner, data words which would normally be stored in a particular element but which cannot be because that element is being utilized to capacity, may be stored in some other element of the neighborhood, and then transferred to the first mentioned element when the data word is needed, for example, in a computation by the first element.

3,594,732

GENERAL PURPOSE DIGITAL COMPUTER

Myron J. Mendelson, Encino, and Alfred W. England, Reseda, both of, Calif., assignors to Scientific Data Systems, Inc., Santa Monica, Calif.

Continuation of application Ser. No. 572,835, Aug. 16, 1966, now abandoned. This application Oct. 29, 1969, Ser. No. 872,430

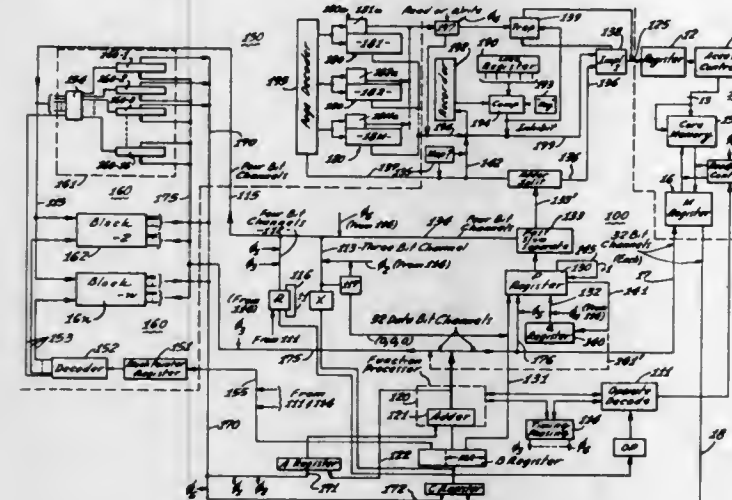
Int. Cl. G06f 9/18

U.S. Cl. 340—172.5

24 Claims

The application discloses a general purpose digital computer having a fast access, register-type memory and a relatively slow access, core memory. The fast memory is divided into blocks selectively operable as accumulator extension

and indexing registers or as memory. The computer is provided with a programmable and controllable interrupt



3,594,733

DIGITAL PULSE STRETCHER

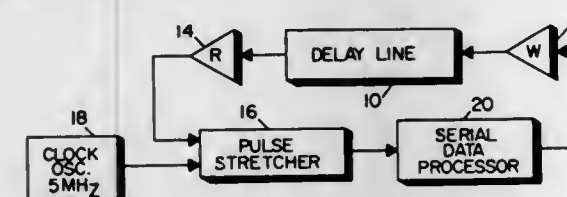
George B. Lukens, II, Waynesboro, Va., assignor to General Electric Company

Filed Feb. 24, 1969, Ser. No. 801,557

Int. Cl. G06f 13/02, 1/04

U.S. Cl. 340—172.5

11 Claims



A digital signal processing arrangement involving pulse forming and timing. A digital pulse stretcher synchronizes the output of an asynchronous pulse source with a synchronous digital frequency source. The pulse stretcher includes a first flip-flop which is set until the asynchronous pulse arrives. Arrival of the asynchronous pulse resets the first flip-flop and simultaneously sets a second flip-flop. A third flip-flop is set until the synchronous pulse arrives at which time the third flip-flop resets. As the end of the synchronous pulse the second flip-flop resets, causing the third flip-flop to return to the set state. A triggered output flip-flop is also included and operates to release the output of the second flip-flop at the beginning of the next bit time.

3,594,734

PROGRAMMABLE CALCULATOR

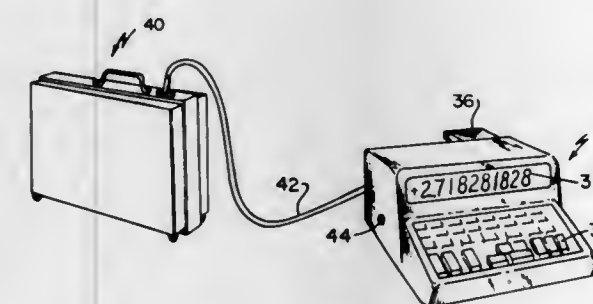
An Wang, Lincoln, Mass., and Prentice I. Robinson, Hudson, N.H., assignors to Wang Laboratories, Inc., Tewksbury, Mass.

Filed Mar. 21, 1969, Ser. No. 809,251

Int. Cl. G06f 3/06, 3/10

U.S. Cl. 340—172.5

15 Claims



An electronic calculator system includes a keyboard unit having keys representing numerical values from 0 through 9

and additional keys representing instruction values. Logic responsive to key operation produces codes for numerical values and instruction values; these codes function to determine operations performed by the calculator. The system further includes a magnetic tape unit operable in either of two modes: a learn mode in which key actuation causes the codes to be recorded in predetermined sequence upon a loop of magnetic tape, and a normal mode in which the tape unit senses the codes upon the tape and produces signals responsive to the codes to control calculator operation.

3,594,735

DATA RETRIEVAL APPARATUS

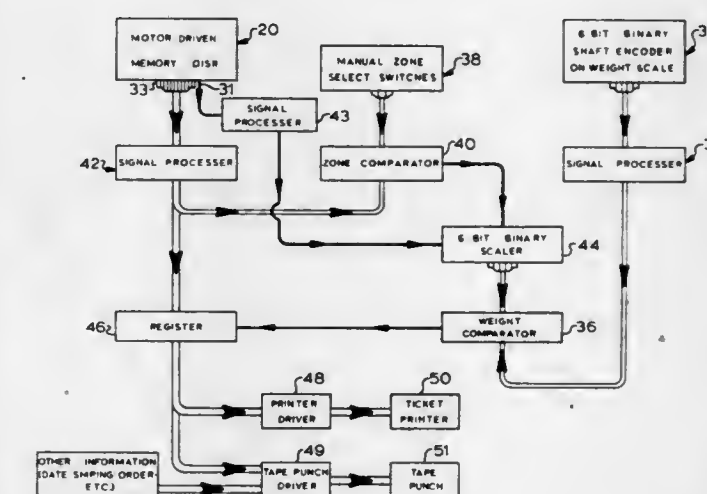
James H. Furlong, and Carl V. Phillips, both of Columbus, Ohio, assignors to The Exact Weight Scale Company, Columbus, Ohio

Filed Aug. 26, 1968, Ser. No. 755,352

Int. Cl. G11c 13/04

U.S. Cl. 340—173 LM

5 Claims



An apparatus for the retrieval of prestored information which incorporates a novel data storing means in the form of a rotatable disc provided with an optically sensed code wherein the code is nonanalogous to shaft position. The apparatus also includes means for creating optical signals responsive to the code on the disc and means for sensing and converting the optical signals into electrical signals. Certain of these electrical signals are compared with predetermined reference signals for locating the desired data on the disc for retrieval upon appropriate command.

3,594,736

MOS READ-WRITE SYSTEM

Charles R. Hoffman, Tempe, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Nov. 29, 1968, Ser. No. 779,727

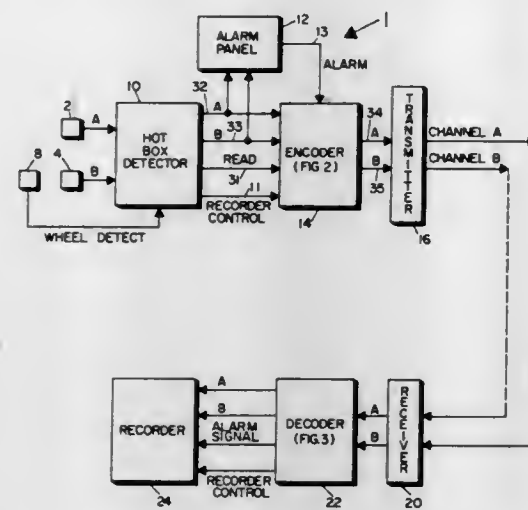
Int. Cl. G11c 11/40; H03k 3/286

U.S. Cl. 340—173 FF

10 Claims

Disclosed is a MOS read-write system for reading the binary content of a MOS storage cell and for writing into the storage cell. The system includes cross-coupled MOS devices which are connected to bit lines leading into the MOS storage cell, and these MOS devices or drivers are connected in push-pull and are conductively controlled by data and read and write command signals. The MOS devices are connected to write inverters for receiving a write command signal and to data inverters for receiving data input signals. A MOS read gate is connected between the MOS devices and a read command input terminal and is further connected to an input-output data line. The bit lines are isolated from the input-output data line by the read gate, by the MOS switching devices

recorder on or off accordingly. Similarly, if the alarm code is detected, the decoder actuates an alarm at the remote loca-



tion. The integrity of the system is assured since transmission is continuous.

3,594,745

VALVE FOR SIGNALING THREE CONDITIONS

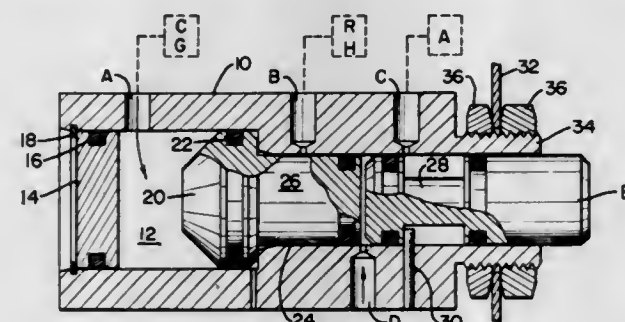
William M. Nickels, Englewood, Colo., assignor to C. A. Norgren Co., Littleton, Colo.

Filed May 8, 1969, Ser. No. 822,931

Int. Cl. G011 19/12; G08b 25/00

U.S. Cl. 340-213.1

8 Claims



A piston-type valve operated by air or other gas characterized by an input supply port and an input control port to which equal pressures are applied, a first signal output port communicating with the supply port when the control pressure decays below a predetermined value, and a manually operated spool valve moveable to a position for disestablishing communication between the supply port and first signal port and also establishing communication between the supply port and a second signal output port. The first output port may operate an audible annunciator and visible red light which indicates that the control pressure has decayed and the second output port may operate a signal device, such as an amber light, which indicates that an operator has acknowledged receipt of the previous alarm signal. During normal operation, the control pressure may operate a green light only when its pressure is above a predetermined value. The lights thus operate sequentially, green indicating normal control pressure in the system, red indicating a danger condition and amber indicating acknowledgement of the alarm condition. When the control pressure is restored to normal, the valve parts are automatically moved to their original positions.

3,594,746

FLAME SCANNER FAULT DETECTION SYSTEM

Vytautas Pileika, West Hartford, and Harry B. Jones, Wethersfield, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 27, 1967, Ser. No. 693,831

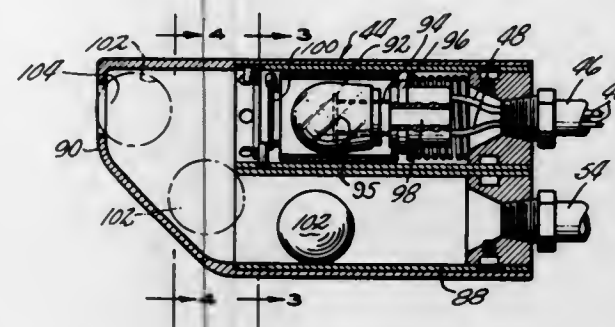
Int. Cl. G08b 29/00, 17/12

U.S. Cl. 340-214

4 Claims

A system for detecting a fault in the output signal of a flame scanner circuit, the system comprising ball means, nor-

mally gravity biased to a nonblocking position, periodically pneumatically activated to intercept, and block, the scanning view of a glow discharge tube detector used to indicate the presence of a flame. A logic circuit having an AND gate receives independent signals from the pneumatic activating means for the ball means (indicating ball means actuation) and from the flame scanner circuit (indicating positive firing



of the glow discharge tube detector). The tube detector, of course, should not be firing, and thus signaling the existence of a flame, when its scanning view is blocked by the ball means. If both of the above-mentioned signals reach the AND gate at the same instant, the gate will operate to pass a signal to a fault indicator which may operate any suitable alarm means to indicate a fault in the glow discharge tube detector.

3,594,747

CAMERA AND ALARM SURVEILLANCE SYSTEM

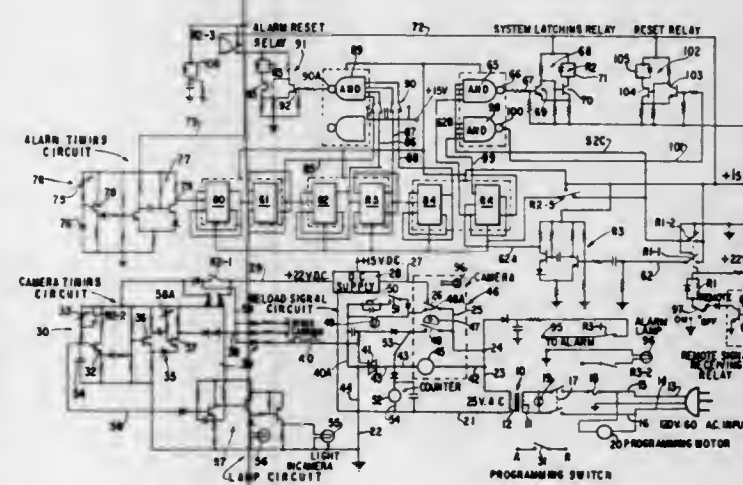
William R. Cronin, Philadelphia, Pa., assignor to Schulmerich Manufacturing Co., Carillon Hill, Sellersville, Pa.

Filed Dec. 6, 1968, Ser. No. 781,938

Int. Cl. G08b 13/00

U.S. Cl. 340-221

24 Claims



A surveillance system for banks and the like wherein a camera is programmed to operate at a normal rate but the rate of operation of the camera may be accelerated by a remote signal in the event of a robbery. An audible alarm is sounded after an adjustable time delay following accelerated operation of the camera. The system may be reset, thereby stopping the sounding of the alarm and returning the camera to a normal rate by a second remote or local signal.

3,594,748

ALARM SIGNALIZER WITH MINIATURE TRANSMITTER

Alfred Grotjahn, 4 Scharnhorststrasse, 3167 Burgdorf, Germany

Filed Oct. 23, 1968, Ser. No. 769,866

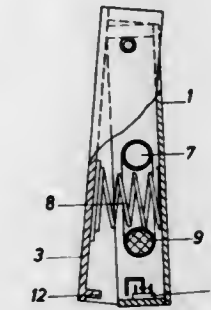
Int. Cl. H04b 1/02

U.S. Cl. 340-224

9 Claims

A portable radio transmitter for personal protection

wherein the energizing circuit contains a tilt-responsive switch and a pressure-sensitive switch, both switches nor-



mally held in an open circuit condition by the manner in which the transmitter is carried.

device operates by means of a fuse contact which upon melting at a preset temperature activates a signal source.

3,594,749

MONITORING SYSTEM FOR REFRIGERATED DISPLAY CASES

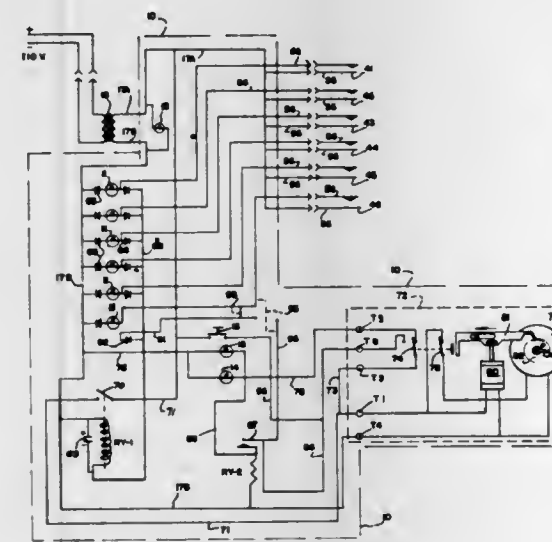
Norman P. Bergeron, 9245 S.W. 69th Ave., Portland, Oreg.

Filed Mar. 18, 1968, Ser. No. 713,611

Int. Cl. G08b 17/06

U.S. Cl. 340-227

1 Claim



A warning system is disclosed applicable to indicating higher than desired temperatures in a temperature controlled space such as refrigerated food storage cabinets. A master indicator unit includes means for identifying the particular food storage cabinet having the excessive temperature, such means being operable both during a timed defrost period and a period exceeding the defrost period wherein food spoilage may occur. Provision is made in the present warning system for indicating the failure of continuously operating components of a refrigeration system.

3,594,750

DEVICE FOR MEASURING TEMPERATURE OF MOLTEN MATERIALS AND METHOD OF USE

Erich Mueller, Berlin, Germany, assignor to Continental Elektroindustrie Aktiengesellschaft Akania-Werke, Berlin, Germany

Filed May 13, 1968, Ser. No. 728,645

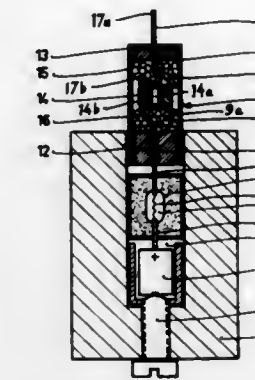
Claims priority, application Germany, May 12, 1967, S 1 09 860

Int. Cl. G01k 17/00; G08b 17/06

U.S. Cl. 340-227.1

9 Claims

The temperature in a melt is measured by introducing or



3,594,751

DETECTION OF PRODUCTS OF COMBUSTION

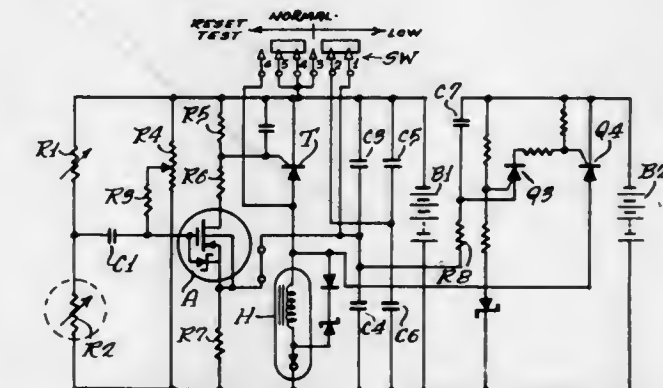
Wilbur L. Ogden, and Clarence Glenn Henderson, both of Aurora, Ill., assignors to BRK Electronics, Inc., Skokie, Ill.

Filed Feb. 29, 1968, Ser. No. 709,415

Int. Cl. G08b 17/00, 29/00

U.S. Cl. 340-228

5 Claims



A self-contained, self-powered, early warning fire detector and alarm of small size and attractive appearance especially adapted for use in residences; the detector including readily accessible sensitivity control and operability test means, and having a standby power source which additionally serves to monitor the primary power source and inform occupants of malfunction of the primary power source.

3,594,752

CONDITION SENSING AND ALARM UNIT AND CIRCUIT THEREFOR

Ahdor H. Alton, Lake Zurich, Ill., assignor to Gulton Industries, Inc., Metuchen, N.J.

Filed July 7, 1969, Ser. No. 839,520

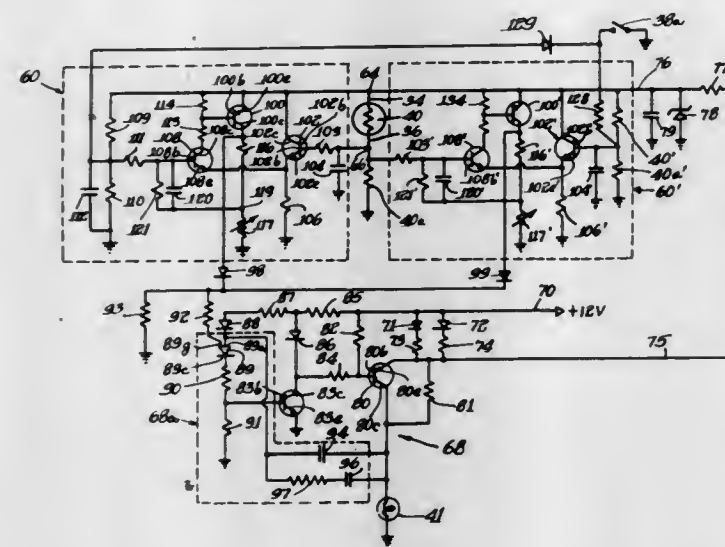
Int. Cl. F25b 49/00; G08b 21/00

U.S. Cl. 340-228

20 Claims

A readily mountable self-contained temperature sensing and alarm unit having a housing adapted to be mounted on the outside of a refrigerator truck, trailer, railroad car, or other refrigerated container, the housing encasing an alarm lamp, and a temperature sensor preferably attached to the end of an elongated tubular member extending from the rear of the housing to pass through a small opening in the wall of the refrigerated container. The housing may resemble and be of a size of an automobile head light or smaller and include a light dispersing cover plate on the outer front wall of the housing occupying most of the area of the housing so the energization of the alarm lamp is readily visible from many viewing angles. Control circuitry for the alarm lamp preferably is arranged on a printed circuit board having a portion thereof cut out to enable the printed circuit board to fit substantially completely around the alarm lamp within the housing. The control circuitry responds to the temperature

sensor by energizing the alarm lamp which preferably flashes on and off when the temperature sensor, which may be a



thermistor, senses a temperature above a safe temperature for the product carried within the refrigerated container.

3,594,753

AUTOMATIC TORNADO WARNING DEVICE

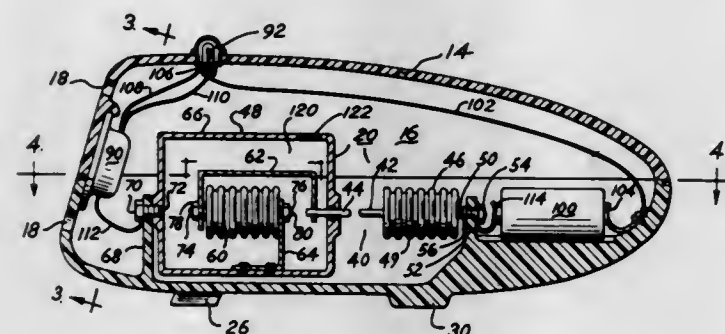
George H. Elenbaas, 841 Hiawatha Drive, Elkhart, Ind.

Filed May 7, 1969, Ser. No. 822,613

Int. Cl. G08b 21/00

U.S. Cl. 340-236

11 Claims



A tornado sensing and warning device having a housing and a switch with two normally spaced contacts, two pressure-responsive means operating in opposite directions to one another for normally maintaining the contacts in spaced relation, and a means for retarding the operation of one of the pressure-responsive means so that the other means may close the switch in response to a sudden drop in barometric pressure. The mechanism is normally enclosed in the housing containing a signal, such as a buzzer, which is operated when the contacts close in response to a sudden drop in barometric pressure.

3,594,754

PRESSURE MEASUREMENT ARRANGEMENTS FOR A VACUUM-TYPE CIRCUIT INTERRUPTER

Roy E. Voshall, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 26, 1968, Ser. No. 701,007

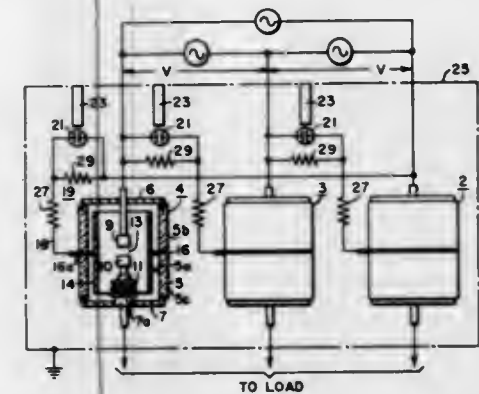
Int. Cl. G08b 21/00

U.S. Cl. 340-236

8 Claims

The pressure within a vacuum-type circuit interrupter is measured by imposing a voltage of commercial power frequency between the floating condensing shield and one of the electrodes to determine the magnitude of current flow between these elements in a measuring circuit. A neon bulb may be used in parallel with a resistance in this measuring circuit to continuously indicate the state or condition of vacuum within the interrupter envelope. A glass-fiber rod may conduct the light from the neon bulb, which is at high

potential, in its illuminated state, down to the side of a grounded housing. In another arrangement, one side of the



neon bulb may be at ground potential, and consequently an insulating glass-fiber rod for light conduction is unnecessary.

ERRATUM

For Class 340-246 see:
Patent No. 3,593,842

3,594,755

YARN SPEED MEASUREMENT ON THE BASIS OF YARN NOISE

Hermanus Stephanus Josephus Pijls, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

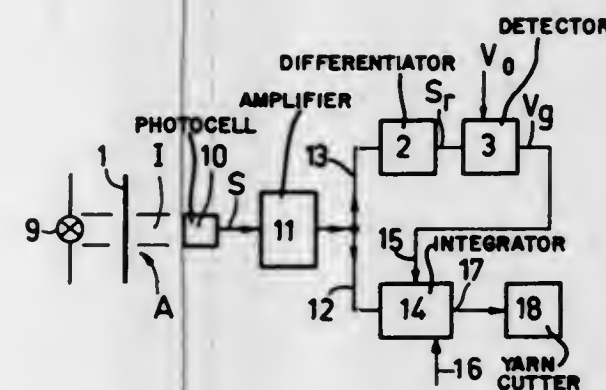
Filed Sept. 24, 1968, Ser. No. 762,058

Claims priority, application Netherlands, Sept. 25, 1967, 6713062

Int. Cl. G08b 23/00; G08c 19/36

U.S. Cl. 340-259

16 Claims



A yarn testing device having means for measuring the yarn speed. The device includes a pickup member for deriving a yarn signal from the passing yarn. The yarn signal includes a noise signal component produced by normal irregularities of the yarn, the amplitude and frequency thereof being proportional to yarn speed. A high pass network passes only the noise signal to an amplitude or frequency detector in which it is compared with a reference voltage indicative of a reference yarn speed to derive a signal proportional to yarn speed.

3,594,756

CRT CURVED CHARACTER GENERATOR

Mauritz L. Granberg, Minneapolis; Howard N. Hanson, Minneapolis; Charles A. Kiesling, Minneapolis, and Jerome J. Stoffel, Framington, all of, Minn., assignors to Sperry Rand Corporation, New York, N.Y.

Filed Dec. 26, 1967, Ser. No. 693,671

Int. Cl. G06f 3/14

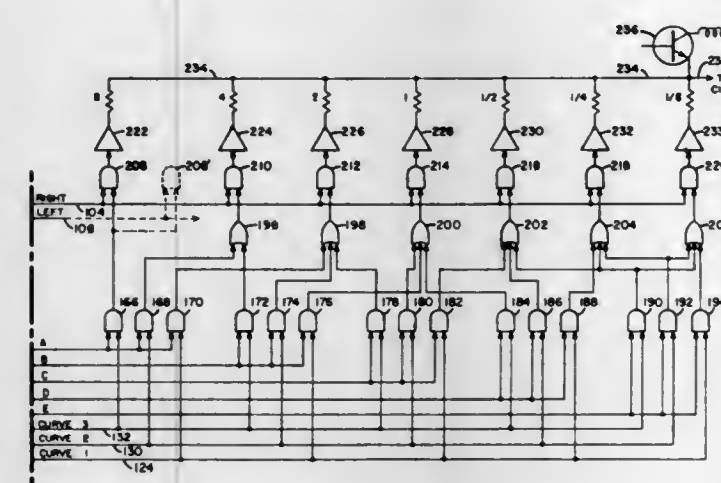
U.S. Cl. 340-324

1 Claim

A character generator for a cathode-ray tube display system including the capability of digitally generating curved

characters. Each diode matrix used for generating a character produces output signals in digital form representing the X-coordinate, the Y-coordinate, the intensity of the par-

the base of each transistor thereby limiting the current that can flow through each transistor. The base terminals of the



ticular stroke of the character being drawn, the degree of departure of the stroke from a straight line if it is to be curved and the direction in which it is to be curved.

3,594,757

WAVEFORM GENERATOR FOR PROVIDING TAPE DISPLAY OF CONTINUOUSLY CHANGING DATA

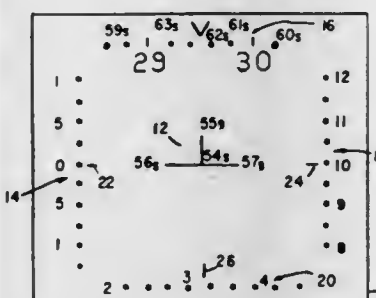
Jerold H. Gard, Los Altos, and Charles L. McAfee, San Jose, both of, Calif., assignors to Kaiser Aerospace & Electronics Corporation, Oakland, Calif.

Filed Mar. 20, 1968, Ser. No. 714,512

Int. Cl. G06f 3/14

U.S. Cl. 340-324 A

20 Claims



Electronic generator for providing waveforms which provide a calligraphic display of a selected segment of a movable numerical scale or tape on a visual display device in response to digital inputs representing the information to be presented by the tape on the display.

3,594,758

DRIVE CIRCUITRY FOR DISPLAY TUBES

Julius Gluck, Stamford, Conn., assignor to Sperry Rand Corporation, New York, N.Y.

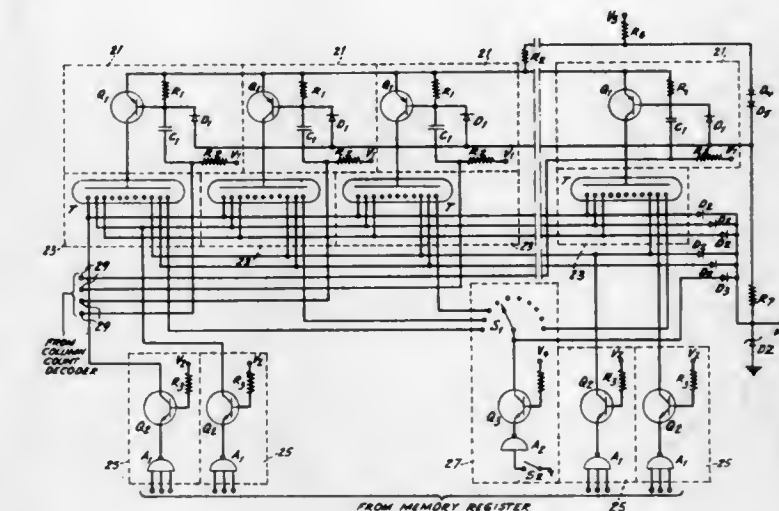
Filed Apr. 25, 1968, Ser. No. 724,197

Int. Cl. G09f 9/40

U.S. Cl. 340-324

8 Claims

Apparatus for limiting the current, applied to the anodes of a data display system of the type comprising data display tubes having a single anode and a plurality of cathodes, to a constant level when the display tubes are energized as described. The emitter-collector terminals of a current control transistor are connected between an anode voltage source and the anodes of each of the display tubes. The base terminals of the transistors are connected to a voltage limiting zener diode which is biased by the anode voltage source. The zener diode limits the voltage which can be applied to



transistors are also connected to a control system which controls when a particular anode transistor is to conduct current.

3,594,759

GRAPHICAL DATA PROCESSOR

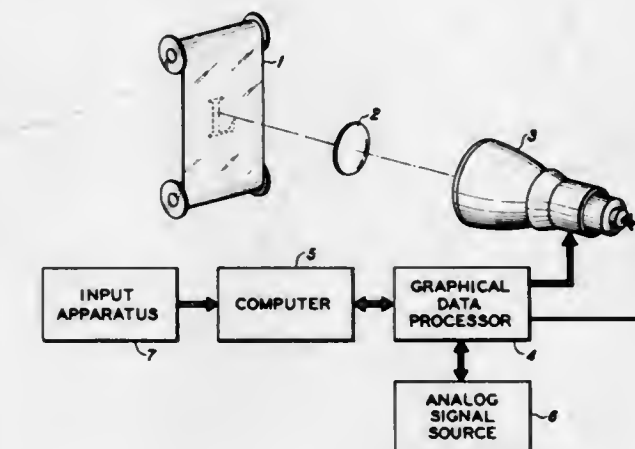
Edwin J. Smura, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Apr. 29, 1968, Ser. No. 724,746

Int. Cl. G06f 3/14

U.S. Cl. 340-324 A

7 Claims



A digital and analog signal responsive processor generates a visible display of alphanumeric, halftone, or vector information. The processor includes logic circuits for developing dynamic deflection fields in a display cathode-ray tube in response to a sequence of digital codes unique for a particular alphanumeric symbol such that the tube's electron beam is moved or scanned substantially only over the plurality of linear areas of the tube's screen which will collectively display the desired symbol. Additional circuitry is included to generate vectors of any length either at a uniform deflection velocity or during a uniform period of time. In addition, digital circuits are present which may reproduce halftone configurations in a dot-by-dot manner. Beam intensity and focus registers permit the alteration of these qualities of the electron beam as desired.

3,594,760

ADVERTISING DISPLAY DEVICE

Floyd H. Haker, 6546 Linden Lane, Dallas, Tex.

Filed Jan. 30, 1969, Ser. No. 795,308

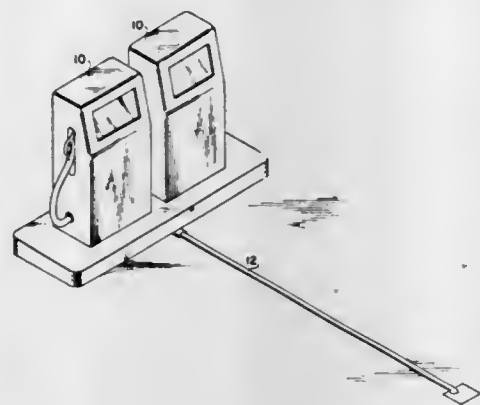
Int. Cl. G09f 13/04

U.S. Cl. 340-325

11 Claims

An advertising display device comprising a display unit having a plurality of panels, indicia on each of the panels for indicating a certain product or service when the panel is

energized, alarm means responsive to the presence of a prospective customer, and control means responsive to



operation of the alarm means for energizing the panels in a selectable sequence as a function of the number of operations of the alarm means.

3,594,761

INFORMATION DISPLAY MODULE

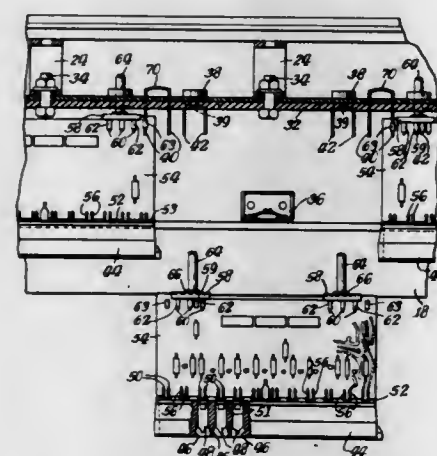
Raymond J. Boesen, Oak Park, and Robert A. Payne, Des Plaines, both of, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed Jan. 29, 1969, Ser. No. 795,011

Int. Cl. G09f 7/18

U.S. Cl. 340—334

6 Claims



Information display apparatus including a plurality of information display modules removably mounted side-by-side in an elongated housing. Each module comprises a faceplate, display elements arranged within the faceplate, a plurality of parallel printed circuit boards extending normal to the faceplate, tie bar means extending transversely of the printed circuit boards remote from the faceplate, and post members projecting through the tie bar means and secured in the faceplate whereby the printed circuit boards are maintained in assembled relation between the face plate and the tie bar means.

3,594,762

DISPLAY SYSTEM

Joseph Gardberg, Chicago; Robert A. Payne, Des Plaines, and Howard G. Posner, Chicago, all of, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed Mar. 27, 1967, Ser. No. 626,038

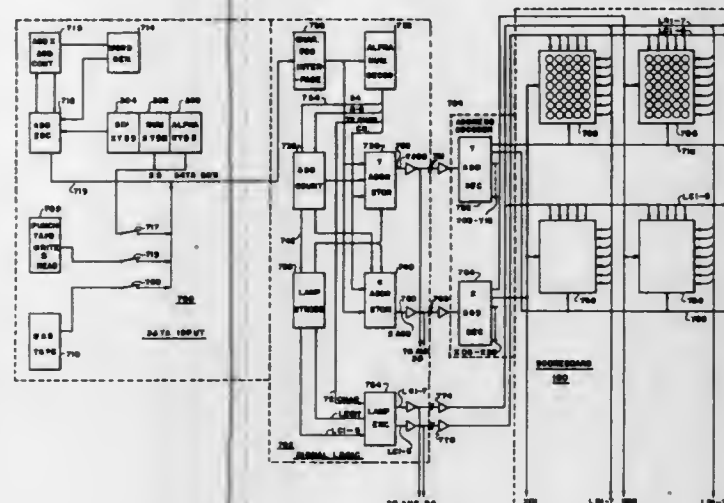
Int. Cl. G09f 9/34

U.S. Cl. 340—334

32 Claims

A control system for a data display system such as a scoreboard, message board or the like wherein display indicators having location addresses, on the board are addressed and actuated through a logic system which first receives and stores address data pertaining to a particular indicator, receives display character data, and responsive to

the receipt of the character display data automatically reads out the address data to the board for enabling the desired indicator followed by the display character data to actuate it to display the desired character. Indicator circuits are provided for the control of each indicator comprising semiconductor



switches which are reset by the addressing of the indicator and actuated to display the desired character responsive to the receipt of the display character data. A memory storage is also provided to cause the display of repeatedly used messages and animated characters.

3,594,763

WINDOWS AND THE COMBINATION THEREOF WITH ALARM MEANS

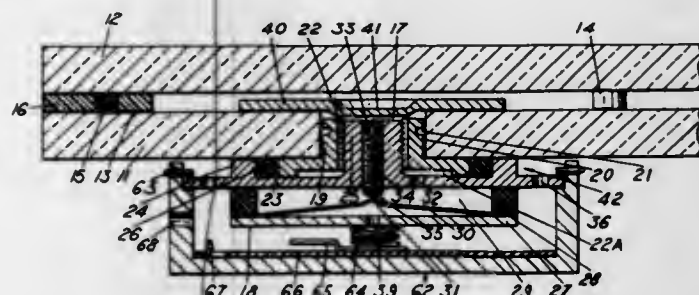
Cecil H. Peek, P.O. Box 325, Freeport, Bahamas

Filed Aug. 15, 1968, Ser. No. 752,928

Int. Cl. G08b 13/20

U.S. Cl. 340—240

4 Claims



A window comprises two panes of glass spaced apart in parallel relationship by rigid spacers of uniform thickness which are bonded to at least one of the panes, the spacers including a continuous strip placed inwardly of the window periphery and backing sealing means sealing said panes together at the window periphery, the space between the panes being evacuated. A hole in one of the panes used in the evacuation of the space may be plugged by a switch device in circuit with alarm apparatus and adapted to react to operate the alarm apparatus on equalization of the pressures within and external to the window.

3,594,764

ANALOG CONVERTER AND TRANSLATOR NETWORK THEREFOR

Matthew John Walsh, Pittsburgh, Pa., assignor to NUS Corporation, Rockville, Md.

Filed June 27, 1968, Ser. No. 740,583

Int. Cl. G08c 9/08

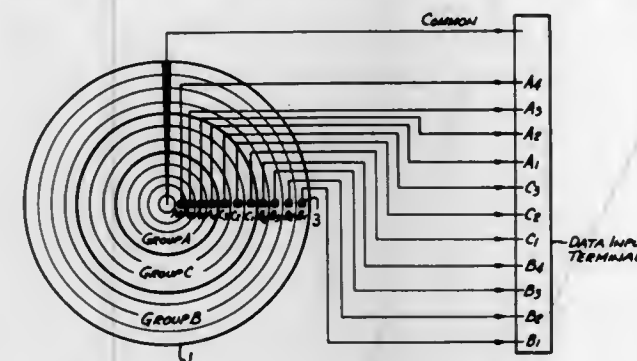
U.S. Cl. 340—347 P

9 Claims

A telemetry system for transmitting and monitoring analog data from a remote station to a receiving station with transducer means in the form of an encoder to convert the analog signal into digital intelligence in the form of a coded signal to be transmitted over the telemetry system, preferably over

the standard switched telephone network through, for example, the application of the data phone system of the American Telephone and Telegraph Company, the intelligence being transmitted over the data phone system through the use of coded tones produced by multifrequency oscillators. A decoding network is provided at the receiving station to receive the transmitted coded signal and convert the coded signal into a signal indicative of the original analog signal.

The telemetry system receives at its input and reproduces at its output, contact indication combinations selected from a plurality of groups of possible contact indications wherein each indication represents a different analog data character



or value and no more than one contact indication is normally permitted within each group for any one possible combination. Each contact indication represents a different analog value and each group of contact indications represents a different arithmetic progression of the analog values wherein the first term of each successive progression equals the last term of the preceding progression plus the common difference of the preceding progression and wherein the common difference of each successive progression is equal to its first term. The contact indications are additive for each given possible combination to provide a digital code representative of an arithmetic progression of terms corresponding to the range of analog data values to be transmitted.

3,594,765

TIME DIVISION MULTIPLEX ANALOG-DIGITAL OR DIGITAL-ANALOG CONVERTER

Claude Paul Henri Lerouge, Maurepas; Marc Andre Regnier, Aulnay-Sous-Bois, and Didier Charles Strube, Garches, all of, France, assignors to International Standard Electric Corporation, New York, N.Y.

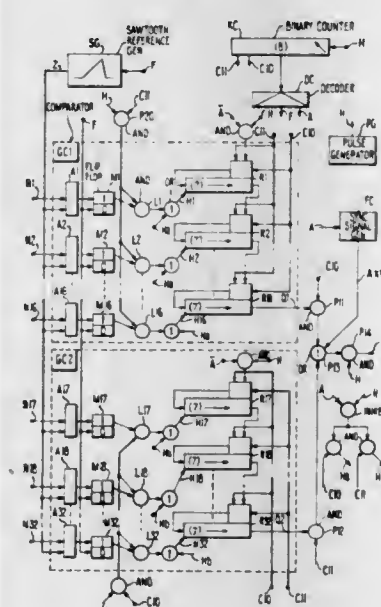
Filed Dec. 26, 1968, Ser. No. 786,918

Claims priority, application France, Jan. 3, 1968, 134640

Int. Cl. H03k 13/02

U.S. Cl. 340—347 AD

10 Claims



two groups. A timing signal source and logic circuitry associated with each counter cooperate to cause the counters of one group to convert the analog or digital signal of that group and simultaneously connect the counters of the other group in series and to function as shift registers to produce the serial output of previously coded analog signals or to store serial digital input codes. The function of the counters are then reversed. When functioning as analog-digital converters, the counters start counting and the analog signals are compared to a reference sawtooth waveform. When the amplitude of the analog signal equals the amplitude of the waveform, the counting is stopped and the code stored therein represents the amplitude of the analog signal. In the digital-analog converter, the counters of a group which store digital codes previously shifted into these counters start counting and cooperate with a bistable device to produce PWM pulses which is operated on to reproduce the analog signals.

3,594,766

ANALOG TO DIGITAL CONVERTER INCLUDING COMPARATOR CIRCUITS WITH INTERNAL LOGIC

Barrie Gilbert, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Jan. 24, 1969, Ser. No. 793,651

Int. Cl. H03k 13/175

U.S. Cl. 340—347 AD

12 Claims



An analog to digital converter is described having a differential analog input and a plurality of parallel digital outputs which includes a plurality of comparator circuits, each including a pair of emitter coupled transistors having a pair of inputs and a pair of outputs. The inputs formed by the bases of one transistor in each of the comparator circuits are connected in sequence through a voltage divider to one input terminal of the converter and the outputs at the collectors of such one transistors are connected by internal logic in common with the outputs at the collectors of the other transistors in the next preceding comparator circuit so that only when both transistors are nonconducting is an output pulse transmitted to an output terminal of the converter. The converter may have 10 parallel outputs and be used to provide a decimal readout for a 10-position rotary switch by applying a staircase voltage whose steps correspond to the positions of such switch, as the analog input signal of the converter.

3,594,767

ELECTRIC LINE FAULT INDICATOR

Edwin A. Link, Waukesha, Wis., assignor to RTE Corporation, Waukesha, Wis.

Filed Aug. 28, 1968, Ser. No. 756,066

Int. Cl. G08b 21/00

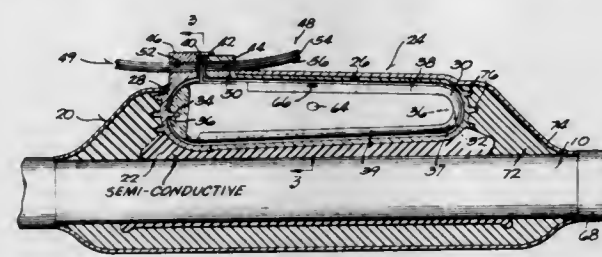
U.S. Cl. 340—253

10 Claims

A plurality of binary counters are provided, each of which are assigned to a different channel signal, and arranged in

Disclosed herein is a high voltage underground cable fault indicator having a rotor mounted for movement within a

sealed housing with a voltage sensitive element to move the rotor in one direction and a current sensitive element to

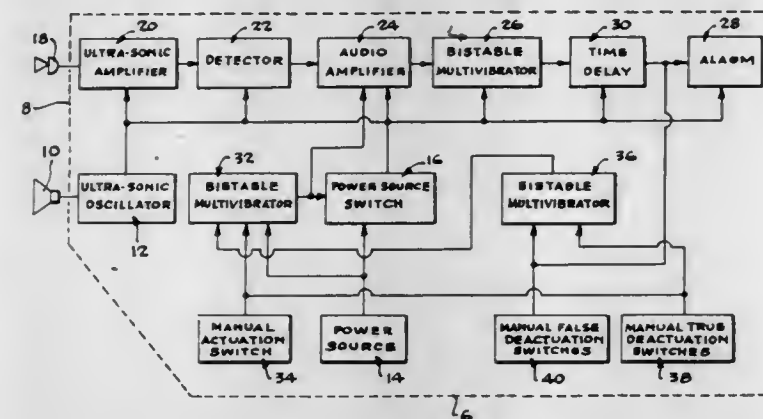


move the rotor in the other direction. Light conductive members may be connected to the housing to provide a visual indication of the position of the rotor in the housing.

3,594,768 MOTION DETECTING APPARATUS AND INTRUDER ALARM

George Allen Harris, 7764 West Fourteenth Court, Hialeah, Fla., and Alpha M. Wiggins, Apartment 519, El Monte Apartment, Hato Ray, P.R.
Filed Jan. 16, 1967, Ser. No. 609,514
Int. Cl. G08b 13/16

U.S. Cl. 340-258 A 8 Claims

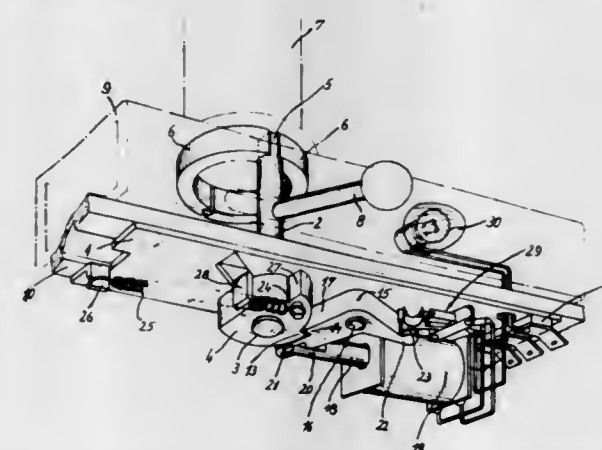


A motion detecting device utilizing an ultrasonic radiator and an ultrasonic microphone in which the microphone is electrically connected to an audio detector, and the output of the audio detector is converted into pulses. Pulses having a repetition rate greater than a threshold value are accumulated and utilized to trigger a bistable multivibrator. The output of the multivibrator passes through a time delay device to an alarm, and the unit is provided with an electronic switch for deactuation during the period of time delay.

3,594,769 PULSE ACTUATED SOLENOID FOR BROKEN THREAD DETECTOR

Willy Heimes, Krefeld, Germany, assignor to Palitex Project Company GmbH, Krefeld, Germany
Filed Sept. 26, 1967, Ser. No. 670,541
Claims priority, application Germany, Dec. 22, 1966, P 41070
Int. Cl. G08b 21/00

U.S. Cl. 340-267 2 Claims



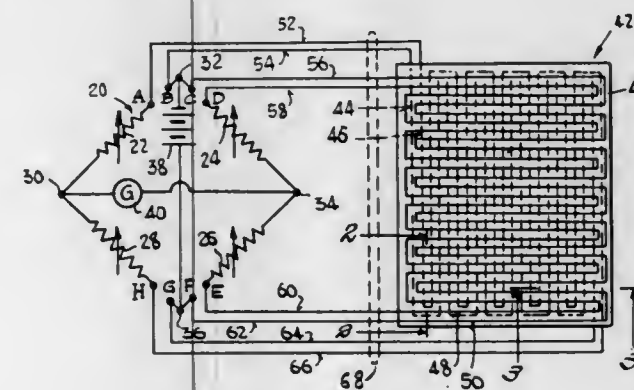
Method and apparatus wherein a solenoid actuated armature moves a latch out of latching engagement with a

member which is biased to move when so released; in which the solenoid is energized by a series of current pulses rather than by a continuous supply of current and movement of the latch to release position interrupts the circuit to said solenoid while a counter counts the pulses to the solenoid and interrupts the circuit thereto when a certain number of pulses have been supplied to the solenoid, and while a signal lamp is illuminated whenever the latch moves to release position or whenever the counter interrupts the circuit to said solenoid.

3,594,770 PRINTED-CIRCUIT TYPE SECURITY APPARATUS FOR PROTECTING AREAS

Conrad S. Ham, Naugatuck, and Elwood R. Horwinski, Cheshire, both of Conn., assignors to Lewis Engineering Company, Naugatuck, Conn.
Filed Oct. 28, 1968, Ser. No. 780,931
Int. Cl. G08b 13/00

U.S. Cl. 340-273 4 Claims

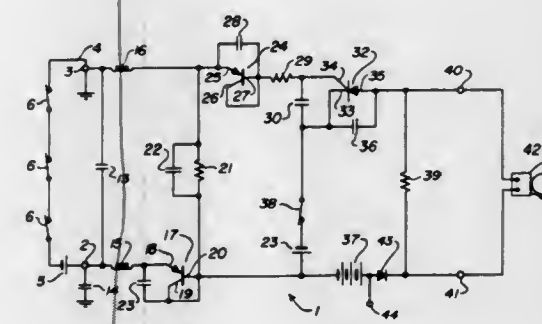


A guarding apparatus responsive to violation of the security of an area or space, comprising a printed or similar gridlike circuit configuration of conductors, preferably of resistance characteristic, connected to form one or several continuous trigger circuits. The configuration may be in the nature of printed circuit panels arranged to enclose, preferably completely, the desired area of security, as by constituting part of the walls, floor, junction or connector boxes and the like. The circuitry is connected, as by a cable, to an energized electrical detector which may comprise an instrument movement and a bridge, whereby any shorting or breaking of one or more of the printed or similar conductors will result in a response by the instrument movement.

3,594,771 SOLID-STATE BURGLAR ALARM DETECTOR

Clifford Howard Uthene, Chicago, Ill., assignor to Chicago Fire and Burglar Detection, Inc., Glen Ellyn, Ill.
Filed Sept. 9, 1968, Ser. No. 758,410
Int. Cl. G08b 13/00, 13/08

U.S. Cl. 340-276 3 Claims

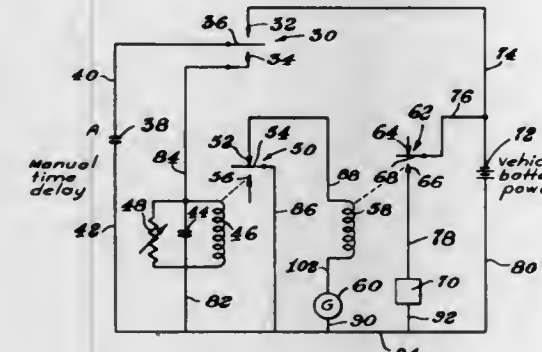


A burglar alarm detector including a silicon controlled rectifier which is triggered to activate alarm means by means of coupling means included in the input circuit thereof, which coupling means is, in turn, responsive to a predetermined condition of a protective circuit.

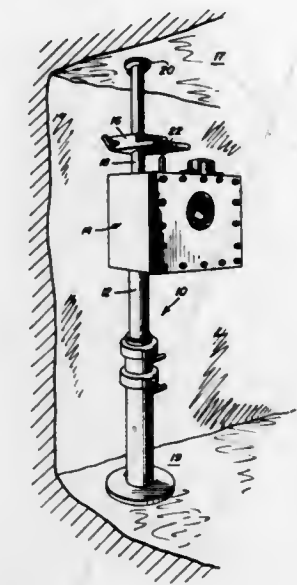
3,594,772 SLEEP SENSING DEVICE

Donald D. Setser, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich.
Filed Aug. 12, 1968, Ser. No. 752,018
Int. Cl. G08b 21/00

U.S. Cl. 340-279 6 Claims



actuator causes operation of an alarm circuit thus signaling the occurrence of an emergency situation. A second embodi-

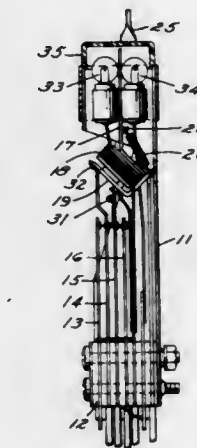


ment utilizes the telescoping sleeves and a displacement gauge mounted thereto for monitoring roof displacement.

3,594,774 PLURAL MODULE CIRCUIT SIGNALING SYSTEM

Herman L. Dawson, 601 W. Fort St., Detroit, Mich.
Filed Dec. 31, 1968, Ser. No. 788,215
Int. Cl. G08b 5/00

U.S. Cl. 340-286 23 Claims



The invention relates to apparatus for sensing drowsiness of an operator of a motor vehicle which includes a multiple contact sensing switch coupled to or actuated by movement of the steering mechanism of the motor vehicle, means for maintaining a predetermined charge on a condenser in a relay time constant circuit under one condition of motor vehicle operation, means for discharging said condenser at a predetermined rate if the mode of steering the vehicle is changed, and alarm means actuated by said relay when said condenser's charge level reaches a predetermined level and the output of a generator mechanically coupled to the vehicle drive means and electrically coupled to the alarm circuit exceeds a predetermined voltage.

The output of this generator increases with an increase in road speed of the vehicle. An alarm relay placed in series with the time delay relay contacts controls the operation of the alarm signal. The pull in voltage for this relay is selected so that only when the vehicle reaches a certain selected minimum speed will it be possible to have the alarm relay actuate. It will actuate at any speed above the minimum speed if the driver does not actuate the steering wheel within the time delay interval.

The output of this generator increases with an increase in road speed of the vehicle. An alarm relay placed in series with the time delay relay contacts controls the operation of the alarm signal. The pull in voltage for this relay is selected so that only when the vehicle reaches a certain selected minimum speed will it be possible to have the alarm relay actuate. It will actuate at any speed above the minimum speed if the driver does not actuate the steering wheel within the time delay interval.

3,594,773 MINE ROOF GAUGE AND INDICATOR

Ellsworth V. Conkle, 5th & Grand, and Charles E. Bear, 326 North Fork Ave., both of Paonia, Colo.
Filed Nov. 12, 1968, Ser. No. 775,046
Int. Cl. G08b 21/00

U.S. Cl. 340-282 3 Claims

Two telescoping sleeves are disposed between the roof and floor of a mine. Switch trigger means is secured to a first sleeve and a detector actuator is secured to the second sleeve. The trigger and the detector actuator are positioned in registry with one another and separated by a predetermined distance. Displacement of a mine roof by a distance exceeding the predetermined space between the trigger and

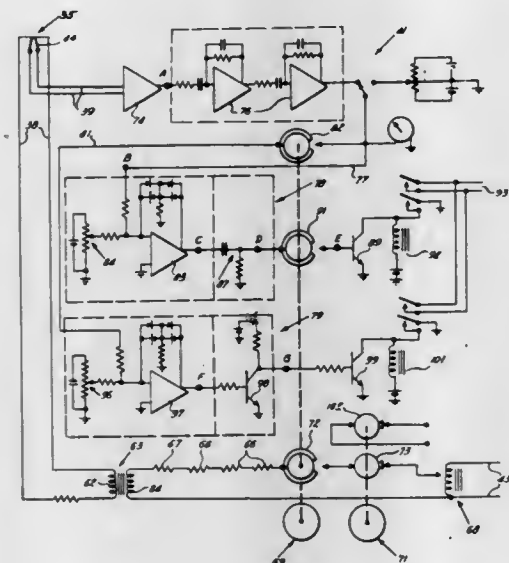
3,594,775 SYSTEM FOR DETECTING FROST, SNOW AND ICE ON A ROAD SURFACE

Norbert K. Fox, 903 Grand Ave., Ames, Iowa
Filed July 9, 1969, Ser. No. 840,408
Int. Cl. G08b 21/00

U.S. Cl. 340-234 5 Claims

A transducer has a member with a sensing surface located in the road level which member, when dry and a controlled heat is applied thereto has a basically linear time-temperature curve. The forming of ice on the sensing surface modifies the linear curve by effecting a holdup in the temperature rise due to the heat of fusion of the ice. The resultant heating curve characteristics of the sensing surface are converted to

voltage by a thermocouple means, and the variations in the voltage effected by the holdbacks in the heating curve are double differentiated to produce the second derivative of the

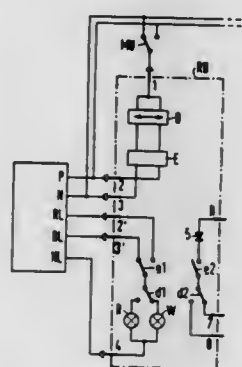


initial time-temperature curve. Voltage excursions that exceed predetermined positive and negative levels within specified time intervals are utilized to indicate an icy road condition.

3,594,776 VISUAL POSITION INDICATING CIRCUIT FOR SWITCHING EQUIPMENT

Otto Wildgruber, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Munich, Germany
Filed Nov. 4, 1969, Ser. No. 873,948
Claims priority, application Germany, Nov. 22, 1968, P 18 10 350.9
Int. Cl. G08b 5/36
U.S. Cl. 340-332

3 Claims



In one condition of switching equipment a pair of relays closes a circuit for intermittent energization of a colored pilot lamp. In another condition of switching equipment, the pair of relays closes a circuit for continuous energization of another pilot lamp of a different color.

3,594,777 QUICK-CHANGE ELECTRIC SIGN

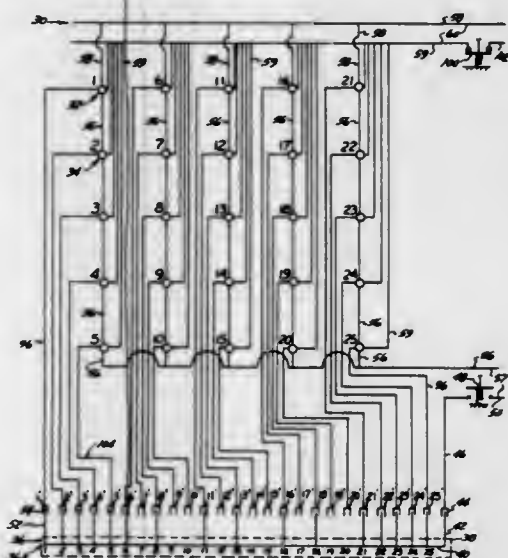
Johnny E. Blair, Box 3, Van, W. Va.
Filed Nov. 19, 1968, Ser. No. 776,941
Int. Cl. G09b 13/00

U.S. Cl. 340-334

10 Claims

The message on this electric sign can be quickly changed from one message to another letter-by-letter by removing a conductor bridge bar from the sign lamp circuit block illuminating the lamp forming the first letter and substituting another conductor bridge bar for illuminating the necessary lamps for the new first letter and so on similarly for each letter of each word. Each letter of the alphabet has a different bridge bar according to the lamps required to outline that letter in its lamp circuit block, and a word in the sign is

made up of a combination of lamp circuit blocks employing a different bridge bar for each different letter of the word. Each lamp employed for outlining the letters is a special lamp of the type disclosed and claimed in my copending application Ser. No. 730,407 filed May 20, 1968 for Dual Voltage Automatic-Switching Electric Lamp, now U.S. Pat. No. 3,524,100. The filament of this special lamp is initially energized by a starting voltage and automatically shifted over to an operating voltage by a thermostatic switch contained within the lamp bulb and responsive to the heat emitted by the filament. The instant the operating circuit is interrupted, the cooling of the filament causes the thermostatic switch

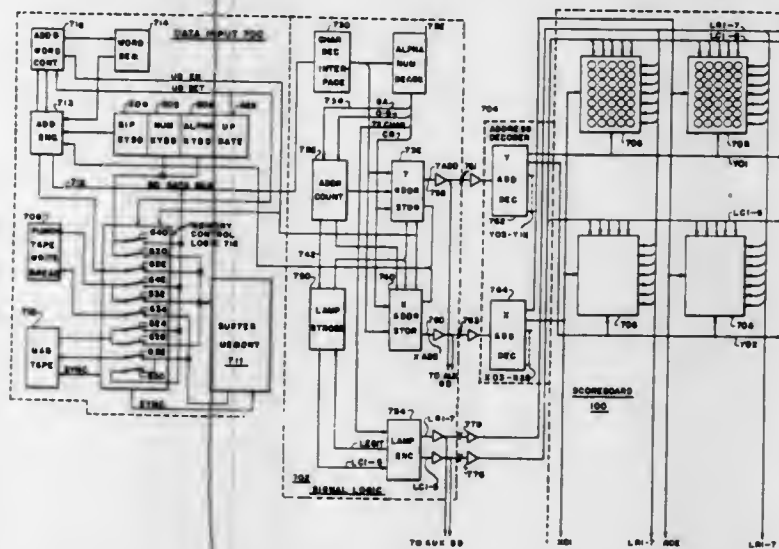


within each lamp to shift back to its starting voltage contact ready to be reenergized by the next closing of the circuit thereof, as by the substitution of another bridge bar. The use of this lamp in the present sign circuit eliminates many relays and controllers required in prior sign circuits. The sign itself contains as many blocks of lamps as are necessary to form the desired message with the maximum number of letters, e.g. a 50-letter message would require 50 blocks of lamps with 50 bridge bars or other selective bulb-group-energizing switches or controllers, spacing between words on the same line being accomplished by energized blocks spaced by unenergized blocks.

3,594,778 DISPLAY SYSTEM

Vernon R. Herald, Chicago; Paul M. Kolesar, Chicago, and Robert A. Payne, Des Plaines, all of, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.
Filed Mar. 28, 1967, Ser. No. 626,459
Int. Cl. G09f 9/34
U.S. Cl. 340-337

20 Claims



Control System for a data display system such as a scoreboard, message board or the like wherein display in-

dicators having location addresses, on the board, are addressed and actuated through a logic system which first receives and stores address data pertaining to a particular indicator, receives display character data, and automatically reads out the address data to the board for enabling the desired indicator followed by the display character data to actuate it to display the desired character. A buffer memory is provided for controlling the input to the logic system from a variety of input devices including console keyboard, punch tape typewriter and reader as well as magnetic memory storage devices. Circuits are provided in conjunction with the buffer for updating particular message data existing in the buffer as required by changes in the game or other information.

3,594,779 TUBES TO DISPLAY ALPHA-NUMERIC CHARACTERS AND READ-OUT CIRCUITS FOR USE THEREWITH

Norbert Kitz, London, England, assignor to Bell Punch Company Limited, London, England
Filed Sept. 4, 1968, Ser. No. 757,372
Claims priority, application Great Britain, Sept. 15, 1967, 42234/67
Int. Cl. H01J 17/00
U.S. Cl. 340-343

5 Claims



A numerical display system has a dual-number cathode glow tube with separate anodes and interconnected cathodes to permit selective display of alternative sets of numbers in the tube. A tube having two display windows comprises two vertically positioned numerical displays having half cylindrical anodes separated by an insulating disc and having commonly connected cathodes of the same number, all mounted on a single connector arrangement. The cathodes and anodes are driven separately from counter registers of an electronic calculating machine for selective cathode glow lighting in response to pulse countout of register information.

3,594,780 DIGITAL TO ANALOG CONVERTER HAVING CAPACITOR CHARGED BY INPUT CODE PULSES

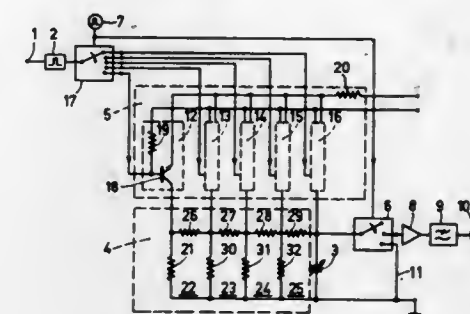
Johannes Anton Greefkes, and Henricus Petrus Johannes Boudewijns, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Sept. 3, 1968, Ser. No. 757,018
Claims priority, application Netherlands, Sept. 2, 1967, 6712081
Int. Cl. H03k 13/10

U.S. Cl. 340-347 DA

11 Claims

A digital to analog converter for sequential weighted pulse groups features a capacitor coupled to a resistor ladder net-

work. The pulses are applied to a distributor and then to a pulse circuit which charges the capacitor from different

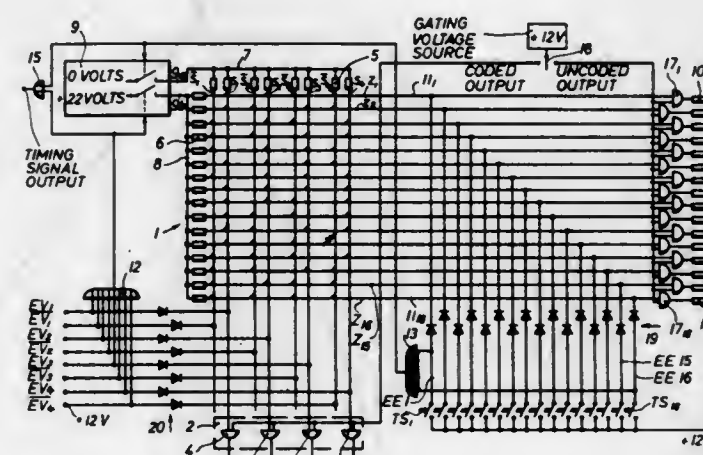


points on the network depending upon the weighted value of the pulse.

3,594,781 ENCODING AND DECODING ARRANGEMENT

Heinz Gerjets, Wilhelmshaven, Germany, assignor to Olympia Werke AG, Wilhelmshaven, Germany
Filed Dec. 23, 1968, Ser. No. 786,138
Claims priority, application Germany, Dec. 28, 1967, P 15 37 289.1
Int. Cl. H03k 13/243
U.S. Cl. 340-347 DD

14 Claims



A single diode matrix is used both for decoding encoded information and encoding unencoded information. The column lines of the matrix are connected to receive coded signals, and are further connected on the same side to furnish coded output signals. The rows of the matrix are connected on one side to receive unencoded input signals and, on the same side to furnish unencoded output signals. The other end of the column line is connected to a zero voltage source which is set in response to any incoming unencoded signal. The other end of the row conductors is connected to a 22 volt operating voltage which is set in response to receipt of any coded input signal. The signal for furnishing the 0 and 22 volt operating levels are derived from a second and first OR gate respectively. The output of these OR gates are also connected to a third OR gate, whose output thus furnishes timing signals.

3,594,782 DIGITAL-TO-ANALOG CONVERSION CIRCUITS

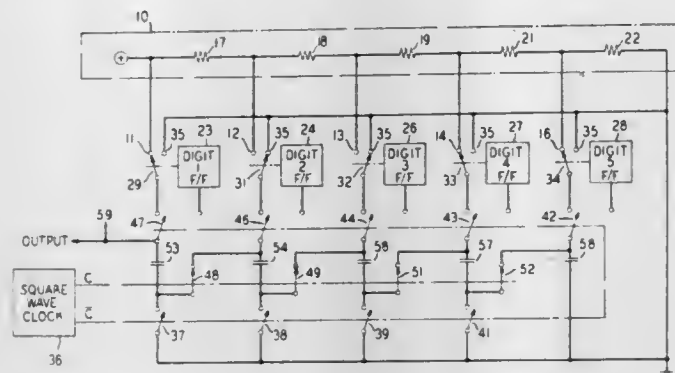
Robert L. Carbrey, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Mar. 20, 1969, Ser. No. 808,769
Int. Cl. H03k 13/04

U.S. Cl. 340-347 DA

10 Claims

Digital-to-analog conversion circuits are described in which a plurality of capacitors are charged by digitally

weighted voltages. The capacitors are then placed in series to provide an analog output voltage. A system is also shown in



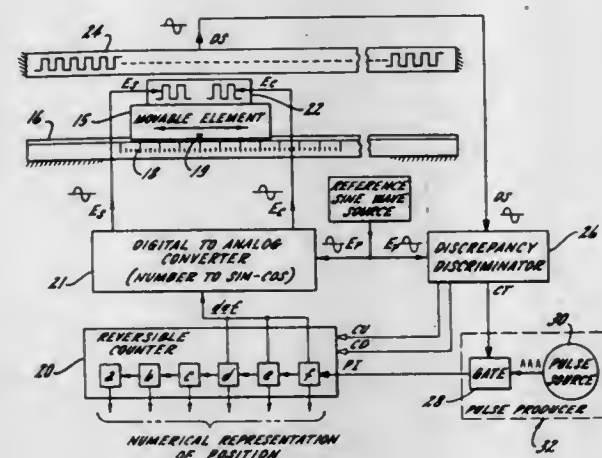
which a plurality of these digital-to-analog conversion circuits are operated from a common voltage source.

3,594,783 APPARATUS FOR NUMERICAL SIGNALING OF POSITIONS, INCLUDING DIGITAL-TO-ANALOG CONVERTER

Thomas B. Bullock, Fond du Lac, Wis., assignor to Giddings & Lewis Inc., Fond du Lac, Wis.
Division of Ser. No. 632,591, Apr. 21, 1967, Pat. No. 3,553,647.
Filed Aug. 7, 1969, Ser. No. 862,123
Int. Cl. H03k 13/02

U.S. Cl. 340-347

14 Claims



Apparatus for producing digital signals which numerically represent at all times the position of a movable element as it moves to different positions along its path of travel. The digital signals in the form of bilevel voltages are produced in a multidecade reversible counter to represent the position numerically in binary coded decimal notation. These signals are supplied to a digital-to-analog converter whose analog output, corresponding to the represented position, is supplied to a resolver type transducer mechanically coupled to the element. The transducer produces a discrepancy signal representing the sense and extent of any difference between the numerically represented position and the actual position of the element. So long as the discrepancy signal exists, pulse producing means are enabled to supply pulses to the counter so as to correctively change the number signaled by the counter until the difference and the discrepancy signal are reduced substantially to zero. The closed loop correction is very rapid, so for practical purposes the number digitally signaled by the counter always represents the actual position of the movable element.

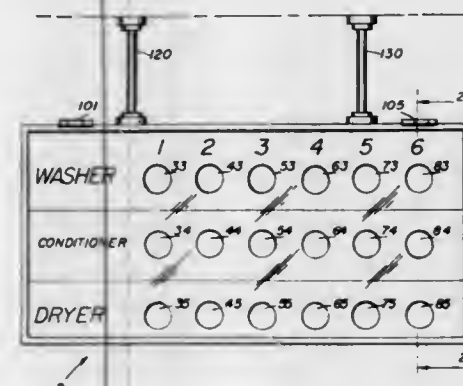
The digital-to-analog converter here disclosed is the type which produces sine and cosine function signals for excitation of a resolver type transducer. This converter is characterized by cross-coupling of the outputs and inputs of two algebraic combining devices such as operational amplifiers, by static switching means responsive to input signals digitally representing a changeable number, and by simple resistors selectively rendered effective to produce AC signals propor-

tional to sine and cosine functions of the sums of angles corresponding to higher and lower order portions of the changeable number.

3,594,784 COMMERCIAL LAUNDROMAT SIGNALING SYSTEM John A. Femminella, 294 Newport Road, Unlondale, N.Y. Filed Apr. 14, 1969, Ser. No. 815,739 Int. Cl. G08b 5/36

U.S. Cl. 340-372

9 Claims

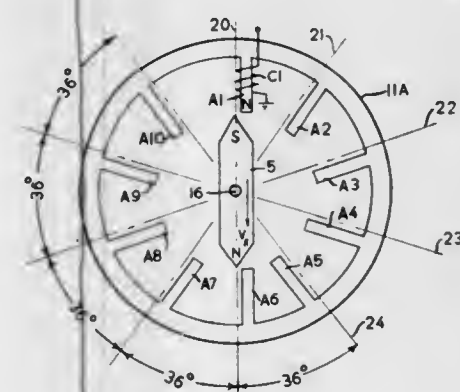


An improvement in a commercial laundromat equipped with a plurality of washing machines and/or dryers, said improvement comprising a remotely positioned indicator panel, said indicator panel equipped with a plurality of indicator means at least one of such means is responsive to the stage of use of a corresponding washing machine or dryer, each of said washing machines and/or dryers in signaling combination with at least one of said indicator means.

3,594,785 ELECTROMAGNETIC INDICATOR HAVING ASYMMETRICALLY POLED STATOR Louis L. Orenbuch, South Weymouth, Mass., assignor to Veeder Industries Inc., Hartford, Conn. Filed Oct. 1, 1969, Ser. No. 862,873 Int. Cl. G08b 5/24

U.S. Cl. 340-378 R

3 Claims



An indicator is disclosed having a rotor which is able to turn promptly to 180° opposed positions to permit the successive display of diametrically opposed symbols carried on a drum. The position of the rotor drum is governed by a stator having poles projecting inwardly from an annular core. Windings on the poles are arranged to permit the stator to establish any one of a number of differently oriented magnetic fields. The rotor has a permanent magnet which rotates about an axis at the geometric center of the annular core to align itself with the stator's magnetic field. The poles of the stator are arranged on the annular core in pairs which are not diametrically opposed but are aligned to cause the vector representing the stator's field to be parallel to and offset from the aligned position taken by the permanent magnet.

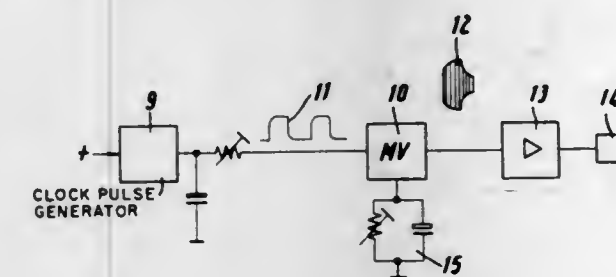
3,594,786 ELECTRONIC ARRANGEMENT FOR SIMULATING ANIMAL SOUNDS

Hans G. Brunner-Schwer; Hansrichard Schulz, and Joachim Bulow, all of Villingen/Black Forest, Germany, assignors to Saba Schwarzwälder Apparate-Bau-Anstalt August Schwer Sohne GmbH, Villingen am Black Forest, Germany
Filed June 4, 1968, Ser. No. 734,845
Claims priority, application Germany, June 6, 1967, S 110195

Int. Cl. G08b 3/00

U.S. Cl. 340-384

4 Claims



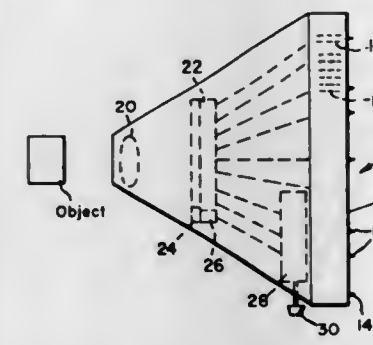
An electronic arrangement for simulating sounds emitted by animals. A clock pulse generator transmits pulses which are partially differentiated and/or integrated. The resulting pulse signals are applied to a series of astable multivibrator circuits which synthesize audiofrequency signals representing the various types of animal cries. Multivibrator circuits may be combined with each other in a particular arrangement, and these combinations may be operated in conjunction with variable integrating and differentiating circuits to produce the desired results. Loud speakers powered by amplifiers emit in audible form the signals provided and processed by the multivibrators.

3,594,787 SCENE SCANNER AND TACTILE DISPLAY DEVICE FOR THE BLIND

Millard J. Ickes, 2020 Davies Way, Los Angeles, Calif.
Continuation-in-part of application Ser. No. 718,583, Apr. 3, 1968. This application July 16, 1969, Ser. No. 842,265
Int. Cl. G08b 1/00

U.S. Cl. 340-407

7 Claims



A scene scanner and display device is provided which utilizes a plurality of electrically energizable pins to provide a tactile stimulus to a blind person, representing the shape or outline of an object in the field of view of the device. A lens system focuses a limited scene area on a matrix of optical sensors which are individually connected to corresponding matrix of display elements, such as electrically energizable pins. A control permits an adjustment of the sensitivity of the sensors. Objects in a "viewed" scene are represented by protruding pins in the general configuration or shape of the object.

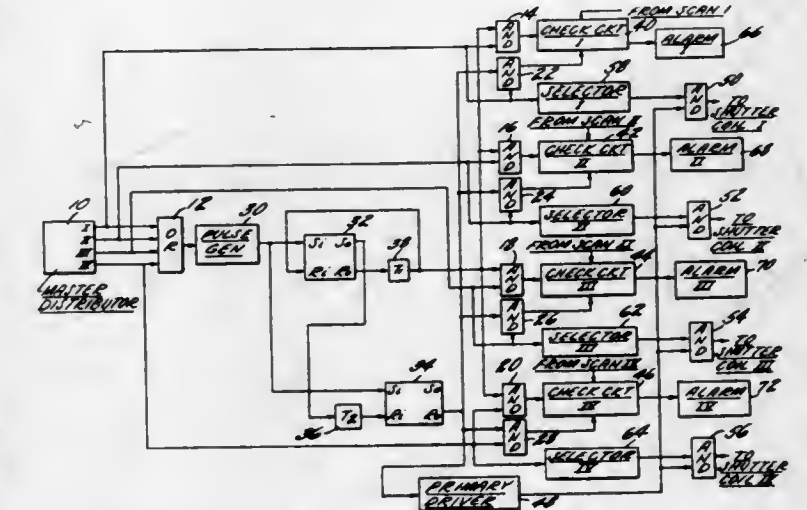
3,594,788 SENSOR TESTING DEVICE Martin L. Seelig, Springfield, Mass., assignor to Combustion Engineering, Inc., Windsor, Conn. Filed Dec. 27, 1967, Ser. No. 693,972 Int. Cl. G08b 29/00

U.S. Cl. 340-410

11 Claims

Apparatus for sampling the output of a selected condition responsive device or circuit wherein an artificial condition is

created and presented to the circuit or device under test. In the disclosed embodiment, the artificial condition is provided by closing a shutter positioned between a sensing element and the environment or condition to which it is normally responsive. Logic circuitry is provided whereby the output of the device or circuit under test will be sampled a predetermined period after the creation of the artificial condition and an alarm will be sounded if a signal indicative of a malfunction



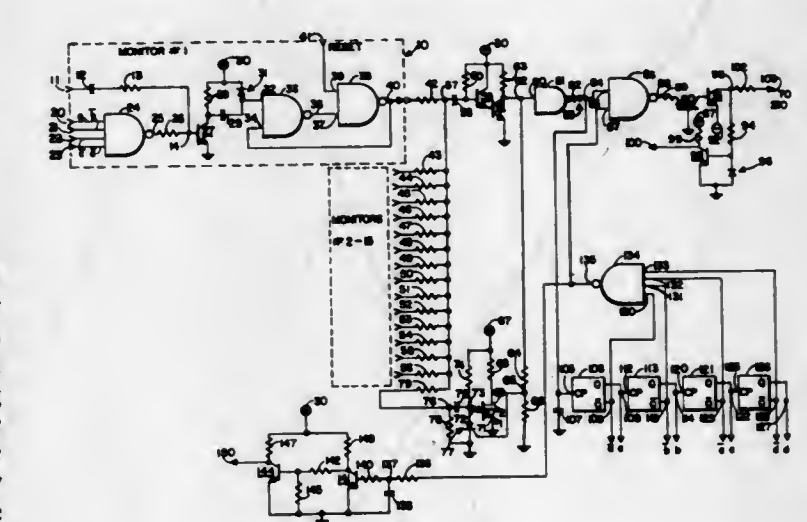
tion is received during the sampling period. After a predetermined additional time lapse, the artificial condition is removed and normal operation is restored with the exception that the alarm, if energized, will remain operative until such time as it has been manually reset and the defective device or circuit will be held in a condition where its operation will not effect the functioning of or indications provided by other condition responsive devices.

3,594,789 COUNTER ACTUATED MULTIPLEX MONITOR CIRCUIT

Donald J. Rotter, St. Paul, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Jan. 30, 1968, Ser. No. 701,614
Int. Cl. G08b 26/00

U.S. Cl. 340-413

6 Claims



A multiplex monitor circuit providing output indications of out-of-tolerance signals from one or more of a plurality of test points. Test point signals are fed to a plurality of comparators whose outputs drive bistable circuits. The bistable circuits are sequentially enabled by a counter fed by their output pulses. A timer advances the counter in the absence of a bistable circuit output pulse and provides test point failure indication. Means for identifying the failed channel are also disclosed.

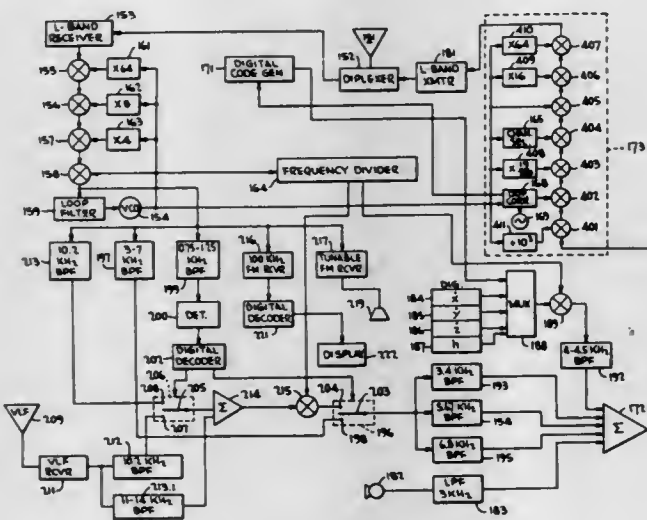
3,594,790

POSITION LOCATION SYSTEM AND METHOD

Charles R. Laughlin, Silver Spring, Md., and Roger C. Hollenbaugh, Chambersburg, Pa., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Division of Ser. No. 701,744, Jan. 30, 1968, Pat. No. 3,495,260.
Filed Nov. 28, 1969, Ser. No. 880,885
Int. Cl. G01s 9/56

U.S. Cl. 343-6.8 R

13 Claims



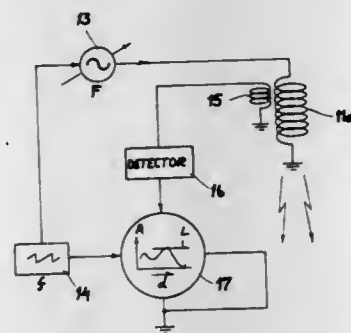
Disclosed are a system and method for position locating, deriving centralized air traffic control data and communicating via voice and digital signals between a multiplicity of remote aircraft including supersonic transports and a central station, as well as a peripheral ground station (or stations), through a synchronous satellite relay station. Side tone ranging patterns, as well as the digital and voice signals, are modulated on a carrier transmitted from the central station and received on all of the supersonic transports. Each aircraft communicates with the ground stations via a different frequency multiplexed spectrum. Supersonic transport position is derived from a computer at the central station and supplied to a local air traffic controller. Position is determined in response to variable phase information imposed on the side tones at the aircrafts, with a plurality of different side tone techniques being employed, and relayed back to the transports. Common to all of the side tone techniques is Doppler compensation for the supersonic transport velocity.

3,594,791

RADIATION-OPERATED DISTANCE METER

Robert H. Pintell, Congers, N.Y., assignor to Intron International Inc., Congers, N.Y.
Filed Apr. 26, 1968, Ser. No. 724,467
Int. Cl. G01s 9/04; F42c 13/04
U.S. Cl. 343-7

3 Claims



A vehicle carrying a transmitter of high frequency waves is equipped with means for measuring the current flow in its transmit-receive antenna; in the vicinity of a reflecting object, at distances from the transmitter related in a predetermined manner to the operating wavelength, the antenna current or its derivative reaches a series of peaks whose amplitude increases with diminishing distance. If the operating frequency is varied, distance (e.g. from ground) may be

determined as a function of the wavelength at the tallest peak observed with decreasing frequency; a constant operating frequency may be used for actuating a load (e.g. a detonator) upon the vehicle approaching within a predetermined distance of an object as determined by current or voltage measurements.

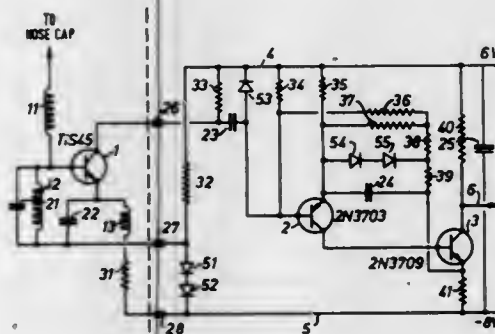
3,594,792

PROXIMITY SENSING DEVICES

Edmund John Gowler, Sunbury-on-Thames, and Patrick Anthony McDonald, Staines, both of, England, assignors to Electric & Musical Industries Limited, Hayes, England
Filed Oct. 10, 1968, Ser. No. 767,067
Claims priority, application Great Britain, Oct. 11, 1967, 46502/67
Int. Cl. G01s 9/04

U.S. Cl. 343-7

4 Claims



An improved proximity fuse is described in which an oscillator circuit supplies electrical oscillations to a radiating and receiving antenna. In the presence of a target, the impedance of the antenna, and therefore the current drawn by the oscillator circuit changes due to interaction between radiated and reflected energy. At target-to-antenna distances of less than half wavelength of the electrical oscillation, the impedance variation is substantially greater than that at greater distances and is dependent upon the angle of approach of antenna and target. If the two are moving parallel one to the other, so that a missile carrying the fuse would pass a target without hitting it the antenna impedance (and therefore the current drawn by the oscillator) increases sharply; conversely, if the two are approaching head-on corresponding to a direct hit condition, the impedance (and current) decreases sharply. A trigger circuit is coupled to the oscillator circuit by a sensing means which produces a signal dependent on changes in the current drawn by the oscillator circuit. If the said signal is large enough to overcome a predetermined bias it causes triggering of the trigger circuit. The trigger is therefore not triggered until the distance from the target is less than a half of the wavelength of the radiated oscillation and then only on a near miss condition. Another trigger may be provided, set for the direct hit condition.

3,594,793

METHOD AND APPARATUS FOR DETERMINING THE RATE OF CHANGE OF A TIME INTERVAL

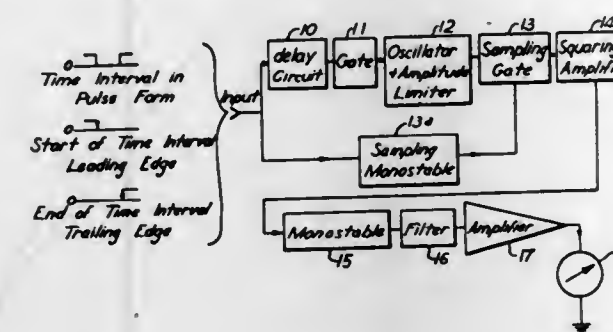
John L. Aker, Olathe, Kans., assignor to King Radio Corporation, Inc., Olathe, Kans.
Continuation of application Ser. No. 636,297, May 5, 1967, now abandoned. This application July 25, 1968, Ser. No. 751,677
Int. Cl. G01s 9/44

U.S. Cl. 343-7.3

19 Claims

A ground or relative speed indicator circuit that detects the rate of change of the duration of a pulse or voltage block whose duration is representative of the distance from an airborne receiver to a ground transmitter. The circuit develops a low frequency signal from the detected rate of change. The frequency of this signal is a direct function of the speed of

the airborne receiver relative to the ground transmitter and is therefore measured and displayed to indicate same. The in-



vention is further characterized by the method and associated steps for accomplishing the above.

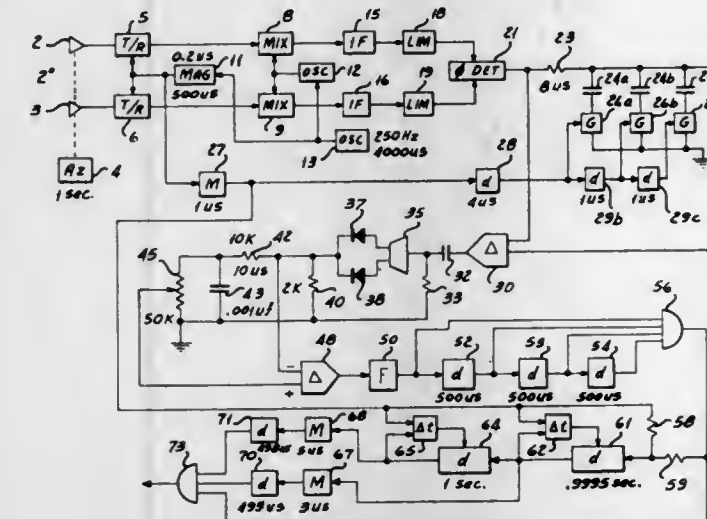
3,594,794

RADAR TARGET DETECTION DEVICE

Howard S. Halpern, Stamford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed June 25, 1969, Ser. No. 836,495
Int. Cl. G01s 9/06

U.S. Cl. 343-11

10 Claims



Clutter discrimination is effected in a phase interferometer radar system by varying the transmitted frequency, detecting resultant fluctuations from the mean elevation angle of return within a large number of range intervals, extracting the average fluctuation over a small number of range intervals, determining those range intervals for which the instantaneous fluctuation is less than the average fluctuation, and correlating the range intervals determined over a plurality of transmitted pulses to select any range interval consistently providing relatively smaller fluctuations in apparent elevation angle and hence containing some radar target. The selected range interval may further be correlated over a plurality of azimuthal scans to provide additional discrimination.

3,594,795

RADAR SYSTEM

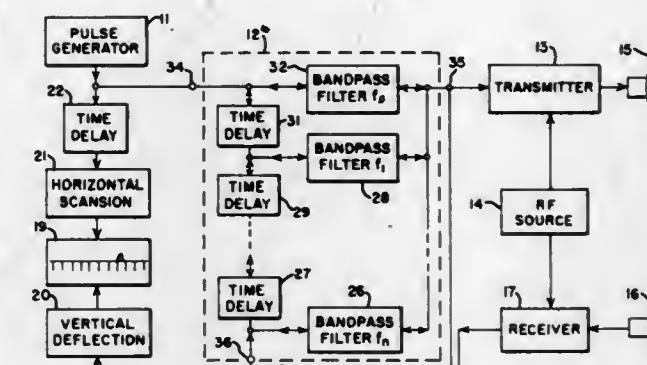
Robert C. Thor, Liverpool, and Earl R. Wingrove, Jr., Clay, both of, N.Y., assignors to General Electric Company
Division of Ser. No. 706,048, Dec. 30, 1967.
Filed Dec. 23, 1968, Ser. No. 834,566
Int. Cl. G01s 9/233

U.S. Cl. 343-17.2 PC

3 Claims

The present invention deals with a multiple stage pulse modifying filter having a time delay characteristic which is a function of frequency over a prescribed band of frequencies and a radar system which incorporates this filter. The filter has a double input and a single output, the respective paths between the respective inputs and said output having a reciprocal transfer characteristic over a prescribed band of frequencies. During transmission the filter is used to expand

a short duration pulse applied to one input terminal and the expanded pulse is coupled from the output terminal of the filter to a transmitter for transmission. The echo of the transmitted pulse is then applied to the second input terminal of the filter for compression of the received echo pulse. The shortened echo pulse is then compared with the initial short



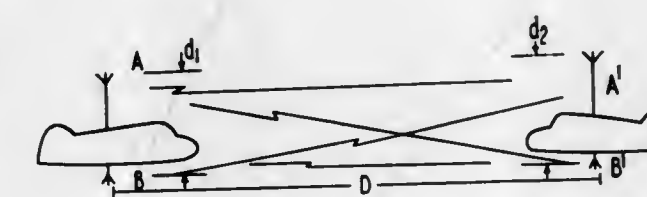
3,594,796

DISTANCE MEASURING

Charles W. Earp, London, England, assignor to International Standard Electric Corporation, New York, N.Y.
Filed May 12, 1969, Ser. No. 823,904
Claims priority, application Great Britain, July 18, 1968, 34,323/68
Int. Cl. G01s 5/14, 11/00

U.S. Cl. 343-112 R

7 Claims



A pair of horizontally radiating vertically spaced antennas, A and B, radiate frequencies f and $f+\delta f$, respectively, from a first vehicle. On a second vehicle there is provided a receiver which is coupled to a pair of similarly mounted antennas, A' and B'. Each antenna, A' and B', receives f and $f+\delta f$. Said receiver determines the phase difference between the best frequencies corresponding to f and $f+\delta f$ at each antenna, A' and B', and determines therefrom the distance from said second vehicle to said first vehicle.

3,594,797

COMBINATION PUSH-PULL AMPLIFIER AND ANTENNA

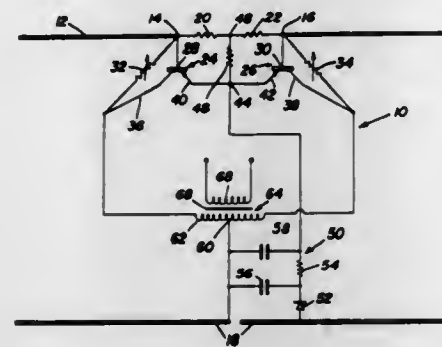
Eugene F. Pereda, 460 Electric Ave., Seal Beach, Calif.
Filed Sept. 27, 1968, Ser. No. 808,029
Int. Cl. H01g 1/26, 9/16

U.S. Cl. 343-701

2 Claims

A dipole antenna connected across the input of a transistorized push-pull amplifier. The output of the amplifier

is applied to a conventional small RF receiver. A first embodiment includes a filter network connected to the antenna



for supplying bias voltage to the amplifier. A second embodiment includes a DC battery for supplying the bias.

3,594,798

UNDERGROUND ANTENNA

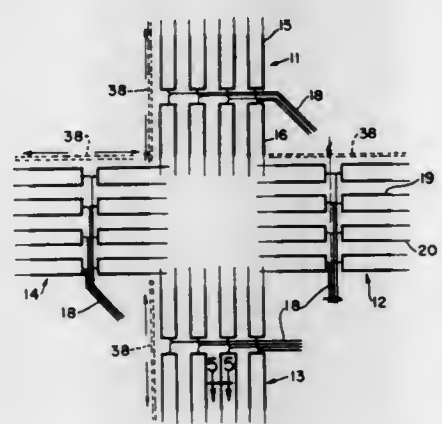
George F. Leydorf, Birmingham, Mich., and Lucien W. Rawls, Leesburg, Va., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 77,587, Dec. 22, 1960. This application Mar. 9, 1966, Ser. No. 556,248

Int. Cl. H01q 1/04

U.S. Cl. 343-719

6 Claims



The present invention relates in general to a hardened antenna, and in particular to a broadside array antenna which is placed at or below the surface of the ground, which is capable of withstanding the shock of explosions such as nuclear blasts.

3,594,799

VOR/DME, TACAN AND VORTAC HAVING INCREASED CAPABILITY

Lewis Michnik, Buffalo, N.Y., assignor to Sierra Research Corporation

Filed Sept. 10, 1969, Ser. No. 856,688

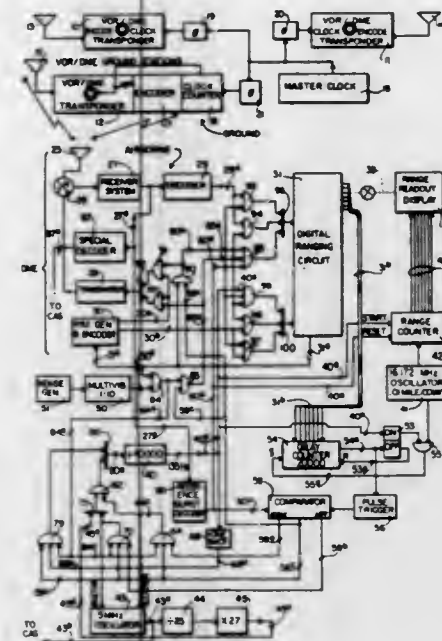
Int. Cl. G01s 9/56

U.S. Cl. 343-6.5 LC

5 Claims

A modified VOR/DME, TACAN or VORTAC system having ground stations synchronized to a master time and transmitting marker signals timed to a precise rate by the clock, and having a DME transponder; in combination with aircraft having standard DME cooperating with the ground DME to measure range by the round trip pulse technique, and the aircraft each having a local time clock and means to synchronize the time clock to the ground station clocks upon receipt of a marker signal by using the two-way DME measured range to compensate for marker signal transit time to the aircraft, and the aircraft including one-way range measuring and indicating means based on local synchronized clock time, and the aircraft further including means to render the clock synchronizing means and the two-way DME range measuring means operative only during brief intervals inter-

persed with much longer inoperative intervals, thereby to reduce the frequency of ground station DME interrogations



by each aircraft without reducing the rate of range data acquisition thereby.

3,594,800

MOVING TARGET ANGLE TRACKING SYSTEM

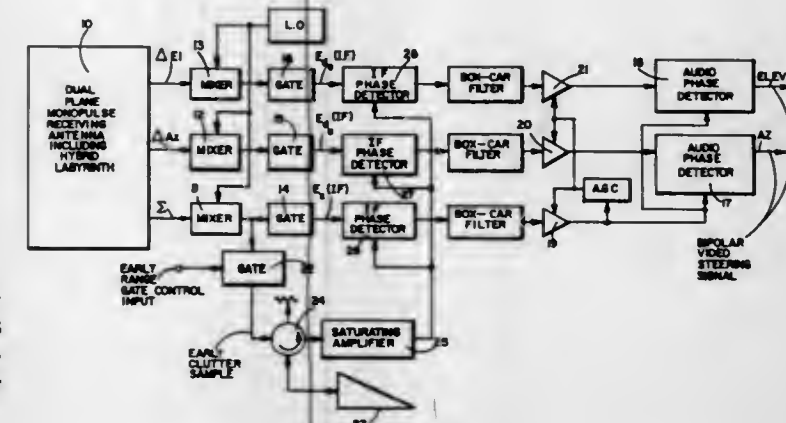
William E. Stoney, Whittier, Calif., assignor to North American Rockwell Corporation

Filed July 21, 1966, Ser. No. 566,970

Int. Cl. G01s 9/42

U.S. Cl. 343-7.7

6 Claims



Means for reducing marginal tracking conditions in a clutter-referenced, moving target tracking system of the monopulse type. An early ground return receiver signal is stored and stretched for use as a coherent reference in the coherent detection of received range trace signals, to provide clutter-referenced range trace signals. Such clutter-referenced signals may then be both doppler processed to distinguish a moving target component thereof, and further processed to provide angle-tracking signals having a sense indicative of the sense of direction of the detected moving target.

3,594,801

DIRECTION FINDER

John M. Smith, Salt Lake City, Utah, assignor to James E. Smith, Detroit, Mich.

Filed July 15, 1969, Ser. No. 841,739

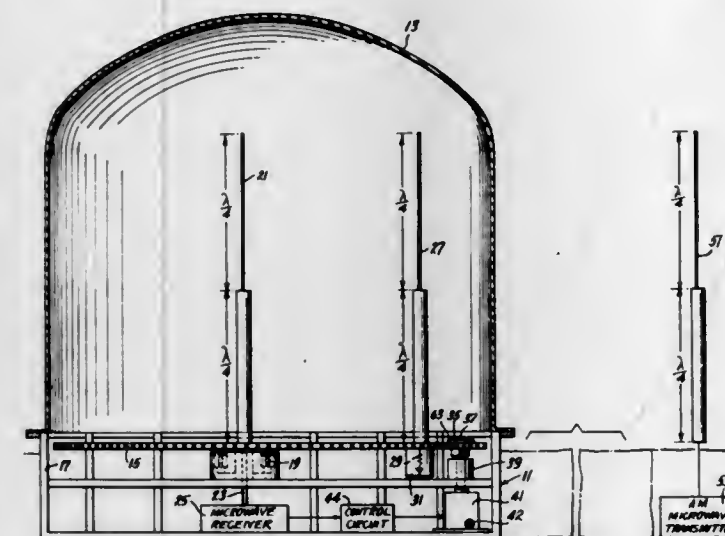
Int. Cl. G01s 3/44

U.S. Cl. 343-117

11 Claims

The present invention relates to direction finding apparatus for determining the direction and/or distance to a

transmitter by moving a blocking antenna between a receiving antenna and a transmitter, physically to block energy radiated to the receiving antenna from the transmitter. The receiving antenna is connected to a receiver which applies energy in accordance with the received signal to a control circuit connected to drive a motor which moves the blocking antenna until it blocks the energy path from the transmitter. The control circuit is simply a null seeking circuit to stop the



motor when the received signal is at a null thereby aligning the two antennas in the direction of the transmitter. Two or more pairs of such antennas and associated apparatus will determine distance to the transmitter if the spacing between the pairs is known because the included angles are measured. Further, by orienting the antennas in a direction substantially parallel with the earth's surface, the apparatus can be used to follow a glide path for aircraft.

3,594,802

OMNIDIRECTIONAL ANTENNA HAVING CIRCUMFERENTIALLY SPACED RADIATORS WITH ORTHOGONAL POLARIZATION

Karl Koob, Munich, Germany, assignor to Bolkow Gesellschaft mit beschränkter Haftung, Ottobrunn bei Munich, Germany

Filed Sept. 20, 1968, Ser. No. 761,198

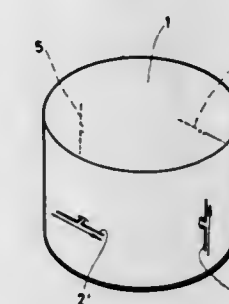
Claims priority, application Germany, Sept. 22, 1967, P 15

91 008.4

Int. Cl. H01q 1/28

U.S. Cl. 343-705

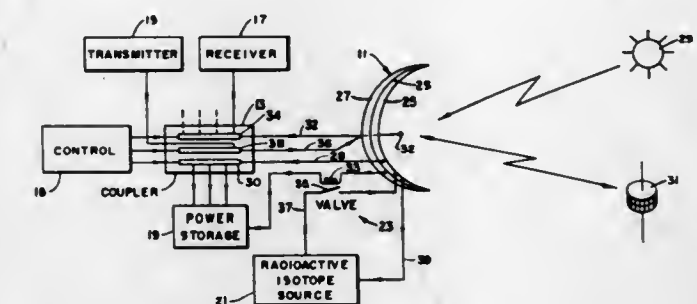
5 Claims



In an omnidirectional antenna of the type including plural individual radiators arranged around the circumferential periphery of a preferably cylindrical body whose diameter is large relative to the operating wave length of the antenna, the respective polarization directions of peripherally adjacent individual radiators are perpendicular to each other. The radiation patterns of the individual radiators overlap in the range of their respective half powers (3db-points). The antenna has a circular radiation characteristic formed by simple addition of the radiation patterns of the individual radiators.

3,594,803
INTEGRATED THERMOELECTRIC GENERATOR/SPACE ANTENNA COMBINATION
Gerald L. Pucillo, Braintree, Mass., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Oct. 29, 1968, Ser. No. 771,530
Int. Cl. H01q 1/28; H01v 1/00
U.S. Cl. 343-720

4 Claims



This disclosure describes an integrated thermoelectric generator/antenna. An antenna is formed of a sandwich of hot and cold thermoelectric elements, such as bismuth and tellurium. Power storage means are connected to the antenna to receive and store the power generated by the thermoelectric action between the elements. In addition, transmitting and receiving means are connected to the antenna so that the antenna transmits and receives signals. Further, a separate source of heat is connected to the "hot" thermoelectric element when the antenna is not receiving energy from a hot body.

The invention described herein was made by an employee of the United States Government and may be manufactured and used by or for the Government for governmental purposes without the payment of any royalties thereon or therefor.

3,594,804

ELECTRICALLY CONTROLLED REFLECTIVE SURFACE EMPLOYING FERRITE MATERIAL

Wolfgang Hersch, Thames Ditton, England, assignor to Electric & Musical Industries Limited, Hayes, England

Filed Aug. 21, 1968, Ser. No. 754,399

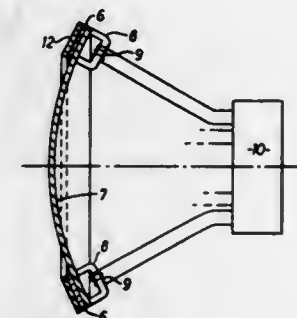
Claims priority, application Great Britain, Aug. 22, 1967,

38619/67

Int. Cl. H01q 19/06

U.S. Cl. 343-754

3 Claims



In a microwave system a microwave reflector is provided which is capable of selective displacement. The reflector is formed by a layer of ferrite material, and a nonferromagnetic microwave reflecting surface behind said layer. The selective displacement is produced by means for selectively inducing a magnetic field within said ferrite layer, the arrangement being such that changes in the magnetic condition of said ferrite layer cause said layer to change from a transparent state to a reflecting state for microwave energy.

3,594,805

FERRITE ROD ANTENNA WITH LONGITUDINALLY SPLIT SLEEVE

Eric G. Chardin, Cambridge, England, assignor to Pye Limited, Cambridge, England

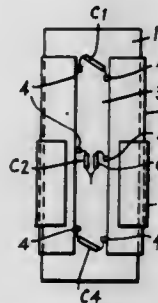
Filed Mar. 14, 1969, Ser. No. 807,277

Claims priority, application Great Britain, Mar. 25, 1968, 14,347/68

Int. Cl. H01q 7/08

U.S. Cl. 343-746

7 Claims



This invention relates to aeriels comprising a ferrite rod disposed within a longitudinally split sleeve of electrically conducting material and where a substantially uniform capacitance exists or is provided across the split. According to this invention the resonant frequency of the aerial can be adjusted by varying the inductance of the split sleeve disposed around the ferrite rod.

3,594,806

DIPOLE AUGMENTED SLOT RADIATING ELEMENTS

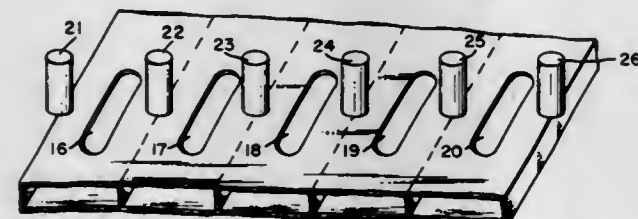
Woodrow W. Black, Los Angeles, and Alvin Clavin, Calabasas, both of, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 2, 1969, Ser. No. 816,480

Int. Cl. H01q 13/10

U.S. Cl. 343-771

11 Claims



The apparatus of the present invention enhances the performance of slot radiating elements or arrays, increasing the overall antenna gain, increasing the front to back signal ratio, suppressing undesirable side lobes and reducing the mutual coupling between array elements. This enhanced performance is generally achieved by augmenting the respective individual slots with exterior feed lines which form a transmission line transition to either free space or one or more dipole auxiliary radiating elements. The exterior elements can assume a number of configurations.

3,594,807

VERTICALLY POLARIZED LOG-PERIODIC-LIKE ANTENNA WITH MINIMAL TOWER HEIGHT

Robert L. Tanner, Palo Alto, Calif., assignor to Technology For Communications International, Mountain View, Calif.

Filed July 7, 1969, Ser. No. 839,305

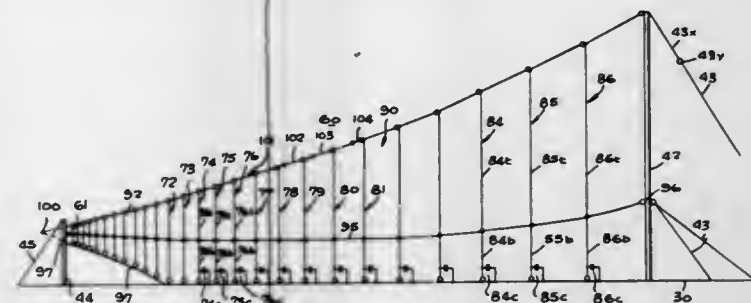
Int. Cl. H01q 11/10, 21/12, 1/14

U.S. Cl. 343-792.5

22 Claims

A vertically polarized broadband antenna including a log-periodiclike array of elements, providing the high gain at the higher frequencies, characteristic of a conventional dipole-type vertically polarized log-periodic antenna, and reduced antenna height characteristic of a conventional monopole-type vertically polarized log-periodic antenna. The log-

periodiclike array includes conventional dipoles at the array front end and hybrid-type elements towards the array back end. Each hybrid element has a physical length less than $\lambda/2$ of its designed frequency of resonance. Each hybrid element



is capacitively loaded to compensate for its reduced physical length. At least some hybrid elements are electrically connected to electrically conductive segments of the main support catenary, to further compensate for their reduced physical lengths.

3,594,808

OMNIDIRECTIONAL ANTENNA SYSTEM EMPLOYING PLURAL, SPACED, PERPENDICULARLY POLARIZED RADIATORS

Karl Koob, Muenchen, and Joachim Hermann, Duernhaar, both of, Germany, assignors to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschränkter Haftung, Munich, Germany

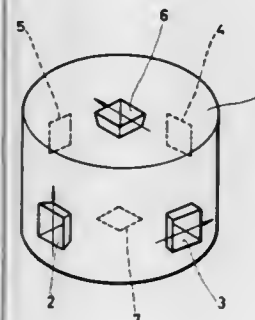
Filed Apr. 14, 1970, Ser. No. 28,461

Claims priority, application Germany, May 28, 1969, P 19 27 146.6

Int. Cl. H01q 1/28, 21/20

U.S. Cl. 343-799

6 Claims



An omnidirectional antenna includes several individual radiators which are arranged on the superficies of a preferably cylindrical body which has a diameter which is relatively great in comparison to the operative wavelength of the antenna. Adjacent individual radiators are polarized perpendicularly to each other and are overlapping in the range of their half power (3db. point). At least two additional individual radiators are provided at each median perpendicular of the plane given by the individual radiators which are arranged on the superficies and on the outer surface of the body and they are polarized perpendicularly relative to the adjacent individual radiators.

3,594,809

CROSSED LOOP ANTENNAS WITH SEPARATING SHIELD

Rinaldo E. De Cola, Park Ridge, and Alicja D. Kulblej, Chicago, both of, Ill., assignors to Warwick Electronics Inc.

Filed Oct. 29, 1968, Ser. No. 771,577

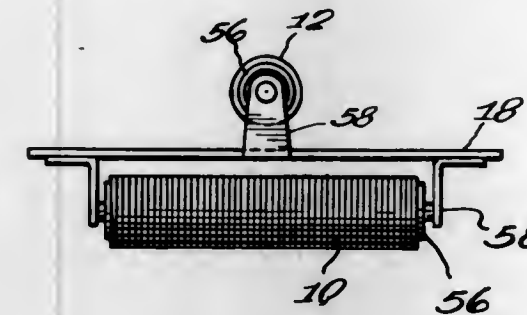
Int. Cl. H01q 7/08, 1/52

U.S. Cl. 343-841

11 Claims

An omnidirectional antenna system having two loop anten-

nas disposed at right angles to each other and electrically and fed so that the radiation pattern of a central portion of the linear array is in quadrature of phase with the radiation pattern of the remaining elements of the array, for the formation



magnetically decoupled by a shield between the antennas.

3,594,810

TRIANGLE-LOOP ANTENNA

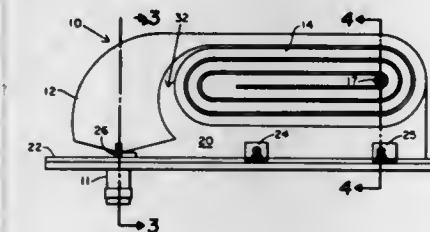
Cyril M. Kalol, Riverside, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Mar. 18, 1970, Ser. No. 20,766

Int. Cl. H01g 1/36, 1/48

U.S. Cl. 343-848

8 Claims



An antenna for receiving three widely separated frequency bands; the antenna beginning with a triangular tapered section fed by a coaxial line and continuing with several loops terminated in the center at ground.

3,594,811

SUM AND DIFFERENCE ANTENNA

Robert L. Pierrot, Paris, France, assignor to Thomson-CSF

Filed Feb. 7, 1969, Ser. No. 797,519

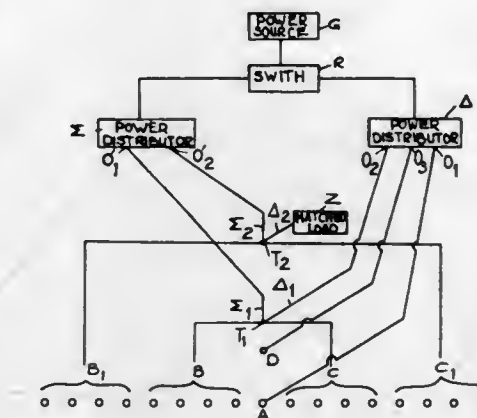
Claims priority, application France, Feb. 9, 1968, 139,374

Int. Cl. H01g 3/26, 3/24, 21/00

U.S. Cl. 343-854

3 Claims

The radiation elements of an antenna comprising a linear array of elements and a further compensation element are



3,594,812

STRIP LINE FERRITE PHASE SHIFTER

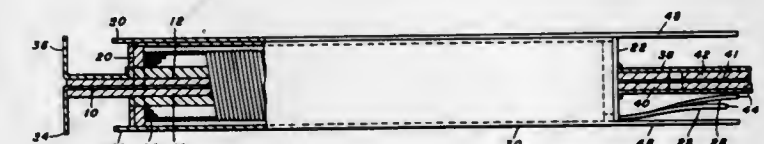
Daniel C. Buck, Hanover; Theodore M. Nelson, Catonsville; Robert A. Moore, Severna Park, Md., and Leonard Dubrowsky, East Meadow, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 17, 1969, Ser. No. 842,447

Int. Cl. H03h 7/36; H01p 3/08; H01q 3/26

U.S. Cl. 343-854

13 Claims



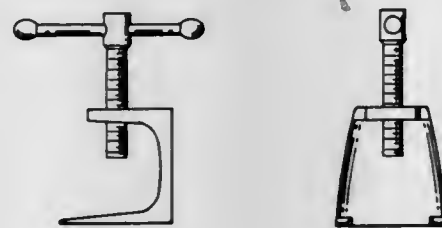
Described is a small, lightweight ferrite phase shifter, constructed in a strip line wave energy transmission assemblage, which is small enough to fit into a steerable antenna array while at the same time providing good electrical isolation between adjacent phase shifters in the array.

DESIGNS

JULY 20, 1971

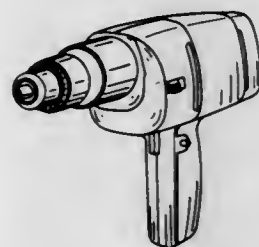
221,204
BATTERY CABLE TERMINAL REMOVER
Boykin Kirkland, 4212 S. 87th St.,
Philadelphia, Pa. 19142
Filed Jan. 7, 1970, Ser. No. 20,796
Term of patent 14 years
Int. Cl. D8—02

U.S. Cl. D8—51



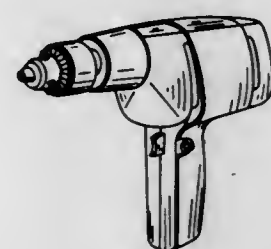
221,205
ELECTRIC DRILL
Knut Otto Yran, Eindhoven, Netherlands, assignor to
U.S. Philips Corporation
Filed Feb. 9, 1970, Ser. No. 21,326
Claims priority, application Switzerland Aug. 18, 1969
Term of patent 14 years
Int. Cl. D8—02

U.S. Cl. D8—68



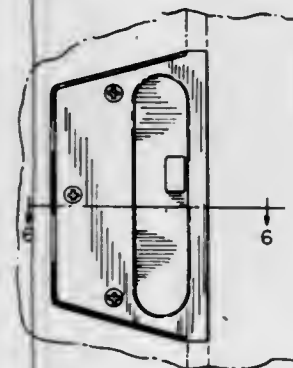
221,206
ELECTRIC DRILL
Knut Otto Yran, Eindhoven, Netherlands, assignor to
U.S. Philips Corporation
Filed Feb. 9, 1970, Ser. No. 21,338
Claims priority, application Switzerland Aug. 18, 1969
Term of patent 14 years
Int. Cl. D8—02

U.S. Cl. D8—68



221,207
SCREEN SASH HANDLE UNIT
Henry L. Majeske, Goshen, Ind., assignor to Homeshield
Industries Inc., Elmhurst, Ill.
Filed May 19, 1969, Ser. No. 17,209
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—150



221,208
ARTICLE-SUPPORT SHOULDER BRACKET
Clifford C. Richey, Scottsdale, Ariz., assignor to
Richey's, Incorporated, Des Moines, Iowa
Filed Dec. 16, 1969, Ser. No. 20,524
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—154



221,209
GARMENT BAG CARRIER
Richard C. Moore, 8023 N. 38th Ave.,
Phoenix, Ariz. 85021
Filed May 8, 1970, Ser. No. 22,885
Term of patent 14 years
Int. Cl. D8—99

U.S. Cl. D8—154



JULY 20, 1971

U. S. PATENT OFFICE

1045

221,210
SQUEEZE BOTTLE FOR PAINT OR THE LIKE
Benjamin Weiner, Stamford, Conn., assignor to Grow
Chemical Corporation, New York, N.Y.
Filed Aug. 20, 1969, Ser. No. 18,778
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—2



221,213
BOTTLE
Richard L. Weckman, 202 W. 7th,
Perrysburg, Ohio 43551
Filed July 17, 1970, Ser. No. 24,001
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—111



221,211
COMBINED JUG AND CAP THEREFOR
Livingston C. Douglas, Leonia, N.J., assignor to Colgate-
Palmolive Company, New York, N.Y.
Filed May 15, 1970, Ser. No. 23,014
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—42



221,214
FORCING BAG
John MacManus, 143—16 Twenty-second Road,
Whitestone, N.Y. 11357
Filed Feb. 19, 1970, Ser. No. 21,504
Claims priority, application Great Britain Aug. 27, 1969
Term of patent 14 years
Int. Cl. D9—06

U.S. Cl. D9—194



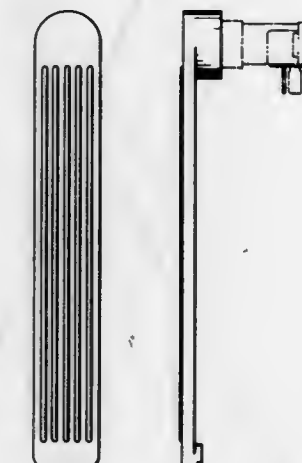
221,212
COMBINED BOTTLE AND CAP THEREFOR
Livingston C. Douglas, Leonia, N.J., assignor to Colgate-
Palmolive Company, New York, N.Y.
Filed May 15, 1970, Ser. No. 23,015
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—39

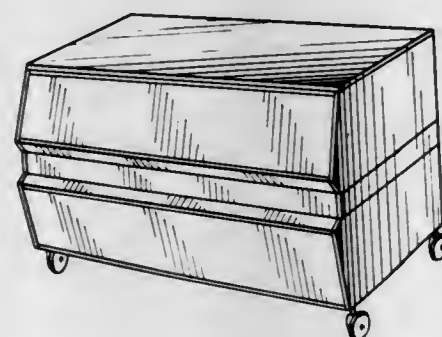


221,215
DIMMER SWITCH PEDAL
Paul J. Hunckler, Huntington, Ind., assignor to
Hunckler Products, Inc., Roanoke, Ind.
Filed Mar. 12, 1969, Ser. No. 16,197
Term of patent 14 years
Int. Cl. D12—14

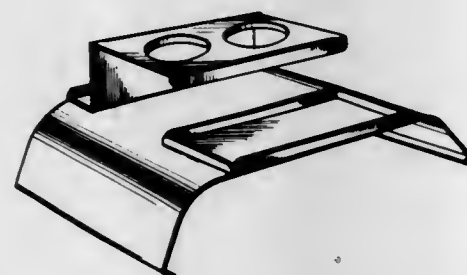
U.S. Cl. D14—6



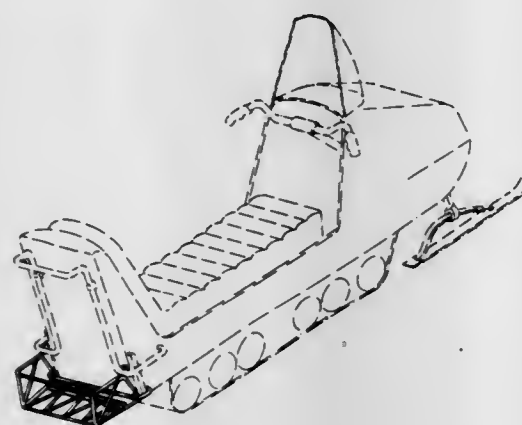
221,216
INSTITUTIONAL FOOD SERVER
 E. Burton Benjamin, Highland Park, and Richard Sylvan,
 Glenview, Ill., assignors to Carter-Hoffmann Corp.
 Filed Jan. 30, 1970, Ser. No. 21,162
 Term of patent 14 years
 Int. Cl. D12—02
 U.S. Cl. D14—6



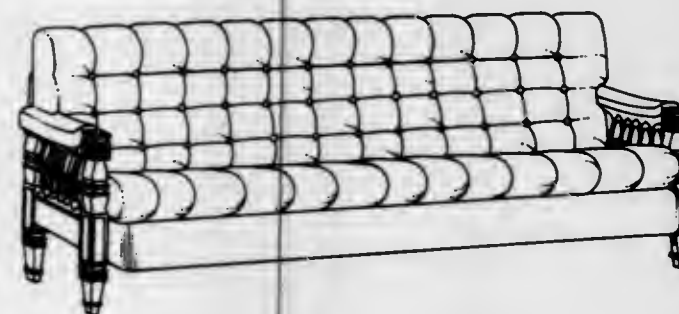
221,217
CAR TRAY
 Samuel Beychok, 8406 W. Wilderness Way
 Shreveport, La. 71106
 Filed Apr. 30, 1970, Ser. No. 22,725
 Term of patent 14 years
 Int. Cl. D12—14
 U.S. Cl. D14—6



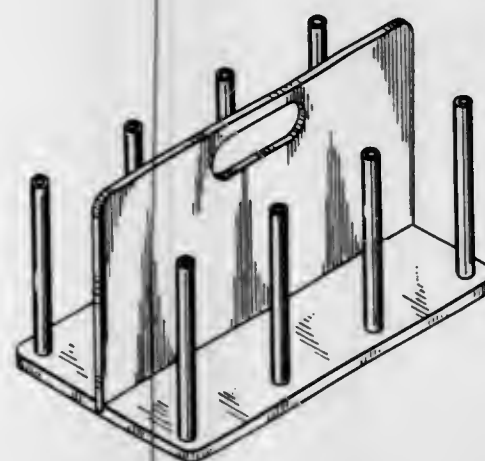
221,218
SNOW MACHINE CARRIER
 Richard H. Camp, Box 62, Haines, Oreg. 97833
 Filed Feb. 19, 1970, Ser. No. 21,601
 Term of patent 14 years
 Int. Cl. D12—14
 U.S. Cl. D14—24



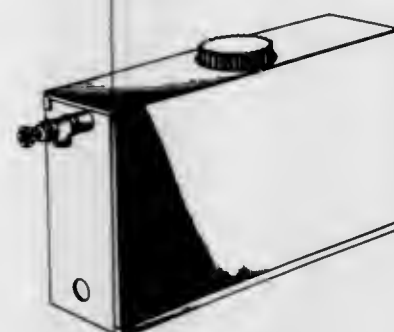
221,219
SOFA
 Thomas Winrow, 530 S. Sleight St.,
 Naperville, Ill. 60540
 Filed Nov. 30, 1970, Ser. No. 26,219
 Term of patent 14 years
 Int. Cl. D6—02
 U.S. Cl. D15—11



221,220
BACTERIOLOGICAL DISH RACK
 Ronald W. Emmitt, Farmington, Mich., assignor to
 Emmitt Scientific, Inc., Farmington, Mich.
 Filed Nov. 24, 1969, Ser. No. 20,265
 Term of patent 14 years
 Int. Cl. D24—02
 U.S. Cl. D16—1



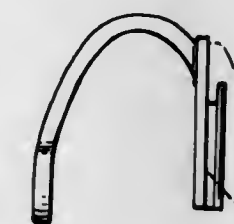
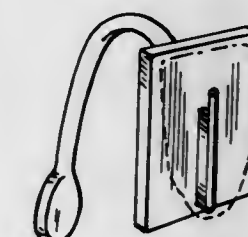
221,221
WATER HEATER
 Elmer G. Heinrich, 3234 S. Akron,
 Denver, Colo. 80222
 Filed Apr. 25, 1969, Ser. No. 16,890
 Term of patent 14 years
 Int. Cl. D23—03
 U.S. Cl. D23—36



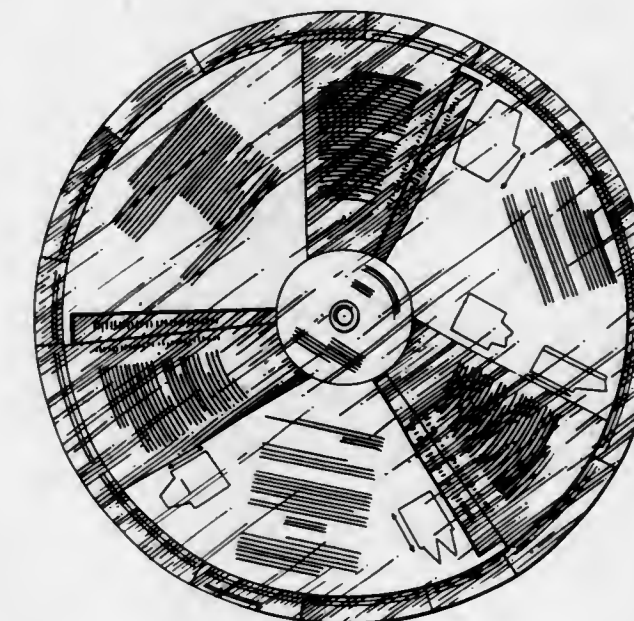
221,222
DENTAL JET CLEANSING UNIT
 Raymond Leonard Flatray, 2480 S. Osceola St.,
 Denver, Colo. 80219
 Filed May 18, 1970, Ser. No. 23,038
 Term of patent 14 years
 Int. Cl. D24—03
 U.S. Cl. D24—1



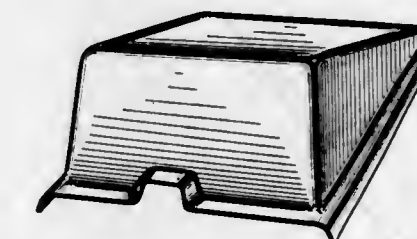
221,223
HOLDER FOR PROCESSING A DENTAL FACING
 Claude M. Pickands, Oak Forest, Ill., assignor to
 Alexander B. Pickands, Chicago, Ill.
 Filed Apr. 8, 1970, Ser. No. 22,316
 Term of patent 7 years
 Int. Cl. D24—03
 U.S. Cl. D24—1



221,224
SWEATER INSTRUCTION WHEEL
 Beatrice L. Freeman, 113 Clemson Road,
 Bryn Mawr, Pa. 19010
 Filed Dec. 5, 1969, Ser. No. 20,382
 Term of patent 14 years
 Int. Cl. D19—08
 U.S. Cl. D25—1

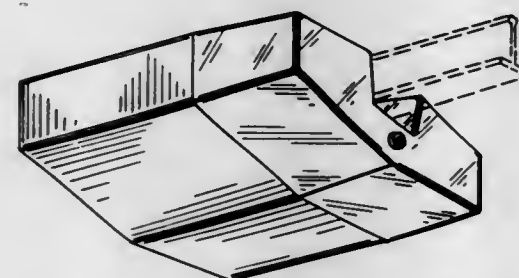


221,225
**PORTABLE LEVELER AND SUPPORT FOR THE
 TOP OF A TILTED TEST INSTRUMENT**
 Robert N. Rehlaender, 149 Cervantes Road,
 Redwood City, Calif. 94062
 Filed Apr. 11, 1969, Ser. No. 16,703
 Term of patent 14 years
 Int. Cl. D14—99
 U.S. Cl. D26—1



221,226
GARAGE DOOR OPERATOR HOUSING
 Giacinto C. Dercoli, Park Forest, Ill., assignor to The
 Alliance Manufacturing Company, Inc.
 Filed Jan. 26, 1970, Ser. No. 21,121
 Term of patent 14 years
 Int. Cl. D13-01

U.S. Cl. D26-5



221,228
KEYBOARD FOR A COMPUTER OR THE LIKE
 Larry D. Harrison, Newark, N.Y., assignor to
 Xerox Corporation, Stamford, Conn.
 Filed May 22, 1970, Ser. No. 23,103
 Term of patent 14 years
 Int. Cl. D14-02

U.S. Cl. D26-5



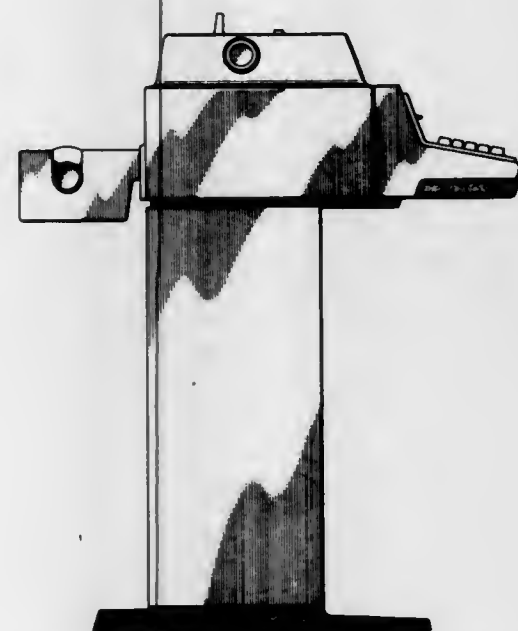
221,227
DESK TOP ELECTRONIC CALCULATOR
 Gerhard Dietrich, Furth, Bavaria, and Peterheinz Meyer,
 Unterbach, Bavaria, Germany, assignors to Triumph
 Werke Nuernberg A.G., Nuremberg, Germany
 Filed May 8, 1970, Ser. No. 22,889
 Claims priority, application Germany Nov. 24, 1969
 Term of patent 14 years
 Int. Cl. D14-02

U.S. Cl. D26-5



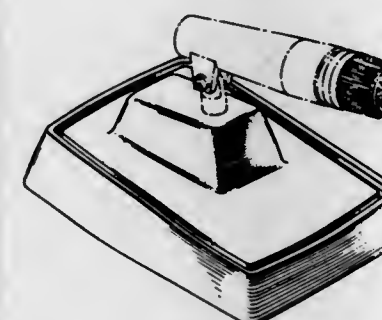
221,229
SEND/RECEIVE DATA PRINTER TERMINAL
 Robert H. Van Valkinburgh, Pittsford, and Robert A.
 Clowe, Penfield, N.Y., assignors to Xerox Corporation,
 Stamford, Conn.
 Filed May 20, 1970, Ser. No. 23,109
 Term of patent 14 years
 Int. Cl. D14-02

U.S. Cl. D26-5



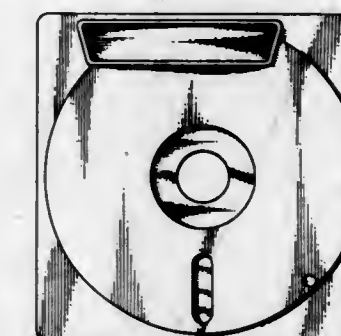
221,230
MICROPHONE STAND
 Robert L. Deschamps, West Chicago, Ill., assignor to
 Shure Brothers Incorporated
 Filed Nov. 3, 1969, Ser. No. 19,886
 Term of patent 14 years
 Int. Cl. D14-01

U.S. Cl. D26-14



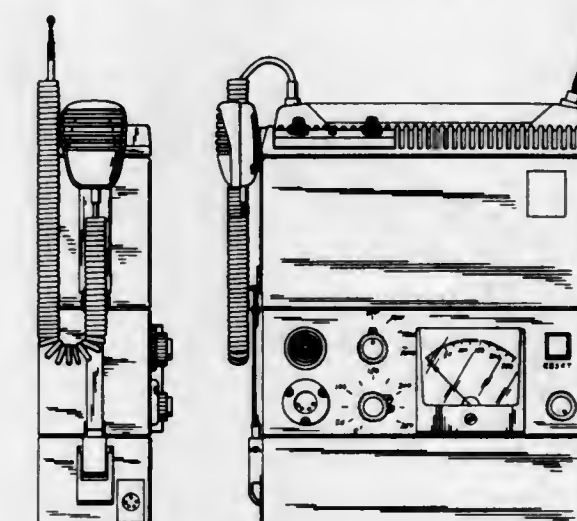
221,232
MAGNETIC DISK CARTRIDGE
 Clifford L. Dawson and Dallas G. Molerin, San Jose,
 Calif., assignors to International Business Machines
 Corporation, Armonk, N.Y.
 Filed Nov. 10, 1969, Ser. No. 20,017
 Term of patent 14 years
 Int. Cl. D14-02

U.S. Cl. D26-14



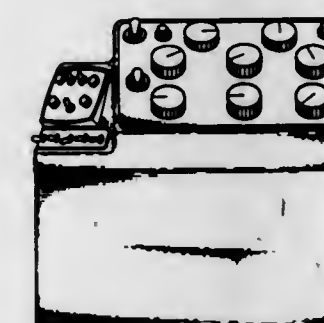
221,233
PORTABLE TELEMETRY UNIT
 Robert J. Huszar, Hartford, Conn.
 Filed May 7, 1970, Ser. No. 22,882
 Term of patent 14 years
 Int. Cl. D14-03

U.S. Cl. D26-14



221,231
MOTOR VEHICLE MOUNTED ELECTRICAL COMMUNICATION UNIT OR SIMILAR ARTICLE
 Philip L. Brooks, Menlo Park, Calif., assignor to
 Sylvania Electric Products Inc.
 Filed Apr. 2, 1970, Ser. No. 22,218
 Term of patent 14 years
 Int. Cl. D14-03

U.S. Cl. D26-14



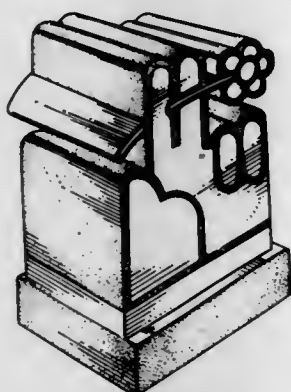
221,234
PLAQUE
 Bert Rodney Anderson, Golf Road, Reading, Pa. 19601
 Filed Mar. 7, 1969, Ser. No. 16,127
 Term of patent 14 years
 Int. Cl. D11-02

U.S. Cl. D29-23



221,235
STATUETTE
Joseph J. Sands, 8501 Limerick Ave.,
Canoga Park, Calif. 91306
Filed Apr. 20, 1970, Ser. No. 22,509
Term of patent 14 years
Int. Cl. D11-02

U.S. Cl. D29-23



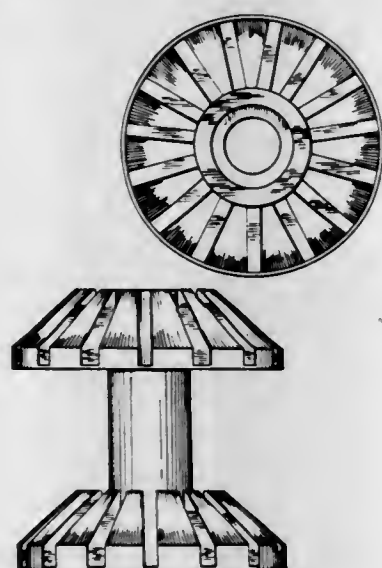
221,236
BEAD, NECKLACE AND EARRING HOLDER
Martha S. Fowler, 594 Beatrice St.,
San Leandro, Calif. 94579
Filed Aug. 21, 1969, Ser. No. 18,795
Term of patent 14 years
Int. Cl. D6-99

U.S. Cl. D33-3



221,237
**HOLDER FOR TAPE CASSETTES OR
SIMILAR ARTICLE**
Maxwell H. Connan, 53 Roosevelt Ave.,
Glen Head, N.Y. 11545
Filed Apr. 22, 1970, Ser. No. 22,565
Term of patent 14 years
Int. Cl. D6-01, 99

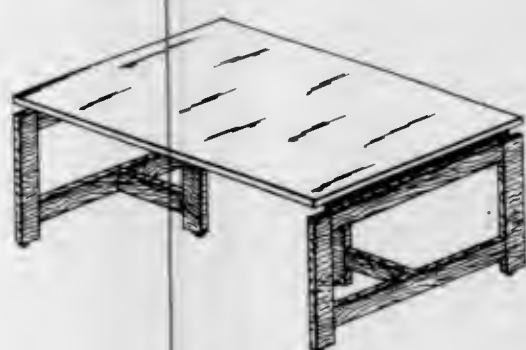
U.S. Cl. D33-3



221,238
TABLE
John L. Gianfagna, 102 Crestwood Circle,
Marietta, Ohio 45750
Original design application July 17, 1968, Ser. No. 12,808.
Divided and this application May 13, 1969, Ser. No.
19,395

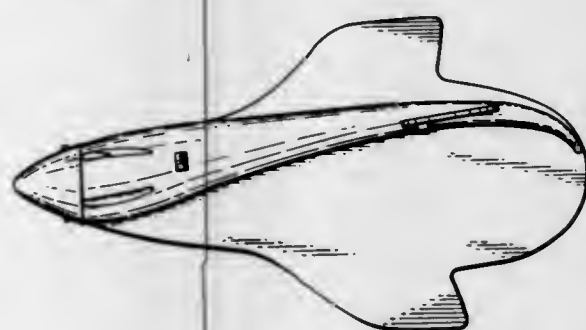
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D33-14



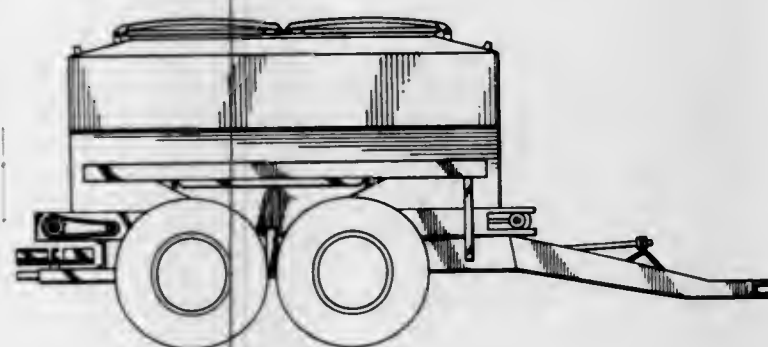
221,239
AERIAL TOY
David William Main, 1252 Columbia St.,
Denver, Colo. 80206
Filed Mar. 9, 1970, Ser. No. 21,789
Term of patent 7 years
Int. Cl. D21-02

U.S. Cl. D34-15



221,240
PARTICULATE MATERIAL SPREADER
Loren E. Tyler, Wayzata, Minn., assignor to
Mobility, Inc., Long Lake, Minn.
Filed Sept. 2, 1969, Ser. No. 18,969
Term of patent 14 years
Int. Cl. D15-03

U.S. Cl. D35-2



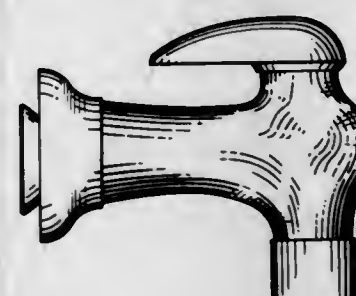
221,241
ANIMAL FIGURE DOLL
Anthony Chrones, 52 Wood Haven Blvd.,
North Providence, R.I. 02908
Filed May 25, 1970, Ser. No. 23,127
Term of patent 3½ years
Int. Cl. D21-02

U.S. Cl. D34-2



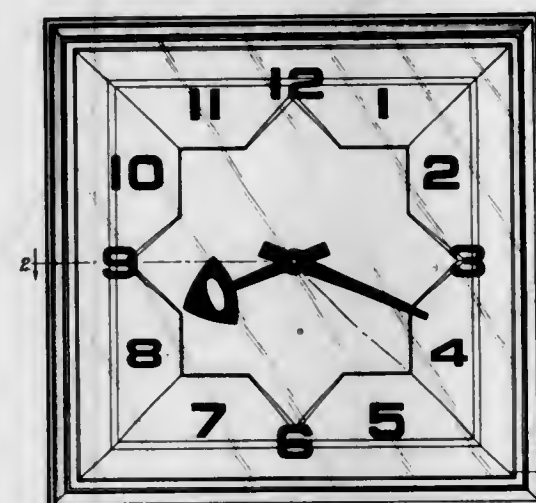
221,242
NOVELTY AND AMUSEMENT DEVICE
William A. McMillan, Los Angeles, Calif., assignor to
H. Fishlove & Co., Chicago, Ill.
Filed Apr. 29, 1970, Ser. No. 22,706
Term of patent 14 years
Int. Cl. D21-04

U.S. Cl. D34-15



221,243
CLOCK
Gordon T. Guth, Evanston, Ill., assignor to Sunbeam
Corporation, Chicago, Ill.
Filed Mar. 4, 1970, Ser. No. 21,739
Term of patent 14 years
Int. Cl. D10-01

U.S. Cl. D42-7



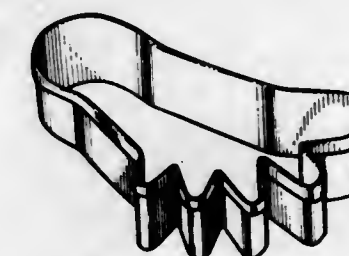
221,244
CULINARY SCRAPER OR SIMILAR ARTICLE
Paul A. Lawrence, 1660 Beaver Ave.,
Des Moines, Iowa 50310
Filed Apr. 27, 1970, Ser. No. 22,649
Term of patent 7 years
Int. Cl. D7-99

U.S. Cl. D44-1



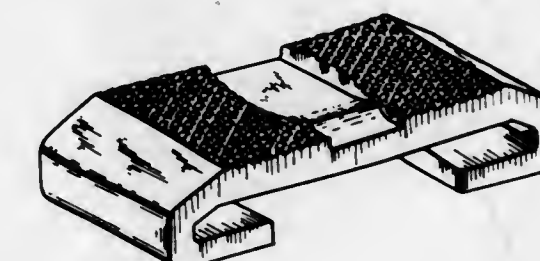
221,245
COOKIE CUTTER
Dorothy E. Jordan, Austin, Minn. 55912
Filed May 18, 1970, Ser. No. 23,050
Term of patent 14 years
Int. Cl. D7-99

U.S. Cl. D44-1



221,246
**LINK CHAIN FOR A BRACELET OR
SIMILAR ARTICLE**
Yuen Sang Poon, 36 Kam Wah St., Hong Kong
Filed Apr. 24, 1970, Ser. No. 22,631
Term of patent 14 years
Int. Cl. D11-01

U.S. Cl. D45-4



221,247

DENTAL OPERATING LIGHT

Daryl Raymond Beach and Sadayasu Ota, Kyoto, Japan, assignors to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan

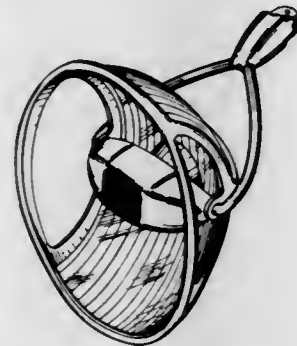
Filed Mar. 13, 1970, Ser. No. 21,896

Claims priority, application Japan Sept. 19, 1969

Term of patent 14 years

Int. Cl. D26—02

U.S. Cl. D48—20



221,250

WALL THERMOSTAT

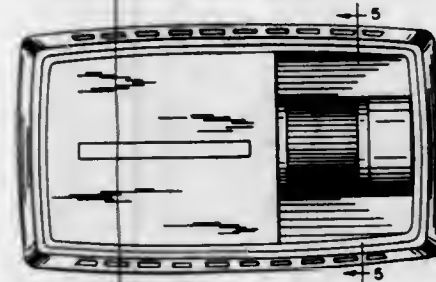
Frederick M. Hill, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio

Filed Mar. 30, 1970, Ser. No. 22,097

Term of patent 14 years

Int. Cl. D10—07

U.S. Cl. D52—7



221,248

FLASHLIGHT CASING

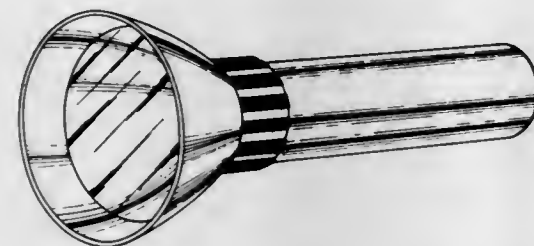
Rene Marcel Angibaud, Vernon, Eure, France, assignor to Societe Les Piles Wonder, Saint-Ouen, Seine-Saint-Denis, France

Filed Feb. 6, 1970, Ser. No. 21,319

Term of patent 14 years

Int. Cl. D26—04

U.S. Cl. D48—24



221,251

PATIO COVER PANEL PAN

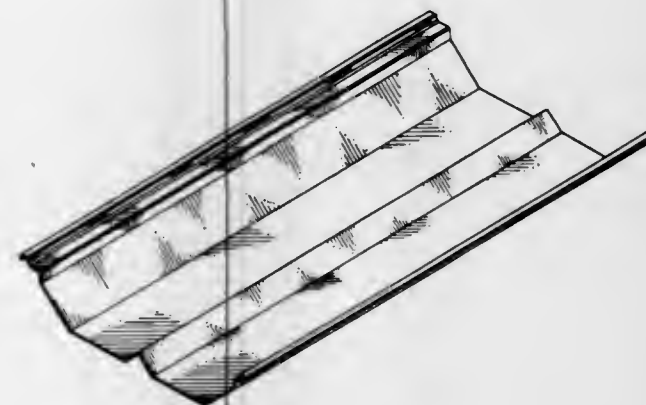
Arthur E. Haskell, Downey, William N. Brummet, Burbank, and Robert Fitzgerald, Huntington Beach, Calif., assignors to State Industries, Huntington Park, Calif.

Filed Mar. 13, 1970, Ser. No. 21,893

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D54—2



221,249

ELECTRIC IRON

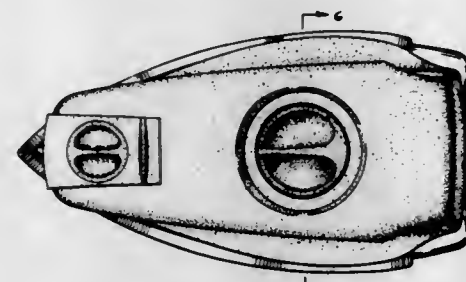
Eugene R. Russell, Boonville, Mo., assignor to McGraw-Edison Company, Milwaukee, Wis.

Filed Apr. 2, 1970, Ser. No. 22,211

Term of patent 14 years

Int. Cl. D7—06

U.S. Cl. D49—6



221,252

MIXER FOR LIQUIDS OR THE LIKE

John J. Hughes, Jr., 3027 N. Marietta Ave., Milwaukee, Wis. 53211

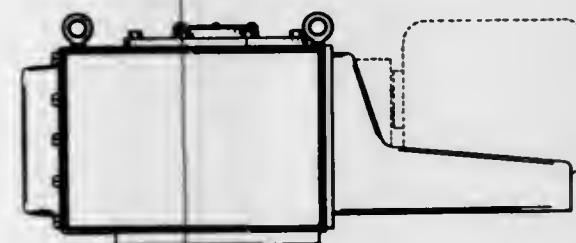
Original design application June 23, 1969, Ser. No. 17,809, now Patent No. 218,853, dated Sept. 29, 1970. Divided

and this application Apr. 28, 1970, Ser. No. 22,692

Term of patent 14 years

Int. Cl. D15—05

U.S. Cl. D55—1



221,253

MIXER FOR LIQUIDS OR THE LIKE

John J. Hughes, Jr., Milwaukee, Wis., assignor to Mixing Equipment Co., Inc., Rochester, N.Y.

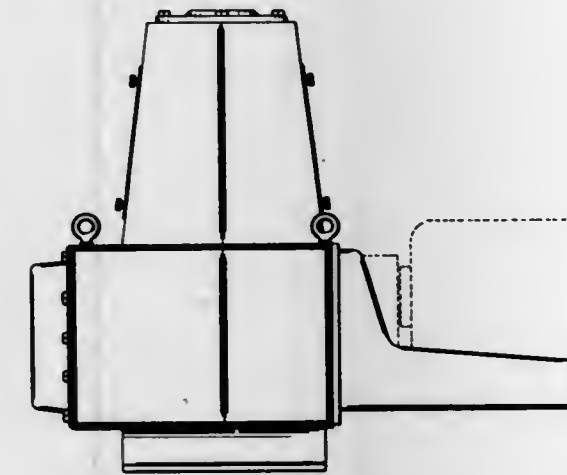
Original design application June 23, 1969, Ser. No. 17,808, now Patent No. 218,852, dated Sept. 29, 1970. Divided

and this application Apr. 29, 1970, Ser. No. 22,703

Term of patent 14 years

Int. Cl. D15—05

U.S. Cl. D55—1



221,254

PIANO

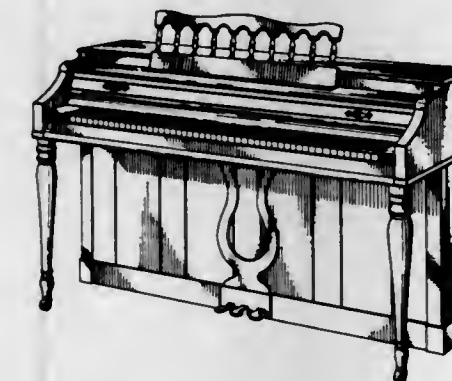
Winsor D. White, Jr., Blowing Rock, N.C., assignor to D. H. Baldwin Company, Cincinnati, Ohio

Filed Feb. 24, 1970, Ser. No. 21,584

Term of patent 14 years

Int. Cl. D17—01

U.S. Cl. D56—9



221,255

OPHTHALMOSCOPE

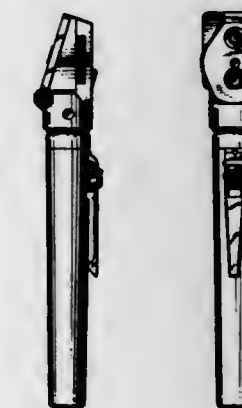
Helmut A. Heine, Herrsching, Upper Bavaria, Germany, assignor to Optotechnik G.m.b.H. and Propper Manufacturing Company, Inc.

Filed June 12, 1970, Ser. No. 23,465

Term of patent 14 years

Int. Cl. D24—02; D16—08

U.S. Cl. D57—1



221,256

CAMERA

Masahiro Fukuda, Kawasaki-shi, Japan, assignor to Fuji Shashin Film Kabushiki Kaisha, Kanagawa-ken, Japan

Filed Aug. 23, 1968, Ser. No. 13,242

Claims priority, application Japan Mar. 30, 1968

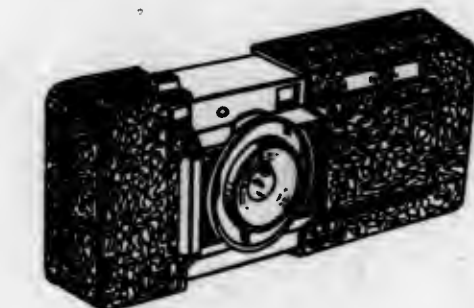
Term of patent 14 years

The portion of the term of the patent subsequent to

Apr. 8, 1983, has been disclaimed

Int. Cl. D16—03

U.S. Cl. D61—1



221,257

CAMERA FLASH ATTACHMENT

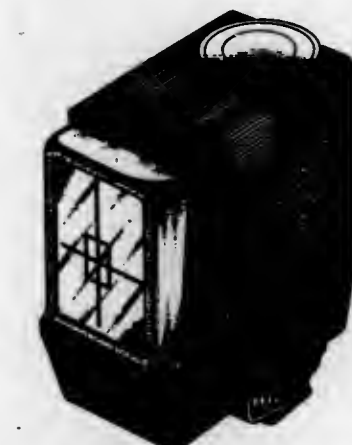
Peter T. Quinn, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed June 5, 1970, Ser. No. 23,331

Term of patent 14 years

Int. Cl. D16—07

U.S. Cl. D61—1



221,258

PUMP

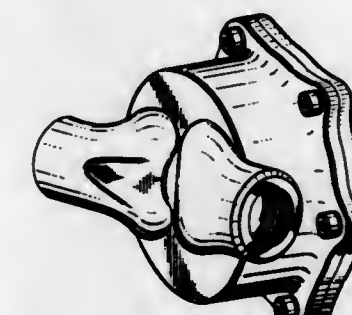
Harry J. Saddler, St. Paul, Minn., assignor to Hypro, Inc., New Brighton, St. Paul, Minn.

Filed Jan. 9, 1970, Ser. No. 20,852

Term of patent 14 years

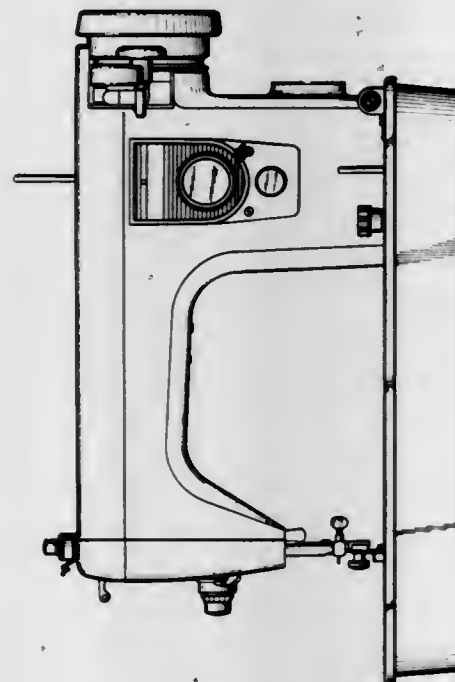
Int. Cl. D15—02

U.S. Cl. D65—1



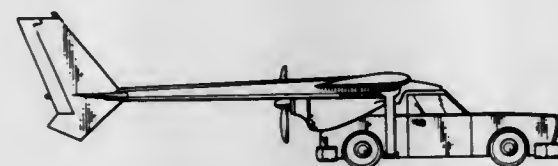
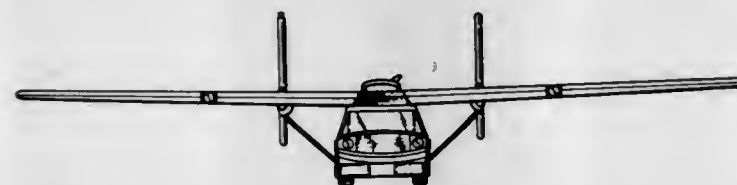
221,259
SEWING MACHINE
Yasuaki Yamamoto, Tokyo, Japan, assignor to
Janome Sewing Machine Co., Ltd.
Filed Oct. 28, 1969, Ser. No. 19,773
Claims priority, application Japan May 28, 1969
Term of patent 14 years
Int. Cl. D15-09

U.S. Cl. D70-1



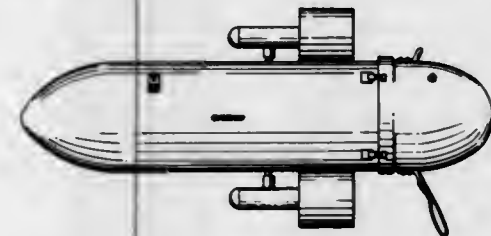
221,260
COMBINED LAND AND AIR VEHICLE
Henry A. Smolinski, 7860 Mesa Drive,
Santa Susana, Calif. 93063
Filed Dec. 3, 1969, Ser. No. 20,470
Term of patent 14 years
Int. Cl. D12-13

U.S. Cl. D71-1



221,261
UNDERWATER TOWING APPARATUS
Eugene J. Tallarico, 173 Bleecker St.,
New York, N.Y. 10012
Filed Mar. 5, 1970, Ser. No. 21,754
Term of patent 14 years
Int. Cl. D21-03

U.S. Cl. D71-1



221,262
SURF BOARD
Janet L. Marshall, 219 Monte Vista Ave.,
Costa Mesa, Calif. 92626
Filed Apr. 24, 1970, Ser. No. 22,639
Term of patent 14 years
Int. Cl. D21-03

U.S. Cl. D71-1



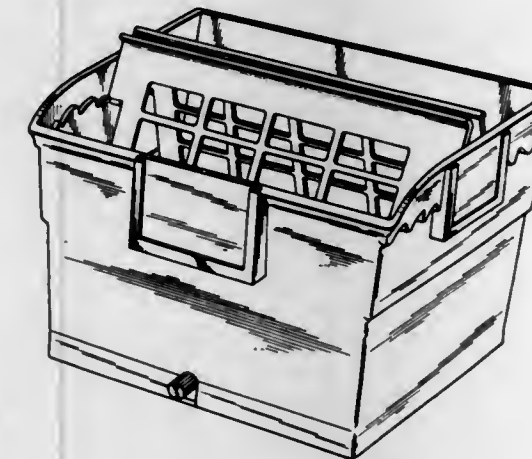
221,263
PARKING SIGNAL STANDARD
Jerry C. Moore, 5018 Pershing, Houston, Tex. 77033
Filed Jan. 8, 1970, Ser. No. 20,825
Term of patent 14 years
Int. Cl. D29-99

U.S. Cl. D72-1



221,264
CARD FILE TRAY OR THE LIKE
William Malcolm Brown, Stroud, England, assignor to
The Copeland-Chatterton Company Limited, Stroud,
England
Filed Nov. 25, 1969, Ser. No. 20,269
Claims priority, application Great Britain Sept. 22, 1969
Term of patent 14 years
Int. Cl. D19-99

U.S. Cl. D74-2



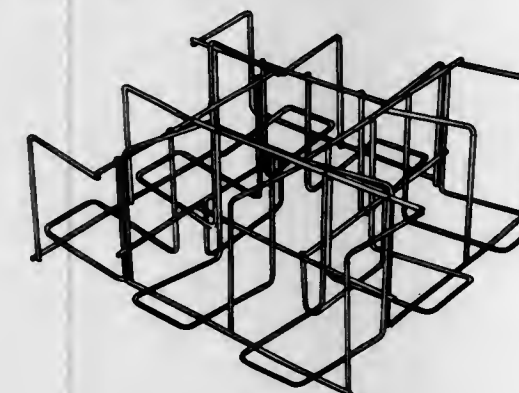
221,265
MECHANICAL PENCIL
Noboru Wakai, Tokyo, Japan, assignor to Dainihon
Bungu Kabushiki Kaisha, also trading as The Japan
Stationery Co., Ltd.
Filed Jan. 22, 1970, Ser. No. 21,028
Claims priority, application Japan July 31, 1969
Term of patent 14 years
Int. Cl. D19-06

U.S. Cl. D74-24



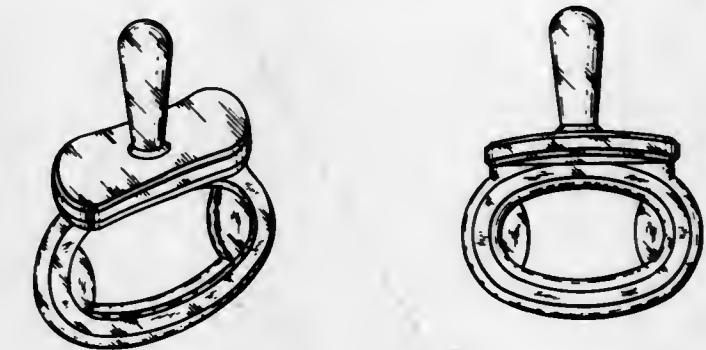
221,266
**STORAGE AND DISPLAY UNIT FOR TAPE OR
FILM CARTRIDGES OR THE LIKE**
Henry V. Ivory, Chatham, N.J., assignor to Boorum &
Pease Company, Brooklyn, N.Y.
Filed Nov. 3, 1969, Ser. No. 19,907
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D80-10



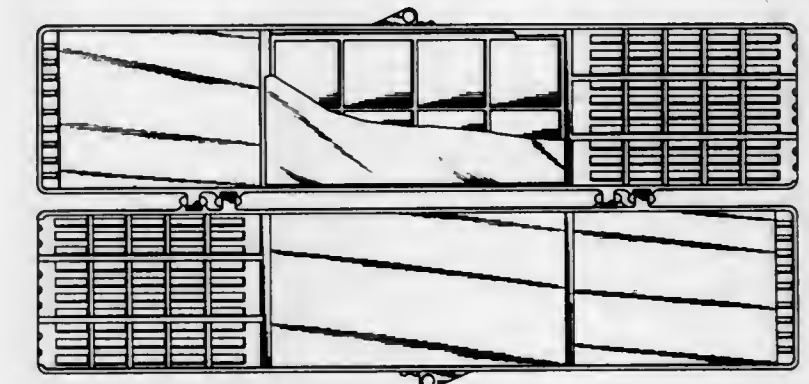
221,267
BABY TEETHER, PACIFIER AND GUM SOOTHER
Murry Herbst, 266-16 78th Ave.,
Floral Park, N.Y. 11004
Filed Mar. 11, 1970, Ser. No. 21,864
Term of patent 14 years
Int. Cl. D24-05

U.S. Cl. D83-8



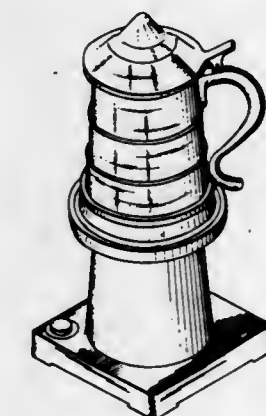
221,268
FISHING TACKLE BOX OR SIMILAR ARTICLE
Derrick Heaton, Irondequoit, N.Y.
(409 Norcrest Drive, Rochester, N.Y. 14617)
Filed Mar. 13, 1969, Ser. No. 16,232
Term of patent 14 years
Int. Cl. D3-99

U.S. Cl. D87-1



221,269
BLENDER
Raymond J. Evans, Fairfield, Conn., assignor to
Sperry Rand Corporation, New York, N.Y.
Filed June 1, 1970, Ser. No. 23,228
Term of patent 14 years
Int. Cl. D7-05

U.S. Cl. D89-1



221,270
BICYCLE SEAT COVER
 Albert J. Fritz, Wilmette, Ill., assignor to Schwinn
 Bicycle Company, Chicago, Ill.
 Filed Mar. 13, 1970, Ser. No. 21,891
 Term of patent 14 years
 Int. Cl. D5—02; D12—14
 U.S. Cl. D90—16



221,271
TEXTILE FABRIC
 Edward C. Talmán, Tarrytown, N.Y., assignor to
 Cannon Mills Company, Kannapolis, N.C.
 Filed June 9, 1970, Ser. No. 23,393
 Term of patent 14 years
 Int. Cl. D5—02
 U.S. Cl. D92—1



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 20TH DAY OF JULY, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- AB Autoindustri: See—
 Rex, Gert Ingmar, 3,593,942.
 AB Industriebjadrar: See—
 Nygren, Harry M., 3,593,389.
 Abarotín, Eugene V., to United States Steel Corporation. Apparatus
 for determining a dimension of a member. 3,593,427, Cl. 33-174.
 Abbiati, Ettore, to Olivetti, Ing., C., & C., S.p.A. Digital print-out
 device. 3,594,548, Cl. 235-61.
 Abbott Laboratories: See—
 Borodkin, Saul, and Sundberg, Dean Paul, 3,594,470.
 Gunn, Leonard C., and Burns, Donald A., 3,593,703.
 Abe, Jinnosuke; Watanabe, Tetsuo; Take, Teruo; Fujimoto, Kentaro;
 Fujii, Tadashi; Kuramoto, Masashi; and Kobari, Sadami, to Toyo
 Jozo Kabushiki Kaisha. Process for production of penicillin.
 3,594,367, Cl. 260-239.1
 Abeck, Wilhelm; Menold, Richard; Muller, Erich; and Nippe, Burk-
 hard, to Agfa-Gevaert Aktiengesellschaft. Process for determining
 fluctuations in level in magnetizable layers. 3,594,582, Cl. 250-219.
 Aberdeen Engineering Design Limited: See—
 Cameron, Antony D., 3,593,501.
 Abrahm, Garnett. Draw curtain apparatus. 3,593,772, Cl. 160-84.
 Abt, Ronald C., to Cincinnati Milacron Inc. Portable manifold for elec-
 tro-erosive machines. 3,594,298, Cl. 204-224.
 Accello, Salvatore J., to Sprague Electric Company. Dispersing vehicle
 used in glass bonding. 3,594,144, Cl. 65-43.
 Acme Highway Products Corporation: See—
 Crone, Alfred F., 3,593,626.
 Adams, Clyde M., Jr.; Hewitt, Norman S.; and Bartimes, George F., to
 Continental Can Company, Inc. Band saw blade apparatus and
 methods. 3,593,600, Cl. 76-112.
 Adams, Fredrick J., to Cam Gears Limited. Steering gear. 3,593,592,
 Cl. 74-498.
 Adams, Gary V.: See—
 Davis, Willard F.; Grosgebauer, Roger A.; Adams, Gary V.; and
 De Groshe, Raymond, 3,593,664.
 Adams, George J., to Stanray Corporation. Static switch. 3,593,668,
 Cl. 104-130.
 Adams, Paul; and Lukasik, Ferdinand, to Stark, John, Laboratories,
 Inc., mesne. Apparatus for developing photolithographic plates.
 3,593,641, Cl. 95-89.
 Adamson, Robert G.; and Thiede, Paul W., to Hurlertron Incorporated.
 System and method for indication and control of circumferential reg-
 ister. 3,594,552, Cl. 235-92.
 Addressograph-Multigraph Corporation: See—
 Guntó, Robert L.; and Staley, Merton R., 3,594,160.
 Schmidlin, Raymond J., 3,594,519.
 Aeromarine Corporation: See—
 Carter, John Henry, 3,593,354.
 African Explosives and Chemical Industries Limited: See—
 Loopuyt, Pieter Jacob, 3,593,566.
 AGA Aktiebolag: See—
 Ohman, Claes Thomas, 3,594,578.
 Agfa-Gevaert Aktiengesellschaft: See—
 Abeck, Wilhelm; Menold, Richard; Muller, Erich; and Nippe,
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 Riebel, Alexander; Lassig, Wolfgang; Dinges, Karl; and Himmel-
 mann, Wolfgang, 3,594,166.
 Simm, Walter; and Muller, Rudolf, 3,594,162.
 Aileo, Jackson A., to Gentex Corporation. Sound-attenuating earcups.
 3,593,341, Cl. 2-209.
 Air Products and Chemicals, Inc.: See—
 Gaumer, Lee S., Jr.; and Newton, Charles L., 3,593,535.
 Aisin Seiki Company Limited: See—
 Kazaoka, Kenichi, 3,593,816.
 Aiwa Co., Ltd.: See—
 Takagi, Isamu; and Shino, Atushi, 3,594,008.
 Akashi, Tsuneo: See—
 Ohno, Tomeji; Takahashi, Masao; and Akashi, Tsuneo, 3,594,321.
 Aker, John L., to King Radio Corporation, Inc. Method and apparatus
 for determining the rate of change of a time interval. 3,594,793, Cl.
 343-7.3
 Akiyama, Hideaki; and Imai, Tadayuki, to Kabushiki Kaisha Ricoh.
 Optimum or under or over exposure indicating device for use in
 photography. 3,594,088, Cl. 356-226.
 Akiyoshi, Masatoyo; Satoh, Kiichi; and Hamaguchi, Ken, to Kyowa
 Hakko Kogyo Co., Ltd. Method of treating and preventing the side
 effects of antibiotics. 3,594,475, Cl. 424-181.
 Akrongold, Harold S.; and Akrongold, Rochelle. Visual displays.
 3,593,444, Cl. 40-106.21
 Akrongold, Rochelle: See—
 Akrongold, Harold S.; and Akrongold, Rochelle, 3,593,444.
 Aktiebolaget Astra: See—
 Lindberg, Ulf Henrik Anders; and Yeoman, Guy Henry,
 3,594,481.
 Aktiebolaget Hassle: See—
 Brandstrom, Arne Eloff; and Carlsson, Stig Ake Ingemar,
 3,594,478.
 Aktiebolaget Imo-Industri: See—
 Montelius, Carl Oscar Torsten, 3,593,893.
 Aktiebolaget Svenska Kullagerfabriken: See—
 Gothberg, Karl Evald Andreas, 3,594,050.
 Aktiebolaget Svenska Metallverken: See—
 Arovelius, Karl Arne, 3,594,246.
 Aktiengesellschaft Brown, Boveri & Cie: See—
 Trachsel, Heinz, 3,594,631.
 Aktiengesellschaft fur Biologische Verfahrenstechnik: See—
 Baerfuss, Achilles, 3,593,738.
 Aktiengesellschaft Gebrueder Loepfe: See—
 Loepfe, Erich, 3,594,558.
 Alagy, Jacob, to Institut Francais du Petrole. Manufacture of alcohols
 by oxidation of saturated hydrocarbons. 3,594,399, Cl. 260-462.
 Albon, Colin Paul: See—
 Holker, Kenneth Urnston; and Albon, Colin Paul, 3,594,135.
 Albrecht, Allan J., to Case, J. I., Company. Hydraulic control circuit.
 3,593,619, Cl. 91-411.
 Albright & Wilson Limited: See—
 Holker, Kenneth Urnston; and Albon, Colin Paul, 3,594,135.
 Alburn, Harvey E.; and Fletcher, Horace, III, to American Home
 Products Corporation. Cyclopentene derivatives. 3,594,413; Cl.
 260-514.
 Alburn, Harvey E.: See—
 Grant, Norman H.; Clark, Donald E.; and Alburn, Harvey
 E., 3,594,366.
 Alcan Research and Development Limited: See—
 Cote, Jacques F.; Cooke, William Ernest; and Spooner, Roy C.,
 3,594,133.
 Alderfer, Donovan C., to Jerrold Electronics Corporation. Connector
 for coupling a coaxial cable to a printed circuit board or the like.
 3,594,687, Cl. 339-14.
 Alduk, Frank P. Convertible case packing unit and upside-down case
 packer therefor. 3,593,493, Cl. 53-243.
 Alexeev, Igor Petrovich: See—
 Serkov, Anatoly Gavrilovich; Grinchenko, Dmitry Nikitovich;
 Moiseev, Vasily Sergeevich; Maslovsky, Gennady Vasilievich;
 and Alexeev, Igor Petrovich, 3,593,690.
 Allegheny Ludlum Steel Corporation: See—
 Ramachandran, Sundaresan, 3,594,155.
 Allen, Daniel C., to Maremont Corporation. Dual polarized dual
 frequency coupler. 3,594,663, Cl. 333-1.
 Allen Electric and Equipment Company: See—
 Muller, Don M.; Whittle, Lavar E.; and Chartrand, Victor,
 3,594,634.
 Allen, Richard G.: See—
 Bauer, Benjamin B.; Torick, Emil L.; Allen, Richard G.; and
 Rosenheck, Allen J., 3,594,506.
 Allen, Scott E.: See—
 Lakins, Frederick R.; and Allen, Scott E., 3,593,549.
 Allewitt, Murray; and Zahid, Abdul, to Greer Hydraulics, Inc. Pres-
 sure vessel. 3,593,746, Cl. 138-30.
 Allie, William, Jr.; and Marsh, Richard H., to Ford Motor Company.
 Cathode ray tube manufacture. 3,594,207, Cl. 117-33.5
 Allied Chemical Corporation: See—
 Barclay, John W.; and Evans, Francis R., 3,593,844.
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 3,594,350.
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 Allied Research Associates, Inc.: See—
 McMillin, Larry Max, 3,594,080.
 Allingham, Robert P.: See—
 Tate, Bryce E.; and Allingham, Robert P., 3,594,195.
 Allmanna Svenska Elektriska Aktiebolaget: See—
 Ljungner, Malte; Jaaksoo, Lembit; and Johansson, Arne,
 3,594,690.
 Allred, Victor D., to Marathon Oil Company. Apparatus for cooling
 solids by direct contact with liquids. 3,594,287, Cl. 202-103.
 Alpin, Albert. Process of utilizing mustard and rape seeds as dough im-
 proving agents. 3,594,181, Cl. 99-91.

- Alps Electric Co., Ltd.: See—
Nomura, Yukihiko, 3,594,678.
- Altice, Maryland Virginia; and Walker, William David, to Du Pont de Nemours, E. I., and Company. Bobbin chuck. 3,593,932, Cl. 242-18.
- Alton, Ahdor, H., to Gulton Industries, Inc. Condition sensing and alarm unit and circuit therefor. 3,594,752, Cl. 340-228.
- American Biltrite Rubber Co., Inc.: See—
Guyer, Nathan E., 3,593,840.
- American Cyanamid Company: See—
Hosler, John Frederick, 3,594,408.
Kraebel, Charlotte Marie, 3,594,231.
Meriwether, Lewis Smith, 3,593,852.
Woodberry, Norman Thorndike, 3,594,271.
- American Cyanamid Company: See—
Brownlee, Thomas Harland, 3,594,385.
- American Home Products Corporation: See—
Alburn, Harvey E.; and Fletcher, Horace, III, 3,594,413.
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Grant, Norman H.; Clark, Donald E.; and Alburn, Harvey E., 3,594,366.
Santilli, Arthur A.; and Kim, Dong H., 3,594,372.
Sellstedt, John H.; Bogash, Richard; and Hou, Joseph P., 3,594,368.
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Brackett, Robert D., to Polaroid Corporation. Offset printing apparatus having disposable dampening and inking means. 3,593,659, Cl. 101-143.

Brader, Allen C. Multihelical omniarch. 3,593,421, Cl. 32-14.

Brader, Walter H., Jr.; Cavitt, Stanley B.; and Gipson, Robert M., to Jefferson Chemical Company, Inc. Hydroformylation process. 3,594,425, Cl. 260-604.

Bradshaw, Kenneth, to Cam Gears Limited. Rack and pinion assemblies. 3,593,593, Cl. 74-498.

Bramlett, Glenn D., to Narad, Inc. Reinforced load spacer. 3,593,671, Cl. 105-369.

Brandli, Hanspeter; and Dandliker, Rene, to Institut für Angewandte Physik der Universität. Device for the frequency stabilization of a gas laser oscillator. 3,594,659, Cl. 331-94.5.

Brandstrom, Arne Eloff; and Carlsson, Stig Åke Ingemar, to Aktiebolaget Hassle. Pharmaceutical compositions containing benzothioephene derivatives. 3,594,478, Cl. 424-248.

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Braner, Harold R.: See—
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Brant, Roy G.; and Hall, Lloyd E., to Beckman Instruments, Inc. Rotor assembly for electrical switch. 3,594,527, Cl. 200-166.

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Bresson, Eugene J. M., to Compagnie Generale d'Electricite. Measurement of the density of a fluid. 3,593,585, Cl. 73-453.

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Brico Engineering Limited: See—
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Broussard, Leo P., Sr., to Shell Oil Company. Method and apparatus for drilling and producing wells in a formation susceptible to compaction. 3,593,795, Cl. 166-285.

Brouwer, Charles W.; Bucheister, Henry C.; and Tata, Raymond V., to Leesona Corporation. Bobbin handling apparatus. 3,593,896, Cl. 222-450.

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Brown, Boveri & Cie A.G.: See—
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Brown, Cicero C.; and Cochran, Chudleigh B., said Cochran assor. to Brown Oil Tools, Inc. Anchor assembly for well tools such as packers and the like. 3,593,784, Cl. 166-125.

Brown, Dwight C. Method of making a pallet. 3,593,407, Cl. 29-416.

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Brownlee, Thomas Harland, to American Cyanamid Company. Synthesis of new NF compounds. 3,594,385, Cl. 260-290.

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Buck, Daniel C.; Nelson, Theodore M.; Moore, Robert A.; and Dubrowsky, Leonard, to Westinghouse Electric Corporation. Strip line ferrite phase shifter. 3,594,812, Cl. 343-854.

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Buisson, Andre Sebastian Joseph, to Automobiles Peugeot, and Regie Nationale des Usines Renault. Thermostatic tap. 3,593,917, Cl. 236-98.

Bukanova, Valentina Ivanovna: See—
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Bullard, Edwin F.: See—
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Bungo, Paul. Whisper seat. 3,593,349, Cl. 4-237.

Bunn-O-Matic Corporation: See—
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Burchett, Lawrence R., to Kwiki Systems, Inc. Mechanized car washing apparatus. 3,593,730, Cl. 134-123.

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Burkhardt, Rudolf, to Dynamit Nobel Aktiengesellschaft. Process for the preparation of surface-active derivatives of 5-sulfoisophthalic acid. 3,594,412, Cl. 200-507.

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Cale, William E.: See—
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Cavalla, John F.; Sandison, Gillian M.; and White, Alan C., to Wyeth, John & Brother Limited. Acetylenically unsaturated diaryl nitriles and derivatives thereof. 3,594,401, Cl. 260-46.

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Comeau, Joseph H.; and Zinn, Walter H. Combustion Engineering, Inc. Position indicating apparatus. 3,594,740, Cl. 340-188.

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- Gilbert, Barrie, to Tektronix, Inc. Analog to digital converter including comparator circuits with internal logic. 3,594,766, Cl. 340-347.
- Gilbert, Everett E., to Allied Chemical Corporation. (2-Hydroxyhexafluoro-2-propyl)-3,4-diamino-benzene. 3,594,418, Cl. 260-575.
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- Giraudeau, Andre, 1/2 to Les Isolants Francais. Acoustic sound-attenuating panels. 3,593,819, Cl. 181-33.
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- Gluck, Julius, to Sperry Rand Corporation. Drive circuitry for display tubes. 3,594,758, Cl. 340-324.

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- Goldberg, Newton N.: See—
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- Golden, Richard L.; and Mazzella, Gerald, to Halcon International, Inc. Chemical process. 3,594,422, Cl. 260-586.
- Goldware, David. Vapor degreaser. 3,593,729, Cl. 134-103.
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- Schneider, Wolfgang, 3,594,433.
- Gore, David N.; and Wilkinson, Harold G., to Beecham Group Limited. Apparatus for use in the determination of the relative humidity of substances. 3,594,054, Cl. 312-209.
- Gorin, Everett; Struck, Robert T.; and Zielke, Clyde W., 1/2 to United States of America, Interior, and 1/2 to Consolidation Coal Company. Regeneration of zinc chloride catalyst. 3,594,329, Cl. 252-417.
- Gorman, Eugene Francis; Kochis, John; and Kasotakis, George. AC shielded electrode arc working. 3,594,541, Cl. 219-137.
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- Gotschall, Ralph W.; and McDonough, Lawrence J., to Johnson Corporation. The. Rotary joint. 3,594,019, Cl. 285-14.
- Gowler, Edmund John; and McDonald, Patrick Anthony, to Electric & Musical Industries Limited. Proximity sensing devices. 3,594,792, Cl. 343-7.
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- Jacob, Francis J., 3,594,461.
- Marans, Nelson Samuel, 3,594,293.
- Seybert, Earl K.; and Link, Philip W., 3,594,217.
- Graetz, Edward A. Transport apparatus for heavy machinery such as bulldozers or the like. 3,594,018, Cl. 280-415.
- Granberg, Mauritz L.; Hanson, Howard N.; Kiesling, Charles A.; and Stoffel, Jerome J., to Sperry Rand Corporation. CRT curved character generator. 3,594,756, Cl. 340-324.
- Grant, Norman H.; Clark, Donald E.; and Alburn, Harvey E., to American Home Products Corporation. Process for the preparation of aminoalicyclic and aminoarylacyclic penicillins. 3,594,366, Cl. 260-239.1
- Graser, Michael, Jr., to Technical Operations, Incorporated. Color TV film reproduction system compatible with diffraction process color projection systems. 3,594,497, Cl. 178-5.4
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- Greer Hydraulics, Inc.: See—
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- Guffroy, Rene Auguste Denis, to Laboratoires Polypharma. Immunological test system and process for preparing same. 3,594,466, Cl. 424-12.
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Wilmanns, Ingo Goetz, to Centre National de la Recherche Scientifique. Ellipsometric method and device. 3,594,085, Cl. 356-114.
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Wilson, James H., to Lever Brothers Company. Liquid detergent. 3,594,322, Cl. 252-106.
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- Zisman, William A.; and O'Rear, Jacques G., to United States of America, Navy. Tricarballic acids. 3,594,415, Cl. 260-515.
- Zitow, Ewald L. Collapsible grapnel anchor. 3,593,682, Cl. 114-208.
- Zurheide, George B.; and Harvey, Frank E., to PPG Industries, Inc. Crane apparatus with hoist means located between spaced platforms. 3,593,869, Cl. 214-658.
- Zygmunt, Walter Anthony; and Browder, Henry Polk, to Mead Johnson & Company. Lysostaphin fermentation with accelerated time cycle. 3,594,284, Cl. 195-96.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 20TH DAY OF JULY, 1971

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 800 O. G. 687.

- Abel, Edward P., and L. M. Minsk. Flexible film-forming polymers capable of insolubilization. T888,010, 7-20-71, Cl. 260-72.
- Cambron, Robert B., and L. E. Ott, to Caterpillar Tractor Co. Piston ring and groove. T888,014, 7-20-71, Cl. 277-188.
- Dappen, Glen M., and T. E. Whiteley. Photographic silver halide emulsions having increased covering power. T888,005, 7-20-71, Cl. 96-94.
- Drake, George M., Jr., to E. I. du Pont de Nemours and Co. Composite film structure and method of making it. T888,001, 7-20-71, Cl. 156-308.
- Du Pont de Nemours, E. I.: See—
Drake, George M., Jr. T888,001.
- Hughes, Charles T. T888,002.
- Ellins, Herbert S. Photographic films having carbon-containing backing layers. T888,012, 7-20-71, Cl. 96-87.
- Foster, Donald P.: See—
Yackel, Edward C., and Foster. T888,017.
- Gilman, Paul B. Electrophotographic speed of inorganic photoconductors is increased by the addition of organic photoconductors. T888,013, 7-20-71, Cl. 96-15.
- Haley, Michael J. H., and B. J. Oakley, to Imperial Chemical Industries Ltd. Sealing jaws for packaging machines. T888,008, 7-20-71, Cl. 156-315.
- Hughes, Charles T., to E. I. du Pont de Nemours and Co. Process for dyeing aromatic polyamide fibers from a phosphate surfactant benzaldehyde containing dyebath and composition therefor. T888,002, 7-20-71, Cl. 8-171.
- Imperial Chemical Industries Ltd.: See—
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- Kalenda, Norman W. Supersensitized photographic silver halide emulsions. T888,015, 7-20-71, Cl. 96-124.
- Kalenda, Norman W. Photographic materials. T888,016, 7-20-71, Cl. 96-126.
- Keller, William R. Minimizing differential shrinkage of multilayer ceramic circuit boards. T888,004, 7-20-71, Cl. 156-89.
- Laakso, Thomas M.: See—
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- MacDonald, William A., Jr. Positioning mechanism. T888,008, 7-20-71, Cl. 355-45.
- Minsk, Louis M.: See—
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- Abel, Edward P., and Minsk. T888,010.
- Morie, Gerald P. Tobacco smoke filter. T888,006, 7-20-71, Cl. 181-266.
- Oakley, Barry J.: See—
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- Ott, Lemoyne E.: See—
Cambron, Robert B., and Ott. T888,014.
- Scott-Cook, Robert L. Production of thermoplastics articles. T888,009, 7-20-71, Cl. 156-82.4.
- Stauffer, Robert E. Receiving sheet for photographic diffusion transfer. T888,011, 7-20-71, Cl. 96-76.
- Tuites, Richard C., T. M. Laakso, J. L. R. Williams, and L. M. Minsk. Photo-sensitive polymers. T888,007, 7-20-71, Cl. 96-115.
- Whiteley, Thomas E.: See—
Dappen, Glen M., and Whiteley. T888,005.
- Williams Jack L. R.: See—
Tuites, Richard C., Laakso, Williams, and Minsk. T888,007.
- Yackel, Edward C., and D. P. Foster. Coating of silver halide dotwise. T888,017, 7-20-71, Cl. 96-94.

LIST OF REISSUE PATENTEEES

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- Broderick, David C., to Metcom, Inc. Gaseous-solid state power limiter having a self-biasing circuit for the solid state device. Re. 27,164, 7-20-71, Cl. 338-13.
- Hansen, Gerhard. Molding and sealing machines. Re. 27,155.
- Hedgewick, Peter, to Reflex Corp. of Canada Ltd. Safety cap and container. Re. 27,156, 7-20-71, Cl. 215-9.
- Herold, Henry L., and J. Weisenbaum, to Honeywell Information Systems Inc. Apparatus in data processing system for coordinating memory communication among processors and peripheral devices. Re. 27,157, 7-20-71, Cl. 840-172.5.
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- Anderson, Bert R. Plaque. 221,234, 7-20-71, Cl. D29-23.
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- Baldwin, D. H., Co.: See—
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- Beach, Daryl R., to Kabushiki Kaisha Morita Seisakusho. Dental operating light. 221,247, 7-20-71, Cl. D48-20.
- Benjamin, E. Burton, and E. Sylvan, to Carter-Hoffmann Corp. Institutional food server. 221,216, 7-20-71, Cl. D14-6.
- Beychok, Samuel. Car tray. 221,217, 7-20-71, Cl. D14-6.
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- Brooks, Philip L., to Sylvania Electric Products, Inc. Motor vehicle mounted electrical communication unit or similar article. 221,231, 7-20-71, Cl. D26-14.
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- Dercoli, Giacinto C., to The Alliance Manufacturing Co., Garage door operator housing. 221,226, 7-20-71, Cl. D26-5.
- Des Champs, Robert L., to Shure Brothers Inc. Microphone stand. 221,230, 7-20-71, Cl. D26-14.
- Dietrich, Gerhard, and P. Meyer, to Triumph Werke Nuernberg A.G. Desk top electronic calculator. 221,227, 7-20-71, Cl. 26-5.
- Douglas, Livingston C., to Colgate-Palmolive Co. Combined jug and cap therefor. 221,211, 7-20-71, Cl. D9-42.
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160-84 : 3,593,772	28 : 3,594,277	345 : 3,594,544	248-42 : 3,594,545	308 : 3,594,392	134 : 3,594,001
161-24 : 3,594,260	31 : 3,594,278	501 : 3,594,545	249 : 3,594,546	326.15 : 3,594,393	135 : 3,594,002
62 : 3,594,261	31 : 3,594,279	529 : 3,594,546	250 : 3,594,547	327 : 3,594,394	139 : 3,594,003
94 : 3,594,262	63 : 3,594,280	529 : 3,594,547	251 : 3,594,548	328 : 3,594,395	153 : 3,594,005
160 : 3,594,263	63 : 3,594,281	220-2.1 : 3,593,874	284 : 3,593,952	329 : 3,594,396	176 : 3,594,006
165 : 3,594,264	66 : 3,594,282	4 : 3,593,875	400 : 3,593,953	330 : 3,594,397	183 : 3,594,007
170 : 3,594,265	80 : 3,594,283	21 : 3,593,876	425 : 3,593,954	331 : 3,594,398	183 : 3,594,008
173 : 3,594,266	96 : 3,594,284	54 : 3,593,877	448 : 3,593,955	332 : 3,594,399	274-10 : 3,594,009
231 : 3,594,267	127 : 3,594,285	250-41.9 : 3,594,573	453 : 3,594,574	333 : 3,594,400	277-53 : 3,594,010
250 : 3,594,268	197-1 : 3,593,832	43.5 : 3,594,575	462 : 3,594,575	334 : 3,594,401	56 : 3,594,011
162-17 : 3,594,269	132 : 3,593,833	60 : 3,593,878	463 : 3,594,576	335 : 3,594,402	208 : 3,594,012
80 : 3,594,270	198-1 : 3,593,834	90 : 3,593,879	464 : 3,594,577	336 : 3,594,403	279-4 : 3,594,013
167 : 3,594,271	7 : 3,593,835	83.3 : 3,594,578	465 : 3,594,578	337 : 3,594,404	280-11.35 : 3,594,014
219 : 3,594,272	25 : 3,593,836	150 : 3,593,882	466 : 3,594,579	338 : 3,594,405	43.17 : 3,594,015
284 : 3,594,273	35 : 3,593,837	222-16 : 3,593,883	467 : 3,594,580	339 : 3,594,406	124 : 3,594,016
164-4 : 3,593,773	140 : 3,593,838	35 : 3,593,884	468 : 3,594,581	340 : 3,594,407	415 : 3,594,017
58 : 3,593,774	184 : 3,593,839	104 : 3,593,885	469 : 3,594,582	341 : 3,594,408	2 : 3,594,018
251 : 3,593,775	193 : 3,593,840	136 : 3,593,886	470 : 3,594,583	342 : 3,594,409	139 : 3,594,019
274 : 3,593,776	202 : 3,593,841	146 : 3,593,887	471 : 3,594,584	343 : 3,594,410	285-14 : 3,594,020
3,593,777	213 : 3,593,842	148 : 3,593,888	472 : 3,594,585	344 : 3,594,411	139 : 3,594,021
3,593,778	214 : 3,593,843	148 : 3,593,889	473 : 3,594,586	345 : 3,594,412	302 : 3,594,022
165-1 : 3,593,779	215 : 3,593,844	148 : 3,593,890	474 : 3,594,587	346 : 3,594,413	337 : 3,594,023
22 : 3,593,780	216 : 3,593,845	148 : 3,593,891	475 : 3,594,588	347 : 3,594,414	337 : 3,594,024
95 : 3,593,781	217 : 3,593,846	148 : 3,593,892	476 : 3,594,589	348 : 3,594,415	54 : 3,594,025
143 : 3,593,782	218 : 3,593,847	148 : 3,593,893	477 : 3,594,590	349 : 3,594,416	87 : 3,594,026
164 : 3,593,783	219 : 3,593,848	148 : 3,593,894	478 : 3,594,591	350 : 3,594,417	189.36 : 3,594,027
166-125 : 3,593,784	220 : 3,593,849	148 : 3,593,895	479 : 3,594,592	351 : 3,594,418	290-38 : 3,594,028
202 : 3,593,785	221 : 3,593,850	148 : 3,593,896	480 : 3,594,593	352 : 3,594,419	292-108 : 3,594,029
222 : 3,593,786	222 : 3,593,851	148 : 3,593,897	481 : 3,594,594	353 : 3,594,420	140 : 3,594,030
245 : 3,593,787	223 : 3,593,852	148 : 3,593,898	482 : 3,594,595	354 : 3,594,421	294 : 3,594,031
247 : 3,593,788	224 : 3,593,853	148 : 3,593,899	483 : 3,594,596	355 : 3,594,422	294 : 3,594,032
259 : 3,593,789	225 : 3,593,854	148 : 3,593,900	484 : 3,594,597	356 : 3,594,423	294 : 3,594,033
267 : 3,593,790	226 : 3,593,855	148 : 3,593,901	485 : 3,594,598	357 : 3,594,424	111 : 3,594,034
271 : 3,593,791	227 : 3,593,856	148 : 3,593,902	486 : 3,594,599	358 : 3,594,425	296-3 : 3,594,035
280 : 3,593,792	228 : 3,593,857	148 : 3,593,903	487 : 3,594,600	359 : 3,594,426	155 : 3,594,036
283 : 3,593,793	229 : 3,593,858	148 : 3,593,904	488 : 3,594,601	360 : 3,594,427	297-14 : 3,594,037
285 : 3,593,794	230 : 3,593,859	148 : 3,593,905	489 : 3,594,602	361 : 3,594,428	248 : 3,594,038
288 : 3,593,795	231 : 3,593,860	148 : 3,593,906	490 : 3,594,603	362 : 3,594,429	252 : 3,594,039
290 : 3,593,796	232 : 3,593,861	148 : 3,593,907	491 : 3,594,604	363 : 3,594,430	307 : 3,594,040
295 : 3,593,797	233 : 3,593,862	148 : 3,593,908	492 : 3,594,605	364 : 3,594,431	448 : 3,594,041
312 : 3,593,798	234 : 3,593,863	148 : 3,593,909	493 : 3,594,606	365 : 3,594,432	298-22 : 3,594,042
169-27 : 3,593,800	235 : 3,593,864	148 : 3,593,910	494 : 3,594,607	366 : 3,594,433	299-42 : 3,594,043
172-15 : 3,593,801	236 : 3,593,865	148 : 3,593,911	495 : 3,594,608	367 : 3,594,434	300-2 : 3,594,044
100 : 3,593,802	237 : 3,593,866	148 : 3,593,912	496 : 3,594,609	368 : 3,594,435	21 : 3,594,045
370 : 3,593,803	238 : 3,593,867	148 : 3,593,913	497 : 3,594,610	369 : 3,594,436	301-37 : 3,594,046
741 : 3,593,804	239 : 3,593,868	148 : 3,593,914	498 : 3,594,611	370 : 3,594,437	302-37 : 3,594,047
776 : 3,593,805	240 : 3,593,869	148 : 3,593,915	499 : 3,594,612	371 : 3,594,438	303-58 : 3,594,048
6 : 3,593,806	241 : 3,593,870	148 : 3,593,916	500 : 3,594,613	372 : 3,594,439	66 : 3,594,049
35 : 3,594,489	242 : 3,593,871	148 : 3,593,917	501 : 3,594,614	373 : 3,594,440	149 : 3,594,050
36 : 3,594,490	243 : 3,593,872	148 : 3,593,918	502 : 3,594,615	374 : 3,594,441	233 : 3,594,051
68.5 : 3,594,491	244 : 3,593,873	148 : 3,593,919	503 : 3,594,616	375 : 3,594,442	234 : 3,594,052
158 : 3,594,492	245 : 3,593,874	148 : 3,593,920	504 : 3,594,617	376 : 3,594,443	235 : 3,594,053
3,594,493	246 : 3,593,875	148 : 3,593,921	505 : 3,594,618	377 : 3,594,444	236 : 3,594,054
3,594,494	247 : 3,593,876	148 : 3,593,922	506 : 3,594,6		

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama.....	1	Kentucky.....	21	Oregon.....	41
Alaska.....	2	Louisiana.....	22	Pennsylvania.....	42
American Samoa.....	3	Maine.....	23	Puerto Rico.....	43
Arizona.....	4	Maryland.....	24	Rhode Island.....	44
Arkansas.....	5	Massachusetts.....	25	South Carolina.....	45
California.....	6	Michigan.....	26	South Dakota.....	46
Canal Zone.....	7	Minnesota.....	27	Tennessee.....	47
Colorado.....	8	Mississippi.....	28	Texas.....	48
Connecticut.....	9	Missouri.....	29	Utah.....	49
Delaware.....	10	Montana.....	30	Vermont.....	50
District of Columbia.....	11	Nebraska.....	31	Virginia.....	51
Florida.....	12	Nevada.....	32	Virgin Islands.....	52
Georgia.....	13	New Hampshire.....	33	Washington.....	53
Guam.....	14	New Jersey.....	34	West Virginia.....	54
Hawaii.....	15	New Mexico.....	35	Wisconsin.....	55
Idaho.....	16	New York.....	36	Wyoming.....	56
Illinois.....	17	North Carolina.....	37	U.S. Air Force.....	57
Indiana.....	18	North Dakota.....	38	U.S. Army.....	58
Iowa.....	19	Ohio.....	39	U.S. Navy.....	59
Kansas.....	20	Oklahoma.....	40		

PATENTS

1	: 3,593,461	6	: 3,593,653	6	: 3,594,245	8	: 3,594,746	12	: 3,593,888	17	: 3,593,751
	3,593,494		3,593,668		3,594,262		3,594,773		3,594,064		3,593,768
	3,593,573		3,593,671		3,594,276	9	: 3,593,348		3,594,129		3,593,823
	3,593,632		3,593,687		3,594,277		3,593,384		3,594,219		3,593,865
	3,593,677		3,593,694		3,594,295		3,593,416		3,594,438		3,593,870
	3,593,993		3,593,704		3,594,362		3,593,417		3,594,468		3,593,877
	3,594,658		3,593,708		3,594,452		3,593,452		3,594,551		3,593,910
2	: 3,593,811		3,593,709		3,594,463		3,593,645		3,594,630		3,593,916
3	: 3,594,348		3,593,714		3,594,472		3,593,685		3,594,673		3,593,919
4	: 3,593,357		3,593,717		3,594,520		3,593,736		3,594,722		3,593,949
	3,593,411		3,593,722		3,594,527		3,593,852		3,594,768		3,593,956
	3,593,412		3,593,732		3,594,565		3,593,912	13	: 3,593,440		3,593,957
	3,593,558		3,593,746		3,594,572		3,593,992		3,593,884		3,593,979
	3,594,153		3,593,761		3,594,579		3,594,119		3,593,955		3,593,999
	3,594,588		3,593,770		3,594,593		3,594,130		3,593,985		3,594,000
6	: Re.27,157		3,593,776		3,594,594		3,594,159		3,594,150		3,594,001
	3,593,338		3,593,794		3,594,605		3,594,161		3,594,206		3,594,002
	3,593,342		3,593,800		3,594,606		3,594,195		3,594,222		3,594,006
	3,593,344		3,593,806		3,594,617		3,594,271		3,594,402		3,594,020
	3,593,346		3,593,808		3,594,617		3,594,273	15	: 3,593,394		3,594,030
	3,593,356		3,593,846		3,594,623		3,594,385		3,593,667		3,594,035
	3,593,381		3,593,889		3,594,626		3,594,453	16	: 3,593,905		3,594,056
	3,593,383		3,593,906		3,594,634		3,594,480	17	: 3,593,364		3,594,059
	3,593,388		3,593,911		3,594,649		3,594,506		3,593,365		3,594,073
	3,593,399		3,593,914		3,594,654		3,594,740		3,593,377		3,594,076
	3,593,406		3,593,945		3,594,660		3,594,758		3,593,382		3,594,078
	3,593,424		3,593,952		3,594,667		3,594,770		3,593,385		3,594,079
	3,593,426		3,593,961		3,594,674		3,594,794		3,593,433		3,594,120
	3,593,441		3,593,962		3,594,675	10	: 3,593,932		3,593,439		3,594,125
	3,593,442		3,593,994		3,594,681		3,594,205		3,593,458		3,594,131
	3,593,453		3,593,996		3,594,684		3,594,255		3,593,539		3,594,176
	3,593,464		3,593,997		3,594,694		3,594,267		3,593,551		3,594,213
	3,593,471		3,594,007		3,594,698		3,594,338		3,593,572		3,594,218
	3,593,474		3,594,022		3,594,704		3,594,355		3,593,577		3,594,308
	3,593,481		3,594,037		3,594,717		3,594,357		3,593,580		3,594,309
	3,593,482		3,594,049		3,594,725		3,594,405		3,593,589		3,594,310
	3,593,487		3,594,057		3,594,727		3,594,427		3,593,590		3,594,345
	3,593,491		3,594,064		3,594,732		3,594,436		3,593,610		3,594,403
	3,593,495		3,594,066		3,594,757		3,594,451		3,593,650		3,594,430
	3,593,515		3,594,087		3,594,787		3,594,726		3,593,657		3,594,442
	3,593,548		3,594,101		3,594,797	11	: 3,593,733		3,593,672		3,594,444
	3,593,549		3,594,102		3,594,800	12	: 3,593,352		3,593,673		3,594,460
	3,593,559		3,594,107		3,594,806		3,593,361		3,593,674		3,594,470
	3,593,560		3,594,188		3,594,807		3,593,403		3,593,680		3,594,516
	3,593,567		3,594,189		3,594,810		3,593,425		3,593,681		3,594,523
	3,593,570		3,594,194	8	: 3,593,359		3,593,465		3,593,683		3,594,534
	3,593,581		3,594,196		3,593,862		3,593,647		3,593,701		3,594,544
	3,593,583		3,594,201		3,594,106		3,593,766		3,593,703		3,594,552
	3,593,648		3,594,225		3,594,287		3,593,820		3,593,710		3,594,625
			3,594,237		3,594,745		3,593,882		3,593,729		3,594,637

17	: 3,594,642	18	: 3,594,676	19	: 3,594,685	20	: 3,594,691	21	: 3,594,700	22	: 3,594,711	23	: 3,594,730	24	: 3,594,743	25	: 3,594,751	26	: 3,594,752	27	: 3,594,761	28	: 3,594,762	29	: 3,594,771	30	: 3,594,778	31	: 3,594,809	32	: 3,594,839	33	: 3,594,845	34	: 3,594,858	35	: 3,594,868	36	: 3,594,879	37	: 3,594,883	38	: 3,594,930	39	: 3,594,938	40	: 3,594,954	41	: 3,594,958	42	: 3,594,961	43	: 3,594,968	44	: 3,594,973	45	: 3,594,975	46	: 3,594,977	47	: 3,594,979	48	: 3,594,981	49	: 3,594,983	50	: 3,594,985	51	: 3,594,987	52	: 3,594,989	53	: 3,594,991	54	: 3,594,993	55	: 3,594,995	56	: 3,594,997	57	: 3,594,999	58	: 3,595,001	59	: 3,595,003	60	: 3,595,005	61	: 3,595,007	62	: 3,595,009	63	: 3,595,011	64	: 3,595,013	65	: 3,595,015	66	: 3,595,017	67	: 3,595,019	68	: 3,595,021	69	: 3,595,023	70	: 3,595,025	71	: 3,595,027	72	: 3,595,029	73	: 3,595,031	74	: 3,595,033	75	: 3,595,035	76	: 3,595,037	77	: 3,595,039	78	: 3,595,041	79	: 3,595,043	80	: 3,595,045	81	: 3,595,047	82	: 3,595,049	83	: 3,595,051	84	: 3,595,053	85	: 3,595,055	86	: 3,595,057	87	: 3,595,059	88	: 3,595,061	89	: 3,595,063	90	: 3,595,065	91	: 3,595,067	92	: 3,595,069	93	: 3,595,071	94	: 3,595,073	95	: 3,595,075	96	: 3,595,077	97	: 3,595,079	98	: 3,595,081	99	: 3,595,083	100	: 3,595,085	101	: 3,595,087	102	: 3,595,089	103	: 3,595,091	104	: 3,595,093	105	: 3,595,095	106	: 3,595,097	107	: 3,595,099	108	: 3,595,101	109	: 3,595,103	110	: 3,595,105	111	: 3,595,107	112	: 3,595,109	113	: 3,595,111	114	: 3,595,113	115	: 3,595,115	116	: 3,595,117	117	: 3,595,119	118	: 3,595,121	119	: 3,595,123	120	: 3,595,125	121	: 3,595,127	122	: 3,595,129	123	: 3,595,131	124	: 3,595,133	125	: 3,595,135	126	: 3,595,137	127	: 3,595,139	128	: 3,595,141	129	: 3,595,143	130	: 3,595,145	131	: 3,595,147	132	: 3,595,149	133	: 3,595,151	134	: 3,595,153	135	: 3,595,155	136	: 3,595,157	137	: 3,595,159	138	: 3,595,161	139	: 3,595,163	140	: 3,595,165	141	: 3,595,167	142	: 3,595,169	143	: 3,595,171	144	: 3,595,173	145	: 3,595,175	146	: 3,595,177	147	: 3,595,179	148	: 3,595,181	149	: 3,595,183	150	: 3,595,185	151	: 3,595,187	152	: 3,595,189	153	: 3,595,191	154	: 3,595,193	155	: 3,595,195	156	: 3,595,197	157	: 3,595,199	158	: 3,595,201	159	: 3,595,203	160	: 3,595,205	161	: 3,595,207	162	: 3,595,209	163	: 3,595,211	164	: 3,595,213	165	: 3,595,215	166	: 3,595,217	167	: 3,595,219	168	: 3,595,221	169	: 3,595,223	170	: 3,595,225	171	: 3,595,227	172	: 3,595,229	173	: 3,595,231	174	: 3,595,233	175	: 3,595,235	176	: 3,595,237	177	: 3,595,239	178	: 3,595,241	179	: 3,595,243	180	: 3,595,245	181	: 3,595,247	182	: 3,595,249	183	: 3,595,251	184	: 3,595,253	185	: 3,595,255	186	: 3,595,257	187	: 3,595,259	188	: 3,595,261	189	: 3,595,263	190	: 3,595,265	191	: 3,595,267	192	: 3,595,269	193	: 3,595,271	194	: 3,595,273	195	: 3,595,275	196	: 3,595,277	197	: 3,595,279	198	: 3,595,281	199	: 3,595,283	200	: 3,595,285	201	: 3,595,287	202	: 3,595,289	203	: 3,595,291	204	: 3,595,293	205	: 3,595,295	206	: 3,595,297	207	: 3,595,299	208	: 3,595,301	209	: 3,595,303	210	: 3,595,305	211	: 3,595,307	212	: 3,595,309	213	: 3,595,311	214	: 3,595,313	215	: 3,595,315	216	: 3,595,317	217	: 3,595,319	218	: 3,595,321	219	: 3,595,323	220	: 3,595,325	221	: 3,595,327	222	: 3,595,329	223	: 3,595,331	224	: 3,595,333	225	: 3,595,335	226	: 3,595,337	227	: 3,595,339	228	: 3,595,341	229	: 3,595,343	230	: 3,595,345	231	: 3,595,347	232	: 3,595,349	233	: 3,595,351	234	: 3,595,353	235	: 3,595,355	236	: 3,595,357	237	: 3,595,359	238	: 3,595,361	239	: 3,595,363	240	: 3,595,365	241	: 3,595,367	242	: 3,595,369	243	: 3,595,371	244	: 3,595,373	245	: 3,595,375	246	: 3,595,377	247	: 3,595,379	248	: 3,595,381	249	: 3,595,383	250	: 3,595,385	251	: 3,595,387	252	: 3,595,389	253	: 3,595,391	254	: 3,595,393	255	: 3,595,395	256	: 3,595,397	257	: 3,595,399	258	: 3,595,401	259	: 3,595,403	260	: 3,595,405	261	: 3,595,407	262	: 3,595,409	263	: 3,595,411	264	: 3,595,413	265	: 3,595,415	266	: 3,595,417	267	: 3,595,419	268	: 3,595,421	269	: 3,595,423	270	: 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PATENT OFFICE NOTICES

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Re. 27,078	3,545,576	3,557,878	3,568,203
3,266,810	3,547,379	3,559,747	3,568,248
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3,544,976	3,557,783	3,568,140	

Patents Available for Licensing or Sale

- D. 220,517. CLOCK CABINETS. Virgil C. Welch, 4943 Huntington Ave., Lincoln, Nebr., 68504.
- D. 220,775. CONDIMENT DISPENSERS AND HOLDER THEREFOR AND SPOON HOLDER. 94 Willcocks St. W., Toronto, Ontario, Canada.
- 3,191,513. FOLDING BELLOWS WITH INTERLOCKING CORNERS FOR PHOTOGRAPHIC DEVICES. Correspondence to: Central Trust Company Rochester, N.Y., 44 Exchange St., Rochester, N.Y., 14614. Attention: William K. Shea, Assistant Vice President.
- 3,225,761. FATIGUE SUPPORT. Robert Swensen, 120 Policianna Drive, Martinez, Ga., 30907.
- 3,480,705. METHOD FOR CASTING, LIFTING AND SETTING BLOCKS. Hebel Gasbetonwerk GmbH. Correspondence to: Woodhams, Blanchard and Flynn, 2026 Rambling Road, Kalamazoo, Mich., 49001.
- 3,484,081. PREFABRICATED FENCING. Edward B. Rowan, 456 Broad St., Pittston, Pa., 18640.
- 3,488,090. AUTO PASSENGER HARNESS. Dwaine Douglas, 4322 E. Jefferson, Grand Prairie, Tex., 75050.
- 3,545,916. PROCESS FOR INHIBITING SULPHUR DEPOSITS IN NATURAL GAS WELL RISERS. Gewerkschaft Elwerath, Hannover, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.
- 3,546,668. TALKING SPEEDOMETER. Frank C. Legler, 639 Azalea Drive, Rockville, Md., 20850.
- 3,557,320. REPRODUCTION OF A STILL PICTURE FROM A VIDEO TAPE RECORDING BY COMBINED DROP-OUT ZONE SENSING. Loewe Opta GmbH, Berlin, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.
- 3,576,203. CHIP CONVERTER. Rene Cote, 201 de l'Eglise St., Donnacona, Quebec, Canada.
- 3,576,374. PENCIL OPERATING MECHANISM. Lella J. Lille, 5076 Elmwood Drive, San Jose, Calif., 95130.
- 3,577,688. VALVE STEM GRINDER ATTACHMENT. Orville A. Brenden, 1625 5th Ave. S., Fargo, N. Dak.
- 3,582,441. DECORATIVE TRIM FOR WINDOW SHADES. Samuel Guffan, Brooklyn, N.Y. Correspondence to: Jacobs & Jacobs, 521 5th Ave., New York, N.Y., 10017.

General Motors Corporation is prepared to grant non-exclusive licenses under the following patent upon reasonable terms. Applications for license may be addressed to: The Director, Patent Section, General Motors Bldg., 3044 W. Grand Blvd., Detroit, Mich., 48202.

3,446,480. TURBINE ROTOR.

General Electric Company is prepared to grant non-exclusive licenses under the following 24 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to: Division Patent Counsel, Power Transmission Division, General Electric Company, 6901 Elmwood Ave., Philadelphia, Pa., 19142.

3,532,920. VACUUM GAP AND VACUUM SWITCH DEVICES INCLUDING ELECTRON TUNNELING SUPPRESSING GAS.

Applications for license under the following patent may be addressed to: Patent Counsel, Industry Components & Metallurgical Division, General Electric Company, Box 1316 Northland Center Station, Southfield, Mich., 48075.

3,576,610. THERMOSETTING RESIN-BONDED ABRA-SIVES CONTAINING CUBIC BORON NITRIDE GRAINS WITH A BOROSILICATE COATING THEREON.

Applications for license under the following 2 patents may be addressed to: Patent Counsel, Metallurgical Products Department, General Electric Company, Box 237-GPO, Detroit, Mich., 48232.

3,463,678. METHOD FOR IMPROVING MAGNETIC PROPERTIES OF COBALT-TITANIUM OR COBALT-RARE EARTH METAL COMPOUNDS.

3,501,358. METHOD OF MAKING PERMANENT MAGNET MATERIAL POWDERS HAVING SUPER MAGNETIC CHARACTERISTICS.

Applications for license under the following 2 patents may be addressed to: General Electric Company, Power Distribution Division, 100 Woodlawn Ave., Pittsfield, Mass., 01201. Attn.: Division Patent Counsel.

D. 219,923. DISTRIBUTION TRANSFORMER.

3,294,123. OIL PERMEABLE PAPER LAMINATED CYLINDER AND THE LIKE.

3,388,212. PLASTIC BUSHING FOR ELECTRICAL APPARATUS AND METHOD OF MAKING.

Applications for patents under the following 4 patents may be addressed to: Division Patent Counsel, General Electric Company, Space Division, P.O. Box 8555, Philadelphia, Pa., 19101.

3,537,960. METHOD OF PRODUCING REINFORCEMENTS IN ELECTRO-DEPOSITS.

3,562,126. FIXATION OF ELECTROPHORETIC DEPOSITS.

3,572,426. UNDERWATER HEAT EXCHANGE SYSTEM.

3,580,755. NONFLAMMABLE, THIN, INTEGRALLY ILLUMINATED CONTROL PANEL OVERLAY.

Applications for license under the following 13 patents may be addressed to: General Electric Company, Aircraft Engine Group, 1000 Western Ave., Lynn, Mass., 01910, Attention: Patent Counsel.

3,429,697. PROCESS FOR PRODUCING COBALT-ALUMINUM BODIES.

3,457,619. PRODUCTION OF PERFORATED METALLIC BODIES.

3,534,831. JET ENGINE EXHAUST NOISE SUPPRESSION.

3,420,502. FLUID COOLED AIRFOIL.

3,420,640. SUPERSONIC INLET.

3,485,043. COMBUSTION LINER JOINT CONSTRUCTION.

3,487,636. AUGMENTER SPARK IGNITER.

3,487,992. STATOR ADJUSTING MECHANISM FOR AXIAL FLOW COMPRESSORS.

3,565,545. COOLING OF TURBINE ROTORS IN GAS TURBINE ENGINES.

3,568,930. TURBINE ENGINE THRUST REVERSER/SPOILER UTILIZING STAGGERED BLOCKER DOORS.

3,571,886. ATTACHMENT DEVICE AND COOPERATING TOOL MEANS.

3,572,728. ROTARY SEAL.

3,572,970. TURBOMACHINERY BLADE SPACER.

Patents Available for Licenses

DEPARTMENT OF AGRICULTURE

Pursuant to 7 CFR 19.3 (35 F.R. 7493), the Acting Administrator, Agricultural Research Service, U.S. Department of

JULY 27, 1971

U. S. PATENT OFFICE

1059

Agriculture, determined that certain Department inventions shall be made available for exclusive licensing under the provisions of Government Patent Policy (28 F.R. 10943) and 7 CFR 19.5 (35 F.R. 7493). Notice was given (36 F.R. 1919, Wednesday, February 3, 1971; page 1320, February 23, 1971. OFFICIAL GAZETTE) that 15 Department inventions were available for exclusive licensing. It was specified that applicants for exclusive licenses would have a period of 60 days from date of publication (36 F.R. 1919, Wednesday, February 3, 1971) in which to file information as required by 19.6 Application for Licenses, Title 7 CFR (35 F.R. 7493).

Applications have been received within the 60 day period for inventions involving patent application Ser. No. 865,199 and Patent No. 3,205,130. The remaining inventions listed in the notice will continue to be available for exclusive licensing for an indefinite period. At the end of each 60 day period, from the date of initial publication, the Agricultural Research Service will consider the applications received during that period. Future notices will list other inventions available for exclusive licensing, at which time reference will be made to inventions listed in previous notices which are still available. Applications should be mailed to the Administrator, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C., 20250.

GEORGE W. IRVING, Jr.,
Administrator, Agricultural Research Service.

June 7, 1971.

Dedication

3,198,383.—Laurence R. Brown, Springfield, Va. MARKING SPREADER. Patent dated Aug. 3, 1965. Dedication filed May 28, 1971, by the inventor.

Hereby dedicates the remaining term to the People of the United States of America.

Disclaimers

3,307,184.—James L. Poterack, El Paso, Tex., and Joseph P. Mefford, Bellerose, N.Y. DIGITAL VIDEO CORRELATOR. Patent dated Feb. 28, 1967. Disclaimer filed May 5, 1971, by the assignee, The United States of America as represented by the Secretary of the Navy. Hereby enters this disclaimer to claim 1 of said patent.

3,537,943.—Henry W. Moser, Haddonfield, and Charles R. Norman, Willingboro, N.J. SINGLE FACER WITH HEATED BEARINGS. Patent dated Nov. 3, 1970. Disclaimer filed May 17, 1971, by the assignee, Harris-Intertype Corporation.

Hereby enters this disclaimer to claims 1, 3, 4, and 7 of said patent.

Disclaimers and Dedications

3,488,573.—George A. Cavigelli, Belmont, and John G. Nordahl, Lexington, Mass. OVERLOAD PROTECTION FOR THERMALLY SENSITIVE LOAD DEVICE. Patent dated Jan. 6, 1970. Disclaimer filed May 28, 1971, by the assignee, Weston Instruments, Inc.

Hereby enters this disclaimer to the entire remaining term of said patent and dedicates said patent to the Public.

3,544,895.—Peter L. Richman, Lexington, Mass. NOISE REJECTING DIGITAL VOLTMETER. Patent dated Dec. 1, 1970. Disclaimer filed May 28, 1971, by the assignee, Weston Instruments, Inc.

Hereby enters this disclaimer to the entire remaining term of said patent and dedicates said patent to the Public.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JULY 13, 1971

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

CHEMICAL EXAMINING GROUPS

GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... 5-01-70
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock;
Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions;
Fuel and Igniting Devices.
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... 3-02-70
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids;
Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... 7-01-70
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins
With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding;
Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director... 8-03-70
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chem-
ical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director.. 1-12-70
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas;
Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas
and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... 10-12-70
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches;
Miscellaneous.
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... 2-09-70
Ordnance, Firearms and Ammunition; Radar, Underwater Signaling, Directional Radio, Torpedoes, Seismic Exploring, Radio-
Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... 6-30-70
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and
Related Arts.
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... 7-06-70
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and
Networks; Optics; Radiant Energy; Measuring.
PHYSICS, GROUP 260—R. L. EVANS, Director..... 2-27-70
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... 6-23-70
Industrial Arts; Household, Personal and Fine Arts.

MECHANICAL EXAMINING GROUPS

HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... 7-01-70
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling;
Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics;
Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Recep-
tacles and Packages.
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... 5-01-70
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire
Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block
and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery;
Jacks.
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... 6-01-70
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating;
Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationary;
Information Dissemination.
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director..... 8-10-70
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation;
Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lu-
brication; Joint Packing.
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... 7-01-70
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators;
Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal
Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and
Reeling.

Expiration of patents: The patents within the range of numbers indicated below expire during July 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 600, 70th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 86th Congress, approved August 23, 1944 (58 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 283. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,682,658 to 2,685,084, inclusive
Plant Patents..... Numbers 1,288 to 1,293, inclusive

1060

PATENTS

GRANTED JULY 27, 1971

GENERAL AND MECHANICAL

3,594,813

PROTECTIVE DEVICE

Roger S. Sanderson, 24662 Santa Clara Ave., Dana Point, John G. Reese, Kingston, Pa., assignor to Spanjian Sport-
Calif. swear, Pasadena, Calif.

Filed July 10, 1968, Ser. No. 743,717

Int. Cl. A42b 1/18

U.S. Cl. 2—2

8 Claims U.S. Cl. 2—3

3,594,815

WRESTLING HELMET

John G. Reese, Kingston, Pa., assignor to Spanjian Sport-
swear, Pasadena, Calif.

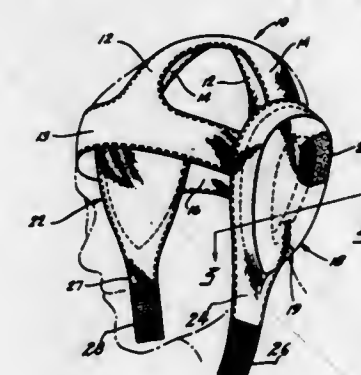
Filed May 21, 1969, Ser. No. 826,376

Int. Cl. A42b 1/08

10 Claims



A device for protecting body portions which are exposed to large amounts of the radiation from the sun. The device is molded into the shape of the body portion from a material which is form-retaining, tear-resistant, soft, flexible and lightweight. An adhesive is provided on the inner surfaces of the device. The device is ventilated by through-pores or by the manner in which the adhesive is distributed on the inner surfaces.



A wrestler's helmet is made from a continuous piece of knitted fabric which is elastic in mutually perpendicular directions.

3,594,814

SAFETY HAT LINER AND ASSEMBLY

Walter E. Schuessler, 800 Redbird Lane, Wilmette, Ill., and
Herbert R. Wichman, 1109 S. Lincoln, Park Ridge, Ill.

Filed Jan. 2, 1968, Ser. No. 694,957

Int. Cl. A42b 3/00

U.S. Cl. 2—3

8 Claims

3,594,816

SAFETY HELMET FACE SHIELD

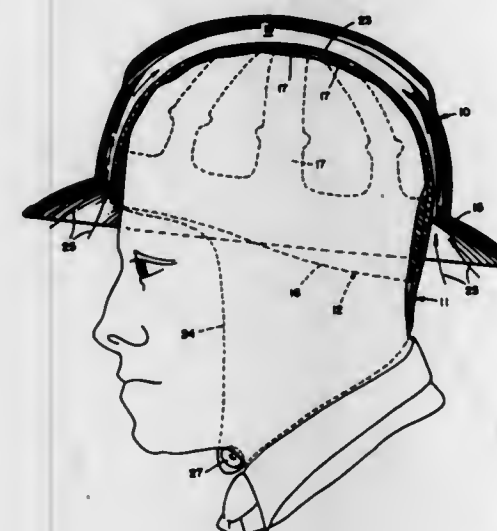
Daniel D. Webb, Birmingham, and Dennis F. Raney, Walled
Lake, both of, Mich., assignors to American Safety Equip-
ment Corporation of Michigan, Detroit, Mich.

Filed Dec. 18, 1969, Ser. No. 886,255

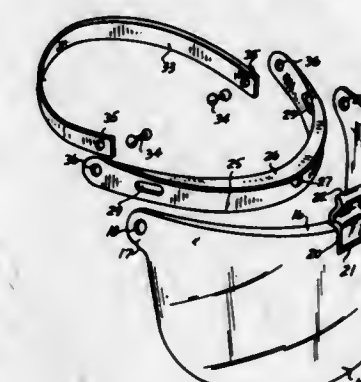
Int. Cl. A61f 9/04

U.S. Cl. 2—10

6 Claims



A liner which, in combination with a hard hat and a harness, provides cold weather protection for one who must wear such a hat or helmet because of the hazardous nature of his work. The liner has a crown portion which extends over the harness within the interior of the hat and a depending flap portion which may, in cold weather, be extended downwardly between the headband of the harness and the rim of the hat. The flap portion may be folded upwardly into the interior of the hat and about the lower rear edge portion of the band when cold weather protection for the ears and neck of a wearer is not required.



A safety helmet transparent protective face shield pivotally connected at its opposite, upper ends to a mounting band formed of slightly resilient material and having female snap fastener forming openings for connection to male snap fastener halves secured to the front of a safety helmet. A latching tab, formed by a pair of spaced apart slits in the upper edge of the shield, has a groove on its rear surface receiving a forwardly directed flange formed on the band for releasably latching the shield in vertical position on the front of the helmet.

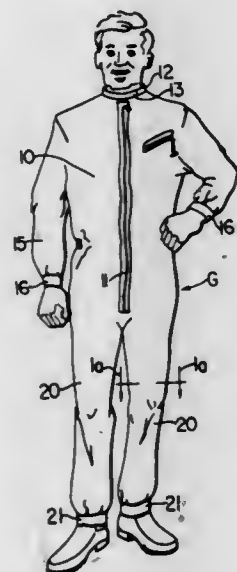
1061

3,594,817 ONE-PIECE GARMENT

Walter J. Kelly, 22-74 46th St., Long Island, N.Y.
Filed June 27, 1969, Ser. No. 837,233
Int. Cl. A41d 13/02

U.S. Cl. 2-16

2 Claims



A one-piece garment or suit of composition material, e.g. heavy gauge fabric covered with plastic or rubberized compound for use particularly by motorcyclists. The garment is roomy enough to allow the wearer to don and remove it readily. A slide fastener front is provided and the collar has snap fasteners. The sleeves also have slide fasteners running approximately 6 inches from the wrist cuff. The legs have a flared cuff to permit easy access and include small flaps and snaps for folding and securing about the ankle. The waist includes an adjustable belt of the same fabric as the garment spanning the back but free at the front. Optionally elbow and knee protectors made of cushion pockets filled with air or foam rubber are provided of more durable material than the body of the garment which are removably carried and held in place by elastic bands, or such protectors may line the entire garment.

3,594,818

FOLDED BELT PACKAGE FOR HOSPITAL GOWNS
Thomas H. Planner, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Jan. 2, 1969, Ser. No. 788,377
Int. Cl. A41b 9/00

U.S. Cl. 2-114

5 Claims



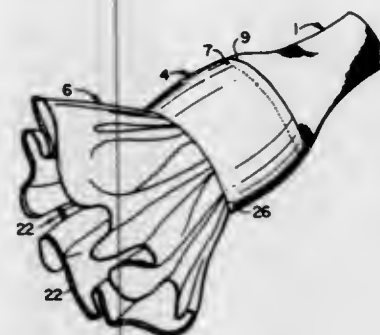
A folded belt package for disposable hospital gowns, in which the belt is maintained in a compact condition until the gown has been put on and the user is ready to use the belt.

3,594,819 SLEEVELET

Robert Guy Mullins, and Vadis Louise Mullins, both of 316 Bell Ave., Dyersburg, Tenn.
Filed Sept. 5, 1969, Ser. No. 855,486
Int. Cl. A41d

U.S. Cl. 2-170

6 Claims



A sleevelet which can be worn as a false cuff together with a short-sleeve shirt is disclosed. The sleevelet provides a dressed-up look and gives an observer the appearance that the user is wearing a long-sleeve shirt. The sleevelet or "false cuff" comprises a cuff means or section and a forearm gripping means which are preferably attached together by stitching means.

3,594,820

DISPOSABLE PANTY

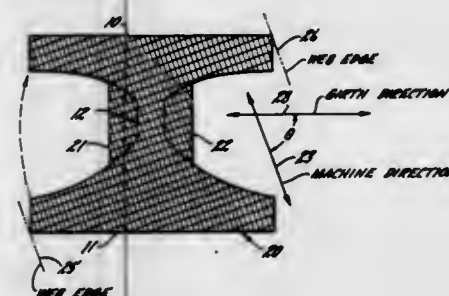
Marion A. McCurry, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed May 16, 1969, Ser. No. 825,156

Int. Cl. A41b 9/04

U.S. Cl. 2-224

6 Claims



A disposable panty is made of a single sheet of nonwoven fabric material. The fabric, comprising carded staple fibers and an adherent scrim, is cut on a bias so as to afford a dimensionally yieldable panty.

3,594,821

METHOD FOR MANUFACTURING TROUSERS AND THE LIKE

Claude Raymond Pierron, 7, Rue Albert ler, Epinal, Vosges, France

Filed Nov. 5, 1968, Ser. No. 773,503

Claims priority, application France, Nov. 6, 1967, Feb. 20, 1968, Oct. 15, 1968, 127,079; 140,502; 170,010

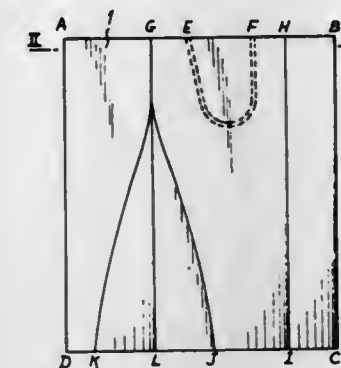
Int. Cl. A41d 1/06, 13/02

U.S. Cl. 2-227

58 Claims

A method of manufacturing trousers consisting in superposing at least two layers of fabric of equal width corresponding respectively to the legs of a pair of trousers; bringing said layers into engaging relationship and assembling them locally by their confronting faces at least along the back medial seal line and the fork perineal line connecting with the latter; forming two flattened blanks of tubular legs

by superposing at least two additional layers and complementary longitudinal assembling thereof by pairs along at least



3,594,822

CLOTHING MANUFACTURE ACCESSORY

David Michael Levitt, 121 Cholmley Gardens, Fortune Green Road, London N.W. 6, England

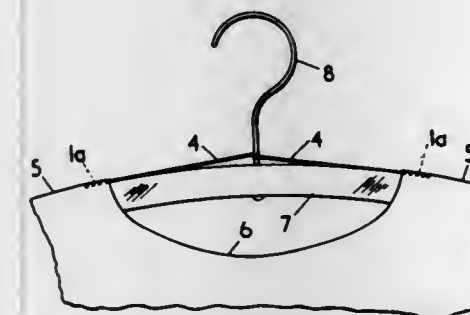
Filed Jan. 28, 1969, Ser. No. 794,534

Claims priority, application Great Britain, Jan. 29, 1968, 4414/68

Int. Cl. A41d 27/22

U.S. Cl. 2-271

2 Claims



A prefabricated loop and the like comprising a length of tape or the like and a length of fine thread, extruded plastic filament or the like looped and with its ends secured to the tape.

3,594,823

VISUAL SUBSTITUTION SYSTEM WITH RECEPTOR SCANNING MEANS

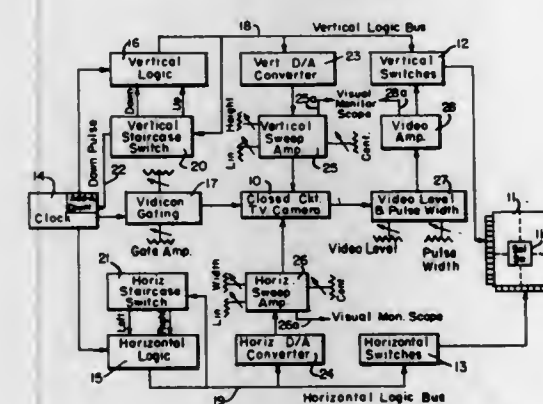
Carter C. Collins, Mill Valley; Paul Bach-Y-Rita, Mill Valley, and Gordon W. Holmlund, Oakland, all of, Calif., assignors to Patent Management, Inc., Bethesda, Md.

Filed Feb. 11, 1969, Ser. No. 798,379

Int. Cl. A61f 9/00

U.S. Cl. 3-1

10 Claims



A tactile image converter for blind subjects comprises a quasi-random digitally swept vidicon camera tube, and an

orthogonal logical switching matrix to connect sequentially each element of the vidicon photocathode surface to the corresponding element of a polarized solenoid stimulator matrix in contact with the subject's skin. The matrix acts as a mechanical image projector to impress a two-dimensional, vibrating facsimile of the outlines of a visible object onto a large area of skin.

3,594,824

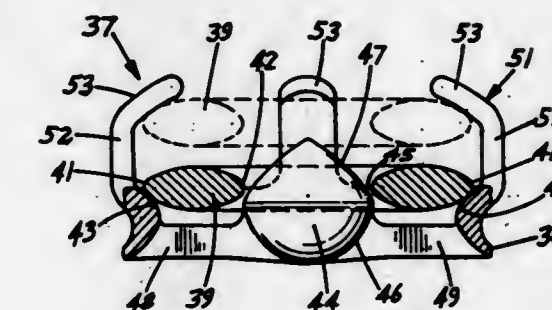
TOROIDAL HEART VALVE

Ahmad Aref Nakib, Beirut, Lebanon, assignor to Regents of the University of Minnesota, Minneapolis, Minn.
Continuation-in-part of application Ser. No. 512,923, Dec. 10, 1965, now Patent No. 3,438,894. This application Apr. 14, 1969, Ser. No. 843,876

Int. Cl. A61f 1/22; F16k 15/08, 15/14

U.S. Cl. 3-1

12 Claims



A toroidal heart valve having an annular base with an outer groove for carrying a suture ring and a central circular opening. A toroidal valve element having a central hole selectively moves relative to the base to open and closed positions. Located in the central area of the circular opening of the base is a center member having an outer continuous wall cooperating with the inner peripheral surface of the valve element when the valve element is in the closed position to restrict the flow of fluid in one direction through the opening in the base. An open cage secured to the base having a plurality of legs and inwardly turned fingers limits and directs the free floating movement of the valve element toward and away from the base.

3,594,825

WATER CIRCULATION SYSTEM

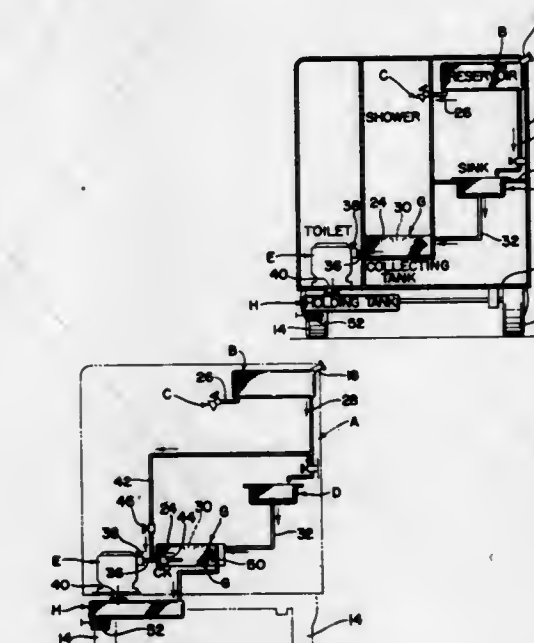
James S. Reid, Hudson, Ohio, assignor to The Standard Products Company, Cleveland, Ohio

Filed Feb. 19, 1969, Ser. No. 800,496

Int. Cl. A47k 4/00; A41b 9/00

U.S. Cl. 4-2

9 Claims



A water circulation system for a human conveyance, such as a camping trailer or boat, includes a fresh water storage tank for supplying water to a wash basin or shower. The con-

veyance includes a water flush toilet and means is provided for directing drain water from the wash basin or shower to the inlet of the toilet.

3,594,826

SANITARY CLOSET

Hans Maurer, Rietholzstrasse 6, Zollikerberg-Zurich, Switzerland

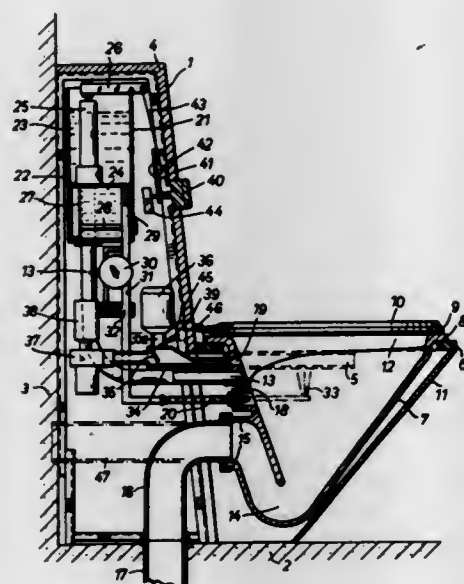
Filed Mar. 26, 1968, Ser. No. 716,096

Claims priority, application Switzerland, Mar. 31, 1967, 4549/67

Int. Cl. A47k 3/22

U.S. Cl. 4-7

12 Claims



The invention relates to a sanitary closet in which the closet bowl, the flushing water tank and all operating mechanisms are mounted in and supported by an encased frame structure. The flushing water tank is divided into upper and lower compartments, the upper compartment containing the flushing water and the lower compartment containing a thermostat controlled heating device for preparation of a supply of warm body washing water which is delivered by a pump to a telescoped nozzle tube movable by water pressure into operating position within the bowl. Suction ventilator means are connected to the bowl for removing odors and blower means are provided for delivering warm drying air into the bowl.

3,594,827

SYSTEM OF OPERATION OF TANKS OR THE LIKE

Julio C. Giacosa, 1399 Drive Estrazulas St., and Abel Hofman, 1573 Acapulco St., both of Montevideo, Uruguay

Filed Aug. 11, 1969, Ser. No. 849,217

Claims priority, application Uruguay, May 7, 1969, 17526

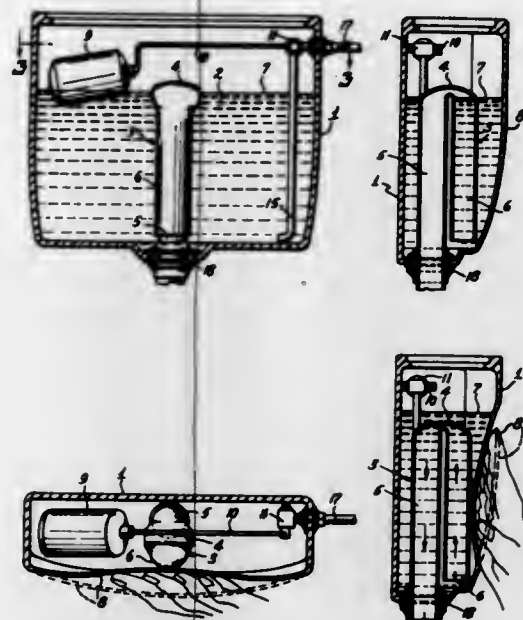
Int. Cl. E03d 1/10

U.S. Cl. 4-48

6 Claims

A tank having a flexible wall portion and a discharge siphon primable when the level of liquid in the tank exceeds

a predetermined level, whereby mechanical pressure on the



flexible portion raises the liquid level and primes the siphon to discharge the liquid from the tank.

3,594,828

FLUSH VALVE OPERATING MECHANISM

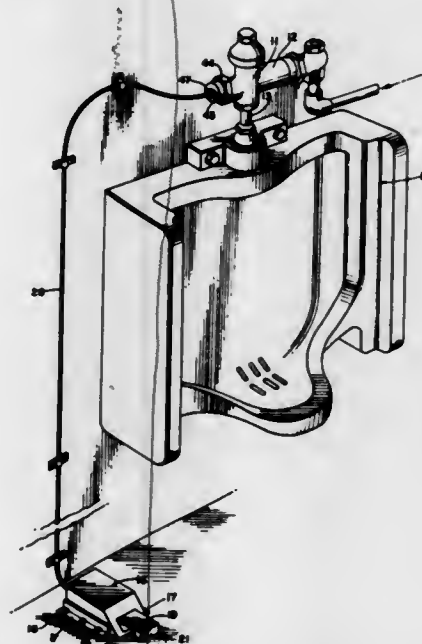
Everett R. Seek, Rockville, Md., assignor to Wayne Musgrove, Hyattsville, Md., a part interest

Filed Feb. 4, 1970, Ser. No. 8,517

Int. Cl. E03d 13/00

U.S. Cl. 4-108

10 Claims



A foot-operated attachment mechanism or "kit" for converting hand-operated urinal flush valves to remote foot pedal operated valves. The attachment is characterized by simplicity and ease of installation on newly installed or existing fixtures. The construction is economical, rugged and durable and offers the advantage of sanitation and lessening the spreading of disease transmitted by the hands.

3,594,829

FOOT-OPERATED FLUSH VALVE ATTACHMENT

Everett R. Seek, Rockville, Md., assignor to Wayne Musgrove, Hyattsville, Md., a part interest

Filed Mar. 4, 1970, Ser. No. 16,493

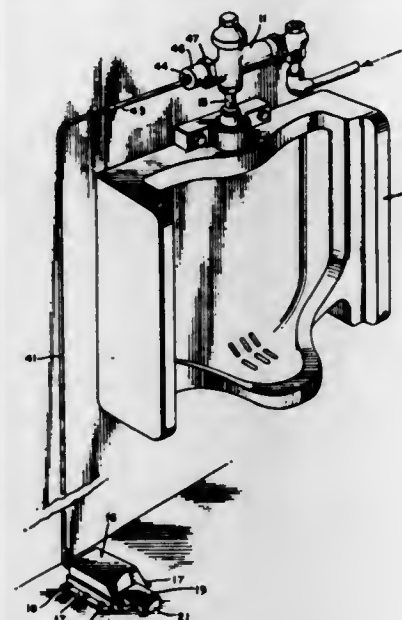
Int. Cl. E03d 13/00

U.S. Cl. 4-108

8 Claims

A foot pedal actuated attachment kit for urinal and commode flush valves features a closed hydraulic system inter-

connecting the valve element to be unseated and the foot pedal operator. The device is characterized by simplicity of construction and ease of installation on new or existing



basin-supporting frame carried at the upper ends of a number of upstanding support rods slidably mounted within bores extending downwardly in the sidewalls of the water tank and securable in any desired vertical position. When not in use, the aforementioned supporting frame is disposed above the water basin with the upstanding rods extending through openings in a peripheral flange of the basin so as to hold the basin against the top surface of the tank. The unit may also comprise side basins which can function as dish drainers or rinsing bowls and these side basins are usefully supported by arms pivotally mounted on the upstanding rods for movement between laterally extending supporting positions and retracted stowed positions. The side basins can be stowed in nesting disposition with the water basing against the top surface of the tank. The water tank also usefully comprises a built in electrically operated water pump and compartments or recesses are usefully provided in the walls of the tank for housing the various water flow conduits or pipes and the electrical cord for the pump when the unit is not in use.

3,594,831

COMBINATION TOILET SEAT AND ELEVATOR THEREFOR

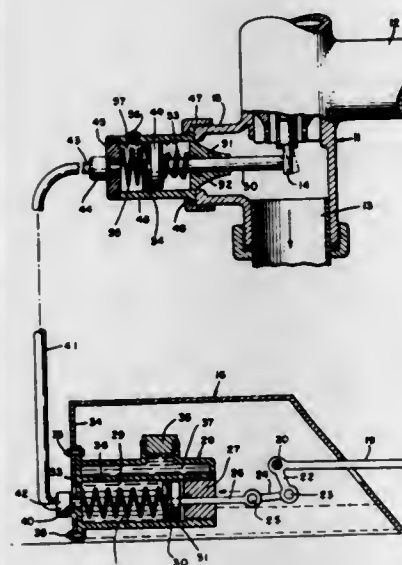
William R. Brewer, Arleta, Calif., assignor to Hamilton C. deJong (dba Safety Brothers), Pasadena, Calif.

Filed Aug. 21, 1968, Ser. No. 754,293

Int. Cl. A47k 13/00

U.S. Cl. 4-237

3 Claims



plumbing fixtures. The device offers the advantage of sanitation through lessening the spread of disease transmitted by the hands.

3,594,830

PORTABLE SINKS

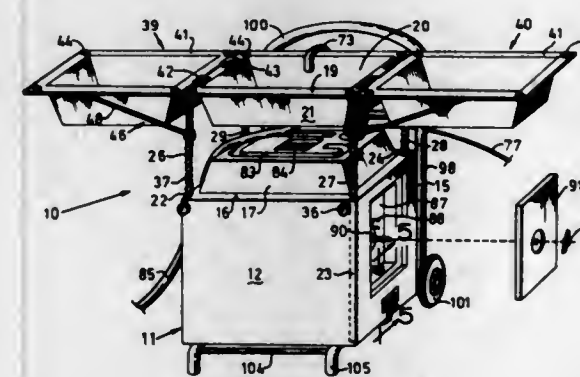
George K. Clifton, 105 Christie St., Toronto, Ontario, Canada

Filed Sept. 3, 1969, Ser. No. 854,958

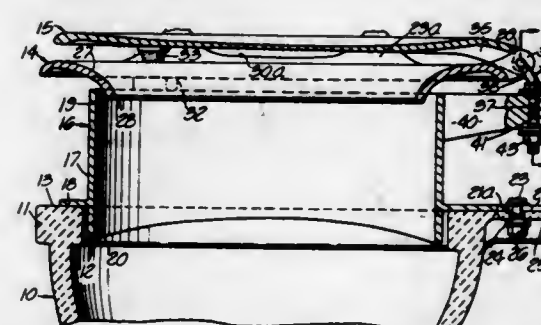
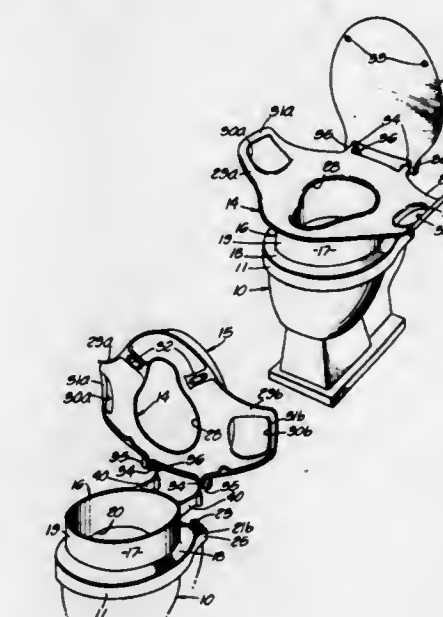
Int. Cl. E03c 1/18

U.S. Cl. 4-187

13 Claims



A portable sink unit particularly intended for use by campers comprises a water tank and a water basin supported by a



An occupant seat structure for mounting on a toilet bowl in operative association with an upper opening brim thereof, including an annular seat which can be mounted in one assembly for direct cooperation with the bowl brim, and in another assembly with an elevator positioned between the seat and brim, the elevator being arranged for fixed securement to the bowl, and further being provided with brackets for hingedly mounting the annular seat thereon, mounting pivots for the seat being selectively reversible for adjustably changing the relative for-and-aft position of the annular seat, particularly when changing from one assembly to the other. An important feature of the annular seat resides in the provision of side hand grips between which a hinged cover or lid is movable to a closed position.

3,594,832

CONVERTIBLE BUNK/CHESTERFIELD

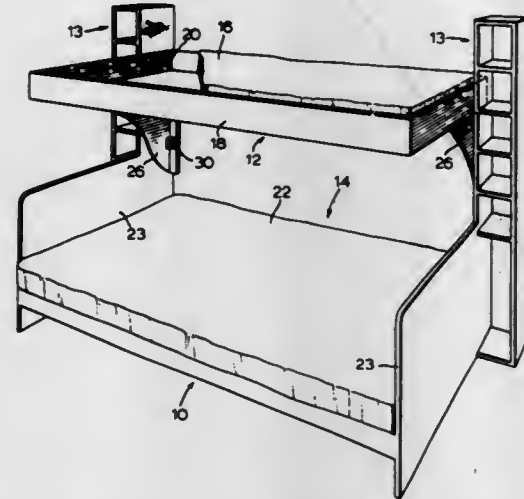
Abram Izak Bryks, Toronto, Ontario, Canada, assignor to June Marie Bulmer, Clarkson, Ontario, Canada and Golda Bryks, Toronto, Ontario, Canada

Filed June 30, 1969, Ser. No. 837,706

Int. Cl. A47c 17/40

U.S. Cl. 5-9

4 Claims



A Convertible Bunk/chesterfield, i.e. a furniture piece which is readily and easily convertible from chesterfield to bunk and vice versa, in which spring loaded holding means are provided to support the outer edge of the upper of the bunk portions, together with drawing means to overcome the spring force of the holding means. The upper bunk portion is swivable near its back edge upon release of the holding means to assume a near vertical position which is the back of the chesterfield. The upper bunk portion is replaced to its upper position manually and the springloaded holding means automatically take their holding position when the upper bunk is in its upper position.

3,594,833

FEATHER SPRING PILLOW

Manfred Richter, Wehr, Baden-Wurtemberg, Germany, assignor to Manfred Richter Daunenkissen-Und Bettenfabrik, Wehr, Baden, Germany

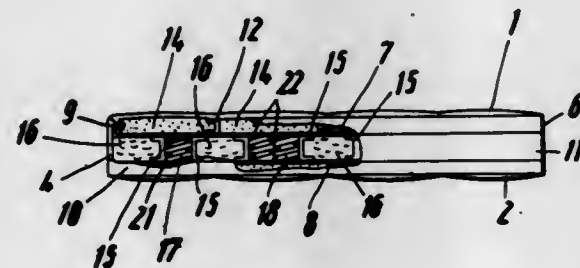
Filed Apr. 17, 1969, Ser. No. 816,936

Claims priority, application Germany, Apr. 19, 1968, P 17 78 327.6

Int. Cl. A47c 27/00; A47q 9/00

U.S. Cl. 5-341

5 Claims



A resilient feather pillow comprising at least two internal chambers surrounded by an outer covering, with one of the chambers containing feathers and the other chamber being subdivided into a number of compartments which are arranged to alternately contain prestressed springs and yieldable elastic material. After compression of the pillow the prestressed springs serve to cause the pillow to assume its original shape and softness.

3,594,834

FOLDING BOAT

Robert D. Steensen, 103 Leslie Drive, Monroeville, Pa.

Filed July 11, 1969, Ser. No. 840,923

Int. Cl. B63b 7/04

U.S. Cl. 9-2

6 Claims

Disclosed is a folding boat useful as a sailboat, motorboat or a rowboat. The boat comprises a boat hull comprising forward and rear shells each having similar flat transverse partitions at their adjacent ends in substantially the midportion of the hull. The partitions are pivotally connected together whereby one of the shells may be pivoted upwardly from a fully extended position to a position overlying the other of the shells. When so folded, the two shells define a closed

chamber therebetween and means are secured between the shells when the boat is in the folded position to divide the chamber into upper and lower sections whereby cargo to be stored in the chamber may be segregated between the upper and lower sections. In the unfolded position of the boat, spring-clip means are provided on the partitions to lock the shells together and maintain them in the open position.



3,594,835

FLOAT DEVICE FOR PIPELINES

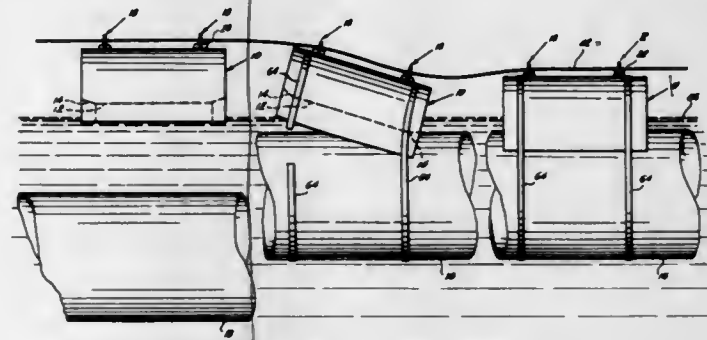
William W. Wilson, Shreveport, La., assignor to Pipeline Products and Services, Inc., Des Moines, Iowa

Filed Sept. 17, 1969, Ser. No. 858,706

Int. Cl. B63b 21/00, 35/04

U.S. Cl. 9-8 R

18 Claims



A float to be strapped onto a section of pipe to be used in a pipeline for the purpose of facilitating the laying of the pipe in a body of water. The float is preferably of a solid buoyant material such as polystyrene and has an arcuate undercut so it will fit the pipe like a saddle. The edge at each end of the undercut is bevelled so that when the strap on one end is released while the pipe is in the water, the float will tilt on the bevel at the opposite end and automatically release from the other strap. The floats can be joined by a cord attached either to suitable hooks on the floats or extending through a longitudinal passageway in each float for expediting their retrieval when released from the pipes. The floats are adaptable to pipes of different diameters and may be stacked when not in use.

3,594,836

STRAPLESS RING BUOY AND METHOD OF MAKING THE SAME

James H. Robertson, 5238 Vineland Ave., North Hollywood, Calif.

Filed Aug. 15, 1969, Ser. No. 850,433

Int. Cl. B63c 9/10

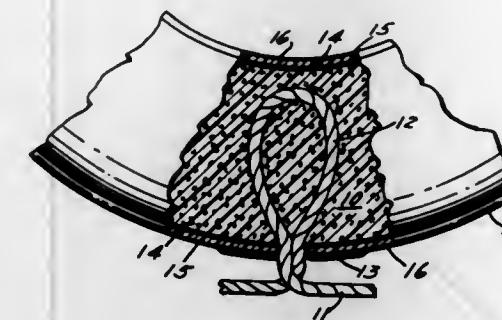
U.S. Cl. 9-340

9 Claims

A strapless ring buoy and method of making the same in which an elongated rope is formed into a circle having a plurality of spaced inwardly directed loops. The rope is placed around a mold in which the ring body portion of the buoy is to be molded, with the loops extending across the midportion of the mold. The loops are coated with a heat-reacting adhesive composition so that the expanded polystyrene foam material forming the ring is bonded to the loops at the same time and through the same means used for molding the ring. The loops are held within the ring securely to attach the rope without straps or other fastening means of any kind either in-

side or outside of the ring. The portions of the rope between the loops substantially encircle the ring. The strands forming

and on the carrier, during movement of the carrier from station to station, and also during operation of the operating instrumentalities at each station.



3,594,839

SHOE LASTING MACHINES

Frank Gordon Bailey, Kettering, England, assignor to Ralphs Unified Limited, Leicester, England

Filed Aug. 23, 1968, Ser. No. 764,365

Claims priority, application Great Britain, Aug. 25, 1967, 39134/67

Int. Cl. A43d 21/00, 23/00, 29/00

U.S. Cl. 12-10.5

5 Claims

the loops may be crossed and/or passed through eyelet fittings to provide added strength.

3,594,837

BOOK BINDING MACHINERY

Lionel John Bryant Rushent French, London, England, assignor to The Sulby Engineering Development Company Limited, Surrey, England

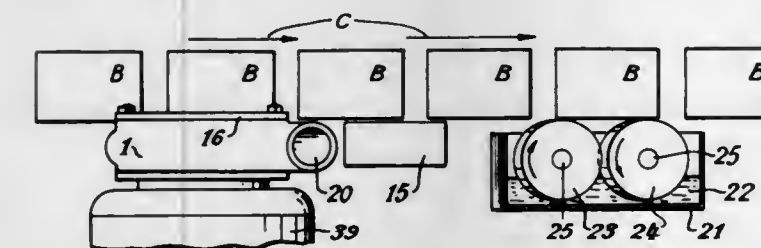
Filed June 11, 1969, Ser. No. 832,228

Claims priority, application Great Britain, June 19, 1968, 29096/68

Int. Cl. B42c 19/00; B26d 7/06

U.S. Cl. 11-1 AD

2 Claims



A machine for preparing the sheets of a book for binding comprises a cutter and means for drawing fiber end loosened by the cutter away from the sheets to provide a key for adhesive.

3,594,838

LASTING MACHINES

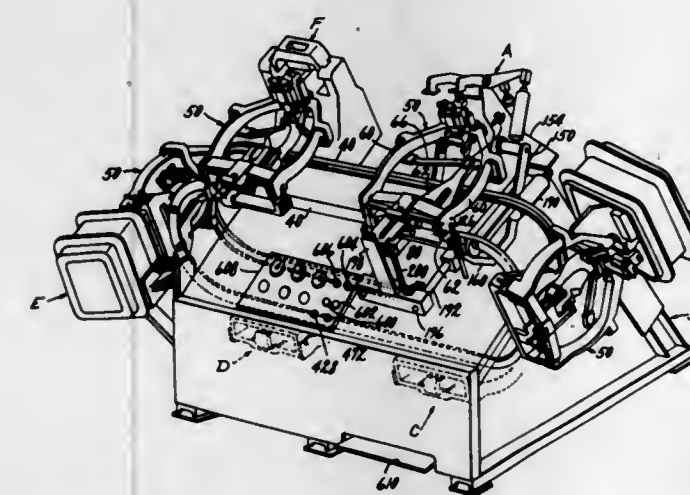
James R. Stewart, Salem, and Robert F. Gorini, Beverly, both of, Mass., assignors to USM Corporation, Boston, Mass.

Filed May 28, 1970, Ser. No. 41,384

Int. Cl. A43d

U.S. Cl. 12-1

17 Claims



A shoemaking apparatus with a plurality of stations having instrumentalities for performing separate operations, including one for positioning an upper on a last, and a carrier guided for movement to present the last and positioned upper thereon, in succession, to the operating stations and having devices for clamping the positioned upper to the last

Means for lasting the upper of a shoe in the use of which the shoe upper is presented to a last or form and positioned with a predetermined width of lasting margin projecting from the boundary of the last or form, the upper is then held firmly in place against the boundary edge of the last or form whilst the upper margin is turned over and lasted by adhesive against an insole on the last or form, and after the lasting margin has been so turned over the upper material has shaping stress applied to it.

3,594,840

SCISSORS BRIDGE AND ITS CONTROL DEVICE

Pierre Loustalet, and Claude Leclercq, both of Tarbes, France, assignors to French State, represented by the Minister of Armed Forces, Ministerial Delegation for Armaments, Technical Direction of Land Weapons, Manufacturing Workshop of Tarbes, Paris, France

Filed Feb. 27, 1969, Ser. No. 802,911

Claims priority, application France, Mar. 1, 1968, 141,908

Int. Cl. E01d 1/00

U.S. Cl. 14-1

6 Claims



A scissors-type bridge comprising a pair of identical foldable half-spans hinged interconnectively about a common transverse axis, characterized in that it comprises a built-in unfolding mechanism consisting of a pair of triangular members of which two respective vertices are articulated about a common transverse axis, another pair of vertices of said triangular members being articulated on said half-spans respectively, the last pair of vertices being articulated to the ends of a pair of longitudinal traction bars respectively, the other ends of these two longitudinal traction bars being provided with means for coupling them to a control device carried by the launching vehicle and adapted to cause the longitudinal sliding movement of the traction bar to which it is coupled, in one or the other direction, so as to open or close the bridge respectively.

3,594,841

CLEANING BRUSH DEVICE

Raymond Kleves, 1707 Inkster Blvd., Winnipeg, Canada

Filed Mar. 17, 1970, Ser. No. 20,233

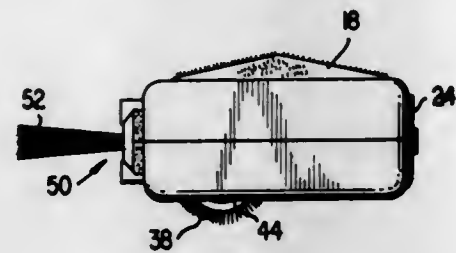
Int. Cl. A47l 11/33

U.S. Cl. 15-4

5 Claims

A cleaning brush device having a rectangular housing with a roller brush rotatably mounted on the bottom wall. The ro-

tary brush protrudes through a bottom opening to perform a carpet sweeper type action. The device also has a combined brush and sponge implement removably mounted in a longitudinal recess of a sidewall. Either end of the implement is



used to sweep the dust particles into a dustpan which is hinged mounted over an elongated opening in the other sidewall. The dust particles from both the rotary brush and the dustpan operations are collected in a compartment of the housing.

3,594,842

BOOM SUPPORTED BRUSH

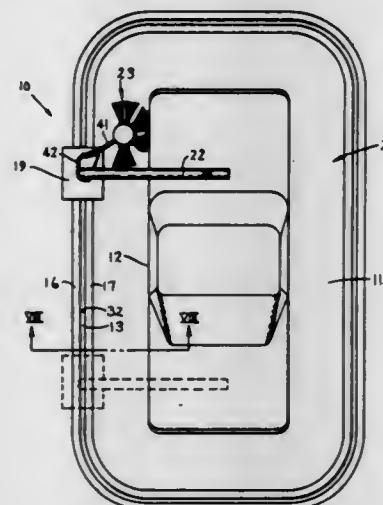
Gaylord J. Clark, P.O. Box 216, Coloma Township, Berrien County, Mich.

Filed June 26, 1968, Ser. No. 740,151

Int. Cl. B60s 3/04

U.S. Cl. 15-21

6 Claims



An upright post and attached boom are supported for movement along a path substantially around a zone on a surface for supporting a motor vehicle. The post and boom support spray nozzles connected to a source of liquid under pressure and arranged to direct liquid continuously at a vehicle supported in said zone as said post moves along said path. Brush means are mounted upon the post and/or boom and continuously urged against the surfaces of the vehicle toward which the liquid is discharged.

3,594,843

AUTOMATIC PLANT FOR WASHING VEHICLES

Bruno Sesia, and Carlo Sesia, both of 31 Strada Statale, Occimiano, Alessandria, Italy

Continuation-in-part of application Ser. No. 638,342, May 15, 1967, now abandoned. This application Nov. 5, 1968, Ser. No. 773,558

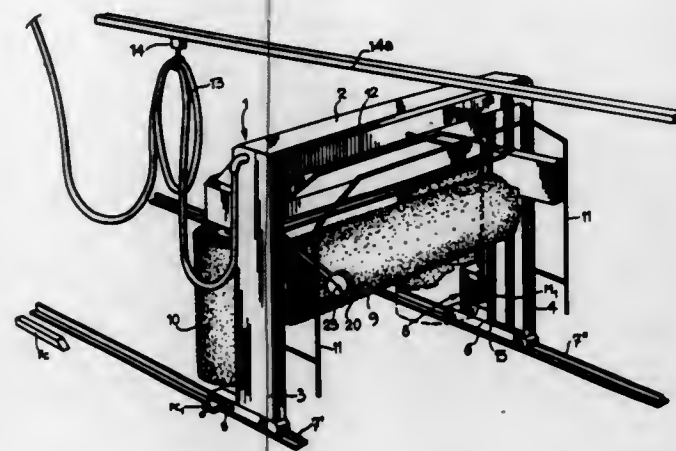
Int. Cl. B60s 3/06

U.S. Cl. 15-21

22 Claims

An automatic plant for washing motor vehicles includes a portal frame carrying a movable horizontal brush, a set of movable vertical brushes, and sprayers thereon. The portal frame and vehicle are moved relative to one another to effect the washing cycle while the brushes contact the surface of the vehicle. The horizontal brush repeatedly scrubs the front and rear end of the vehicle and is mounted such that it will provide a constant downward force and will follow the contour of the vehicle. The vertical brushes are together at the

start and finish of the washing in front and rear of the vehicle but are moved apart a distance suitable to the width of the



vehicle and are biased against the sides of the vehicle with a predetermined force during the washing.

3,594,844

SWEEPING MACHINE TRACTOR ATTACHMENT FOR SPORTS GROUNDS

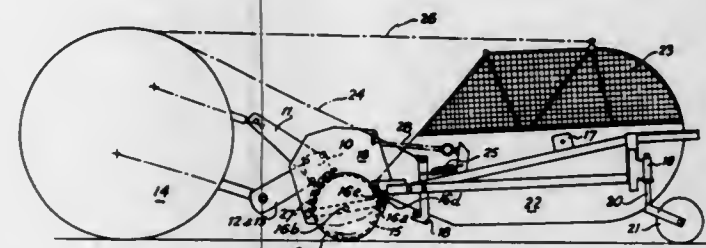
Derek Burt Hargreaves, Adlington, near Macclesfield; Eric Stanforth, Macclesfield, and Edward Hobbs, Poynton, all of, England, assignors to "Sisis" Equipment (Macclesfield) Limited

Filed Dec. 3, 1968, Ser. No. 780,792

Int. Cl. E01h 1/04

U.S. Cl. 15-83

8 Claims



Sweeper attachment includes frame connectable to hydraulic lifting gear of a tractor. Collector having open front is pivotally mounted within frame; cable provided for tipping collector to empty it. Collector swings by gravity back to litter-receiving position, and held therein by releasable latch. Rotatable brush in front of collector sweeps litter into collector. Relatively large wheels support sweeper attachment in vicinity of brush, and smaller casters support back of attachment. Height of ground wheels adjustable with respect to frame.

3,594,845

PROGRAM CIRCUIT FOR AUTOMATIC BUFFING EQUIPMENT

Glenn J. Eggert, Columbus, Ohio, assignor to Houdaille Industries, Inc., Buffalo, N.Y.

Filed May 20, 1968, Ser. No. 730,445

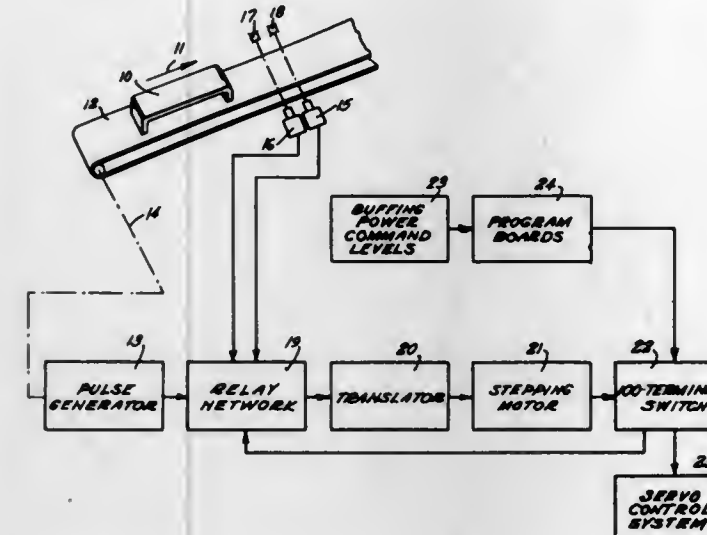
Int. Cl. B24b 29/00

U.S. Cl. 15-97

8 Claims

A program circuit for an automatic buffing system having a pulse generator for generating a sequence of signals which are keyed to the movement of a conveyor which carries the object to be buffed. A large number of signals are generated as the object being buffed passes beneath the buffing wheel. Each one of these signals being so generated is utilized to control a stepping motor which in turn moves a rotary switch having 100 terminals through one complete revolution for each pass of an object beneath the buffing wheel. A plurality of power selection signals are applied to each of the 100 terminals on the rotary switch, and the rotation of the switch applies each of the various power levels to a control circuit

for developing a desired power at the buffing wheel in sequence in accordance with a preselected program. In this



way, an irregularly contoured object may be buffed fully automatically.

3,594,846

WINDSHIELD WASHER

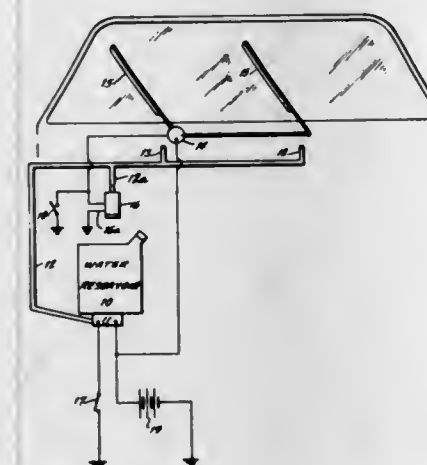
Seiji Kimura, Aoi Mansion Apt. 4-C, 9-20, 3 Chome, Jingu-mae Lhibuya-Kie, Tokyo, Japan

Filed May 7, 1968, Ser. No. 727,245

Int. Cl. B60s 1/48

U.S. Cl. 15-250.02

6 Claims



A windshield washer system for an automobile is disclosed having a switch responsive to the amount of water sprayed on the windshield by the system to operate the windshield wiper for a predetermined time. The switch includes a pair of contacts actuated by an inflatable bulb. The inflatable bulb expands dependent upon the amount of water flowing through the system and sprayed upon the windshield. A second embodiment is disclosed having a second switch responsive to the flow of detergent through the system to be sprayed upon the windshield to cause predetermined amounts of water to be sprayed upon the windshield and predetermined operation of the windshield wiper.

3,594,847

APPARATUS FOR LOADING PERISHABLE BULK COMMODITIES WITHIN A HOPPER

Dallas W. Rollins, St. Charles, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Oct. 3, 1969, Ser. No. 863,487

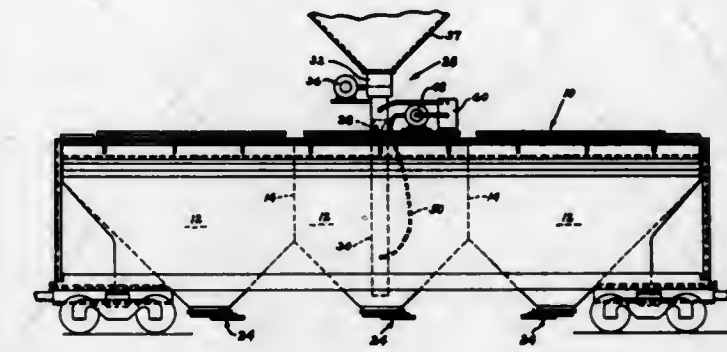
Int. Cl. B65g 67/06

U.S. Cl. 15-306 B

7 Claims

Apparatus for loading perishable commodities, such as potatoes, in a hopper and having an elongate chute adapted to fit within a hopper, and a valve within the chute mounted for vertical up and down movement. The valve is normally

positioned adjacent the upper end of the chute in a closed position and is pushed down by the potatoes when the potatoes are discharged thereby to minimize the fall of the perishable commodities into the bottom of the hopper. The valve is opened automatically by the potatoes when the downward travel of the valve with the potatoes is restrained



at the lower end of the chute. A negative pressure is exerted adjacent the upper end of the chute and holds the valve in its upper position for the initial discharge of the potatoes in the hopper. An upward airflow is provided in the chute during the loading of the potatoes in the hopper and is effective to remove foreign matter, such as dirt or dust, entrained with the potatoes, during the entire loading operation.

3,594,848

MATERIALS HANDLING APPARATUS

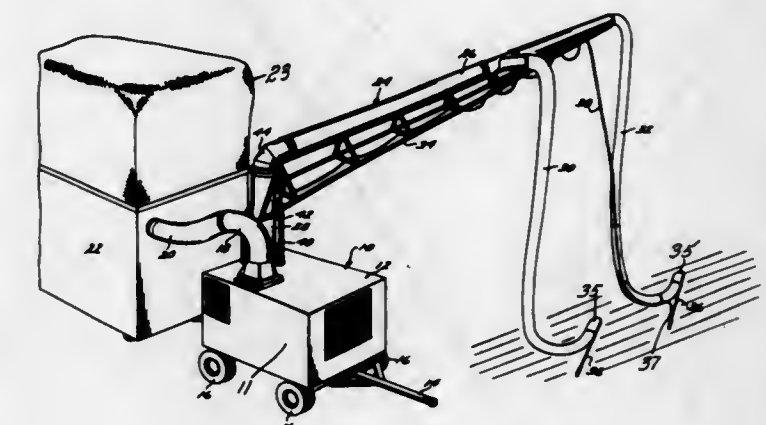
Earl E. Atkinson, 3264 Colorado Lane, Costa Mesa, Calif.

Continuation-in-part of application Ser. No. 699,172, Jan. 19, 1968, now abandoned. This application Jan. 15, 1969, Ser. No. 803,124

Int. Cl. A47i 5/00

U.S. Cl. 15-314

7 Claims



An apparatus for collecting and transporting solid materials such as trash, and including a blower for developing a vacuum in an intake conduit to transport the materials through the conduit in a stream of air to a collection bin or the like, the blower being of the centrifugal impeller type characterized by an outlet opening in the peripheral wall of the impeller housing, an inlet opening in a sidewall of the housing, and an inlet duct arranged so that its longitudinal centerline axis merges into the plane of rotation of the impeller adjacent the outer rim of the impeller, the inlet and outlet openings being located proximate each other so that solid matter entering the impeller chamber passes to the outlet with minimum contact with the impeller.

3,594,849

CLEANING APPARATUS

Chester L. Coshaw, 1113 Center St., Collinsville, Okla.

Filed Oct. 13, 1967, Ser. No. 675,163

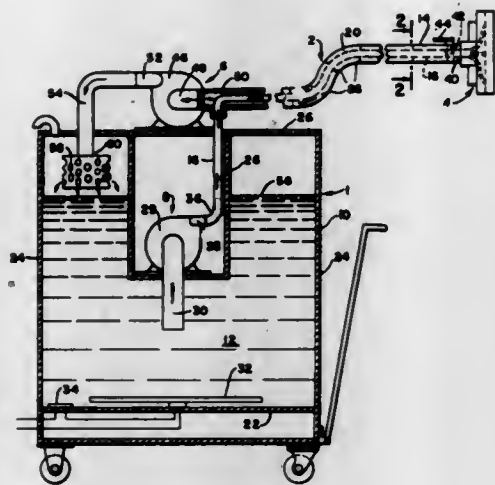
Int. Cl. A47i 7/00

U.S. Cl. 15-321

2 Claims

Apparatus for cleaning a surface including means for concurrently supplying liquid under pressure to a cleaning head

for sealing the supplied liquid within a surface area being respect to the stationary inner half and bolt. An alternative version provides a second dry-bearing interposed between



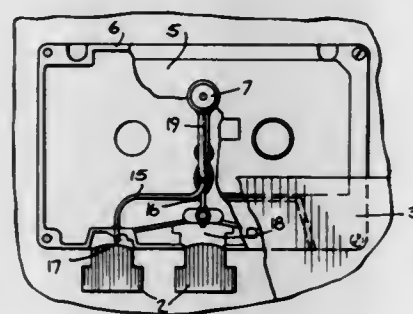
cleaned, and means for withdrawing the liquid and foreign matter from the surface area under subatmospheric pressure.

3,594,850 SPRAY CLEANING CARTRIDGE

Charles K. Wellington, Westford, Mass., assignor to Viatron Computer Systems Corporation, Bedford, Mass.
Filed Nov. 28, 1969, Ser. No. 880,803
Int. Cl. B08b 3/02, 5/02

U.S. Cl. 15—405

8 Claims



A cartridge for cleaning the pickup heads of tape recording and playback devices which use a recording tape enclosed in removable cartridges. The cleaning cartridge has the same outer shape as the regular tape-filled cartridges and replaces the recording tape with a spray cleaning nozzle and duct system. The cartridge is inserted into the recording and playback device in the same way as a regular tape cartridge and cleaning fluid is sprayed onto the recording elements of the machine by coupling a source of cleaning spray to a spray inlet positioned at an accessible portion of the cleaning cartridge.

3,594,851 FAIL SAFE HINGE AND MOUNTING

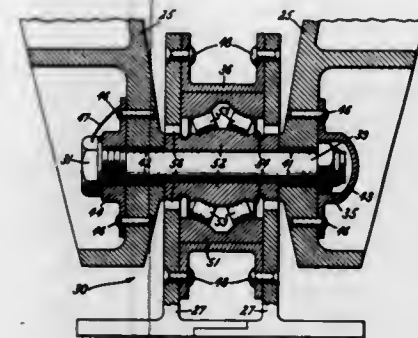
Sidney C. Swatton, Thornton, Pa., assignor to The Boeing Company, Seattle, Wash.
Filed May 4, 1970, Ser. No. 34,215
Int. Cl. E05d 1/100

U.S. Cl. 16—136

13 Claims

A hinge and mounting for connecting one structural member to another and particularly applicable in hinging a control surface to an aircraft structure. Two interlocked control surface brackets are interconnected by a bolt with two brackets extending from the aircraft structural member. A concave double roller bearing is housed within the brackets with the bolt passing through the center thereof. One-half of the bearing is confined between the structural member brackets and is not free to rotate. The other half of the bearing is restrained between the two control surface brackets and an enclosing spool which encircles the bearing and is held between the two control surface brackets. The outer half of the bearing is free to rotate by means of rollers with

the spool and the outer half of the first bearing to permit fail safe operation of the hinge in case of seizure of the roller bearing.

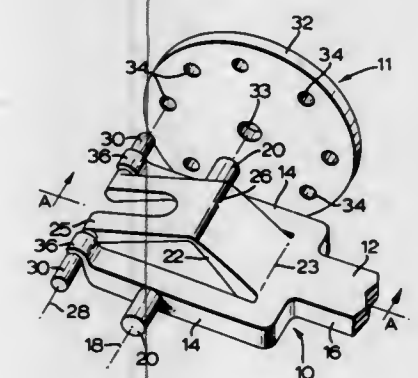


3,594,852 PIN HINGE

Alois Albin Krawagna, Willowdale, Ontario, Canada, assignor to Westhem Corporation Limited, Toronto, Ontario, Canada
Filed Nov. 3, 1967, Ser. No. 680,518
Int. Cl. E05d 7/00

U.S. Cl. 16—150

8 Claims



A snap hinge which includes a plate member pivoted to a rigid member. Extending from the plate member at a location spaced from the first pivot is a resilient arm the end of which is integral through a flexible web with a connecting arm. The other end of the connecting arm is pivoted to the rigid member at a point spaced from the plate member pivot. Depending on the distance between the pivots, the snap hinge has either one or two at-rest positions.

3,594,853 AUTOMOBILE DOOR HINGING

Robert Slattery, Rockford, Ill., assignor to Atwood Vacuum Machine Company, Rockford, Ill.
Filed July 28, 1969, Ser. No. 845,315
Int. Cl. E05d 3/10

U.S. Cl. 16—163

2 Claims

The geared link hinge herein disclosed was designed with the latest streamlined designs of cars in mind and gives outward and forward throw to the hinged edge of the door for added space in entering and leaving the car, and, in particular, gives added headroom to avoid bumping one's head on the upper edge of the glass on the door with resultant cutting or bruising. One segmental gear on the body member is fixed, and another segmental gear on the door member has rolling meshing engagement on the first segmental gear. Pintles in the door and body members are disposed on the centers of the arcs of said segmental gears and have links pivotally connected with the opposite ends thereof to keep the teeth of the gears in meshing engagement. For conical hinging, the

pintles are disposed in acute angle relationship so the movable pintle on the door member describes a portion of a cone casing sticks which contain predetermined, measured, equal



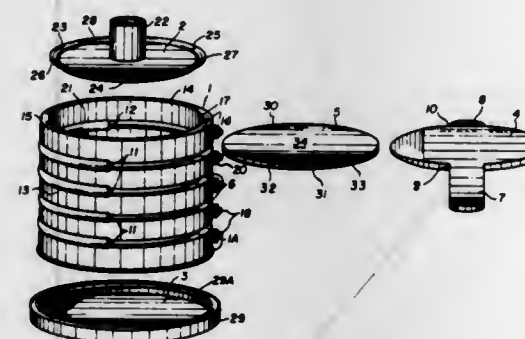
the axis of which includes the pintle on the door member. The lower hinge is of the ball and socket type.

3,594,854 PATTY-FORMER

Paul Roedel, 391 Muncey St., Lindenhurst, N.Y.
Filed Jan. 13, 1969, Ser. No. 790,538
Int. Cl. A22c 7/00; A47J 43/20

U.S. Cl. 17—32

10 Claims



A patty former comprising a tubular body member adapted to have ground meat packed therein, the tubular body member including a wall having a plurality of parallel slots extending about a portion of the circumference thereof, a divider plate adapted to be selectively inserted through the slots in the wall of the tubular body member to divide the meat into patties, a separating member adapted to be releasably secured to the divider plate so that upon removal of the divider plate the separating member is released and maintains the patties in a separated state.

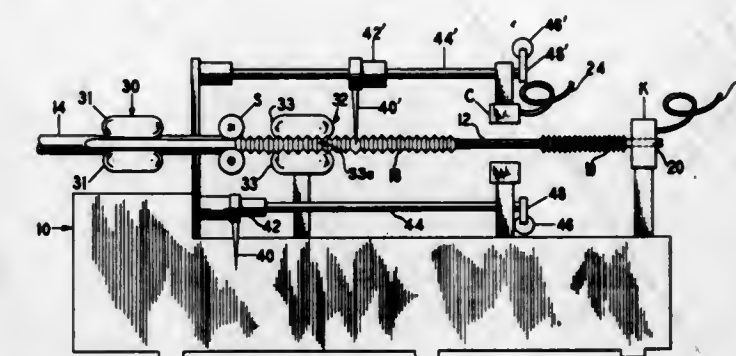
3,594,855 METHOD AND APPRATUS FOR OBTAINING PREDETERMINED LENGTHS OF SHIRRED CASING

Algimantas P. Urbutis, Chicago, Ill., assignor to Union Carbide Corporation
Filed Apr. 8, 1968, Ser. No. 719,567
Int. Cl. A22c 13/00

U.S. Cl. 17—42

10 Claims

A method and apparatus are provided for obtaining shirred



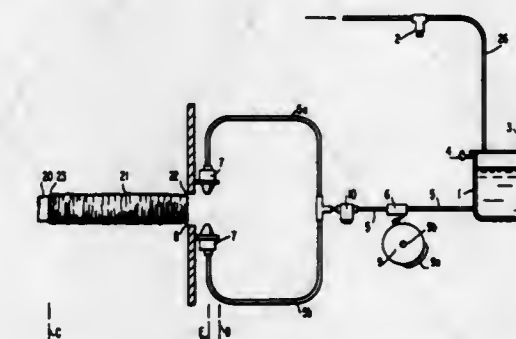
lengths of tubular casing.

3,594,856 APPARATUS FOR MOISTENING ARTIFICIAL SAUSAGE CASINGS

Horst Michl, Wallau uber Wiesbaden, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Division of Ser. No. 710,935, Mar. 6, 1968, abandoned.
Filed Sept. 9, 1968, Ser. No. 758,359
Claims priority, application Germany, Mar. 9, 1967, K 61 673
Int. Cl. A22c 13/00

U.S. Cl. 17—42

5 Claims



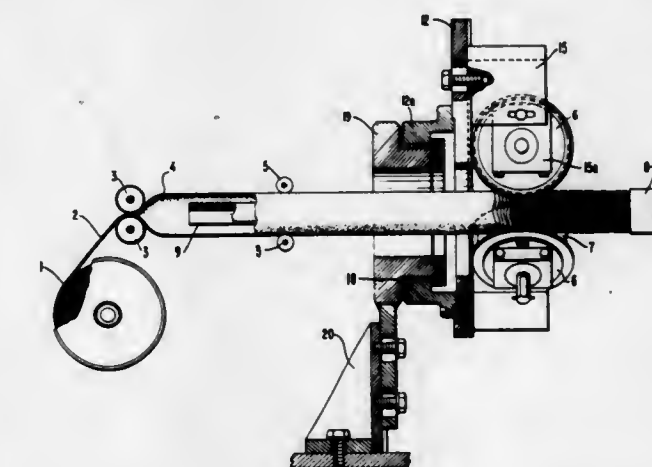
This invention relates to an apparatus for moistening an artificial sausage casing. The apparatus includes at least two moistening nozzle means mounted at substantially equally spaced positions around the discharge end of a mandrel upon which a sausage casing to be moistened is shirred.

3,594,857 PROCESS AND APPARATUS FOR SHIRRING SAUSAGE CASINGS

Horst Michl, Wallau uber Wiesbaden, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed Dec. 26, 1968, Ser. No. 787,070
Claims priority, application Germany, Dec. 27, 1967, P 16 32 113.4
Int. Cl. A22c 13/00

U.S. Cl. 17—42

9 Claims

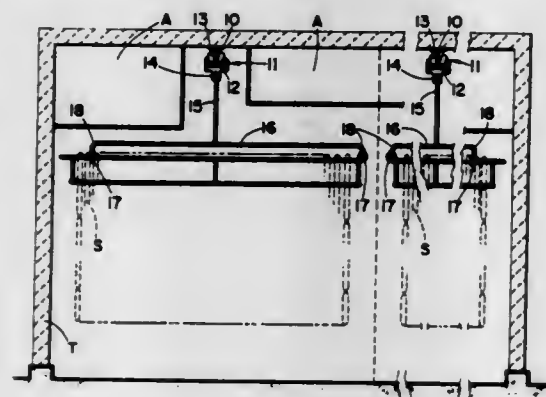


This invention relates to a process and apparatus for shirring a sausage casing, which process comprises slipping the

casing over a mandrel while maintaining an internal gas pressure in the casing, and compressing the casing against a stop with the formation of pleats, the compressive force being applied to the casing from a plurality of zones rotating to and fro about the mandrel.

3,594,858
SUPPORTING APPARATUS FOR USE IN SMOKEHOUSES AND THE LIKE

Knud Simonsen, c/o Knud Simonsen Industries Limited, Islington, Ontario, Canada
Filed Aug. 19, 1968, Ser. No. 753,547
Int. Cl. A22c 15/00; A23b 1/04
U.S. Cl. 17-44.4 10 Claims



This specification discloses an apparatus for use in association with the processing of sausage products such as are linked together in predetermined lengths of casing material, the apparatus consisting of a supporting member for engaging and supporting such a continuous casing length of linked sausages, and having an upper supporting rail and two lower spaced apart spacer rails, the upper supporting rail carrying the main portion of the weight of the length of sausages over which the sausages are looped, and the lower spacer rail members holding the individual loops of sausages apart from one another, and further incorporates means for hanging such supporting apparatus from a typical monorail conveyor for continuous movement through a processing line.

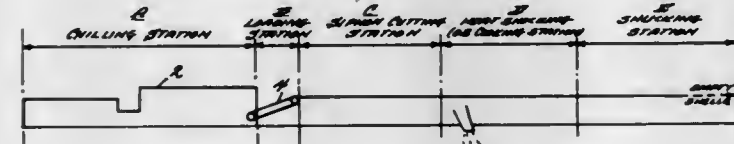
3,594,859
METHOD AND APPARATUS FOR REMOVING MEAT FROM THE SHELLS OF BIVALVE MOLLUSKS

Fletcher Hanks, Jr., P.O. Box 70, Easton, Md., and William C. Grieb, Jr., Chestertown, Md., assignor to said Hanks by said Grieb

Filed Mar. 28, 1969, Ser. No. 811,389
Int. Cl. A22c 29/00

U.S. Cl. 17-48

13 Claims



The shells of bivalve mollusks are preliminarily opened by heating means, then further opened by water sprays, following which the meat is cut from the shells at or adjacent its point of attachment thereto; then permitted to fall by gravity to a collection facility with the empty shells moving away in another direction.

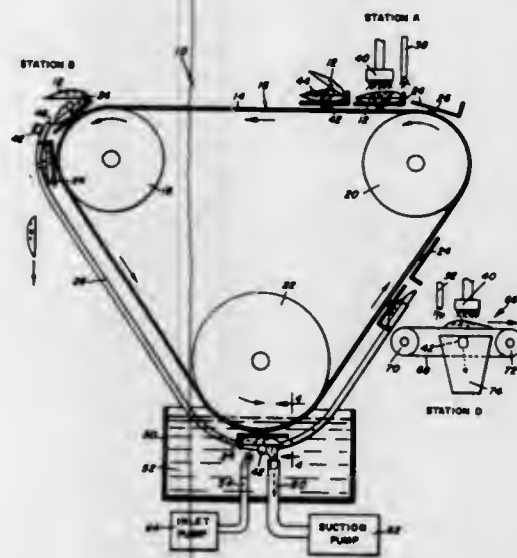
3,594,860
METHOD FOR SHUCKING AND EVISCERATING BIVALVE MOLLUSKS

Richard W. Nelson, Bothell; Robert F. Mackin, Seattle, and Wayne I. Tretsen, Seattle, all of, Wash., assignors to The United States of America as represented by the Secretary of the Interior

Filed Nov. 12, 1969, Ser. No. 875,653
Int. Cl. A22c 29/00

U.S. Cl. 17-48

5 Claims



Bivalve mollusks are mechanically shucked and eviscerated in a continuous, automatic process. A burner severs one half-shell from the bivalve muscle, gaping the shell. The two half-shells are then physically separated and the remaining half-shell, with the muscle and viscera attached, is inverted in a water bath. Water jets strike the flesh, loosening the viscera from the muscle and shell. A suction pump ingests the viscera in a steadily flowing stream of water, thoroughly eviscerating the bivalve. Another burner then severs the muscle from the remaining half-shell.

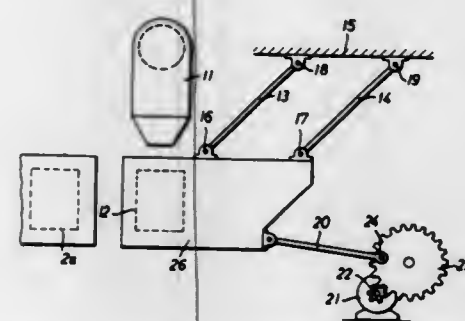
3,594,861
BLOW-MOLDING APPARATUS

Stefan Fischer, and Rainer Fischer, Am Wildtor 2, both of Lohmar, Bez. Cologne, Germany

Filed Dec. 20, 1967, Ser. No. 692,083
Int. Cl. B29d 23/03

U.S. Cl. 18-5

6 Claims



This invention relates to blow-molding apparatus wherein a mold is uniquely arranged with respect to an extruder head for movement into and out of the path of a parison from the extruder head for receiving the parison when in the path and discharging a molded object when out of the path.

3,594,862
INTERNAL HEATING OF ROTATING PARISON

Charles L. Seefluth, Bartlesville, Okla., assignor to Phillips Petroleum Company

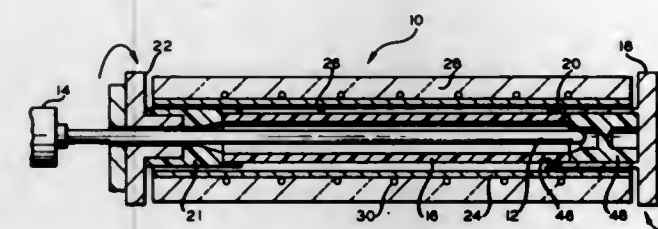
Filed Dec. 13, 1968, Ser. No. 783,604
Int. Cl. B29b 3/00

U.S. Cl. 18-5 BH

3 Claims

A rotating parison is heated with an internal radiant heating means, said parison being disposed within a sleeve during

the heating step to allow supplemental heat to be added from the outside of the parison. A shield, tapering toward the ends, can be provided around the heating means to provide



even heating, or if controlled variation in heating along the axis is desired, the heating means can comprise a member having variable turns of resistance wire along its axis or variable axially disposed loops.

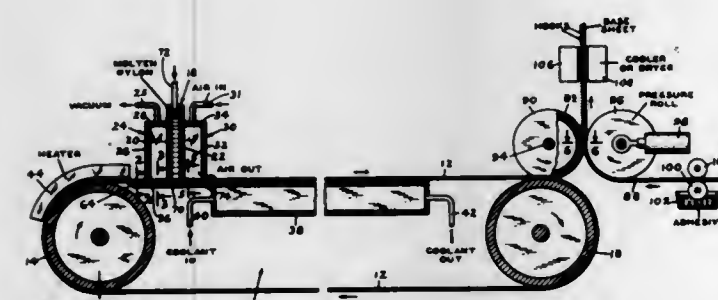
3,594,863
APPARATUS FOR MOLDING PLASTIC SHAPES IN MOLDING RECESSES FORMED IN A MOVING ENDLESS BELT

George H. Erb, Cuttingsville, Vt., assignor to American Velcro, Inc., Manchester, N.H.

Filed July 10, 1969, Ser. No. 840,679
Int. Cl. B29c 3/02

U.S. Cl. 18-5

24 Claims



Apparatus for continuously forming extruded strips of plastic material with molded pilelike protuberances integral therewith. Protuberances may have almost any desired shape but as disclosed are in the form of hooks and loops which may be used as the hook and loop parts of flexible fasteners such as the well-known "Velcro" fasteners. For the latter use the strips and molded protuberances made on this apparatus are secured to a base web of flexible sheet material to produce a final product in which there are closely spaced rows of pilelike hooks and/or loops. The means for forming the strips and protuberances include continuous parallel grooves formed in an endless belt which is moved lengthwise through an extruder nozzle having entrance and exit lips pressed against the belt. The lips are shaped to correspond with the belt and to fit into the grooves and over the ridges between the grooves in such manner that molten plastic material will be extruded in form of strips. Protuberances are formed in shallow elongated cavities formed in walls of grooves or ridges in belt. Exit lip will scrape all molten material from the belt other than in the cavities or on surfaces where extruded strips lie. A major advantage of the disclosed structure is that protuberances of very thin elongated form are molded without need for high injection pressures since the plastic material is laid in shallow elongated open troughs rather than being forced to enter deeply sunk elongated holes of small cross section. The lips of the extruder nozzle are formed of nonporous foam metal with contours fitting as desired into the grooves of the belt, the formation of such contours being effected by pressing and crushing the foam metal against the belt at a pressure considerably exceeding the pressure thereafter exerted between lips and belt under service conditions.

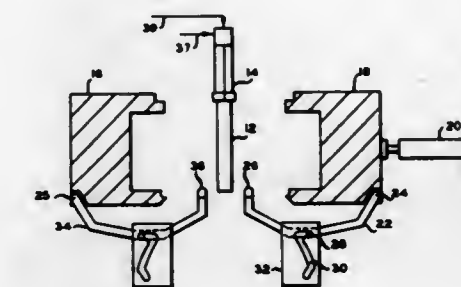
3,594,864
MOLD ACTUATED PARISON STRETCHING DEVICE

Dixie E. Gilbert, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Aug. 18, 1969, Ser. No. 850,797
Int. Cl. B29d 23/03

U.S. Cl. 18-5 BE

8 Claims



A parison preform held within a molding zone is gripped and stretched by means of a mechanism mechanically connected to the mold halves. As the mold halves close, jaw means are first converged to clamp the parison and then moved axially to stretch same.

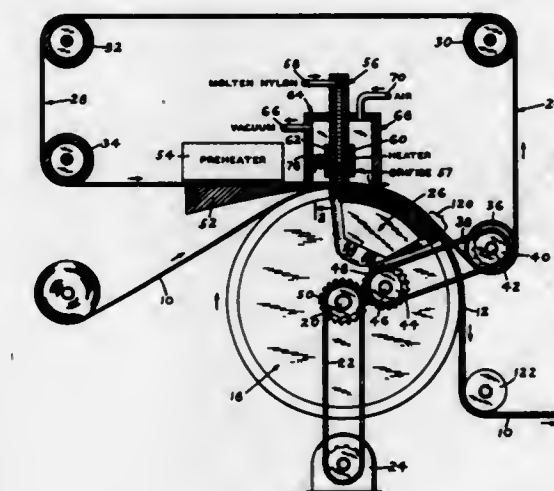
3,594,865
APPARATUS FOR MOLDING PLASTIC SHAPES IN MOLDING RECESSES FORMED IN MOVING ENDLESS WIRE DIES

George H. Erb, Cuttingsville, Vt., assignor to American Velcro Inc., Manchester, N.H.

Filed July 10, 1969, Ser. No. 840,779
Int. Cl. B29c 3/02

U.S. Cl. 18-5

11 Claims



Apparatus for continuously forming a flexible web with molded pilelike protuberances of plastic material integral with plastic material incorporated in the base web. Protuberances may have almost any shape but as disclosed they are in the form of hooks, whereby the product is useful as the hook part of a flexible hook and loop fastening element such as the well known "Velcro" fastener. The base of the web is either a porous woven or nonwoven fabric or an extruded film, the fabric being impregnated with or the film being formed from molten plastic simultaneously with molding of the hooks. Dies for forming the hooks are separate continuous loops of wire having a cross-sectional contour and hook-molding recesses such that the wires form hooks in rows extending lengthwise of the base sheet. The width of the final product is established by the number and spacing of the wire dies. The wires are passed through lips of an extruder having openings conforming snugly to the cross-sectional contour of each wire. The openings strip the plastic material from the surfaces of the wires, leaving hook-shaped deposits of plastic in the molding recesses of the wires which are attached to the base sheet and, when cool are stripped from the wires.

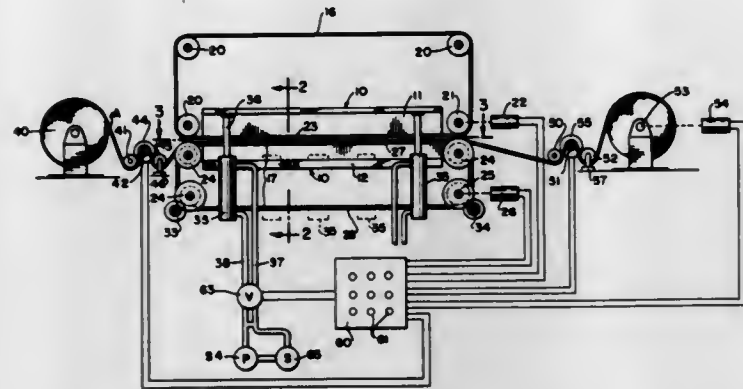
3,594,866

AUTOMATED BELT PRESS

Clayton H. Skinner, Buffalo, N.Y., and Charles C. Kosa, Willowdale, Ontario, Canada, assignors to Hewitt-Robins Incorporated, Stamford, Conn., by said Skinner
 Filed Jan. 8, 1969, Ser. No. 789,713
 Int. Cl. B29h 3/00

U.S. Cl. 18-6 E

6 Claims



The disclosure relates to an apparatus and method for curing ribbonlike stock of curable material in successive longitudinal segments. In accordance with the invention, there is provided a bed press having two opposed platens, presenting confronting substantially flat pressing surfaces and defining a curing zone therebetween. An endless belt around one of these platens has a run passing through the curing zone between the platens, and the stock in the form of a continuous ribbon is delivered intermittently in successive segments through said zone and onto said belt run. Means are provided for moving the platens relatively towards and away from each other. In the operation of carrying out a cycle of the process of the present invention, a longitudinal segment of raw stock is pulled from a source of supply and delivered onto the belt run in the curing zone, the platens are moved relatively towards each other to clamp the stock segment between the belt run and the platen outside the belt run, and the stock is heated to curing temperature, while the stock, the belt and the platens are stationary. At the end of the curing period, the platens are moved relatively apart, the belt is operated to move the run on which the stock was placed for curing, out of the curing zone, and to move the net portion of the belt into the curing zone, and at the same time, the cured stock is moved with the belt run out of the curing zone to a windup, while the next successive segment of raw stock is moved into the curing zone. The cycles are repeated.

3,594,867

HEATING PLATEN PRESS

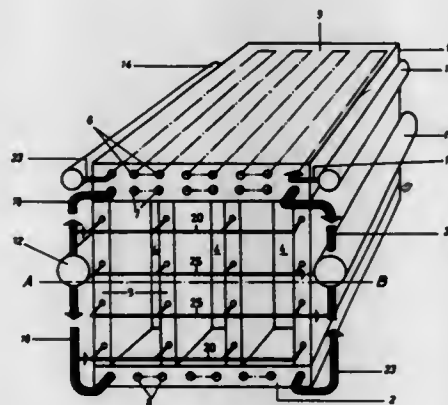
Heinrich Pfeiffer, Eppingen/Baden, Germany, assignor to J. Dieffenbacher G.m.b.H. Maschinenfabrik, Eppingen/Baden, Germany

Filed Oct. 25, 1968, Ser. No. 770,584
 Claims priority, application Germany, Oct. 28, 1967, P 16 53 185.4

Int. Cl. B29h 5/00

U.S. Cl. 18-17

27 Claims



A heating platen press for manufacturing composition board, such as chipboard, shavings board, and the like. The

press includes a stationary base unit and a movable press unit which respectively have working, heating platens directed toward each other and respectively provided with parallel working faces. These units are each composed of a box structure which includes, in addition to the heating platen, an opposed cover plate and longitudinal bracer bridges which extend between and engage the cover plate and heating platen. The heating platen and cover plate of each unit are formed with channels for conveying a temperature-controlling fluid therethrough, so that the entire unit can be heated and cooled. Each longitudinal bracer bridge has at least one row of such channels extending longitudinally through the bracer bridges.

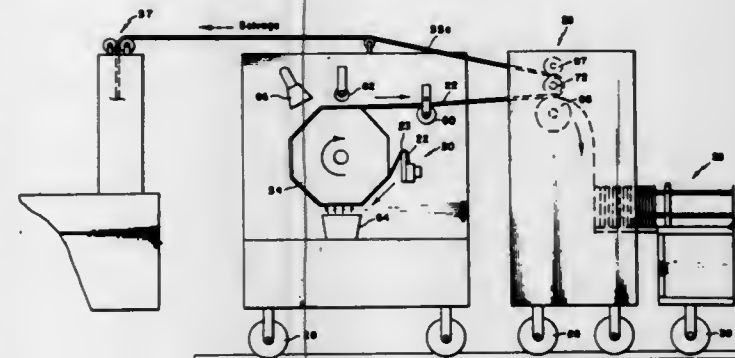
3,594,868

FORMING UNIT FOR USE WITH APPARATUS FOR FORMING AND CUTTING THREE-DIMENSIONAL PLASTIC ARTICLES

Thomas W. Winstead, Williamson Lane, Cockeysville, Md. Division of Ser. No. 480,917, Aug. 19, 1965, Pat. No. 3,479,694
 Filed Oct. 13, 1969, Ser. No. 871,094
 Int. Cl. B29c 17/04, 17/16

U.S. Cl. 18-19

5 Claims



A forming unit for use in an integrated system which continuously extrudes a strip of foamed thermoplastic material, forms articles from the advancing strip, and cuts the formed articles therefrom. The unit consists of a rotatable forming wheel carrying a series of peripheral vacuum molds designed to form trays and other three-dimensional articles and sequentially connected to a source of vacuum. A vacuum chamber in each mold is connected with the cavity of the mold to form the articles and is also connected to a vacuum sheet sealing groove in the top surface of the upper edge of the mold, which, when vacuum is applied, secures the edges of the overlying strip of plastic material in place of the mold during the forming operation. Valve means are provided to control the application of vacuum to the molds and to the respective vacuum grooves.

3,594,869

INJECTION MOLDING MACHINE

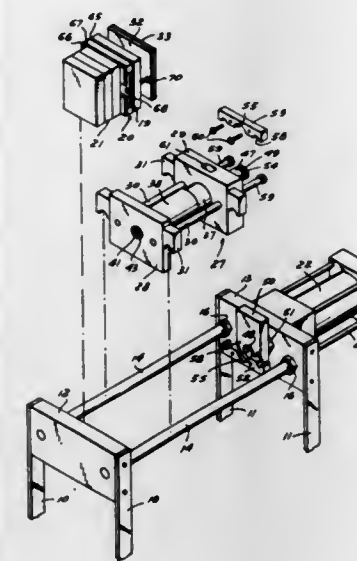
Fred D. Sher, 40 Normandy Road, Clifton, N.J.
 Filed Feb. 19, 1969, Ser. No. 800,567
 Int. Cl. B29f 1/06

U.S. Cl. 18-30 LF

9 Claims

Stationary framework carries stationary mold part. Movable mold part carried by injection assembly slidable on framework toward and away from stationary mold part, mold parts defining a closed cavity when they meet. Injection assembly includes chamber containing molten plastic, and a

ram is movable with respect to framework into and out of chamber. Cross-sectional area of ram larger than cross-sectional area of mold cavity so that ram pressure simultaneously holds mold parts closed and injects plastic into cavity.



tional area of mold cavity so that ram pressure simultaneously holds mold parts closed and injects plastic into cavity.

3,594,870

APPARATUS FOR THE PRODUCTION OF FILAMENTS FROM FOILS

Heinz Schippers, Remscheid-Lennep, and Rolf Hessenbruch, Remscheid, both of Germany, assignors to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany
 Division of Ser. No. 665,443, Sept. 5, 1967, abandoned, which is a continuation of Ser. No. 14,758, Feb. 25, 1970

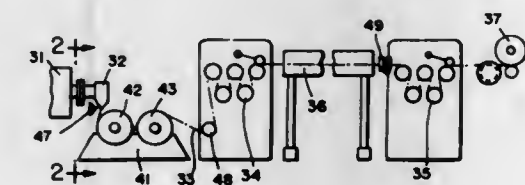
Filed Sept. 8, 1969, Ser. No. 855,952

Claims priority, application Germany, Apr. 1, 1967

V 91 793, B 92 161

Int. Cl. B29c 15/00; B29b 3/00; B29d 7/14
 U.S. Cl. 18-4 S

8 Claims



Apparatus adapted for production of endless, molecularly oriented, multifil filaments of thermoplastic polymers by extrusion of a foil or web through an elongated extrusion slit providing a foil extrusion with strand-forming segments of polygonal cross section and longitudinally extending breaking or tearing lines or zones therebetween. The extruded foil is cooled upon exit from the nozzle or immediately thereafter by surface-cooled rollers or drums or by immersion in a liquid cooler and/or by cooling air applied adjacent the nozzle. Prior to solidification, the extruded foil is longitudinally at least several times its original length. After cooling and solidification, it is again stretched between stretching roller assemblies to axially orient the polymer molecules and to tear the foil into filaments or strands along the breaking or tearing lines or zones.

3,594,871

TOP CRADLE MECHANISM USABLE FOR A TEXTILE MACHINE

Shinzo Kitamura, 941, Oaza Ikag, Hirakata-shi, Japan

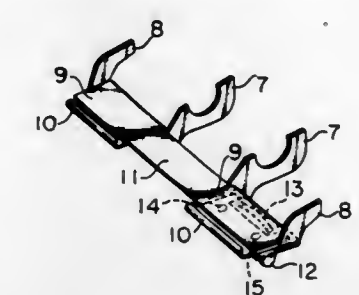
Filed Apr. 23, 1969, Ser. No. 818,674

Claims priority, application Japan, Apr. 27, 1968, 43/28228
 Int. Cl. D01h 5/86

U.S. Cl. 19-250

10 Claims

A top cradle mechanism used for a common tensor bar-type fiber drafting system having more than one movable tensor on positioned of respective drafting equipment and a stationary plate common to respective drafting equipment. The movable tensors can perform a three-dimensional movement



interference between the neighboring drafting equipment results.

3,594,872

VEHICLE SAFETY BELT BUCKLE

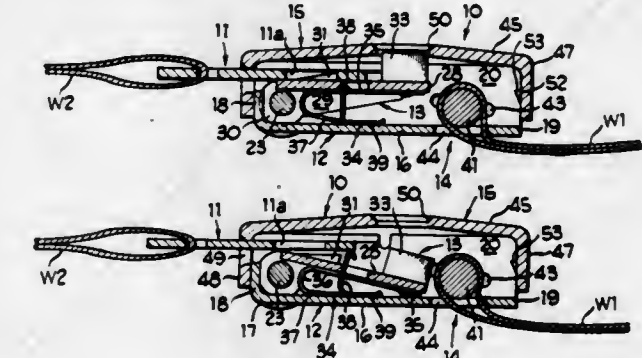
Seymour J. Kulwin, Evanston, and James A. Swimmer, Des Plaines, both of Ill., assignors to Jeffrey-Allen Industries, Inc.

Filed Mar. 25, 1969, Ser. No. 810,134

Int. Cl. A44b 11/26

U.S. Cl. 24-77

13 Claims



A pushbutton buckle for vehicle safety belts in which a base member has an upwardly biased latch member pivoted near its forward end, with the latch member being a second class lever that has an integral pushbutton at its rear end and intermediate rearwardly facing latch shoulders which engage holes in a slide link that is inserted through a transverse opening in the front of the base above the pivot. A fixed cover that makes a snap fit on the base has a hole through which the pushbutton is accessible.

3,594,873

FIRE-RESISTANT FASTENING DEVICE AND METHOD OF MANUFACTURE

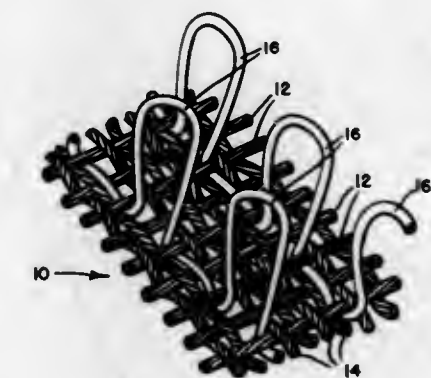
Clive E. Hockmeyer, Jr., Lowell, Mass.; Marcel C. Ouellette, Bedford, N.H., and Peter P. Ferron, Manchester, N.H., assignors to American Velcro, Inc.

Filed Mar. 10, 1969, Ser. No. 805,419

Int. Cl. A44b 13/00

U.S. Cl. 24-204

5 Claims



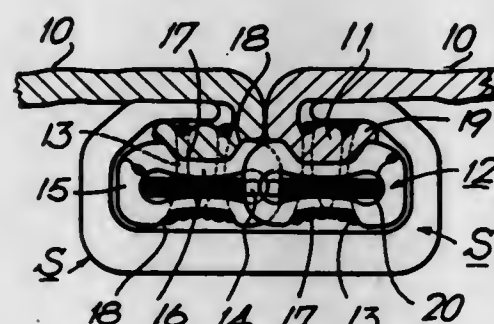
A separable fastening device, resistant to flame and having a very large number of closely spaced hooking elements of

the hook and loop type, such that pressing opposed surfaces of two fastening members together in face-to-face relation will engage a large number of hooks and loops, is disclosed; the loops are formed from a flame and elevated temperature resistant nylon fiber of very low denier, many filaments of which must first be twisted in an S direction and two each of the twisted strands then reverse plied together in the Z direction to produce a stabilized yarn having sufficient strength and body to form the loops.

3,594,874

SLIDE FASTENER

Yoshinori Fujisaki, Kurobe-shi, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan
Filed Apr. 2, 1968, Ser. No. 718,161
Claims priority, application Japan, Apr. 15, 1967, 42/21,434
Int. Cl. A44b 19/1, 19/34
U.S. Cl. 24—205.1 4 Claims

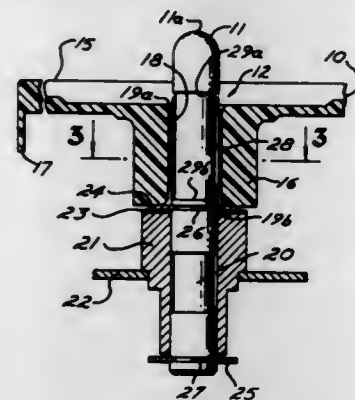


A sliding clasp fastener of flexible concealed fashion including a row of elements on each stringer tape, said element having a recess at least in one of its two leg portions for anchoring sewing threads. The sewing threads interconnect the flexible elements to the stringer tape in such a manner that the flexible elements are maintained in a normally flexed condition.

3,594,875

TURNTABLE-RETAINING CLIP

Albert E. Sanow, Grafton Township, Lorain County, Ohio, assignor to The General Industries Company, Elyria, Ohio
Filed Jan. 12, 1970, Ser. No. 2,037
Int. Cl. A44b 17/00; G11b 3/60
U.S. Cl. 24—214 6 Claims



There is disclosed herein a generally cylindrical phonograph turntable-retaining clip which telescopes over the turntable shaft and has radially outwardly offset, axially parallel tension ribs for resiliently engaging the central opening of a turntable.

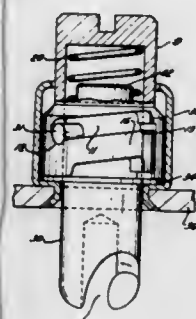
3,594,876

FASTENER HAVING IMPROVED LOAD-CARRYING CAPACITY

Conrad J. Gunther, Uniondale, N.Y., assignor to Dzus Fastener Co., Inc., West Islip, N.Y.
Filed Oct. 15, 1969, Ser. No. 866,698
Int. Cl. A44b 17/00

U.S. Cl. 24—221 11 Claims
A fastener for substantially rigidly interengaging two members. A stud element is provided which is adapted to extend

through an opening in one of the members to be fastened and has a cam slot adapted to engage a pin on the other of the members. The stud element is rotatable between an open and a closed position on the pin. A housing surrounds the upper part of the stud element in rotatable relationship therewith and is adapted to engage the surface of one of the members. The housing has surfaces thereon forming a slot in the wall thereof which is inclined with respect to the transverse axis



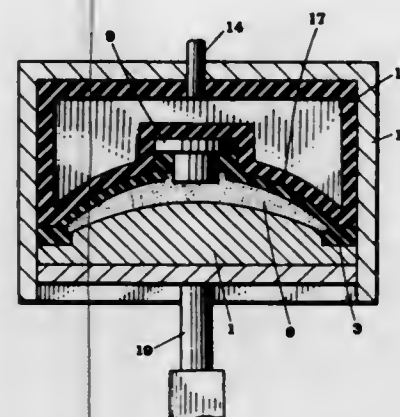
of the housing. A bar extends laterally from the stud element through the slot and engages the slot forming surfaces of the housing. Means are provided for retaining the bar in the slot so that when the pin is in the closed position and the housing or stud are rotated relative to one another, the bar will shift in the slot from the relaxed position to a locked position and will be supported by a portion of the slot forming surfaces while in the locked position to thereby increase the load-carrying capacity of the fastener.

3,594,877

APPARATUS FOR MANUFACTURING CERAMIC ARTICLES

Mitsuru Suda, and Hiroshi Nagase, both of Fujisawashi, Japan, assignors to Yuken Kogyo Co., Ltd., Kanagawa-ken, Japan
Division of Ser. No. 637,989, May 12, 1967, Pat. No. 3,520,961
Filed Oct. 24, 1969, Ser. No. 869,076
1969, Ser. No. 869,076
Int. Cl. B28b 7/06 2 Claims

U.S. Cl. 25—27



An apparatus for manufacturing ceramic articles, such as tableware. A charge of substantially dry powder is introduced into a mold cavity defined between a substantially rigid mold member and a flexible mold member, and then one of these mold members is urged toward the other to compress the charge in the cavity between the mold members so as to give to the charge a predetermined configuration. Thereafter, the charge is removed from the mold and fired. In this mold, the flexible mold member is in the form of an elastic member capable of resiliently retracting itself from the charge when the molding pressure is released. A restraining means coacts with the flexible elastic mold member to prevent the latter from exerting on the charge any radial forces so that the elastic mold member will move toward and away from the

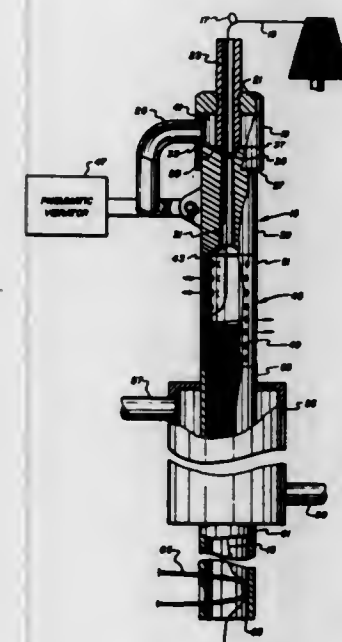
charge but will not have any tendency to rub along the surface of the charge.

3,594,878

PROCESS AND APPARATUS FOR TEXTURIZING YARN

William D. Porter, Asheville, N.C., assignor to Northrop Carolina, Inc., Swannanoa, N.C.
Filed Aug. 11, 1969, Ser. No. 848,875
Int. Cl. D02g 1/00 13 Claims

U.S. Cl. 28—1.3



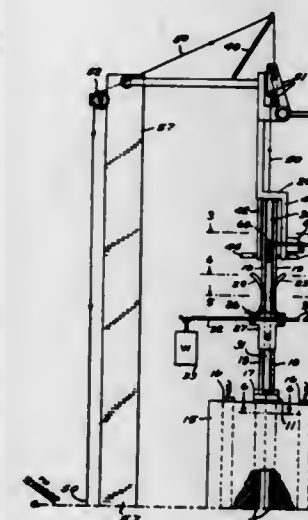
A method and device for crimping continuous filament yarn comprising providing a gas-actuated aspirator tube which serves to pull the yarn from its source and direct it to a crimping region which comprises a diffuser means downstream from the aspirator which separates the gas from the yarn, crimps the yarn and serves as a pressure means for forcing the yarn into a heater region where the crimping is set.

3,594,879

CONTROL MECHANISM FOR STUFFER CRIMPER

Steve E. Zeis, Wilmington; Alexander L. Trifunovic, White Cliff; Billy Steve Harris, Wilmington, and Steven Anthony Kaczmarczyk, Wilmington, all of Del., assignors to Joseph Bancroft & Sons Company, Wilmington, Del.
Continuation of application Ser. No. 631,099, Apr. 14, 1967, now abandoned, which is a continuation of application Ser. No. 406,240, Oct. 26, 1964, now abandoned. This application June 9, 1969, Ser. No. 834,932
Int. Cl. D02g 1/12 8 Claims

U.S. Cl. 28—1.7



A stuffer crimper including a crimping chamber and a cooling chamber in the form of a plurality of spaced rods ar-

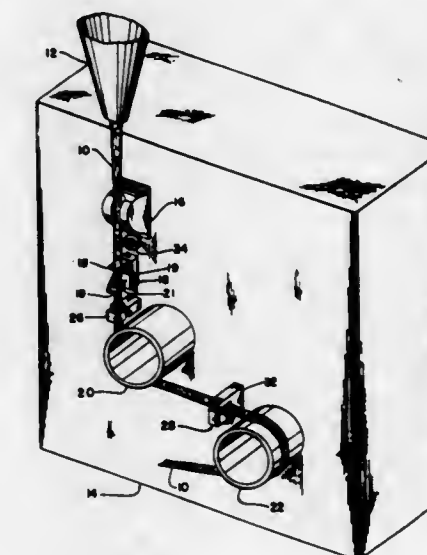
ranged to confine the crimped core. A choke member in the form of hinged fingers extend between the rods and exert pressure on the sides of the core for compacting the same and retarding the advance thereof. A feeler member engages the end of the core to control the rate of feed. The feed rolls are driven through a stepped pulley.

3,594,880

APPARATUS FOR DETECTING DEFECTIVE YARN CONDITIONS

Merton L. Dibble, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 26, 1970, Ser. No. 14,323
Int. Cl. D01h 13/22 7 Claims

U.S. Cl. 28—64



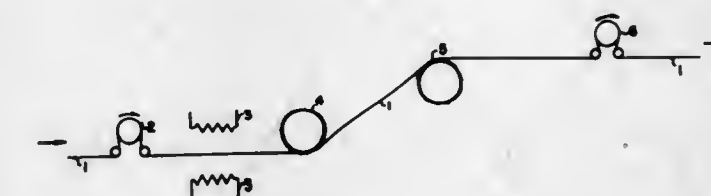
Apparatus arrangement for detecting defective conditions in a running yarn in a textile processing operation includes a yarn shear device and a waste jet aspirating device positioned along the running yarn path to cut the running yarn and aspirate the yarn into a waste container; each of the latter devices being activated either upon detection by a yarn sensor device of yarn breaks of roll wraps on an adjacent roll in the path, or upon detection of an excess of a predetermined number of slubs per unit of time by a slub detector connected to a monitoring device.

3,594,881

PROCESS FOR DELUSTERING SYNTHETIC RIBBON YARNS

Herbert Barber, and Howard Irving Freeman, both of Waynesboro, Va., assignors to Thiokol Chemical Corporation, Bristol, Pa.
Filed May 21, 1968, Ser. No. 730,846
Int. Cl. D04h 17/10 6 Claims

U.S. Cl. 28—72



A continuous process for delustering synthetic ribbon yarn comprising heating the yarn, contacting the yarn with an abradbing medium, and thereafter contacting the yarn with a second abradbing medium while maintaining predetermined tensions in said yarn as it first contacts, passes between, and leaves said abradbing media.

3,594,882

WARHEAD AND METHOD OF MAKING SAME

Robert Lovell, Bloomfield Hills, Mich., assignor to Lawrence B. Boensch, Birmingham, Mich., a part interest
Filed Nov. 22, 1968, Ser. No. 778,249
Int. Cl. B21k 21/06

U.S. Cl. 29—1.2

26 Claims



A warhead and the method of making same by cutting a tube blank from a length of metal tubing at a position on the length of tubing which will result in the blank containing the amount of material required in the finished warhead, cold extruding the blank to elongate the blank and to form an enlarged annular section about a first end, cold extruding the blank to taper the blank toward the second end, cold extruding the blank to move the enlarged section radially inward so that the blank has a substantially constant diameter form the first end to the taper, and cold extruding the blank to taper the first end. During or before the first or an early extrusion step groove may be formed in the surface of the blank so that during a subsequent extruding step metal adjacent the grooves if forced and moved together to smooth the surface and establish fault lines so as to control the fragmentation pattern of the warhead.

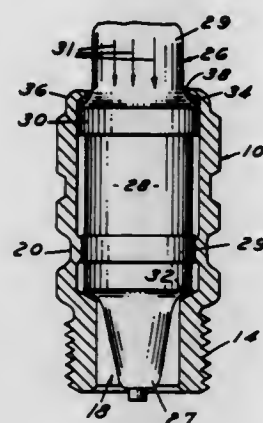
3,594,883

PROCESS FOR MANUFACTURING COLD SEALED SPARK PLUGS

Stewart V. Bray, Allen Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Continuation-in-part of application Ser. No. 583,580, Oct. 3, 1966, now Patent No. 3,451,110. This application Feb. 19, 1969, Ser. No. 800,595
Int. Cl. F23q 3/70; H01t 13/00

U.S. Cl. 29—25.12

3 Claims



Insulators for spark plugs are pressed into an interference fit with steel shells to provide good heat transfer from the insulator tip to the shell. The interference fit is produced by deforming a portion of the shell inward to form an inwardly projecting ridge of the shell metal, and then pressing a portion of the insulator into an interference fit with the ridge. A polymeric sealer is applied to the insulator shoulder adjacent the upper edge of the shell, and the shell edge is rolled over the sealer to extrude a bead of sealer outward between the shell edge and the insulator. In an alternate construction, the insulator is tapered so only its upper portion has an interference fit with shell.

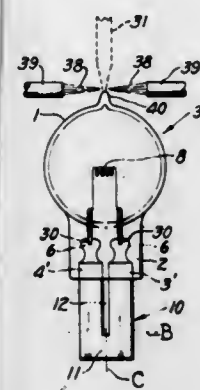
3,594,884

METHOD OF MANUFACTURING AN ELECTRICAL DEVICE

Harvey V. Siegel, Mayfield Heights, Ohio, assignor to General Electric Company
Filed Aug. 1, 1969, Ser. No. 846,766
Int. Cl. H01j 9/18, 9/36

U.S. Cl. 29—25.15

7 Claims



A method of making an electric lamp comprises the steps of forming a metal foil lead-in conductor blank of U-shaped configuration having the free ends only of its two leg portions etched to feather the edges thereof completely therearound, connecting a filament to the tip ends of the etched leg end portions of the blank, sealing the neck end of a vitreous envelope around the etched leg end portions of the foil blank while leaving the other or bight end thereof projecting outwardly of the envelope from the pinch seal, and then severing the foil blank at its bight end into two separate foil lead-in conductors spaced apart from one another. An electric lamp made by this method may have the projecting outer end portions of the two foil lead-in conductors folded back around the same one or around opposite ones of the flat sides of the pinch seal.

3,594,885

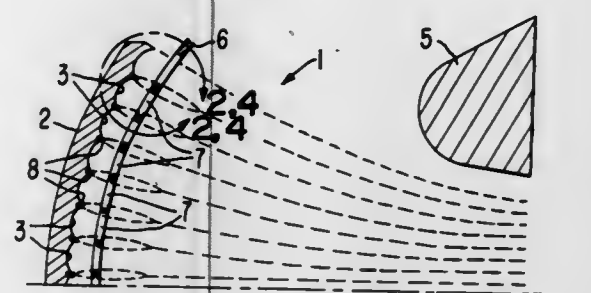
METHOD FOR FABRICATING A DIMPLED CONCAVE DISPENSER CATHODE INCORPORATING A GRID

George V. Miram, Daly City, and Gerhard B. Kuehne, Santa Clara, both of Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed June 16, 1969, Ser. No. 833,458
Int. Cl. H01j 9/16, 9/44

U.S. Cl. 29—25.18

9 Claims



Methods for fabricating concave dimpled dispenser cathodes are disclosed. A multicell groove pattern is formed in the concave face of the cathode blank. An array of concave dimples are formed in the cellular regions of the concave emitter face bounded by the cells of the groove pattern. A multicell grid structure is incorporated into the groove pattern. The groove pattern is formable by photoetching, electrical discharge machining or by milling. The grid structure may be brazed into the grooves or merely supported therein in noncontacting relation therewith.

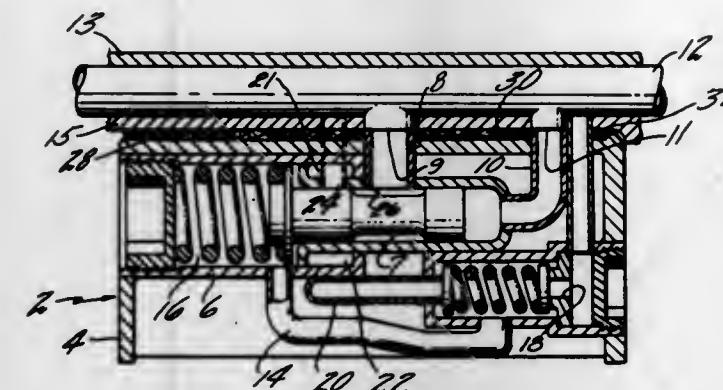
3,594,886

METHOD OF FABRICATING VALVE MODULE

Philip E. Barnes, North Granby, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Apr. 18, 1969, Ser. No. 817,457
Int. Cl. F16k 27/10

U.S. Cl. 29—157.1

3 Claims



Miniaturized fluid components are provided by modules in which valve sleeves may be disposed in any orientation, the valve sleeves having no O-seals between them and the housing, and in which tubing is utilized to support and interconnect various valves and components within the module and to interconnect modules with supply and drain headers; and by a plurality of modules disposed on a construction made up of two plates between which are disposed the supply and drain tubes to which the modules are connected.

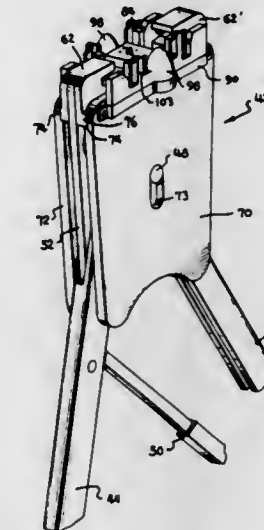
3,594,887

APPARATUS FOR ELECTRICALLY CONNECTING PAIRS OF CONDUCTORS

William Roderick Over, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Division of Ser. No. 596,672, Nov. 23, 1966, Pat. No. 3,438,407
Filed Mar. 19, 1969, Ser. No. 808,408
Int. Cl. H01r 43/04

U.S. Cl. 29—203 D

7 Claims



Corresponding wires of two pairs of wires (e.g. twisted pairs) are connected by an apparatus which separates the wires of the pairs from each other at a location adjacent to the wire ends. The wires of the two pairs are positioned against each other in the apparatus and individual electrical connections are effected between corresponding wires of the groups. End portions of the wires which extend beyond the electrical connections are cut off and removed.

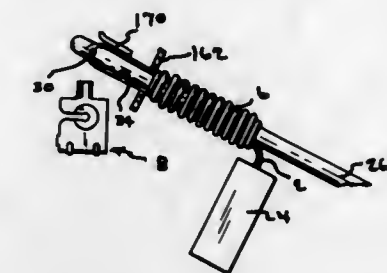
3,594,888

APPARATUS FOR ASSEMBLING A MOTOR BRUSH

Kenneth Foster Folk, and Milton Dean Ross, both of Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Continuation-in-part of application Ser. No. 696,512, Jan. 9, 1968, now abandoned. This application June 24, 1969, Ser. No. 843,275
Int. Cl. H01r 39/26

U.S. Cl. 29—203 R

8 Claims



Lead wire extending from motor brush is inserted through coil spring and spring is compressed. Thereafter, terminal is crimped onto end portion of lead wire and holds spring between terminal and brush in a compressed condition. Motor brush with spring and terminal assembled to the lead wire is mounted in housing. The housing is mounted in electric motor in a manner such that brush bears against commutator.

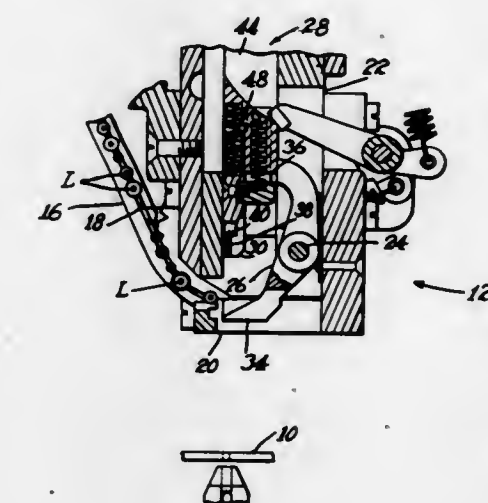
3,594,889

TERMINAL-INSERTING MACHINES HAVING IMPROVED INSIDE FORMER

William S. Clark, So. Hamilton, Mass., assignor to USM Corporation, Flemington, N.J.
Filed Oct. 15, 1969, Ser. No. 866,563
Int. Cl. H01r 43/04; B25c 5/02

U.S. Cl. 29—203B

5 Claims



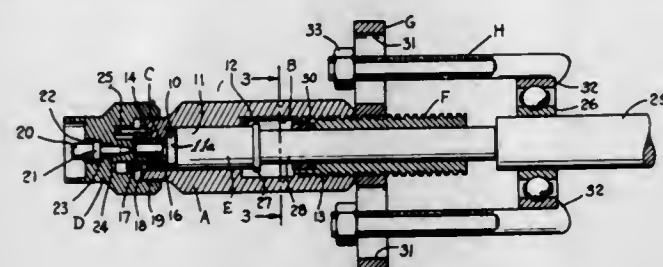
A wire-forming mechanism, for instance in a machine for forming and applying oppositely extending leads of components, comprises an inside former adapted in response to forming operation of an outside former, suitably to yield whereby leads of different diameters may be accommodated and precisely formed and advanced under control for terminal insertion. The invention has particular advantage in enabling a single inserting machine to attain reliable mounting in a printed circuit board of a pretaped series of components having differently sized bodies as well as differently sized leads.

3,594,890

EXPLOSIVE ACTUATED PULLING APPARATUS
Harold E. Cordell, 526 Union St., Spartanburg, S.C., and
Marion C. Boyd, 132 Bon Air Ave., Spartanburg, S.C.
Filed Apr. 29, 1968, Ser. No. 724,843
Int. Cl. B23p 19/04

U.S. Cl. 29—255

4 Claims



An explosive powered apparatus for pulling bearings and the like, from within or on shafts. The apparatus includes a barrel having a breech adjacent one end in which an explosive is carried. A piston is carried within the barrel for relative movement therewith. A sleeve having threads thereon is threaded within one end of the barrel for restricting the movement of the piston when the explosive is detonated and for regulating the force applied. A retaining member is carried adjacent the free-end of the sleeve, and has arms extending out therefrom for engaging the bearing. When the explosive is detonated the free-end of the piston pushes against the end of the shaft upon which the bearing is carried causing the arms to pull the bearing longitudinally along the shaft, thus freeing it. When the bearing is carried within the shaft a plate is positioned between the end of the piston and the shaft for transferring the force from the piston to the shaft during the pulling operation.

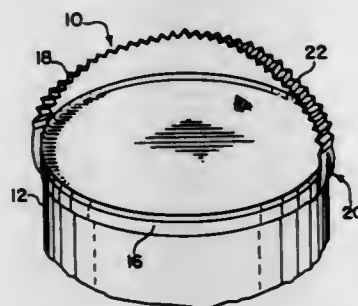
3,594,891

CONTAINER CARRIER

Ernest R. Cunningham, Libertyville, and Ronald C. Owen, Harwood Heights, both of, Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.
Filed Jan. 27, 1970, Ser. No. 6,099
Int. Cl. A47j 45/07

U.S. Cl. 29—450

10 Claims



This invention relates to a plastic container carrier and the provision of a generally U-shaped bail portion for the container carrier. The carrier is formed from a strip of thermoplastic material and the bail portion is formed coplanar with the remaining portion of the carrier. The bail portion is cold worked to increase its length, decrease its thickness and provide a flexible handle for the container carrier.

3,594,892

METHOD OF PRODUCING A MULTIPLE COMPRESSION RATE BUSHING

Ross E. Stewart, Norwalk, Ohio, assignor to Clevite Corporation

Filed Apr. 14, 1969, Ser. No. 815,931

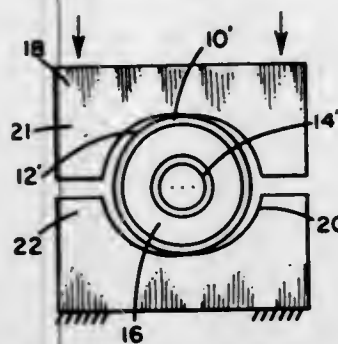
Int. Cl. B23p 11/02

U.S. Cl. 29—451

8 Claims

A bushing of an inner and an outer tubular sleeve and a rubber insert placed therebetween under radial compression,

and in which the outer or the inner tubular sleeve is deformed out of round after assembly of the bushing. The



rubber insert may be adhesively secured to the sleeves and/or post-cured prior to the deformation.

3,594,893

METHOD FOR JOINING CORRUGATED TUBES

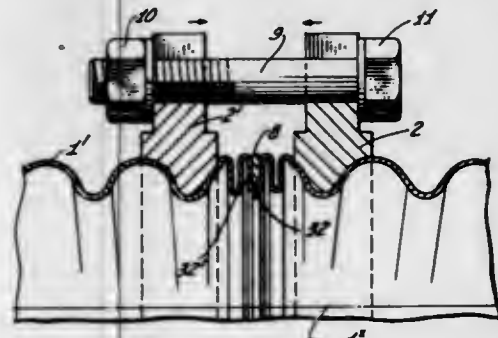
Hubert Kuypers, Bad Nenndorf, Germany, assignor to Kabel- und Metallwerke, Gutehoffnungshütte, Hannover, Germany

Filed Nov. 21, 1968, Ser. No. 777,679

Int. Cl. B23k 31/02

U.S. Cl. 29—470.5

10 Claims



A method for joining corrugated tubes is disclosed according to which an end portion of a tube to be joined is upset, using, for example, a flange ring and a tool plate and tightening them together temporarily to effect upsetting, and to produce a wide end ring at the tube. After removal of the tool plate, the flange ring on such a tube end is tightened to the flange ring on a similarly prepared tube end or otherwise, to effect broad, tight contact of the end ring with whatever surface is presented for the connection.

3,594,894

METHOD OF FORMING CARTRIDGES

Carl H. Mayer, Jr., Northbrook, Ill., assignor to General Fire Extinguisher Corporation, Northbrook, Ill.

Filed Nov. 20, 1968, Ser. No. 777,266

Int. Cl. B23k 31/02

U.S. Cl. 29—471.1

13 Claims



A cylindrical container has each end partially integral formed with a final separate closure piece restrained against

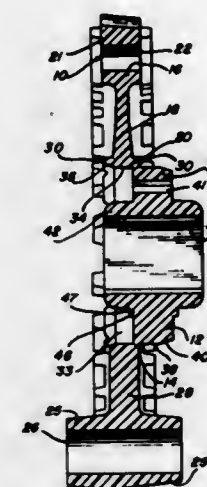
3,594,898

METHOD OF MAKING A ROTARY SWITCH

Raymond F. Lewandowski, Mt. Prospect, Ill., assignor to Oak Electro/Netics Corporation
Division of Ser. No. 634,399, Mar. 23, 1967, Pat. No. 3,389,235, continuation-in-part of Ser. No. 474,244, July 23, 1965
Filed Apr. 12, 1968, Ser. No. 851,767
Int. Cl. H01b 17/00

U.S. Cl. 29—622

3 Claims



A rotary selector switch of molded plastic having a rotor blade overlapping the edge of the stator, with an axially directed rim on the stator around the rotor opening. The face of the stator is divided into sections for the stator clips, by radial ribs. The switch is assembled from a molded blank having a stator portion with a rotor portion attached thereto by an integral web. The rotor portion is parallel to and axially spaced from the stator, in line with the rotor opening. A rotor blade is placed on one side of the rotor with an attachment leg extending into the rotor. An axial force is applied to the rotor, rupturing the web, moving the rotor into the opening of the stator and securing the rotor blade to the rotor.

3,594,895

CERAMIC TO METAL SEAL

Russell J. Hill, 20 Marie Drive, R.F.C. No. 3, Wilmington, Mass., and Rowland M. Cannon, Jr., 151 Highland Ave., Arlington, Mass.

Filed July 29, 1968, Ser. No. 748,227

Int. Cl. B23k 31/02

U.S. Cl. 29—473.1

8 Claims

This disclosure is directed to metal to refractory seals wherein a ductile 50 atomic percent alloy of a group IVb metal with a group VIII metal of the same period is used to braze ceramic to metal. A preferred example is sealing Tantalum or Niobium to alumina with a 50 at/o Ti-Ni alloy braze.

3,594,896

METHOD FOR THE PROTECTION OF METAL ARTICLES AT ELEVATED TEMPERATURES

Michel Charveriat, Albertville, France, assignor to Ugine Kuhlmann, Paris, France

Filed Nov. 18, 1968, Ser. No. 776,812

Int. Cl. B23k 31/02

U.S. Cl. 29—492

7 Claims

A method of protecting an article made of zirconium, titanium, hafnium, niobium, tantalum, vanadium or their alloys against high-temperature corrosion consisting of pickling the surface to be protected, galvanizing an alloy having an aluminum-silicon base and containing the metal which is to be protected and an equivalent surface and brazing the two surfaces together with the aid of a brazing metal selected from the group of copper, silver, beryllium, silicon and their alloys with one another.

3,594,897

METHOD OF CONSTRUCTING A MAGNETIC CORE MEMORY PLANE

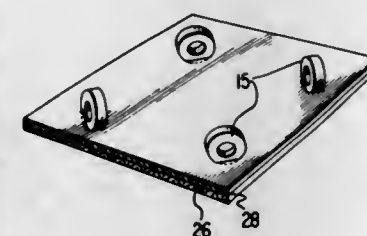
Thomas Philip Fulton, Brookline, Mass., assignor to RCA Corporation

Filed May 16, 1969, Ser. No. 825,298

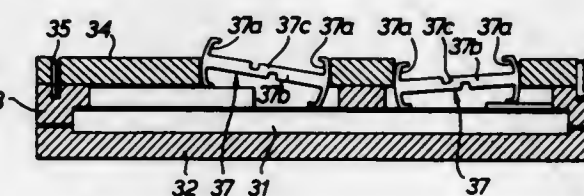
Int. Cl. H01f 7/06

U.S. Cl. 29—604

9 Claims

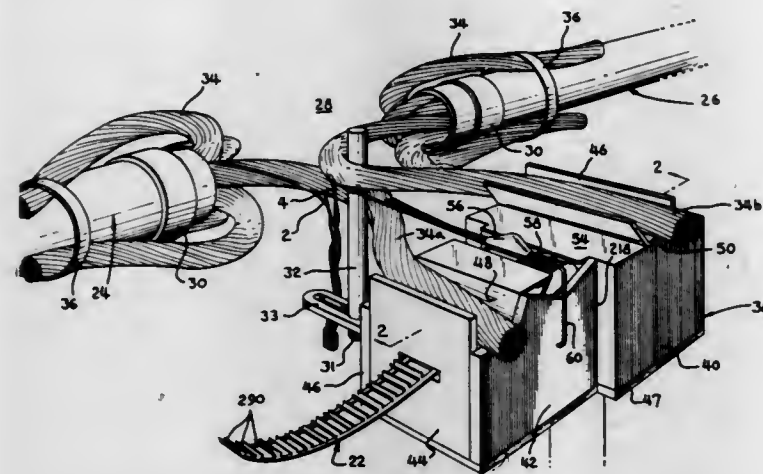


A ferrite magnetic core memory plane construction, and method of construction, in which the edges of the magnetic cores, after being primed, are imbedded in a tenacious material coated on a flexible supporting sheet, the material being a silicone rubber having a jelly-like resilience. The edges of the cores are imbedded an amount equal to about one-half the dimension radially between the inner and outer surfaces of the cores so that the holes in the cores are fully exposed for wires to be threaded therethrough. The cores tend to spring back to their set positions after being displaced in any direction during the assembly of a memory plane. The completed memory plane includes the flexible sheet and rubber-adhered cores as an integral part of the construction to protect the cores from mechanical shock, thermal changes, etc.



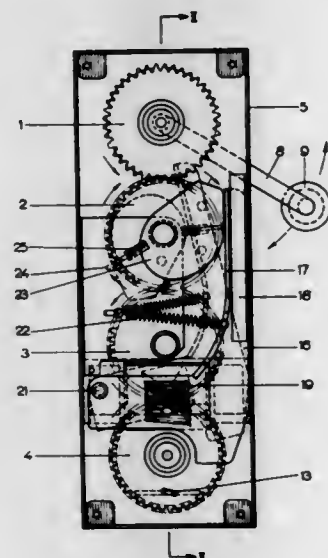
In the manufacture of a voltage regulator, or in the interconnection of components on a printed circuit generally, a masking device is used on the printed circuit having slits therein. Conductors are engaged within the slits so as to extend between and contact the components to be interconnected, and the whole assembly is then heated, solder being provided to make the required connections.

3,594,900
METHOD AND APPARATUS FOR CONNECTING PAIRS OF CONDUCTORS
 Frank Peter Dola, Port Richey, and John Roy Vickery, Jr., Clearwater, both of, Fla., assignors to AMP Incorporated, Harrisburg, Pa.
 Filed Dec. 10, 1968, Ser. No. 782,596
 Int. Cl. H01r 43/00, 43/04; B23d 25/00
 U.S. Cl. 29—628 19 Claims



Corresponding wires of two pairs of wires are electrically connected to each other in separate electric connections by means of crimping apparatus comprising two spaced apart anvils which are adapted to support open U-type connectors. A pyramidal separator, for separating the wires of a pair, is located between and above the anvils so that the two wires of one pair can be lowered over the separator and the individual wires of the pair will each be guided into one of the connectors. After the wires of the two pairs have been located in the connectors, the connectors are moved along an arcuate path to an inserting station where the wires are stuffed into insulation-piercing slots in the connectors. Thereafter, the connectors are moved to a crimping station at which the connectors are crimped onto the wires. In accordance with the method aspect of the invention, the wire pairs are transferred from bundle trays disposed on each side of the crimping dies to a position above the separator to locate the wires of the pairs in the individual connectors in a manner such that numerous pairs of conductors in the ends of two multipair cables can be connected to each other in a relatively short time.

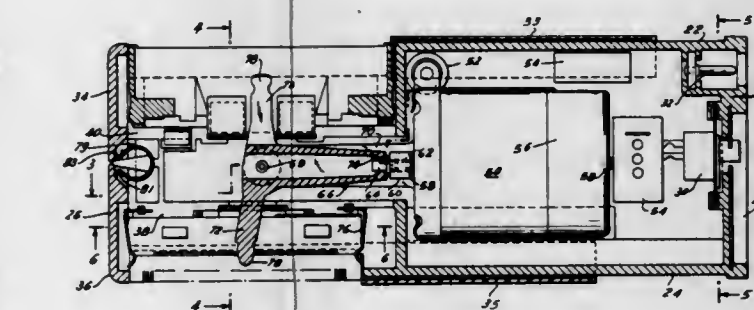
3,594,901
WALL CAN OPENER
 Theodorus Cornelis Marie Van Der Kroft, Valkenswaard, Netherlands, assignor to Brabantia AG, Zug, Switzerland
 Filed Jan. 30, 1969, Ser. No. 795,253
 Claims priority, application Netherlands, Feb. 13, 1968, 6801995
 Int. Cl. B07b 7/32; B67b 7/38
 U.S. Cl. 30—9 3 Claims



A wall can opener comprises a knurled wheel and a circular knife adapted to clamp a can between them and to be

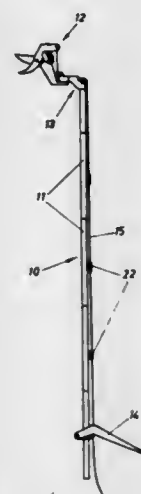
driven by a crank whereby the knife cuts through the top of the can. The crank is arranged on the same side of the opener as the knife, and the crank shaft is perpendicular to the wall and spaced with respect to the knife, so that the crank may freely turn past the clamped can. The crank shaft is coupled with the knurled wheel by means of a transmission.

3,594,902
SHAVER
 Carl Louis Otto, New York, N.Y., and Henry J. Walter, Lancaster, Pa., assignors to Schick Electric Inc., Lancaster, Pa.
 Filed Mar. 13, 1969, Ser. No. 807,041
 Int. Cl. B26b 19/10 1 Claim



An electric shaver is provided with one or more shaving heads disposed parallel to the shaver motor longitudinal axis. The shaver motor drives an eccentric shaft head which oscillates the opposed tips of an actuator which engage and drive moveable cutters of the shaving heads. The shaver is provided with slidable covers for covering the head or heads when not in use.

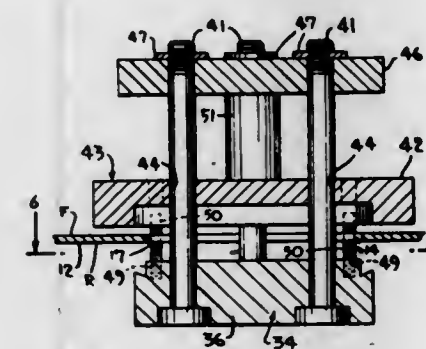
3,594,903
PRUNING APPARATUS
 Jean Schluchter, 79, Route de Saint-Julien, Geneva, Switzerland
 Filed Mar. 6, 1969, Ser. No. 804,786
 Claims priority, application Switzerland, Mar. 6, 1968, 3421/68
 Int. Cl. B26b 13/26 3 Claims



This invention relates to a pruning apparatus comprising a pole; pruning scissors mounted on one end of said pole, said pruning scissors being rotatable around an axis of rotation substantially perpendicular to said pole; and means including

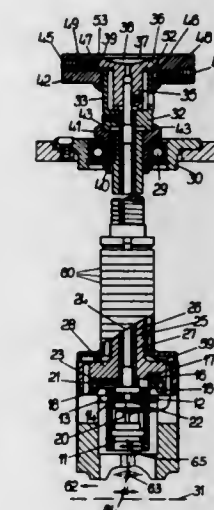
a control handle located at the other end of said pole for actuating said pruning scissors in such a way that the actuation of the pruning scissors is independent of their angular position about said axis of rotation.

3,594,904
DRAW PUNCH CUTTER
 William Finley Wright, Vestal, N.Y.
 Division of Ser. No. 709,597, Feb. 27, 1968, Pat. No. 3,500,531
 Filed Feb. 6, 1970, Ser. No. 9,221
 Int. Cl. B26f 1/02 8 Claims



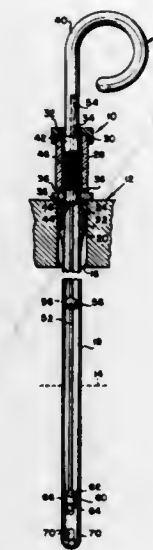
A draw punch cutter having first and second die members placeable, from one side only, on opposite sides of a panel operative to widen an opening.

3,594,905
COPYING DEVICE FOR CUTTING MACHINES
 Otto Kretschmer, Steinhilf am Main, Germany, assignor to Messer Griesheim GmbH, Frankfurt am Main, Germany
 Filed Jan. 23, 1968, Ser. No. 699,964
 Claims priority, application Germany, Jan. 26, 1967, M72545
 Int. Cl. B23q 35/48, 35/128 14 Claims



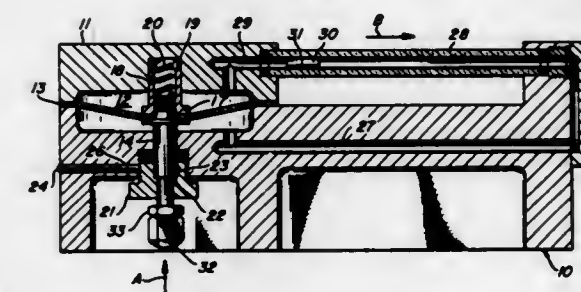
A copying device for machine tools, such as flame and plasma machines, wherein the tool movement is controlled by a preset scanning device which tracks the lines or edges and which has a forward stroke normal to the tool movement is characterized by having the forward stroke of the scanning device adjustable in accordance with the cutting speed of the tool.

3,594,906
TRANSPARENT LIQUID LEVEL INDICATOR
 William H. Kerfoot, P.O. Box A, Berryville, Va.
 Filed Feb. 27, 1970, Ser. No. 15,244
 Int. Cl. G01f 23/04 1 Claim



A transparent liquid level indicator in which a transparent casing is disposed within the tank or reservoir and is provided with a movable plunger. Biasing means normally maintain the plunger in its uppermost position, and when the handle is depressed, the plunger is provided with a piston on the lower end thereof which is depressed or moved downwardly in the casing below an oil or liquid inlet port. The liquid within the tank then enters the casing, and the handle is released so that the biasing means causes the handle to move back to its normal uppermost position and to trap the liquid within the transparent casing. The liquid that is then held or trapped within the transparent casing indicates the level of the liquid in the reservoir when the casing is removed from the reservoir.

3,594,907
LINEAR MOTION INDICATOR
 Martin S. Schlegel, 1212 E. Gardenia St., Phoenix, Ariz.
 Filed Mar. 21, 1969, Ser. No. 809,066
 Int. Cl. G01b 3/22 2 Claims



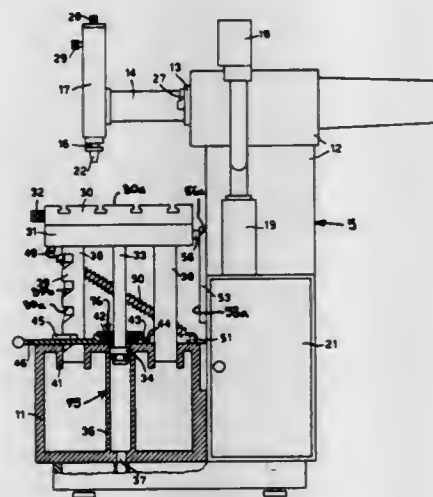
A linear motion indicator for use on power-driven machinery. The indicator has a slidable plunger that communicates with the movable portion of the machine. A hydraulic system, responsive to movement of the plunger, includes a resiliently compressible slave piston proximate a delineated scale.

3,594,908

PRECISION MEASURING MACHINE

Elio Pagella, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea (Turin), Italy
 Filed Sept. 6, 1968, Ser. No. 757,958
 Claims priority, application Italy, Sept. 14, 1967, 53018A/67
 Int. Cl. B23q 17/00, 17/18
 U.S. Cl. 33-174 L

8 Claims



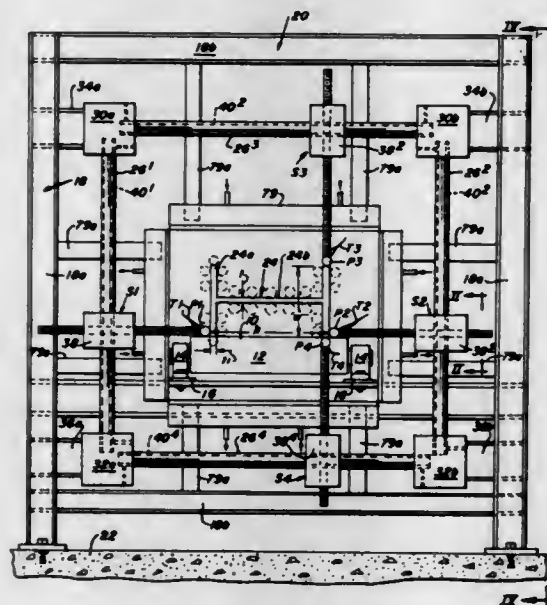
A machine for conducting precision measuring operations. The machine comprises an article-supporting work table and a sensor element moveable into contact with an article on the table. The sensor is moveable along three mutually perpendicular axes and the table is shiftable toward and away from the sensor to increase the flexibility and overall capacity of the machine.

3,594,909

APPARATUS FOR MEASURING A DIMENSION OF A MEMBER

Robert A. Schultz, Penn Hills Township, Allegheny County, Pa., assignor to United States Steel Corporation
 Filed Feb. 26, 1969, Ser. No. 802,500
 Int. Cl. G01b 7/28
 U.S. Cl. 33-174 PA

16 Claims



An apparatus for the contour measurement of a dimension of a member, defined by opposed contours has a frame and opposed sensing assemblies aligned adjacent the contours. Each of the sensing assemblies has a guide on the frame disposed adjacent to a contour; a mount reciprocable on the guide, a first drive connected to the mount for reciprocating the mount on the guide adjacent the contour; a probe reciprocable in the mount between an initial position away from the contour, a probe contact position which provides zero settings for the apparatus and a probe measuring posi-

tion in engagement with the contour; a second drive connected to the probe for reciprocating the probe between the initial position, the probe contact position and the probe measuring position; and a first signal device associated with the probe and operable to produce a zero signal when the probe is in the probe contact position and to produce a measurement signal when the probe is in the probe measuring position. A control device is connected to the first drive, the second drive and the first signal device. The control device causes the first drive to move the probe along the contour; and causes the second drive to move the probe between the initial position, the probe contact position and the probe measuring position.

3,594,910

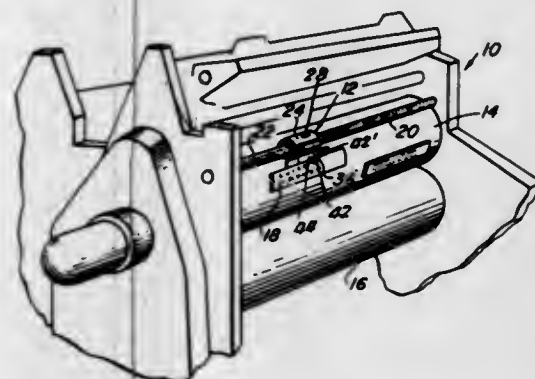
DIE-LOCATING METHOD

Alfred Ross, Chicago, Ill., assignor to Royal Continental Box Company

Filed Feb. 3, 1969, Ser. No. 796,034
 Int. Cl. B41b 1/00

U.S. Cl. 33-184.5

4 Claims



A printing locator and method for a printing system having a roll on which dies are to be placed individually, including a locating mechanism movable axially of the roll for selecting an axial position on the roll. The locating mechanism is movable into position where a guide member extension attached thereto engages the surface of the roll at a selected circumferential location on the roll. The guide member is provided with an indicator identifying the selected axial location so an individual die can be abutted up against the guide member in proper axial and circumferential position on the roll.

3,594,911

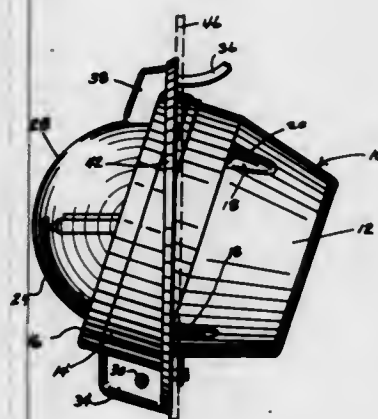
COMPASS

Allen B. Sherman, and Theodore A. Sherman, both of Pembroke, Mass., assignors to E. S. Ritchie & Sons, Inc., Pembroke, Mass.

Filed Dec. 17, 1969, Ser. No. 885,715
 Int. Cl. G01c 17/18, 17/24, 17/38

U.S. Cl. 33-225 R

7 Claims



A compass adapted to be flush-mounted in a vertical bulkhead at an angle which increases the amount of overhead light falling on the compass card and which permits the com-

pensator system to be adjusted without removing the compass from the bulkhead. The compass housing has an integral mounting ring which forms an angle with the housing open end through which the card is viewed.

3,594,912

MEASURING APPARATUS FOR THE GEOMETRIC CHECKING AND/OR CORRECTION OF RAILROAD TRACKS

Gerard Sauterel, Pully, Switzerland, assignor to Matisa Materiel Industriel S.A., Crissier Pres Lausanne, Switzerland

Filed May 9, 1969, Ser. No. 823,314
 Claims priority, application Switzerland, May 15, 1968, 7267/68
 Int. Cl. G01b 5/20

U.S. Cl. 33-174 R

9 Claims



There is disclosed a measuring apparatus for the geometric checking or correction of railroad tracks, which is of the type incorporating two measuring means extending in the lengthwise direction of the track. A deformable mechanism serves to operatively interconnect the two measuring means, each of which bears upon at least one of both rails of the railroad track. The deformable mechanism incorporates at least two converging rod members. The one respective end portions of the two converging rod members are pivotably connected with one of the measuring means through the agency of a movable element and the opposite end portions of these two converging rod members are pivotably connected with the other measuring means.

3,594,913

METHOD FOR DEHYDRATING MATERIALS

George Tooby, 1355 Circle Drive, San Marino, Calif.
 Filed Oct. 4, 1968, Ser. No. 764,989
 Int. Cl. F26b 5/06

U.S. Cl. 34-5

5 Claims

A method of dehydrating a heat-sensitive product including the steps of controllably freezing the product to be dried and then dehydrating the frozen product by subjecting it to an inert, dry gas arranged to have a preselected temperature, velocity and subatmospheric pressure to sublime the frozen liquid. The internal temperature of the product is maintained between 14°-27°F. during the dehydration period. The vaporized fluids are carried away from the surface of the product during the dehydration period.

3,594,914

PROCESS AND APPARATUS FOR CONTINUOUSLY RELAXING TEXTILE FABRICS

Shigeo Kutsuki, Nagoya-shi; Shigeo Nakamura, Nagoya-shi; Kenji Shimomachi, Nagoya-shi; Yoshikazu Sando, Wakayama-shi, and Hiroshi Ishidoshiro, Wakayama-shi, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan and Sando Iron Works, Co., Ltd., Wakayama-ken, Japan

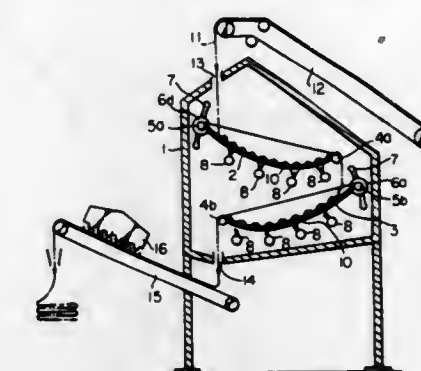
Filed Aug. 22, 1969, Ser. No. 852,336
 Claims priority, application Japan, Aug. 31, 1968, 43-62557/68
 Int. Cl. F26b 7/00

U.S. Cl. 34-12

32 Claims

Textile fabric which has residual inner stresses can be uniformly continuously relaxed by a method in which the fabric is heated by steam or hot water and subjected to a mechanical impact such as vibration or jumping, and at the same time, carried along a treating surface owing to the effects of the heating fluid and the mechanical impact. An apparatus for carrying out the method comprises a carrying plate for fabric to be relaxed, a heating medium jetting means corresponding to the carrying plate, and an impact-ex-

erting mechanism. By the method and the apparatus, the textile fabric can be uniformly and continuously relaxed without



3,594,915

HAIR-DRYING DEVICE

Kenneth C. Routledge, 4 Back Mount Pleasant, Middleton, Leeds, Yorkshire, England

Filed Aug. 15, 1969, Ser. No. 850,553
 Int. Cl. A45d 20/20

U.S. Cl. 34-96

7 Claims



A device for drying and/or setting hair which enables the wearer to move about freely during use thereof. The device comprises separate hood and cap members. The cap is constructed of a multilayer, open mesh, moisture-absorbing material which is initially placed over the wearer's hair. The hood is formed of alternating layers of asbestos or glass fiber cloth with additional layers of heat-retaining fibrous packing and flexible heat-reflecting foil placed therebetween. The hood, after being heated by external heating means to a temperature of about 200° C., is placed over the cap thereby providing the requisite thermal energy for drying the hair.

3,594,916

HAIR DRYERS

Arthur W. Mason, 45a Hampton Lane, Solihull, Warwickshire, England

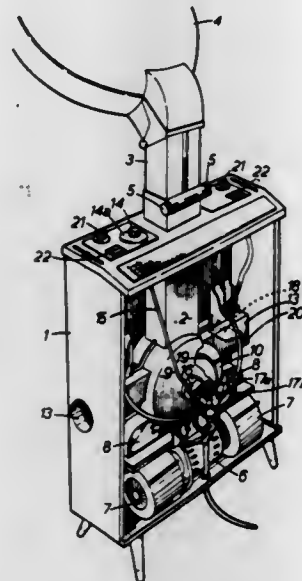
Filed Aug. 8, 1969, Ser. No. 848,427
 Int. Cl. A45d 20/08

U.S. Cl. 34-98

19 Claims

A unit forming a hot air source for a hair dryer comprising at least one fan and at least one heater over or through which air is moved by the fan to heat the air, an outlet duct leading to a hood associated with the unit, a transfer duct leading to an outside wall of the unit, and an angularly movable valve member capable of movement under manual control between a first position in which it directs the heated air from the heater to the outlet duct and a second position in which it directs the heated air from the heater to the transfer duct. The valve member preferably has a third position in which there is an air flow path from the transfer duct to the outlet duct. By turning the valve member appropriately the hood can be supplied with hot air from the heater built into the unit or from an outside source (such as a second similar

unit), or the hot air from the heater of the unit can be fed to a second unit. In a preferred embodiment we provide two heaters and also two transfer ducts, these ducts extending in opposite directions so as to allow the unit to be connected to similar units on either side or on both sides. The valve member needs several different positions to give all the required combinations of air flow paths, and in practice we



mount the valve member in a drum-shaped casing having ports opening into its curved surfaces. Further, where the or each heater is electric, we can link manual control means for the valve member to electric switching means to switch the or each heater automatically on or off to suit the selected valve position. An electric motor driving the or each fan may be similarly automatically controlled, and so may a valve in the or each transfer duct.

3,594,917

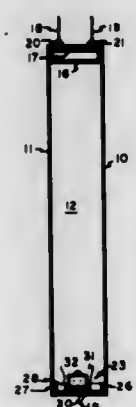
GARMENT BAG WITH STEAMER

Gary L. Montgomery, 234 West 650 South, Bountiful, Utah
Filed June 26, 1969, Ser. No. 836,891

Int. Cl. F26b 9/06

U.S. Cl. 34—151

8 Claims



A garment bag for storing or transporting garments that includes a frame adapted to receive a steam-generating unit.

3,594,918

APPARATUS FOR TREATING FIBROUS MATERIAL
Wilhelm Quenter, Cologne-Lindenthal; Carl Steinmetz, Cologne-Sulz, and Josef Clemens, Cologne, all of Germany, assignors to Firm Wilh. Quenter, Cologne-Sulz, Germany
Filed Dec. 18, 1968, Ser. No. 784,693

Claims priority, application Germany, Dec. 23, 1967, Mar. 15, 1968, P 16 32 157.6; P 16 57 230.8

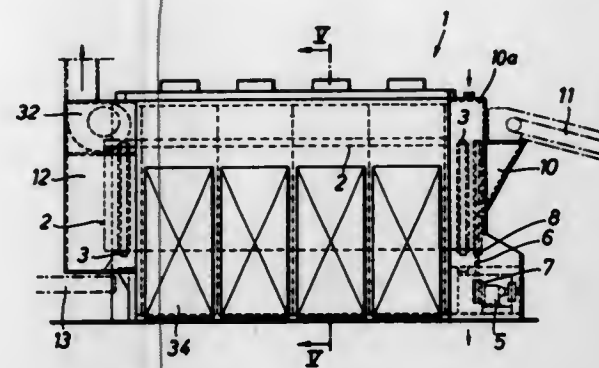
Int. Cl. F26b 11/04

U.S. Cl. 34—131

12 Claims

This disclosure provides an apparatus for drying fibrous materials such as tobacco. The fibrous material being treated

is moved in an axial direction through a drum wherein treating medium is passed through the material in a substantially transverse or radial direction with respect to the drum. The treatment medium may be air used in a drying operation or other types of treating fluids used in operations such as



remoisturizing or impregnating. Various auxiliary devices may be used to control the atmospheric conditions within the drum and the treatment medium which is passed transversely through the charge of fibrous material moving through the drum in an axial direction.

3,594,919

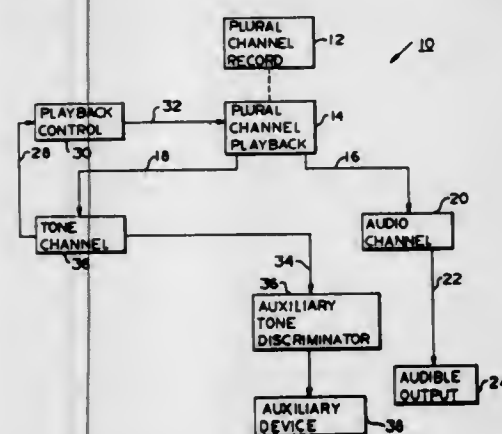
TUTORING DEVICES

Lawrence R. De Bell, Bethany, and David D. Price, Jr., Oklahoma City, both of Okla., assignors to The Economy Company, Oklahoma City, Okla., by said De Bell
Filed Sept. 23, 1969, Ser. No. 860,292

Int. Cl. G09b 5/04

U.S. Cl. 35—8 A

3 Claims



Apparatus for dissemination of programmed information for purposes of tutoring and the like. The apparatus comprising a plural channel record and playback device, each channel being connected to supply input to an audio and a control tone processing channel, respectively; the audio information being reproduced audibly for the benefit of one or more students or users, while the control tone processing channel provides selectively placed periodic control tones for purposes of controlling the playback and learning functions. The apparatus includes specific circuitry for automatically repeating a predetermined segment of recorded audio information, as well as tone discrimination means responsive to predetermined auxiliary control tones to cause periodic actuation of selected auxiliary equipment operating in coaction with the tutoring device.

3,594,920

DRIVING INSTRUCTION FOR PERSONS WITH A HEARING HANDICAP

Thomas J. Kordewick, 138 W. Naperville Road, Westmont, Ill.
Filed July 11, 1968, Ser. No. 744,026

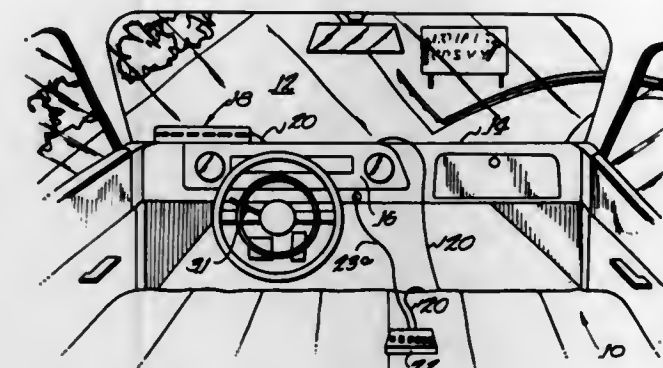
Int. Cl. G09b 9/04

U.S. Cl. 35—11

3 Claims

A method and apparatus for teaching driving to students having a hearing deficiency in a student-instructor relation-

ship wherein an instructional signal device having visually indicated instructions thereon is mounted in the normal front visual line-of-sight of the driver in an automotive vehicle and



a control means connected to the instructional signal for operation by the instructor, wherein preselected individual driving instructions are indicated to the student on the instructional signal device activated by the instructor.

3,594,921

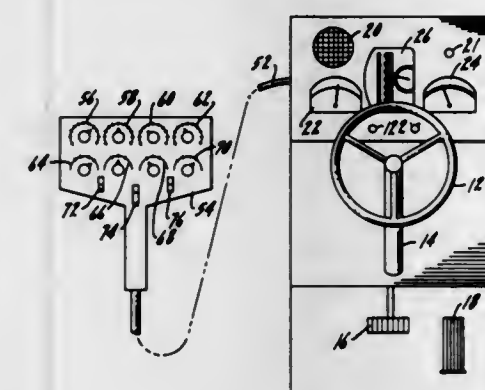
DRIVER TRAINING AND TESTING APPARATUS

Hubert H. Quicker, Jr., 2523 Hewitt St., La Crosse, Wis.
Filed June 19, 1969, Ser. No. 834,802

Int. Cl. G09b 9/04

U.S. Cl. 35—11

32 Claims



A driver-training apparatus including means for simulating various driving conditions, such as fixed objects in the path of the driver, passing situations, varying weather conditions, varying types of automobiles, and other conditions customarily encountered in day-by-day driving. There is a console for the student driver which includes the conventional brake, accelerator and steering wheel, as well as various meters for use by the student to determine his effectiveness in driving. There is a control unit operated by the instructor whereby he may program certain driving conditions to which the student must react while sitting at the training console.

3,594,922

TECHNICAL DISPLAY MODEL

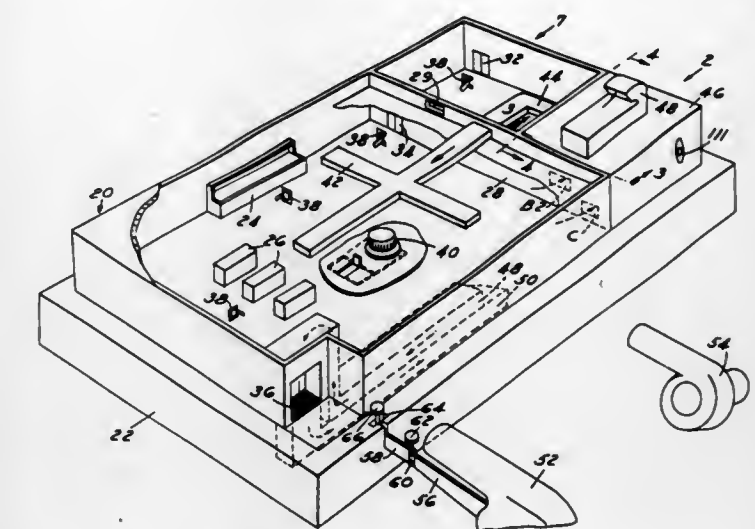
William L. Ellis, 2876 Pease Drive, Rocky River, Ohio
Filed Nov. 4, 1969, Ser. No. 873,965

Int. Cl. G09b 25/04

U.S. Cl. 35—16

26 Claims

The invention pertains to an architectural technical display model for the purpose of demonstrating architectural and HVAC mechanical systems which will maximize the effectiveness of an air curtain entrance way. The display model disassembles into convenient modules including a portable



demonstrative effectiveness of such architectural display models.

3,594,923

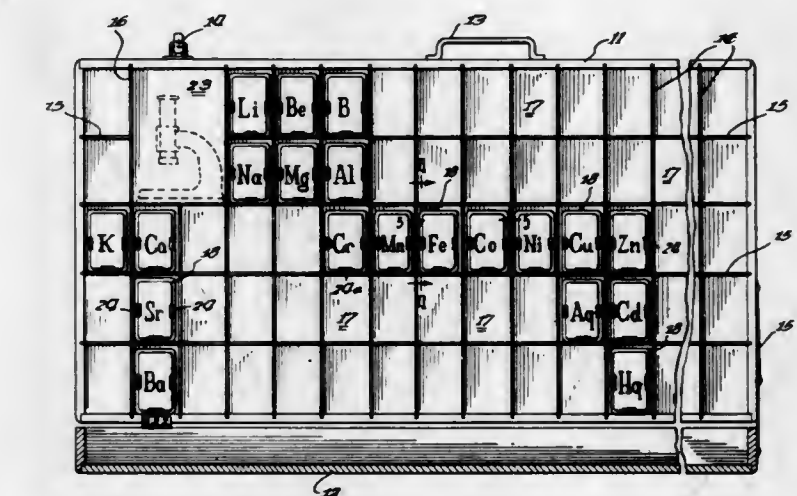
CHEMISTRY-TEACHING AID

Calvin P. Midgley, R.F.D. 1, Lake Villa, Ill.
Filed Jan. 17, 1969, Ser. No. 791,943

Int. Cl. G09b 23/24

U.S. Cl. 35—18 R

11 Claims



A chemistry-teaching aid for use in conjunction with the classroom demonstration of qualitative tests for the presence of selected elements in chemical substances, which includes a base member defining a periodic table or excerpts therefrom with a marked element space for each of a plurality of chemical substances which consists of or includes a selected element. A test index member, preferably a card, is provided for each of the selected elements which either matches the characteristic color produced in a laboratory test for the presence of the selected element in a compound, or indicates a precipitate by a vertical arrow, or both. Mounting means are provided on the base member in association with each of the element spaces for receiving the test index cards. Each card may have the chemical symbol for an element printed on one face.

3,594,924

DNA-RNA TEACHING AID

Kenneth H. Baker, State College, Pa., assignor to Nasco Industries Inc., Ft. Atkinson, Wis.
Filed June 25, 1969, Ser. No. 836,276

Int. Cl. G09b 23/26

U.S. Cl. 35—18 A

2 Claims

A model for representing chemical structures such as deoxyribonucleic acid and the like, and including a combina-

tion of individual units with projections and apertures formed as part of the units whereby the apertures are adapted to receive and removably retain the projections in a manner permitting relative movement between adjacent units within



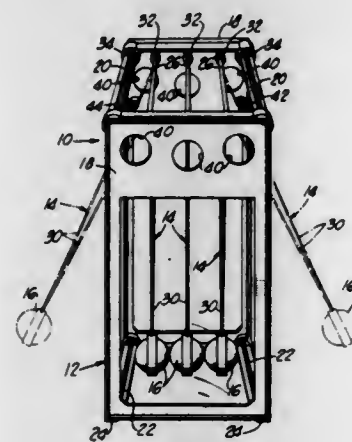
the model. One alternative embodiment includes the use of permanent magnets formed as a part of the units for connecting the units together in lieu of the projections and apertures. Means are provided for supporting the units in a desired shape.

3,594,925 AMUSEMENT DEVICE

Jean Pierre Abbat, Los Angeles County, Calif., assignor to Brutoco Development Co., Covina, Calif.
Filed Jan. 2, 1969, Ser. No. 788,437
Int. Cl. G09b 23/10

U.S. Cl. 35—19 R

7 Claims



An amusement device comprising a generally parallelepiped-shaped frame member in which a plurality of spherical mass retaining yokes are freely suspended. The frame member includes a pair of sideplates detachably connected by a plurality of elongated braces, and the mass-retaining members are detachably mounted in the frame member, whereby the entire device may be assembled in a relatively compact package for carrying or storing.

3,594,926 APPARATUS AND METHOD FOR CORRELATING INFORMATION

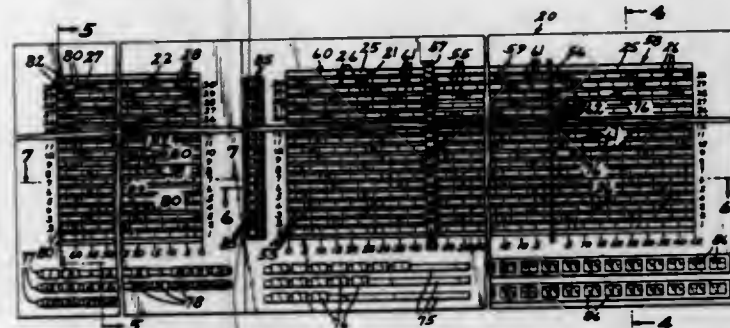
Sydney C. Reed, 3948 Edgewood Ave. North, Minneapolis, Minn.; Robert C. Shiely, Dellwood, Minn., and James R. Wagner, Jr., 1845 Park St., White Bear Lake, Minn.
Filed May 19, 1969, Ser. No. 825,742
Int. Cl. G09b 29/06; G09f 1/16

U.S. Cl. 35—24 B

11 Claims

A plurality of endless belts formed of magnetic material driven at a constant speed with a portion of each readily viewable by an operator, magnetic visual indicators engageable and disengageable from said belts for representing infor-

mation, areas encompassing portions of said belts and representative of phases of a task, such as "time to job," "time on job," and "time to return from job," and an adjustable elongated rod associated with each belt for indicating the

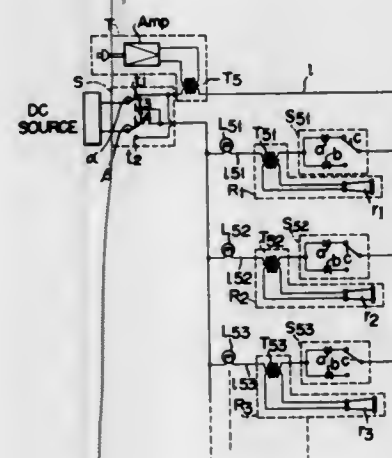


time required in at least two of the phases. A second board is also utilized, similar to the above-described board, for indicating time intervals of a specific task, said boards providing a visual representation of interrelated information.

**3,594,927
QUESTIONEE'S RESPONSE-DETECTING DEVICE**
Masami Koizumi, Kawasaki-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed June 3, 1969, Ser. No. 829,922
Claims priority, application Japan, June 4, 1968, June 20, 1968, 43/38227; 43/42834
Int. Cl. G09b 7/02

U.S. Cl. 35—48

1 Claim



There is provided a questionee's response-detecting device comprising a plurality of questionee's answer selection switches, response indicating and/or recording means, a DC power source and a questioner's changeover switch interconnected between the power source and said questionee's answer selection switches, thereby indicating and/or recording the response of questionee's (Yes, No and No Answer) by the combinations of the questioner's changeover switch and the questionee's answer selection switches. If required, an audio communication system may be incorporated. The response indication and/or recording may be immediately and accurately made.

**3,594,928
PAPER HAVING AREAS DISSOLVABLE IN WATER**
Roland Henry Noel, Fayetteville, N.Y., assignor to Bristol-Myers Company, New York, N.Y.
Filed June 13, 1968, Ser. No. 736,828
Int. Cl. G09b 23/28

U.S. Cl. 35—50

3 Claims

A method and article are provided with the method comprising instructing individuals in the effectiveness of bactericidal compositions by the steps of demonstrating to the individuals a graphic representation of micro-organisms upon paper or film which when immersed in water will result in the

destruction of any graphic representation upon the surface of the paper or film, and immersing the paper or film in water. The preferred substrate is water-soluble paper prepared for



example from cellulose ether fibers which ethers are soluble in cold water, all as is more particularly described in the following specification.

3,594,929 FOOTWEAR

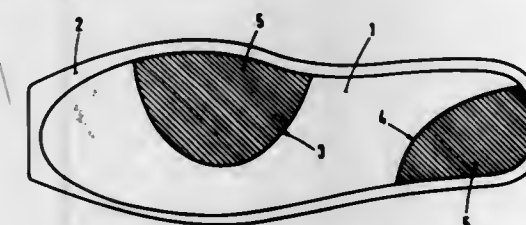
Rudolf Stohr, Tuttlingen, Wurttemberg, Germany, assignor to Dr. Justus Rieker & Co., Tuttlingen, Wurttemberg, Germany

Filed Sept. 18, 1969, Ser. No. 858,934
Claims priority, application Germany, Apr. 2, 1969, P 19 16 935.8

U.S. Cl. 36—44

Int. Cl. A43b 13/38

7 Claims



The invention relates to an article of skiing footwear wherein in order to damp or absorb impacts on the bone structure of the skier, there is provided in association with the sole a layer which, as distinct from known sole elements made from cellular plastics, is capable of further compression even under maximum shock loading, and the resilience of which in the zone of such maximum shock loading is greater than that of the remaining boot or shoe base under similar loading.

3,594,930 ANTISLIP CAM

Johann Felder, Kruseweg 10, 6060 Absam, Tyrol, Austria
Filed Sept. 18, 1969, Ser. No. 859,019

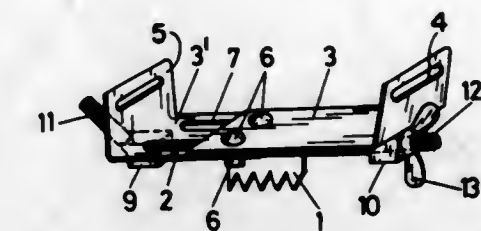
Claims priority, application Austria, Sept. 19, 1968, A 9129/68

Int. Cl. A43c 15/00

U.S. Cl. 36—61

4 Claims

An antislip cam adapted to be releasably attached to a

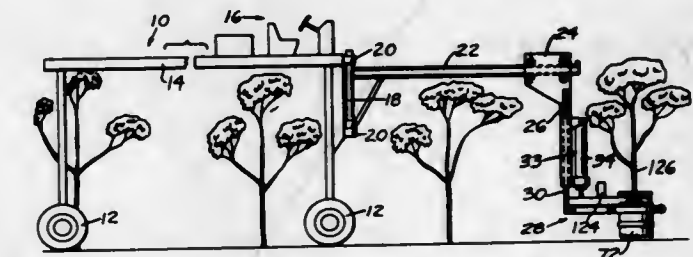


movably connected thereto for being positioned in operative or inoperative relationship relative to the ground.

**3,594,931
APPARATUS FOR EXCAVATING PLANTS**
Kenneth J. Yost, Eaton, Ohio, assignor to Campbell S. Brower, a part interest
Filed Nov. 12, 1968, Ser. No. 783,449
Int. Cl. A01g 23/04

U.S. Cl. 37—2R

13 Claims



A method and apparatus for excavating plants, especially shrubs and trees, in which a vertical digging cylinder, is provided, which is split longitudinally and is arranged to be opened and placed around a plant and then closed. The cylinder is then driven vertically into the ground. A cut is then made at the bottom of the cylinder to cut off the plug of ground taken by the cylinder and the plant and plug of ground can then be lifted and transplanted in a selected location.

The cylinder has a sleeve of wrapping material, tar paper, for example, therein which contains the periphery of the plug while a bottom cap is placed on the sleeve after the plant and plug are lifted from the hole.

The apparatus forms an attachment on the front end of a straddle-type vehicle so the apparatus can be moved about in a plant nursery or the like and an operator in an operator's station on top of the vehicle can observe the apparatus and control the operation thereof.

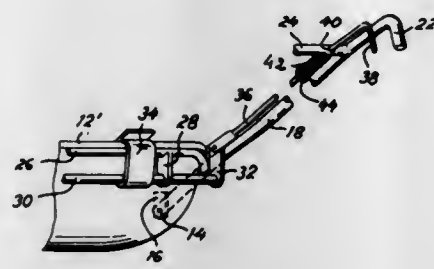
**3,594,932
COMBINED SNOW PLOW AND GARDEN CART**
Henning Emanuel Eriksson, 10 Furumostigen, S-952 00 Kalix, Sweden
Filed Feb. 20, 1969, Ser. No. 800,996
Claims priority, application Sweden, Oct. 7, 1968, 13480/1968
Int. Cl. E01h 5/02; B62b 1/24

U.S. Cl. 37—53

1 Claim

A combined snow plow and garden cart has holders swingably fixed to the plow and a locking device to lock the plow to the holders. The two sides of the plow are provided with separate arms swingable in a vertical plane, the ends of the arms opposed to their axle carrying wheels for rolling the plow and cart. The swinging movements of the arms take place between two positions. In the first position the front bottom portion of the plow extends substantially parallel to

the ground and lies against the ground. In the second position the front bottom portion is located at a substantial distance



from the ground, the distance being preferably approximately equal to the distance of the wheel axis from the ground.

3,594,933

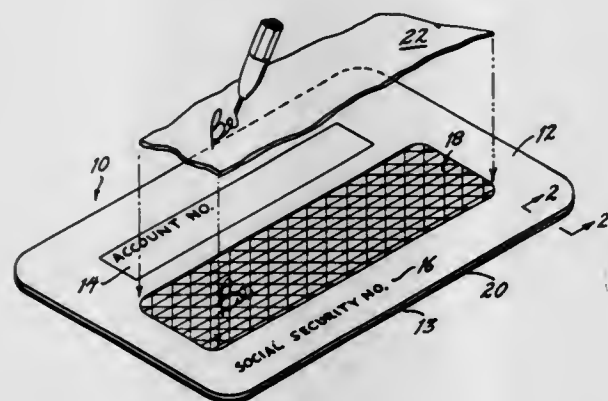
IDENTIFICATION DEVICE

Bernard William Cooper, Syosset, N.Y., assignor to Spec-
tronics Corporation, Westbury, N.Y.

Filed Apr. 1, 1969, Ser. No. 813,402

Int. Cl. G09f 3/02

U.S. Cl. 40—2.2



An identification device is provided which includes a substrate having a portion of one surface constructed so as to be absorbent and capable of permanently accepting an invisible indicia such as a signature. The said portion of said substrate is of self-destructing safety printing so that tampering therewith is readily ascertainable and will obscure a slight visible cast resulting from transferring invisible indicia thereto. The substrate is preferably comprised of a paper layer on opposite sides of a tough polymeric plastic such as Mylar bonded thereto. The identification device is preferably in the form of an identification or credit card bearing a signature, which signature may only be seen when subjected to radiant energy such as ultra violet light.

3,594,934

ROTATING ORNAMENT

Jack Burnbaum, 451 D St., Boston, Mass.

Filed Nov. 14, 1968, Ser. No. 775,879

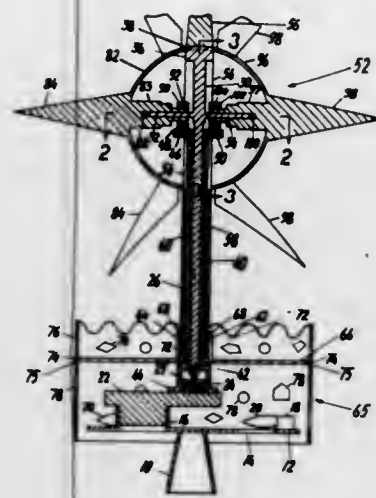
Int. Cl. G09f 1/10

U.S. Cl. 40—33

13 Claims

A rotating ornament has a vertically extending shaft, and display member mounted thereon having a central section fixed on said shaft and horizontally rotatable therewith, and two side sections each carrying a wheel and being vertically rotatable independently of said central section. Two op-

positely and laterally extending axles are fixed on said shaft on which said two side sections are rotatably mounted. Said



wheels cause said side sections to rotate vertically as they travel on a track when said display member is rotated.

3,594,935

MEMORANDUM PAD

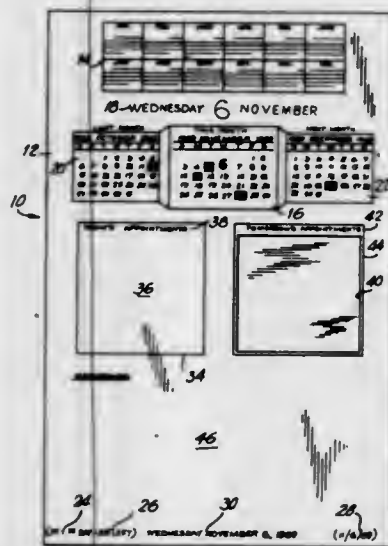
Joel Blattstein, 3419 Irwin Ave., New York, N.Y.

Filed Nov. 26, 1969, Ser. No. 880,309

Int. Cl. G09d 3/00

U.S. Cl. 40—107

11 Claims



Memorandum pad having stacked sheets corresponding to days of the year, each succeeding sheet being provided with alternating windows or cutouts through which memoranda may be written on and read from the succeeding sheet without moving or removing the overlying sheet enabling memoranda, appointments, birthdays, events, and the like, to be entered in a single writing and read for two succeeding days and therefore a succeeding day's appointments, events and the like to be previewed on a preceding day.

3,594,936

DISPLAY APPARATUS

Paul Blum, Stamford, Conn., assignor to Paul Blum, Elm-
sford, N.Y.

Filed Feb. 4, 1970, Ser. No. 8,575

Int. Cl. G09f 1/00

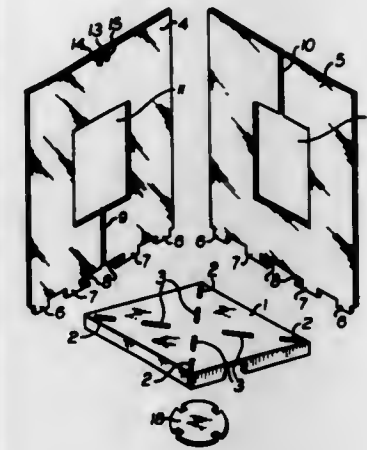
U.S. Cl. 40—124.1

8 Claims

A display apparatus comprising a base means having slot means therein; at least two panels disposed in crossing relation to each other extending generally normal to the base means and having tab means inserting through the slot means, at least some of which tab means are themselves slotted below the level of the base means with all said tab

slots being inwardly directed toward the axis of said crossed panels; locking means disposed in said tab slots abutting the underside of said base means; and alignment means disposed centrally on the end of one of said panels opposite to said base means receiving the end of the other of said panels

attachment means are connected to the edge portions for mounting the device to the vehicle. The attachment means



therein and aligning both panels in predetermined fixed relationship to each other and to said base. A space may be provided in one or both panels to hold and/or maintain a display item, preferably in apparent suspension above the base means.

3,594,937

SOUND-EMITTING DEVICE

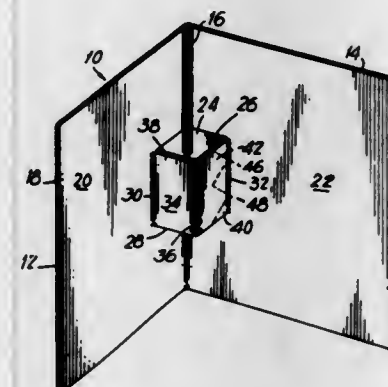
Charles R. Luchsinger, Glen Cove, N.Y., assignor to Norcross,
Inc., New York, N.Y.

Filed Nov. 28, 1969, Ser. No. 880,658

Int. Cl. G09f 1/00

U.S. Cl. 40—124.1

10 Claims



A display device has a pair of panels foldable along a fold line. Portions of each panel adjoining a common section of the fold line are moveable outwardly from the panel during folding. These portions are defined by cuts in the panels which intersect the fold line with other fold lines connecting corresponding ends of these cuts. One of the panels has a layer beneath its corresponding moveable portion. A flexible arm mounted on one portion of the moveable panel slideably rubs the facing surface of the lower layer during opening movement of the panels, thereby emitting a sound.

3,594,938

WARNING DEVICE

Alfred Mosch, 442 Popular St., Bridgeport, Conn.

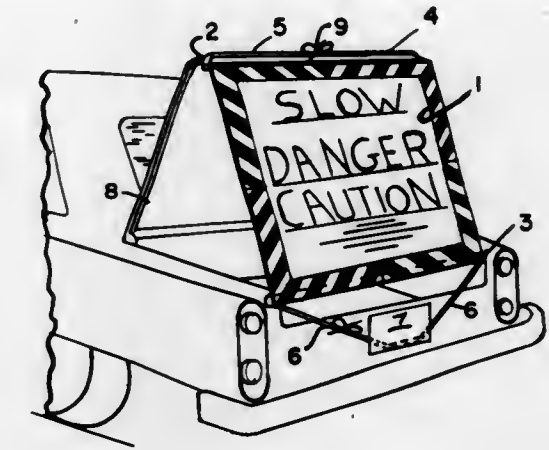
Filed July 2, 1968, Ser. No. 741,970

Int. Cl. G09f 7/00

U.S. Cl. 40—129 C

2 Claims

A warning device for vehicles having a rear portion, the device comprised of a rectangular warning sign made of a flexible sheet material having upper and lower edge portions;



are individually removably connected to the rear of said vehicle when the device is being displayed.

3,594,939

PICTURE FRAME

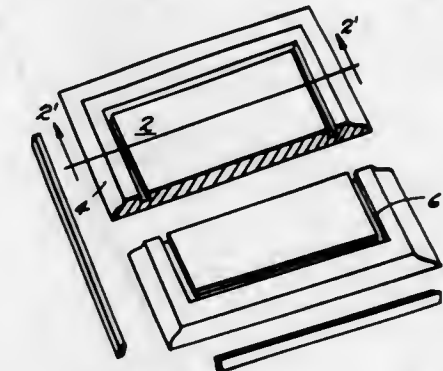
Henry P. Parker, 700 W. Bayview Ave., Biloxi, Miss.

Filed Aug. 22, 1969, Ser. No. 852,213

Int. Cl. G09f 1/12

U.S. Cl. 40—156

8 Claims



An improved picture frame of solid construction having a plurality of grooves therein which receive a plurality of inserts which are placed within the grooves over the edges of a flexible material so that the flexible material is stretched and secured to the picture frame.

3,594,940

ASSEMBLY TOY SET

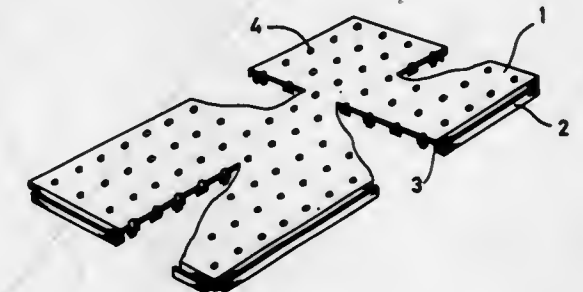
Yoshitaka Yonezawa, Tokyo, Japan, assignor to Yonezawa
Toys Co., Ltd., Tokyo, Japan

Filed Aug. 19, 1968, Ser. No. 753,539

Int. Cl. A63h 33/04

U.S. Cl. 46—16

3 Claims



This assembly toy set comprises baseboards having a plurality of arranged holes in one planar surface thereof and fittings such as rail, signal, house, tree and the like which

fittings are provided with many protuberances adapted to be snugly received in said holes.

3,594,941

RECORD-PLAYING TELEPHONE TOY

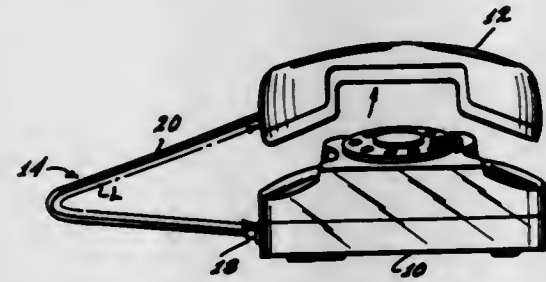
Elliot Handler, Los Angeles; Jack L. Barcus, Palos Verdes Peninsula, and Ralph H. Stewart, Los Angeles, all of, Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Nov. 29, 1968, Ser. No. 779,873

Int. Cl. A63h 33/30

U.S. Cl. 46-33

1 Claim



A toy telephone with a spring-powered phonograph in the telephone base that is operated by a drawstring. The drawstring is attached to the telephone handset, in the manner of a telephone cord, so that the phonograph is operated by pulling the handset away from the base and then releasing it. The drawstring is long enough to allow a child to hold the handset to his ear even when the drawstring is fully rewound into the telephone base.

3,594,942

KICKING DOLL

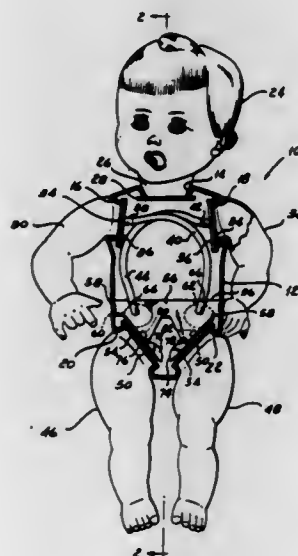
Charles M. Hollingsworth, West Columbia, and Witold W. Kosicki, Columbia, both of, S.C., assignors to Horsman Dolls Inc., Columbia, S.C.

Filed May 7, 1969, Ser. No. 822,486

Int. Cl. A63h 3/04

U.S. Cl. 46-44

6 Claims

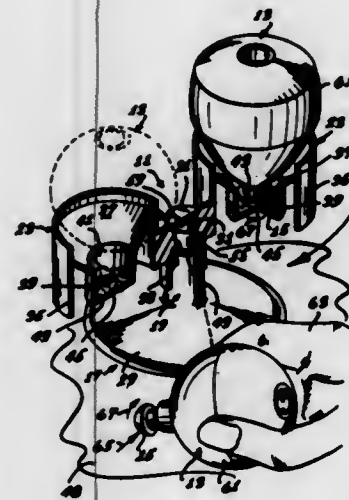


A kicking doll in which a system responsive to pressure exerted on the arms of the doll causes its legs to move from normal positions, which they occupy under the influence of gravity when the doll is erect or is lying on its back, toward resilient stops which define kicking limit positions intermediate the normal and sitting positions of the legs. The legs may be manually moved past the resilient stops to a sitting position determined by positive stops.

3,594,943
TOY TOP PIVOT ACCESSORY
John W. Ryan, and Gabriel Marason, Jr., both of Los Angeles, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed June 8, 1970, Ser. No. 44,413
Int. Cl. A63h 1/32

U.S. Cl. 46-47

5 Claims



A twirling structure having a pair of oppositely disposed spinning toy-top-holding portions is supported at its centrally located axis of rotation by an upstanding pedestal portion of a stand or base. The holding portions may be in the form of cups and centrally disposed holes are located at the bottom of the cups in order to center the tops and to allow the tops' rotating starting tip to come into contact with the cup structure and thereby impart thereto a mechanical couple and cause the structure to twirl about its rotational axis.

3,594,944
SELF-REVERSING TOP

Herbert F. Rondeau, Winchester; William Clark Goodchild, Jr., Beverly, and Hans Frederick Schaefer, Jr., Rockport, all of, Mass., assignors to Clearfloat, Inc., Attleboro, Mass.
Filed Apr. 11, 1969, Ser. No. 815,363
Int. Cl. A63h 1/00

U.S. Cl. 46-47

6 Claims



A self-reversing top is provided which, when spun in one direction, will rotate first in that direction and then will reverse its direction of rotation. The top is of integrated rigid construction having a curved lower contact surface the direction of least curvature of which is angularly offset from the principal axis of inertia.

3,594,945
FLYING TOY
Howard R. Turney, 1180 Holly St., Anaheim, Calif.
Filed Apr. 14, 1969, Ser. No. 815,784
Int. Cl. A63h 27/00

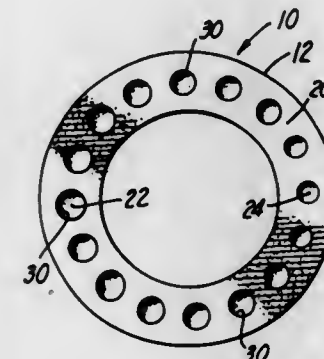
U.S. Cl. 46-74 R

6 Claims

A manually projectable flying toy comprising an annulus the cross section of which in any radial plane containing its

axis is that of an airfoil having a convex upper surface, the axial thickness of the annulus varying uniformly circum-

ferentially thereof and being a maximum and a minimum at points 180° apart.

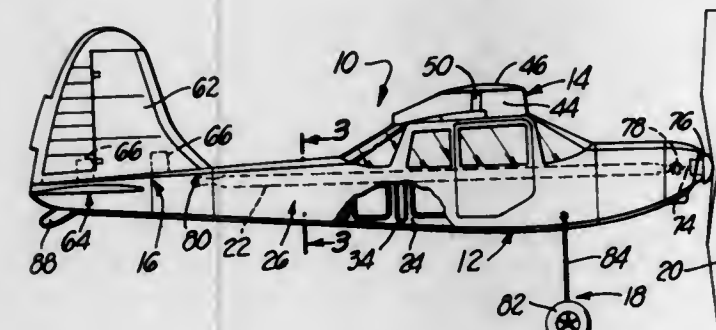


ferentially thereof and being a maximum and a minimum at points 180° apart.

3,594,946
PLASTIC MODEL CONSTRUCTION
Leslie DeWitt, Jr., 2434 N. Durfee, El Monte, Calif.
Filed Feb. 6, 1969, Ser. No. 797,102
Int. Cl. A63h 27/00

U.S. Cl. 46-76 R

16 Claims



A molded plastic model, such as a model airplane, having a molded plastic body consisting of mating body shells which are mutually joined along adhesively bonded seams, and thin molded plastic skin sections which are applied over and secured to the sides of the body in such a way as to obscure the seams and reinforce the body. An improved molded plastic wing construction is provided for the model airplane.

3,594,947
SPACEMAN CARRIER TOY
Donald C. Hartling, Garden Grove; Robert E. Hulse, Torrance; Gary W. Pimentel, Downey, and John W. Ryan, Los Angeles, all of, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Nov. 29, 1968, Ser. No. 779,982
Int. Cl. A63h 13/00

U.S. Cl. 46-116

7 Claims

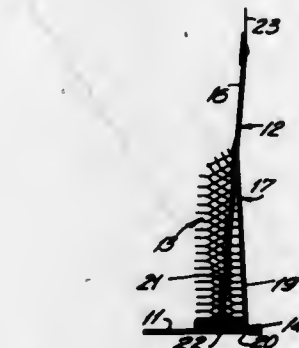
A toy for a spaceman doll to provide the effect of amplification of the stride and reach of the doll. The carrier comprises a pair of adjustable stilts with clamps for holding the boots of a spaceman doll. A frame which simulates a

late giant doll strides. Long grasping tools on each side of the doll simulate apparatus for extending its reach.

3,594,948
COLLAPSIBLE DISPLAY DEVICE
Charles Luchsinger, Glen Cove, N.Y., assignor to Norcross, Inc., New York, N.Y.
Filed Mar. 17, 1969, Ser. No. 807,807
Int. Cl. A63h 11/00

U.S. Cl. 46-119

10 Claims



A collapsible puppet display device includes a paper honeycomb accordion, vertically extensible body member connected at its bottom to a flat base member provided along its rear with an upstanding stop and at its top to a head member having a depending hinged flap and depending coplanar laterally spaced arms. The device is collapsible to a flat condition, is self-supporting by swinging the flap into engagement with the stop member, and is string manipulative.

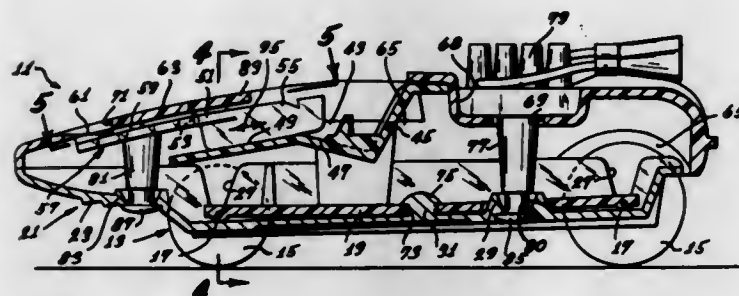
3,594,949
TOY VEHICLE HAVING SIMULATED HEADLIGHTS WITH ON-OFF CONTROL
Paul Tam, Los Angeles, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Mar. 6, 1970, Ser. No. 17,110
Int. Cl. A63h 17/26

U.S. Cl. 46-202

10 Claims

A member having headlight beam simulating indicia, such as white paint, is slidably mounted in a toy vehicle having

headlight fixture simulating apertures whereby the headlights of the vehicles may be "turned-on" by moving the member thereof, and having a driving means for driving said tractor



so as to expose the headlight beam simulating indicia in the headlight fixture simulating apertures.

3,594,950

MECHANICAL MOVEMENT FOR TOYS

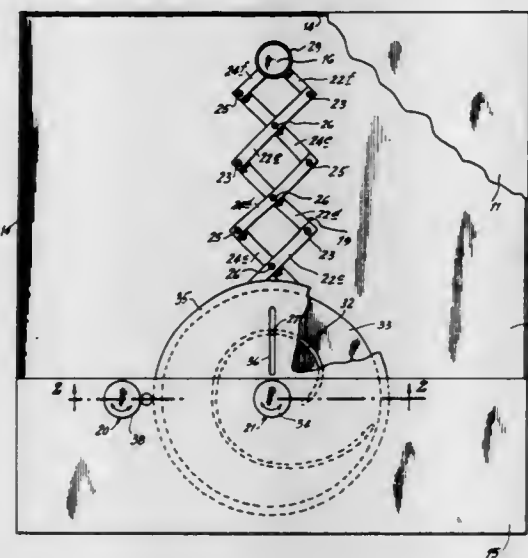
William Bloom, Leonia, N.J., assignor to Miner Industries, Inc., New York, N.Y.

Filed July 7, 1969, Ser. No. 839,303

Int. Cl. A63h 33/26

U.S. Cl. 46-240

9 Claims



In a toy, the movement of an element in randomly selected paths over a planar surface is effected by a longitudinally extendable and retractable pantographic arm assembly which is swingable in a plane parallel to such surface about an axis at one end of the arm assembly and which carries the element at the other end of the arm assembly, and individually operable drives are connected with the arm assembly intermediate its ends to selectively cause swinging thereof and extension and retraction of the arm assembly.

3,594,951

WHEELED TOY TRACTOR WITH SEPARABLE MOTORIZED TRAILER MEANS

Leslie Perhacs, Jr., Topanga, Calif., assignor to Cragstan Industries, Inc., New York, N.Y.

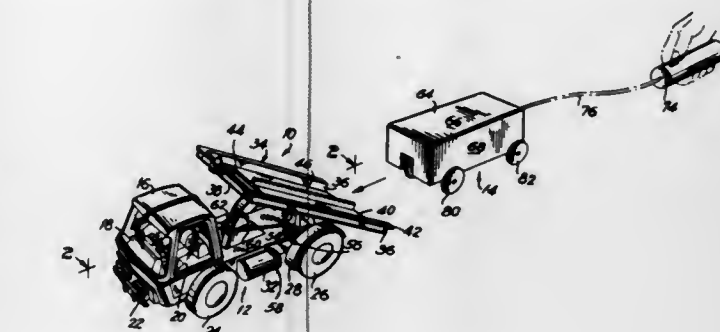
Filed Apr. 23, 1969, Ser. No. 818,667

Int. Cl. A63h 17/05, 30/00

U.S. Cl. 46-244 A

14 Claims

Toy vehicle comprising tractor means having a cab, a chassis and a bed, said tractor means being constructed and arranged to enable said bed to be moved between elevated and non-elevated positions with respect to said chassis, and trailer means constructed and arranged to be operated by remote control, and moveable between a position in which it is separated from said tractor means, and a position in which it



means when said trailer means is disposed in a cooperative position with respect to the bed thereof.

3,594,952

SONIC POLISHING APPARATUS

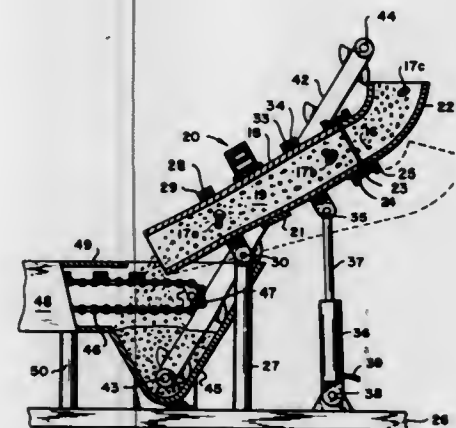
Howard E. McKinney, La Jolla, Calif., assignor to Shell Oil Company, New York, N.Y.

Continuation-in-part of application Ser. No. 710,993, Mar. 6, 1968. This application Oct. 24, 1968, Ser. No. 770,222

Int. Cl. B24b 19/00

U.S. Cl. 51-7

4 Claims



A substantially tubular elastic housing member is adapted to surround an elongated element in close proximity thereto and adapted to contain a finishing medium therebetween. A sonic oscillator is coupled to the elastic housing member to resonantly vibrate said member as the elastic member and elongated element are axially moved relative to one another.

3,594,953

COOLING ARRANGEMENT FOR THREAD-GRINDING MACHINES

Gerhard Stadel, Berlin, Germany, assignor to Herbert Lindner G.m.b.H., Berlin, Germany

Filed Apr. 15, 1969, Ser. No. 816,211

Claims priority, application Germany, July 2, 1968, P 17

52 684.0

Int. Cl. B24b 5/00, 3/00, 55/02

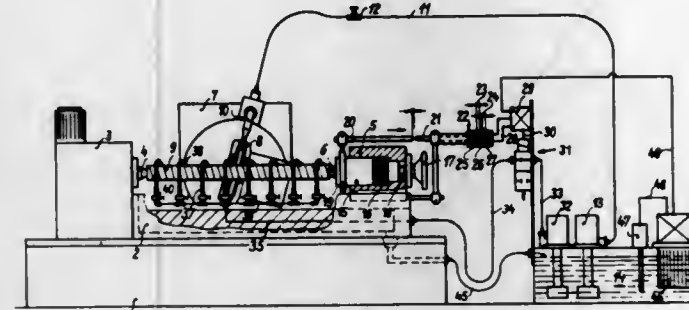
U.S. Cl. 51-48

10 Claims

In a thread-grinding machine including a grinding table supporting a grinding wheel between two work centering spindles, of which a tail stock centering spindle is biased toward the other spindle, and further including a discharge nozzle, for a first coolant flow, at the grinding wheel support, a workpiece cooling arrangement includes a series of second discharge nozzles for a second controllable coolant flow, arranged at the grinding table in the area between the centering spindles. Valve means control the second coolant flow, and electric precision feeler means are operatively associated with the spring biased table stock centering spindle to open the valve means responsive to a predetermined axial expansion of the workpiece. The valve means include a magnet

valve and a motor valve. A cooling unit is disposed in a reservoir for the second coolant, and is activated whenever the

which may be released to conform to the workpiece diameter to be supported, and which may be locked to retain the cor-



temperature of the workpiece continues to increase as determined by axial expansion of the workpiece.

3,594,954

DEVICE FOR COPYING ON POLISHING OR BRUSHING MACHINES FOR HOLLOW ARTICLES

Karl Eugene Becker, Geislingen; Karl Oberlander, Geislingen; Hugo Fessler, Geislingen, and Kurt Jager, Miesbach, all of, Germany, assignors to Württembergische Metallwarenfabrik, Geislingen, Steige, Germany

Filed Oct. 3, 1968, Ser. No. 764,893

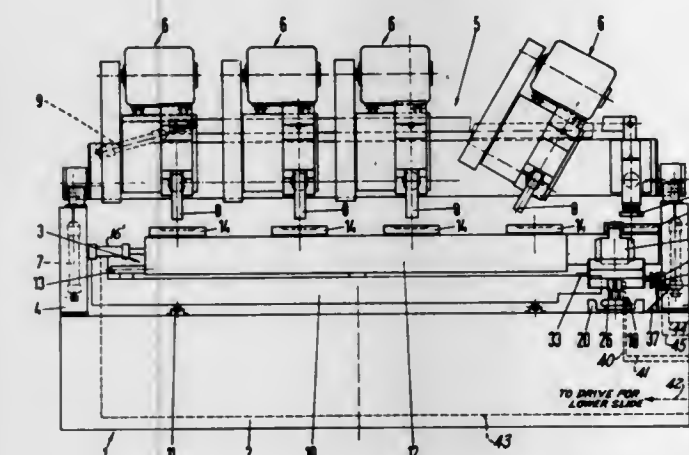
Claims priority, application Germany, Oct. 4, 1967, P 16 52

238.6

Int. Cl. B24b 17/06, 9/00

U.S. Cl. 51-100

3 Claims



A polishing and brushing machine having a cross-slide arrangement adapted to receive workpieces thereon for moving same relative to a polishing wheel. The movement of the workpiece is automatically controlled by means of a template mounted on the machine frame, which template coacts with a switching stylus mounted on the cross-slide for controlling the movement thereof. The template permits selective polishing of the entire workpiece or of the edge areas.

3,594,955

UNIVERSAL SHOE GUIDE FOR A CENTERLESS GRINDING MACHINE

Bertrand Collin, New Britain, and Victor J. Baccaro, Southington, both of, Conn., assignors to Textron Inc., Providence, R.I.

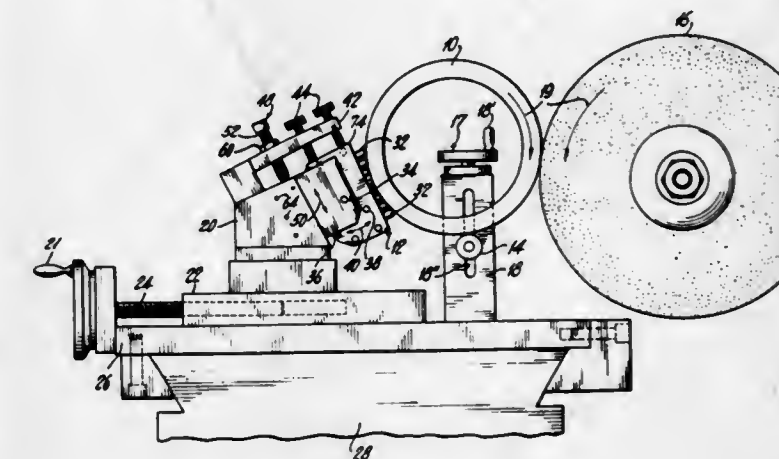
Filed Sept. 9, 1968, Ser. No. 758,522

Int. Cl. B24b 5/18

U.S. Cl. 51-103

14 Claims

The invention contemplates a universal fixture adjustably supporting a set of selectively locked spring-loaded pins



rect work-support arc for the particular workpiece. Fixtures for internal grinding and for external grinding are shown.

3,594,956

POLISHING METHOD AND DEVICE

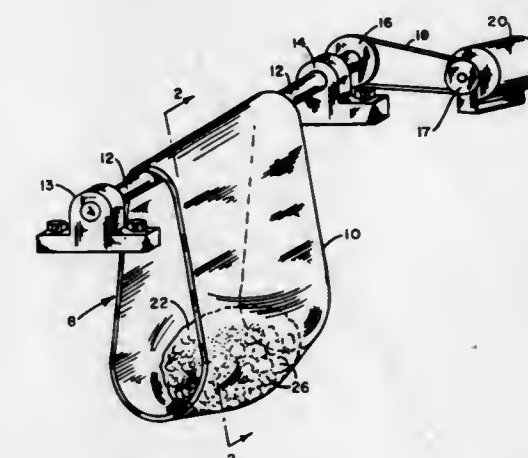
George M. Conover, P.O. Box 1497, Bartlesville, Okla.

Filed Dec. 26, 1968, Ser. No. 787,138

Int. Cl. B24b 1/00

U.S. Cl. 51-163

9 Claims



An improved method and means for grinding and polishing articles. The items to be polished and the desired or required amount of grit-bearing grinding liquid, are sealed within a disposable, leakproof bag, and the bag and contents are then tumbled until the desired amount of polishing is effected. The disposable leakproof bag may be prepackaged as the container for a premeasured amount of grinding grit, and be of such a predetermined capacity that when filled to a prescribed level with the liquid and items to be polished, the proper proportion or ratio of liquid to grit will automatically be effected. The rotating device is preferably the inside lower end of a broad, closed belt loop gravitationally suspending from, and driven by, an overhead rotatable shaft. For finer polishing, successive stages employing increasingly finer grinding grit may be employed.

3,594,957

DEVICE FOR COMPENSATING FOR GRINDING WHEEL WEAR

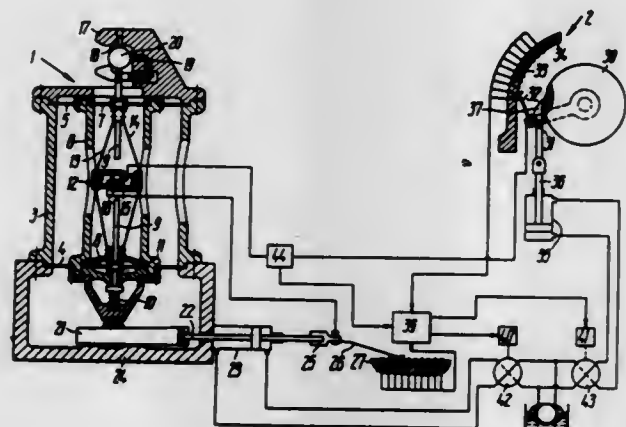
Isaak Mironovich Goldberg, Furmanny per., 18, kv. 40; Vyacheslav Borisovich Elman, ul. akad. Komarova, 14, kv. 19; Valentin Mikhailovich Volkov, Kallbrovskaya ul., 2-a, kv. 48; Jury Efimovich Gorsky, 3 Parkovaya ul., 52, kv. 30; Anatoly Pavlovich Shugaev, Zamorinsky per., 9, kv. 15; Edgar Borisovich Ostrovsky, Naprudny per., 9, kv. 3; Lev Vasilievich Mochalin, B. Akademicheskaya ul., 43/2, kv. 49; Yakov Shabsovich Bekker, Zvezdny bulvar., 6, kv. 58; Valentin Petrovich Fokin, Prospekt Mira, 124, kv. 39, and Evgeny Petrovich Braslavets, ul. akad. Koroleva, 1, kv. 33, all of Moscow, U.S.S.R.

Filed Feb. 24, 1969, Ser. No. 801,447

Int. Cl. B24b 49/04

U.S. Cl. 51-165.88

6 Claims



A device for compensating for the wear of a grinding wheel in a grinding machine comprises an actuating mechanism adapted for effecting movement of the grinding wheel to compensate for the wear of the latter in conformity with the results of measurement of the work being machined. The apparatus further includes a measuring apparatus adapted to act upon the actuating mechanism. The measuring apparatus includes a base resiliently fixed in the casing of the measuring apparatus, a measuring spindle resiliently fixed in the base, a pusher operatively coupled with the base to move the latter towards the work being measured, and an output unit adapted to fix the size of the work being measured once the latter contacts the measuring spindle.

3,594,958

DUST COLLECTOR FOR GRINDING TOOL

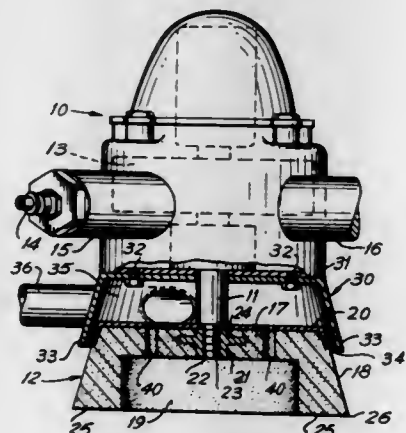
Guy F. Cusumano, Englishtown, N.J., assignor to Clarkson Industries, Inc., New York, N.Y.

Filed Feb. 3, 1969, Ser. No. 795,901

Int. Cl. B24b 25/00, 55/06

U.S. Cl. 51-170 DT

8 Claims



The disclosure is directed to an improved dust collector for a manually operable grinder comprising a hood overlying the top of a cupstone grinding wheel and having a depending

skirt to form a dust-collecting chamber and at least one passage through the back wall of the cupstone wheel for connecting its hollow center to the dust-collecting chamber. With the added passages in the back wall of the cupstone wheel the edge of the depending skirt of the hood may be located at a height so as not to interfere with the use of the lower peripheral edge of the wheel.

3,594,959

BELT GRINDER WITH CAM-CONTROLLED TENSIONING MEANS

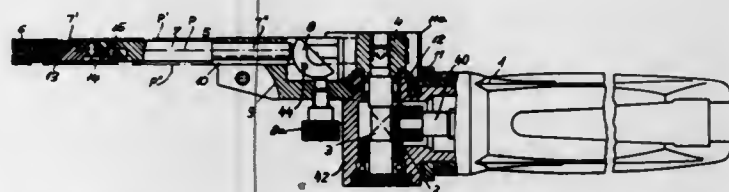
Hans Georg Wezel, P.O. Box 60, 7533 Maulbronn, Wurttemberg, Germany

Filed Apr. 24, 1969, Ser. No. 818,939

Int. Cl. B24b 23/00

U.S. Cl. 51-170 EB

7 Claims



A driving pulley is rotatably mounted in a frame in contact with an endless driving belt and is power operable to drive the same. A roller is adapted to contact the belt. A tensioning finger carried by the frame carries the roller and extends inside the belt between the pulley and roller. Cam means carried by said frame is operatively arranged to engage the finger and move the roller for adjusting tension in the belt.

3,594,960

APPARATUS FOR HOLDING CHUCK JAWS FOR SHAPING

Louis Fourqueler, 26 Monteller, Drome, France

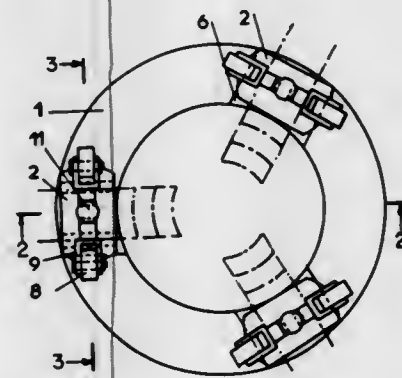
Filed June 25, 1968, Ser. No. 739,856

Claims priority, application France, June 28, 1967, 748

Int. Cl. B24b 41/06; B23b 3/36; B25b 1/00

U.S. Cl. 51-217 R

5 Claims



A device having an annular plate with a plurality of clamps angularly disposed and arranged on one face of the plate to immobilize the jaws of a chuck for retouching of the bearing faces.

3,594,961

HOLDER FOR SHARPENING TWIST DRILLS

William C. Reynolds, P.O. Box 403, Morro Bay, Calif.

Filed Oct. 13, 1969, Ser. No. 865,629

Int. Cl. B24b 3/26

U.S. Cl. 51-219 R

14 Claims

A holder for sharpening twist drills wherein the drill rests between sets of rollers mounted on a pair of parallel shafts. The shafts form part of a frame which pivots a limited amount about an axis perpendicular to the axis of the drill. A clamp is secured to the drill, and is provided with diametrically disposed shafts either one of which is insertable

3,594,963

GRINDING PAD

George A. Beasley, Fort Lauderdale, Fla., assignor to Univis, Inc., Fort Lauderdale, Fla.

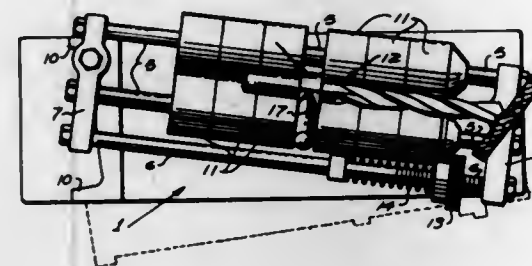
Division of Ser. No. 662,379, Aug. 22, 1967

Filed July 17, 1969, Ser. No. 870,712

Int. Cl. B24d 11/02

U.S. Cl. 51-293

9 Claims



ately. An adjustable stop controls the axial position of the drill. A modification involves the use of a slotted V-guide.

3,594,962

GRINDING MACHINES

Stig Oskar Christensson, Malmo, Sweden, assignor to Chris-Marlin AB, Malmo, Sweden

Filed May 7, 1969, Ser. No. 822,470

Claims priority, application Sweden, May 10, 1968, 6318/68

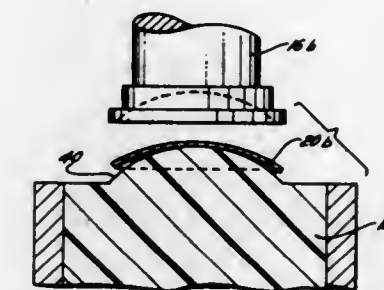
Int. Cl. B24b 15/02

U.S. Cl. 51-241 A

4 Claims



A grinding machine for grinding of valve seats in marine engines. The object of the invention is to provide a machine that is able to grind with sufficient accuracy for the pressures and temperatures at which marine engines operate and to provide a machine which at the same time is easy to apply and to operate. This has been achieved thereby that the machine is provided with a frame which is rotatable about a shaft adapted to be arranged in a valve stem bore and carries an arm which is mounted to be displaceable in an inclined track which is arranged in the frame and extends in a plane coinciding with the longitudinal direction of the shaft, the said arm carrying a holder for a grinding wheel and a driving motor associated with the said wheel, and also being displaced by means of a screw-threaded spindle which is mounted to be rotatable but axially nondisplaceable in the frame, the said screw-threaded spindle being provided at its upper end with a conveniently removable handle for turning the frame about the shaft, means being provided for converting a relative movement, brought about on rotation of the frame by means of the handle, between the frame and the screw-threaded spindle into a displacement of the arm, so that the grinding wheel, depending on the direction of rotation of the frame, is displaced either obliquely upwards and outwards or downwards and inwards in the direction from or towards the shaft.



The method of providing a replaceable grinding pad for a lens-grinding tool, having a surface thereon for grinding optical and ophthalmic lenses. The pad is formed about the curve-determining surface of the grinding tool, thus providing the grinding surface of the pad with substantially the same curvature as that of the tool. The pad is formed by interposing a sheet metal blank between the tool and a die member of an elastic material and thereafter deforming the blank with the tool by depressing it into the elastic material, whereby to form a grinding pad having the same configuration as that of the tool.

3,594,964

PLANETARIUM PROJECTION DOME

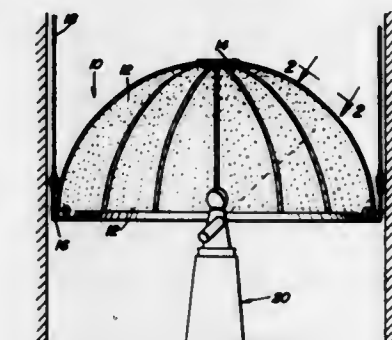
William T. Clark, Jackson, Miss., assignor to Observa-Dome Laboratories, Inc.

Filed June 17, 1969, Ser. No. 834,050

Int. Cl. E04b 1/32; E04d 13/03; G09b 27/00

U.S. Cl. 52-81

6 Claims



A self-supporting planetarium projection dome constructed of a plurality of segments connected together to form a hemispherical dome. The segments include oppositely disposed marginal flanges which are connected together to form circumferentially extending joints. Arcuate cover strips in the form of T-shaped members are clamped between the marginal flanges of the joints to cover the joints and present a continuous interior dome surface for realistically reflecting projected celestial images.

3,594,965

PRECAST BUILDING CONSTRUCTION

Kolbjorn Saether, 934 Linden, Wilmette, Ill.

Filed Oct. 1, 1968, Ser. No. 764,228

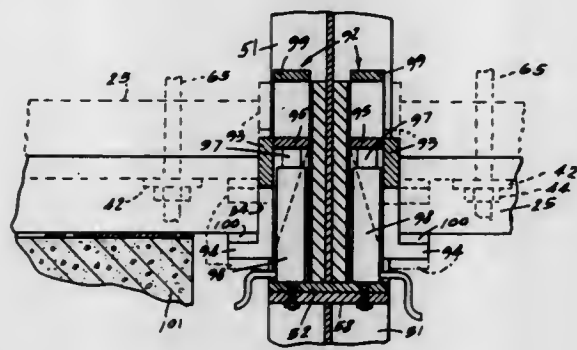
Int. Cl. E04b 1/34; E04g 21/00

U.S. Cl. 52-126

21 Claims

Floor slabs are precast in situ one upon another, temporary steel lifting columns are mounted through aligned clearance holes in the stack of slabs, a holding carriage and a lifting carriage are operatively disposed about each of the columns, threaded tension rods are coupled to removable tension rods

sections properly located and coupled to the slabs, lifting jacks mounted on the lifting carriage actuate the tension rods to lift the entire stack of slabs to a height adjacently above the final elevation of the lowermost of the slabs in the stack, the pack of slabs is held by the holding carriage until the lifting carriage is raised to a further lifting height, the lowermost slab in the stack is temporarily supported at its highest elevation and is released from the lifting tension rods so that the remaining slabs can be raised and the successive lowermost



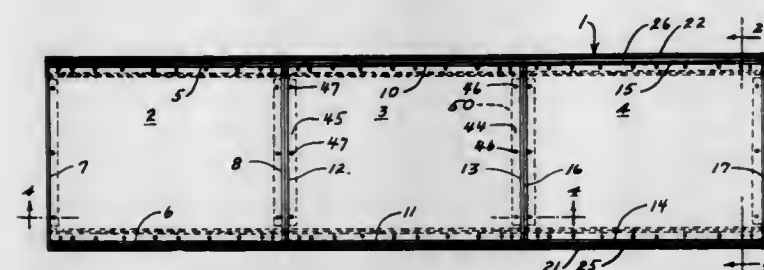
slabs dropped off at their predetermined elevated positions, while angular wall columns are mounted in position to provide the ultimate support for the lowermost slab which is then lowered onto such columns and released from the temporary holding means. After all of the slabs have been erected, the lifting equipment is removed for reuse. To facilitate handling and placement of the wall columns one or more cranes may be mounted on and ride up with the top-most slab.

3,594,966

TILE TRIM FOR TRENCH DUCT COVER PLATES
Stephen M. Janic, Parkersburg; Michael J. Cottrell, Washington, and Frederick W. Hudnall, Vienna, all of, W. Va., assignors to Textron Inc., Providence, R.I.
Filed Aug. 14, 1969, Ser. No. 850,031
Int. Cl. E04f 17/08

U.S. Cl. 52—173

2 Claims



A trench duct cover having, in the shipping condition, trim along each longitudinal edge and a filler piece along each transverse edge, the trim and filler pieces being flush with the surface of the cover and the cover, in its installation condition, having the trim along the longitudinal edges reversed with portions extending above the cover surface and a spacer along one transverse edge and an offset along the other transverse edge for interlocking with the adjacent cover, both the spacer and offset having portions extending above the cover surface, all of said above-the-surface portions being for use in protecting floor covering on the cover.

3,594,967

CEILING BOARDS

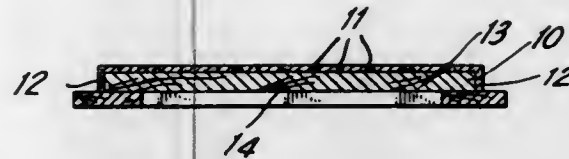
Frank Flagiello, 2055 East 55th St., Brooklyn City, N.Y.
Filed May 5, 1969, Ser. No. 821,722
Int. Cl. E04b 5/54

U.S. Cl. 52—309

1 Claim

Ceiling boards are made of pressed cardboard, wood or other suitable material and have an outer surface coated with

colored flakes carried by polyurethane. This outer surface may be rough or provided with a smooth finish. The boards



may be square or of the so-called 3D type provided with projecting edges.

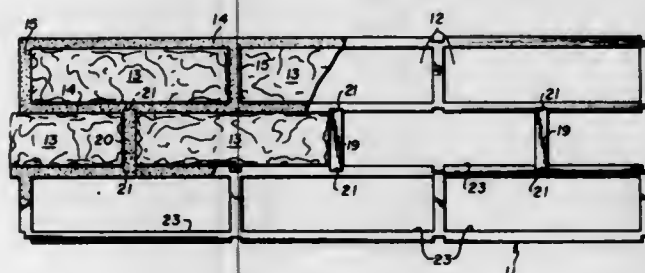
3,594,968

WALL DECORATION

Harold G. Johnson, 6 Stanley Road, East Brunswick, N.J.
Filed May 6, 1969, Ser. No. 822,130
Int. Cl. E04d 13/08

U.S. Cl. 52—390

1 Claim



A wall decoration providing a plurality of frames and spacers to be adhesively attached to a wall, and defining spaced openings in and between the frames for decorative blocks to be inserted in the openings and adhesively secured to the wall; covering strips are secured to the frames around the blocks.

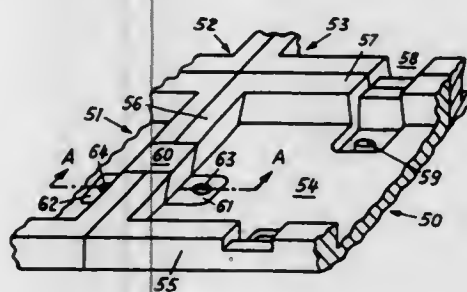
3,594,969

MOUNTING FRAME

Josef Lejzor Kantorowicz, 15, Habsburgstrasse, 5200 Windisch, Switzerland
Filed Sept. 16, 1968, Ser. No. 759,954
Claims priority, application Switzerland, Sept. 28, 1967, July 16, 1968, 13536/67; 10608/68
Int. Cl. E04f 13/14

U.S. Cl. 52—392

8 Claims



The invention relates to mounting frames for receiving coverings for surfaces such as walls, floors or ceilings of rooms which are detachably fastenable together by projection and recess connections, bolted connections, or by separate connections. The mounting frames are formed of a baseplate and sidewalls, the latter of which have associated with them a device enabling the connections between adjacent mounting frames to be made. Such devices are generally in the form of one or more parts of the connections.

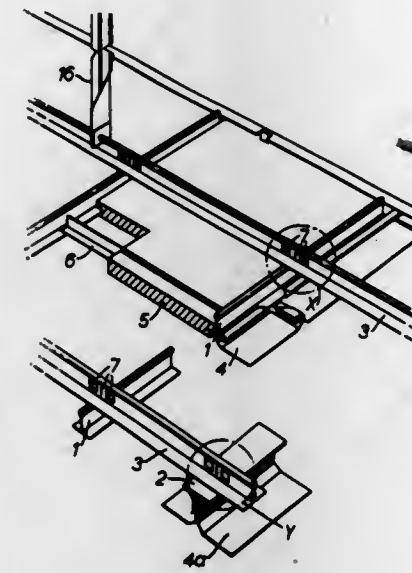
3,594,970

WALL AND CEILING CONSTRUCTIONS

Gabriel John MacGrath, and Liam Patrick MacGrath, both of 6, Oulton Road, Clontarf, Dublin, Ireland
Filed June 2, 1969, Ser. No. 829,384
Claims priority, application Ireland, May 30, 1968, 646/68
Int. Cl. E04b 5/52

U.S. Cl. 52—484

7 Claims



A ceiling or wall construction for use in buildings comprising a first set of spaced, parallel sheet metal members extending over the ceiling or wall area, disposed in the plane of the desired ceiling or wall, surface elements mounted between and supported by the members, a second set of spaced, parallel, sheet metal members of T-shape extending over the same area, arranged behind and at right angles to the members of the first set, connecting means between the two sets of members, and adjustable sheet metal spacer members each formed in two parts, with one part having at one end means in which is engaged a member of the second set and the other part having one end adapted to be affixed to a fixed part of the building.

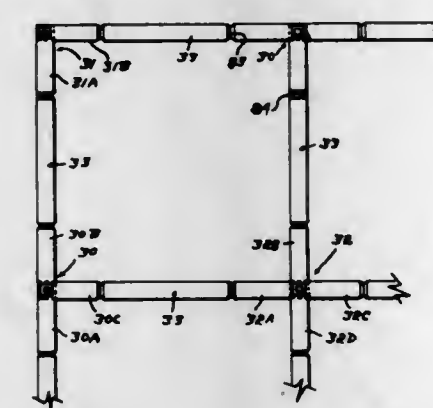
3,594,971

BUILDING CONSTRUCTION AND COMPONENTS THEREOF

John K. Hughes, Hunnewell Road, Scarborough, Maine
Filed June 26, 1969, Ser. No. 836,782
Int. Cl. E04b 1/20; E04c 3/20

U.S. Cl. 52—648

16 Claims



Building constructions are disclosed in which the framework comprises preformed, reinforced concrete columns, beam modules having angularly disposed beam portions, and intermediate beam members. Means are provided to interconnect the reinforcements of vertically aligned columns through the module supported by one column and in support of another column. The beam portions and the beam members include end plates secured to their reinforcement.

ments, the end plates including complementary structure enabling each intermediate beam member to be supported by beam portions prior to the joining of the engaged plates by a weld. The modules and columns provide for the marginal support of wall panels and the beam portions of the modules have marginal shoulders for support of floor structure.

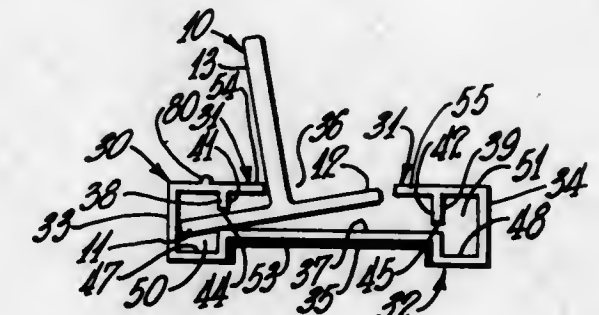
3,594,972

SUSPENDED CEILING CONSTRUCTION

Isaac P. Jones, Granville; Merritt W. Seymour, Toledo, and Jared R. Kies, Newark, all of, Ohio, assignors to Owens-Corning Fiberglass Corporation
Filed Dec. 21, 1967, Ser. No. 692,476
Int. Cl. E04b 5/57; E04f 11/06

U.S. Cl. 52—716

7 Claims



A cap member and suspended ceiling construction employing the cap member with structural beams having laterally extending portions where such cap member is a longitudinal hollow member including a lengthwise opening communicating with the interior thereof through which laterally extending portions of a structural beam can be inserted for support of the hollow member by the laterally extending portions of the structural beam. The hollow member further including an internal aligning means for holding the hollow member in lateral alignment in its supported relation on the beam.

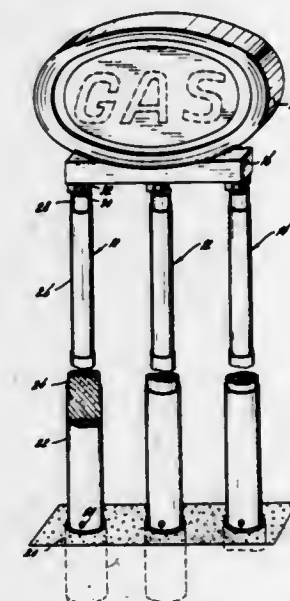
3,594,973

METHOD FOR DEVELOPING A MULTIPLE-POLE STAND

Bill Archer, and John L. Low, III, both of Meridian, Miss., assignors to Arlo, Inc., Jackson, Miss.
Continuation-in-part of application Ser. No. 676,286, Oct. 18, 1967, now Patent No. 3,471,980. This application June 23, 1969, Ser. No. 835,816
Int. Cl. E04h 12/34; E04g 25/04

U.S. Cl. 52—741

4 Claims

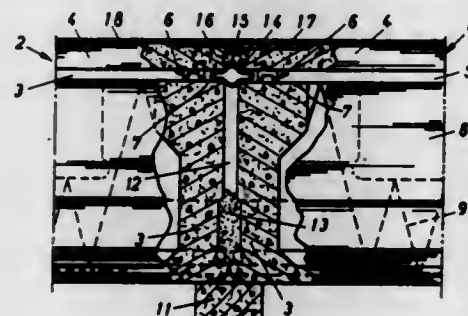


Telescoping columns, particularly a method for developing a plurality of telescoping forms as a rigid stand for a roadside

sign, high tension wires or the like, by anchoring a plurality of forms to a rigid base and pumping the forms simultaneously with fluid concrete, so as to vertically telescope the forms above the rigid base.

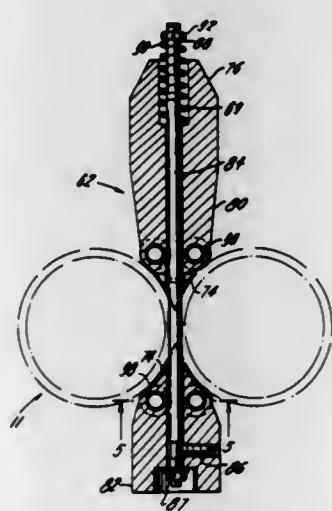
3,594,974
METHOD OF ASSEMBLING SUPPORTING STRUCTURES UTILIZING AN INFLATABLE TUBE
Per Olof Jonell, Göteborg, and Sven Melker Nilsson, Kallered, both of, Sweden, assignors to Ingenjorsfirman Nilcon Aktiebolag Vannedal Ostergard, Kallered, Sweden
Filed Sept. 29, 1969, Ser. No. 861,784
Claims priority, application Sweden, Sept. 30, 1968, 13166/1968

Int. Cl. B28b 7/32; E04g 11/04
U.S. Cl. 52-743 2 Claims



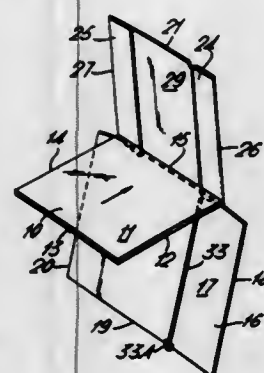
A joint between concrete coffer beams and between slabs which are placed on the beams with sound insulation between the slabs and beams. A rubber tube is located at the joint, and is inflated while the slab joint is filled. The tube is then deflated, and possibly withdrawn, and this leaves a clean unbridged gap which prevents the sound insulation being impaired at this juncture.

3,594,975
BANDING APPARATUS
William A. Abrecht, Short Hills, N.J., assignor to Dart Industries, Inc., Los Angeles, Calif.
Filed Sept. 11, 1969, Ser. No. 856,951
Int. Cl. B65b 13/00; B67b 5/00
U.S. Cl. 53-3 16 Claims



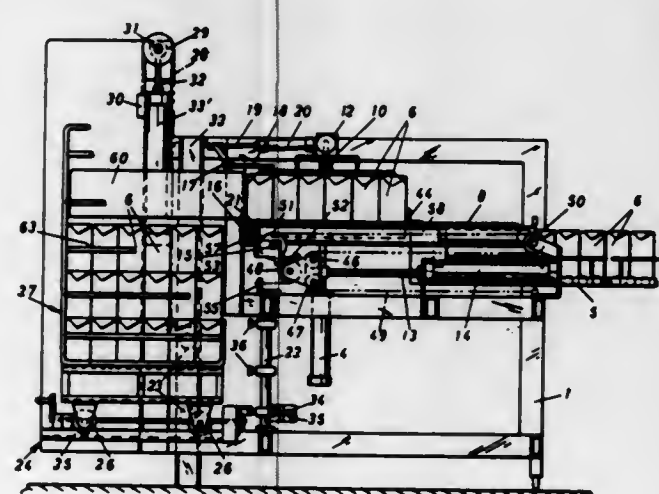
A banding apparatus for opening a substantially continuous ribbon of flattened flexible tubular material such as cellulose and severing that opened material to the desired length. Such apparatus includes a roll supported floating material which is actively positioned for internal engagement with the material by a pair of driven feed rollers. An electronic or similar control system synchronizes the feeding, cutting and positioning of an article to be enclosed by the severed sleeve of material.

3,594,976
METHOD OF WRAPPING ARTICLES OF A SHAPE OF THIN RECTANGULAR PARALLELEPIPEDS
Donald R. P. Jackson, London, England, assignor to Masson Scott Thrissell Engineering Limited, London, England
Filed Nov. 29, 1968, Ser. No. 779,685
Claims priority, application Great Britain, Dec. 1, 1967, 54714/67
Int. Cl. B65b 11/48; B65d 65/04, 75/20
U.S. Cl. 53-31 2 Claims



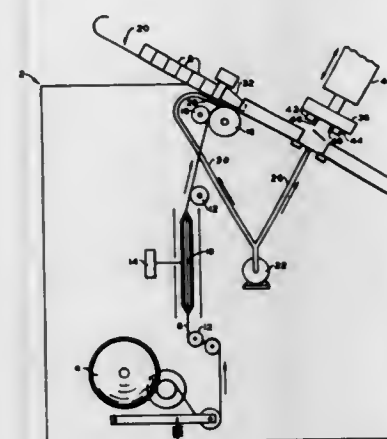
The methods and apparatus deal with wrapping thin rectangular articles in a rectangular blank and are particularly suitable for gramophone record sleeves. One feature is that side flaps are formed and folded over on the blank to form two rectangular blank portions, one of the size of the article, the other portion of the blank having side margins which are folded around the article. Another feature is that corners of a side margin of the wrapper at one or more edges of the article are tucked in, and one side margin is folded down on the edge of the article and on to the other side margin before that side margin is folded around the edge of the article.

3,594,977
PACKING MACHINE
Halvor Grasvoll, Göteborg, Sweden, assignor to Gustav Gilbert Magnusson, Västra Frölunda and Karl Ingvar Weiner, Göteborg, Sweden, part interest to each
Filed Mar. 13, 1970, Ser. No. 19,410
Claims priority, application Sweden, Mar. 27, 1969, 4300/69
Int. Cl. B65b 5/10, 35/40
U.S. Cl. 53-162 4 Claims



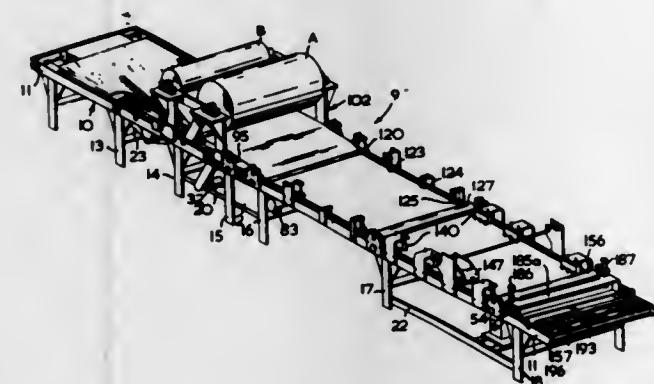
A packing machine for transferring articles such as milk cartons and similar objects from a conveyor via a conveyor plate laterally into a crate container or the like such that the cartons will be packed in the container in a uniform pattern, one layer of cartons on top of the other, without any gap forming between the adjacent cartons. The packages are fed onto the conveyor plate between a movable guide edge extending along the conveyor plate discharge edge and a guide edge mounted rigidly on the conveyor plate, and they are thereby prevented from spreading on the conveyor plate but will be positioned thereon closely adjacent each other.

3,594,978
APPARATUS FOR PACKAGING ARTICLES
Robert J. Spitznagel, Cincinnati, Ohio, assignor to Phillips Petroleum Company
Filed Oct. 27, 1969, Ser. No. 869,469
Int. Cl. B65b 9/14, 43/36
U.S. Cl. 53-183 1 Claim



A method and apparatus for separately packaging articles within a continuous tubular film.

3,594,979
AUTOMATIC BOARD WRAPPING MACHINE
Thomas A. Branson, Burlington, Ontario, Canada; Joachim E. Huehmer, Hartford City, Ind., and Thomas A. Klasell, Cloquet, Minn., assignors to Abitibi Corporation, Birmingham, Mich.
Filed July 15, 1968, Ser. No. 745,002
Int. Cl. B65b 49/00
U.S. Cl. 53-209 11 Claims

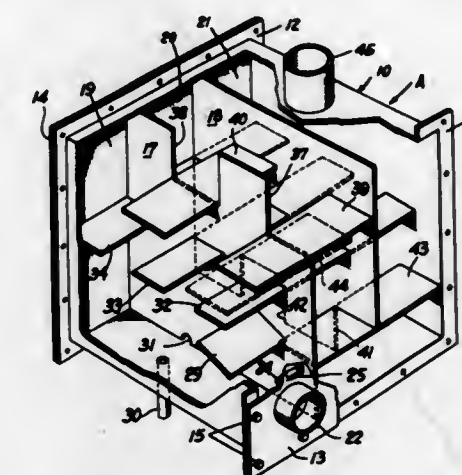


A machine for wrapping the finished surface only of individual panels of wallboard, plywood, decorated hardboard and the like wherein the said panels are conveyed individually through the said machine with the finished surface uppermost in aligned and spaced relationship to each other. The glued wrapping material is continuously applied to the finished surface of said panels and is folded around the side edges of the panels and impressed against the unfinished under surface. The machine includes a mechanism for cutting the web of the wrapping material between adjacent panels as the said panels are conveyed through said machine.

3,594,980
TREATING POLLUTED GASES IN BAFFLE CHAMBER
Charles C. Diehl, 904 Ruth St., Belmont, Calif.
Continuation-in-part of application Ser. No. 708,354, Feb. 26, 1968, now abandoned. This application Oct. 3, 1969, Ser. No. 870,430
Int. Cl. B01d 47/16
U.S. Cl. 55-237 3 Claims

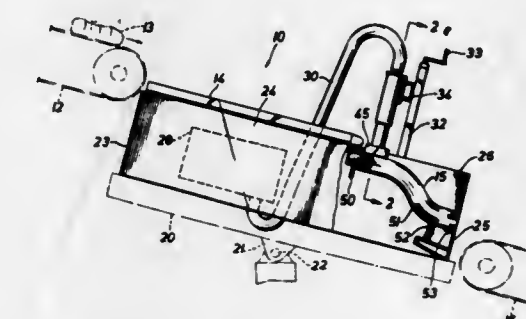
For decontaminating, and deodorizing or otherwise treating polluted gases, a stream of gases is introduced into one end and at a lower zone of a baffle chamber which is

thoroughly baffled to prevent channelization of the gases therethrough. Spray means discharge a fine mist of decontaminating fluid into the stream of polluted gases closely adjacent their low point of entry into the baffle chamber and in such a direction that the fine mist of spray material is entrained in the incoming gases. As the polluted gases rise and



proceed in tortuous paths through the baffle chamber the malodorous chemical elements therein are intimately exposed to the oxidation reduction reaction of the oxidizing agents in the entrained spray material causing drop out of contaminants as a new chemical so that when the gases are discharged from the baffle chamber they are thoroughly reduced to a nonodorous or acceptable odor compound.

3,594,981
PACKAGING APPARATUS
Robert W. Pitts, 9710 Barberton, Houston, Tex.
Filed Sept. 23, 1968, Ser. No. 761,568
Int. Cl. B65b 43/36
U.S. Cl. 53-386 7 Claims

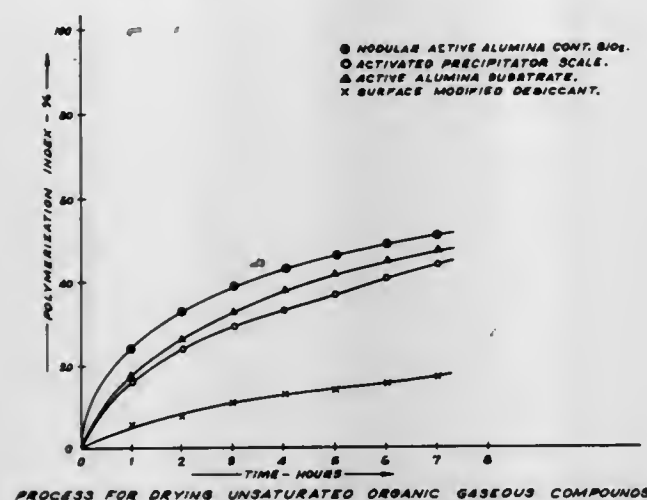


Automated packaging apparatus incorporating a vacuum lift shoe adapted to be positioned in a reciprocating manner above a stack of normally closed bags removable one at a time from the stack wherein the vacuum shoe means includes a vacuum chamber which engages the uppermost surface of the stack by vacuum flow stoppage through a plurality of holes in the vacuum shoe wherein the upward reciprocation of the vacuum shoe is initiated by the vacuum flow stoppage to thereby lift the shoe only after the engagement of the shoe to the bag is completed, the bag being opened for filling with a product and, upon removal of the product and bag from the apparatus, the apparatus continues its operation with another reciprocation to open the next bag.

3,594,982
PROCESS FOR DRYING UNSATURATED ORGANIC GASEOUS COMPOUNDS
Michael J. Pearson, Pleasanton, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
Filed Apr. 20, 1970, Ser. No. 29,894
Int. Cl. B01d 53/02
U.S. Cl. 55-33 7 Claims

Water is removed from organic, polymerization-susceptible gaseous compounds possessing carbon-carbon unsaturation

while simultaneously inhibiting polymerization, the process comprises contacting the wet gas with an active alumina composite consisting essentially of an active alumina substrate having a substantially chi-rho and eta structure, a surface of at least 300 $m^2/g.$, a loss on ignition from about 1.8



PROCESS FOR DRYING UNSATURATED ORGANIC GASEOUS COMPOUNDS

percent to about 15 percent by weight, the surface of the substrate having an alkali modified structure of the empirical formula $MA(OH)_2CO_3$, where M is potassium or sodium, said composite contains at least about 3 percent and up to about 25 percent by weight of $MA(OH)_2CO_3$.

3,594,983

GAS-TREATING PROCESS AND SYSTEM

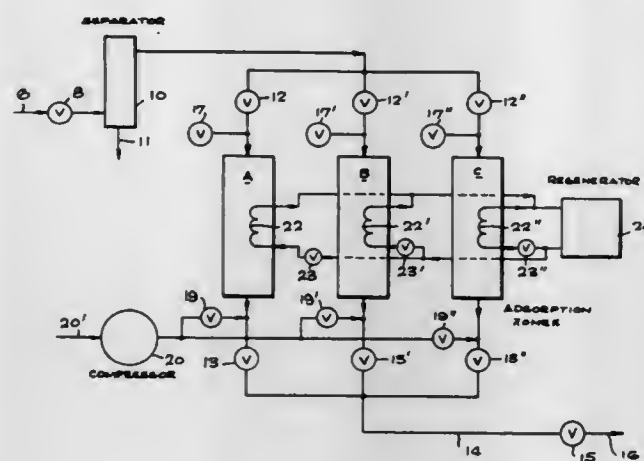
James D. Yearout, Rolling Hills, Calif., assignor to Process Services Inc., Gardena, Calif.

Filed June 17, 1969, Ser. No. 834,011

Int. Cl. B01d 53/04

U.S. Cl. 55-33

15 Claims



Removal of certain components from gas mixtures such as hydrocarbon mixtures, particularly the removal of carbon dioxide and small quantities of other gases such as water vapor and hydrogen sulfide, from natural gas for production of natural gas of improved heating value, by an adsorption process and system, including according to one embodiment, passing natural gas containing a minor amount of carbon dioxide, and small amounts of water vapor and hydrogen sulfide, through a synthetic zeolite or molecular sieve in three separate adsorption zones to remove the carbon dioxide, hydrogen sulfide and water vapor by adsorption in such zones, recovering a purified natural gas stream, and regenerating the adsorbent in the three adsorption zones by a combination of pressure swing regeneration and thermal swing regeneration, the pressure swing regeneration occurring in relatively short periods of time of the order of about one-half hour for two of the adsorbent zones, employing a

pressurized purge gas such as nitrogen, or a vacuum, so that one of the two last mentioned zones is undergoing pressure desorption for removal of the adsorbed carbon dioxide, while the other of such two zones is on stream, such one-half hour on stream—one-half hour pressure regeneration cycles being carried out for a substantial period, and concurrently therewith, the third adsorption zone, which had been previously on stream and previously subjected to such pressure swing regeneration for desorption of carbon dioxide, is subjected to thermal desorption during the period of on stream—pressure desorption cycling of the two first mentioned zones, to thereby desorb the more strongly adsorbed water vapor and hydrogen sulfide components.

3,594,984

REFINING SEPARATION PROCEDURE OF OXYGEN FROM AIR

Akira Toyama, Kobe-shi; Yukio Nakako, Nishinomiya-shi; Sakayuki Nakanishi, Kobe-shi, and Hiroetu Miki, Akashi-shi, all of Japan, assignors to Kobe Steel, Ltd., Kobe-shi, Japan

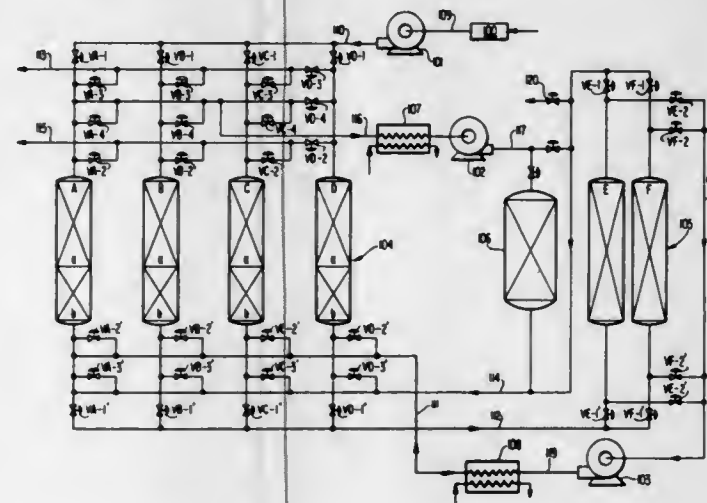
Filed Dec. 19, 1969, Ser. No. 886,803

Claims priority, application Japan, Dec. 20, 1968, Aug. 27, 1969, 43/94090; 44/67791

Int. Cl. B01d 53/03

U.S. Cl. 55-33

1 Claim



The air refining separation procedure, comprising, by using both the moisture-carbon dioxide absorbing apparatus consisting of the multiple fixed beds, which have two layers of a moisture absorbing layer and a carbon dioxide absorbing layer, where four processes of absorbing, heating regenerating, and cooling are repeated in turn, and the nitrogen adsorbing apparatus consisting of the multiple fixed beds, where two processes of absorbing and regenerating are repeated in turn: (a) supplying the raw air, to obtain the refined air, into the fixed beds, which is in process of adsorption, of the said moisture-carbon dioxide absorbing apparatus; (b) subsequently supplying the refined air, to obtain the oxygen of low purity, into the fixed bed, which is in process of adsorption, of the said nitrogen adsorbing apparatus; (c) supplying a part of the product oxygen of low purity into the fixed bed, which is in process of regeneration, of the said moisture-carbon dioxide absorbing apparatus, and subsequently recovering it as the product oxygen of low purity from the air refining separation apparatus; (d) supplying the rest of the oxygen of low purity into the fixed bed, which is in process of cooling, of the said moisture-carbon dioxide absorbing apparatus, where it is cooled and dehydrated, and then joining it with the low purity oxygen flow issued from the nitrogen adsorbing apparatus; and (e) supplying the nitrogen which desorbs from the fixed bed, which is in process of regeneration, of the said nitrogen adsorbing apparatus, after heating, into the fixed bed, which is in process of heating, of the said moisture-carbon dioxide absorbing apparatus, and subsequently discharging it out from the air refining separation apparatus.

3,594,985

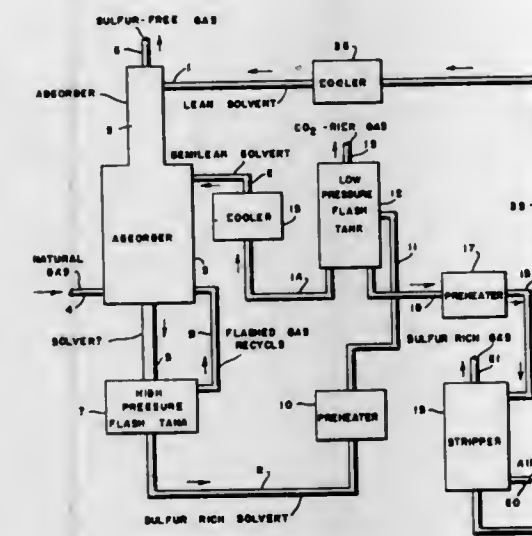
ACID GAS REMOVAL FROM GAS MIXTURES
Jameil Ameen, and Seymour A. Furbush, both of Hopewell, Va., assignors to Allied Chemical Corporation, New York, N.Y.

Filed June 11, 1969, Ser. No. 832,368

Int. Cl. B01d 53/00

U.S. Cl. 55-44

8 Claims



An improved solvent and process for treating and separating acid gas, particularly hydrogen sulfide from gas mixtures containing the same, such as natural gas mixtures containing hydrogen sulfide, carbon dioxide and methane. The process involves the use of a solvent comprising a mixture of dimethyl ethers of polyethylene glycols to absorb the hydrogen sulfide and part of the carbon dioxide under superatmospheric pressure. The solvent containing dissolved hydrogen sulfide and carbon dioxide is flashed at reduced pressure to remove most of the carbon dioxide and produce a "semilean" solvent. Part of the semilean solvent is recycled to an intermediate part of the absorber; the remaining semilean solvent containing hydrogen sulfide is subjected to an oxygen containing gas under conditions that result in complete removal of the hydrogen sulfide to produce a "lean" solvent. The lean solvent is recycled to the top of the absorber. By the use of two solvent feeds to the absorber, the economy of the process is improved.

3,594,986

PROCESS AND APPARATUS FOR ADSORBING A GASEOUS COMPONENT FROM A GAS MIXTURE
Emmerich Schmid, Winterthur, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland

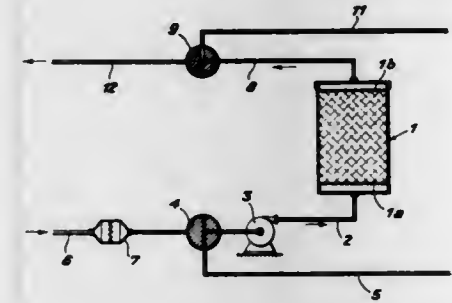
Filed Apr. 1, 1970, Ser. No. 24,659

Claims priority, application Switzerland, Apr. 17, 1969, 5804

Int. Cl. B01d 53/00

U.S. Cl. 55-68

12 Claims



The switchover valves are actuated in a predetermined timelag sequence so that the storeroom air can first push out residual desorption gas from the container and outflow conduits before being recycled after washing to the storeroom. In the same manner, during a regeneration period, the incoming fresh air initially pushes the residual storeroom air into the storeroom before being vented to the atmosphere.

3,594,987

METHOD OF RECOVERING AMMONIA GAS FROM AQUEOUS SOLUTION CONTAINING AMMONIA AND CARBON DIOXIDE

Kenzo Oda, Higashiyodogawa-ku; Takashi Ohara, Akashi-shi; Kazuhide Sato, Kominato-machi, Naka-ku, and Takashi Mori, Minami-ku, all of Japan, assignors to Nippon Shokubai Kagaku Kogyo Co., Ltd., Osaka, Japan and Japan Gasoline Co., Ltd., Tokyo, Japan

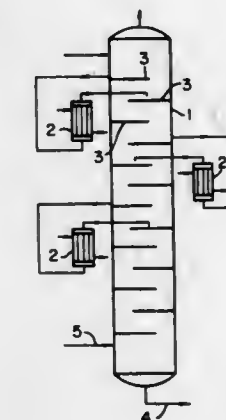
Filed Sept. 28, 1964, Ser. No. 454,758

Claims priority, application Japan, Sept. 27, 1963, 38/51486

Int. Cl. B01d 19/00

U.S. Cl. 55-53

2 Claims



A process for recovering ammonia gas from an aqueous solution containing ammonia and carbon dioxide which comprises countercurrently contacting such aqueous solution with a desorption gas selected from air, oxygen, nitrogen and mixtures thereof. The molar ratio of ammonia to carbon dioxide in the aqueous solution is at least 2, such aqueous solution being one obtained upon the synthesis of urea from ammonia and carbon dioxide or from the production of an aromatic nitrile by the ammoxidation of an aromatic hydrocarbon.

3,594,988

RECOVERY OF ACETYLENE FROM RAW ETHYLENE
Karl-Heinz Eisenlohr, Buchschlag, and Helmut Klein, Hanau, both of Germany, assignors to Metallgesellschaft AG, Frankfurt on Main, Germany

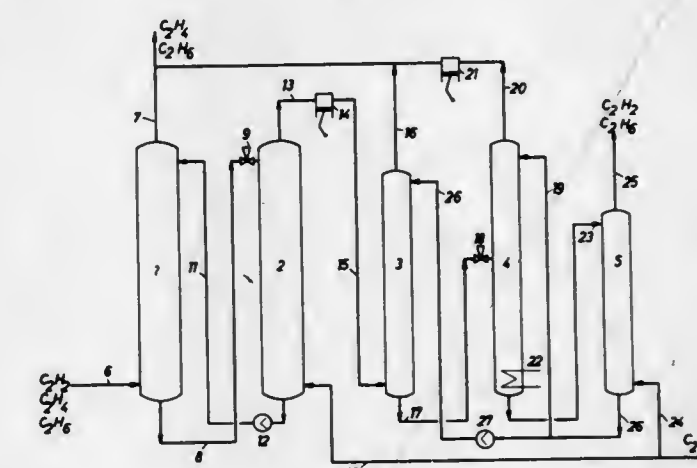
Filed Jan. 6, 1970, Ser. No. 992

Claims priority, application Germany, Jan. 31, 1969, P 19 04 744.0

Int. Cl. B01d 19/00

U.S. Cl. 55-64

5 Claims



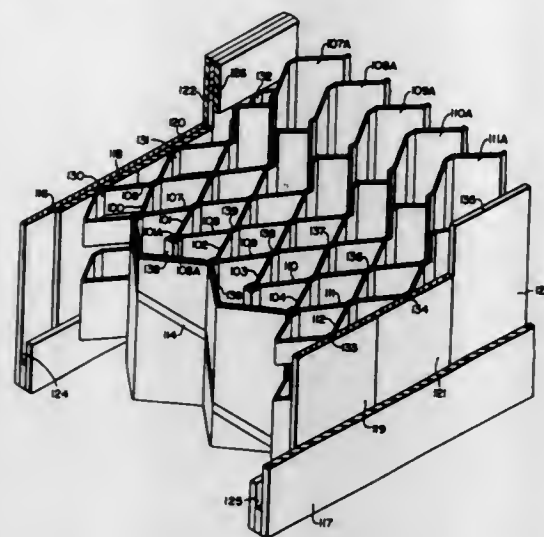
Acetylene is recovered from an ethylene-acetylene-ethane gas mixture by absorbing the acetylene therefrom, flashing and stripping the absorbate, compressing and scrubbing the gases from the stripping step with fresh solvent, and recovering the acetylene from the absorbate from the second scrubbing step.

3,594,989
COLLAPSIBLE AND DISPOSABLE COLLECTING CELL
FOR ELECTROSTATIC PRECIPITATOR

Cedric R. Bastiaans, Verona, Pa.
 Filed Dec. 16, 1969, Ser. No. 885,403
 Int. Cl. B03c 3/45

U.S. Cl. 55-142

4 Claims



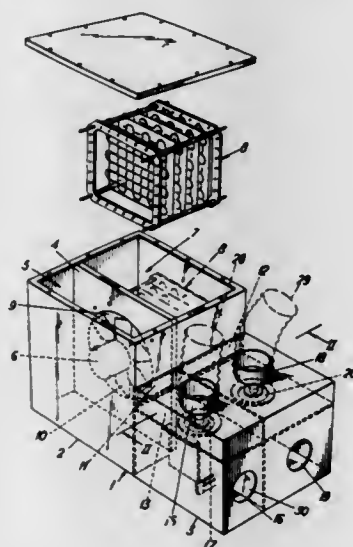
A collapsible and disposable collecting cell for an electrostatic precipitator comprising a plurality of conducting sheets of first and second overlying series adapted to be interconnected to opposite polarities of a voltage, the conducting sheets of the first series being alternately disposed between the conducting sheets of the second series. A respective insulating sheet is disposed between each conductive sheet and all sheets are interconnected in a manner to form a honeycombl-like cell, when expanded, so as to receive air therethrough in one direction. An uppermost and a lowermost sheet is respectively connected to respective oppositely positioned supporting base sheets in a flexible manner such as by means of movable support bars extending along spaced connecting portions in the one direction but which are movable to permit limited movement at right angles to and in the same plane of the connecting portions to thereby allow contraction of the cell in the direction of limited movement as it is expanded in another direction perpendicular thereto. The insulating sheets between conducting sheets are longer in the connecting direction to provide an overhang at respective opposite cell ends.

3,594,990
DEHUMIDIFIERS

Edwin Lawrence Hawley, Sittingbourne, Kent, England, assignor to E. P. S. (Research & Development) Limited, Sittingbourne, Kent, England
 Filed May 6, 1969, Ser. No. 822,112
 Int. Cl. B01d 53/00

U.S. Cl. 55-162

12 Claims



A portable dehumidifier comprising a body having a vapor inlet and outlet, means such as a fan for propelling such

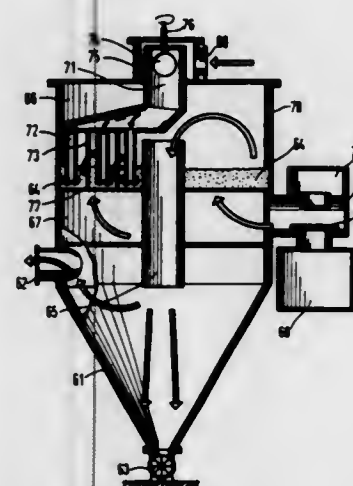
vapor from the inlet to the outlet; dehumidifying means including, for example, a desiccant for removing moisture from said vapor; and heating means, for example an electrical heating element, for expelling moisture retained by said dehumidifying means.

3,594,991
APPARATUS FOR SEPARATING SUSPENDED SOLID PARTICLES FROM A CARRIER GAS

Max Berz, and Wolfgang Berz, both of Bayerlandstrasse 7, 8113 Kochel am See, Germany
 Continuation-in-part of application Ser. No. 491,670, Sept. 30, 1965, now abandoned. This application Nov. 20, 1968, Ser. No. 777,454
 Int. Cl. B01d 50/00

U.S. Cl. 55-294

12 Claims



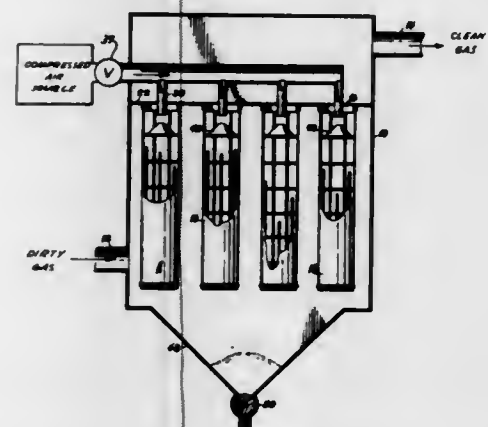
A filter chamber is superimposed on the container of a cyclone collector and vertically divided into two compartments by a filter bed of particulate material. A gas stream carrying solid particles is admitted to the cyclone collector, stripped of a portion of the solids, and passed to the upper compartment of the filter chamber by a conduit which passes the top wall of the container, the lower filter compartment, and the filter bed. Residual solid particles are removed from the gas stream passing downward through the filter bed and released from the lower compartment. A rake permits the filter bed to be stirred during regeneration by a scavenging gas passed upwardly through the filter bed.

3,594,992
CLEANING ARRANGEMENT FOR BAG FILTER
 George P. Carr, and Noel D. Hazzard, both of Wellsville, N.Y., assignors to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Apr. 1, 1969, Ser. No. 812,220
 Int. Cl. B01d 46/04

U.S. Cl. 55-302

2 Claims



A cleaning arrangement for a bag filter whereby a jet of compressed air is directed from a nozzle into the bag filter and on to a novel deflector which divides the air into a portion that passes axially and a portion that is deflected radially. The portion passing axially thereof increases the pressure within the bag to cause the walls of the bag to flex out-

wardly and dislodge the dust cake on the outer surface thereof. The portion of the cleaning air from the nozzle that strikes the deflector is deflected radially on to walls of the filter bag also causing the flexing action which is propagated down the length of the bag to reinforce the action of the air which passes centrally therethrough.

3,594,993
POROUS, BONDED AND IMPREGNATED, NONWOVEN FILTER SHEET STRUCTURE

William T. Heyse, Windsor Locks, Conn., assignor to The Dexter Corporation, Windsor Locks, Conn.
 Filed Nov. 14, 1966, Ser. No. 593,649
 Int. Cl. B01d 39/20; B32b 5/16; D21h 5/18

U.S. Cl. 55-524

8 Claims

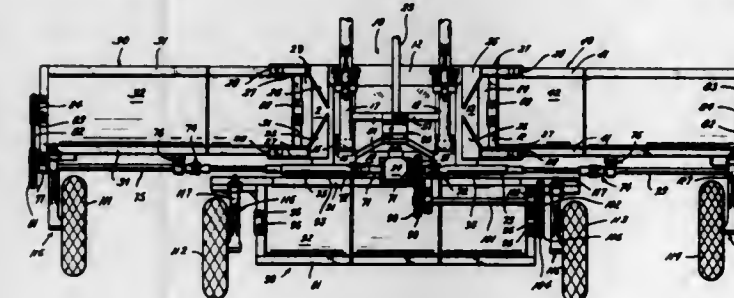
High efficiency particulate air filters having unusual resistance to high temperatures, hydrolytic environments and acidic conditions may be formed from an improved porous inorganic sheet structure comprised essentially of microglass fibers and a polyphenylene ether binder. Such sheets show no substantial decrease in strength characteristics after exposure to 300° C. for 10 minutes, a water repellency of about 30 inches (MIL-STD-282) or more and resistance to attack by even hydrofluoric acid.

3,594,994
SEGMENTED FLAIL MOWER
 Anthony R. Engler, Houston, Tex., assignor to Engler Manufacturing Corporation, Houston, Tex.

Filed Apr. 23, 1969, Ser. No. 818,718
 Int. Cl. A01d 75/30

U.S. Cl. 56-7

4 Claims



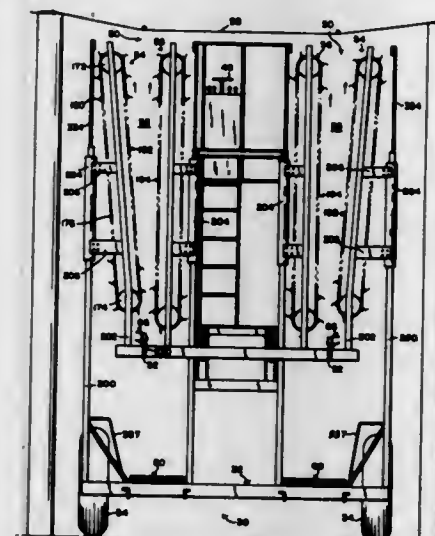
A mower, cutter or thresher device, including plural, flail-carrying drums, aligned so as to cut a uniform swath transverse of the direction of motion; means for operatively drawing the device behind a tractor and means for elevating the side wings of the device.

3,594,995
HOP-PICKING MACHINE
 Charlie J. Soules, 1115 Willow, Yakima, Wash., and Thomas Lee Evans, R.1 Box 405, Yakima, Wash.

Filed June 21, 1968, Ser. No. 738,990
 Int. Cl. A01d 45/30

U.S. Cl. 56-10.7

20 Claims



A machine for field picking hops from vines hanging from overhead supports which includes graspers for maintaining

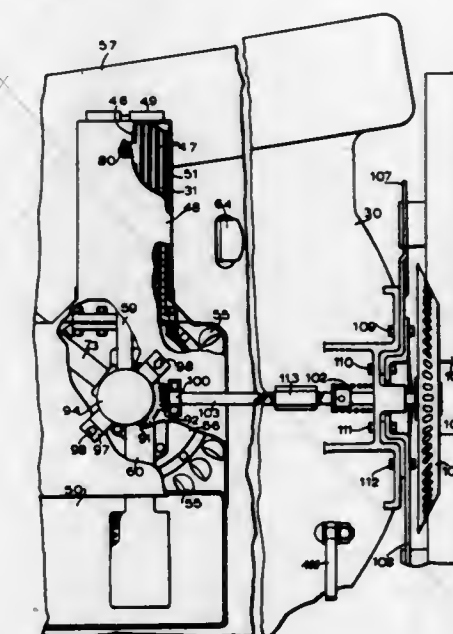
the vines in picking position as they move through the machine, picking cats for stripping the hops from the vines, a conveyor arrangement for carrying the hops away, a cutter for severing the vines to free them from the supports, and an arrangement for expelling picked vines from the machine.

3,594,996
LOW-PROFILE AND PUSH-START LAWNMOWERS AND THEIR ENGINES

John J. Horan, 420 Quigley Ave., Willow Grove, Pa.
 Filed Mar. 20, 1969, Ser. No. 808,949
 Int. Cl. A01d 35/26

U.S. Cl. 56-10.2

31 Claims

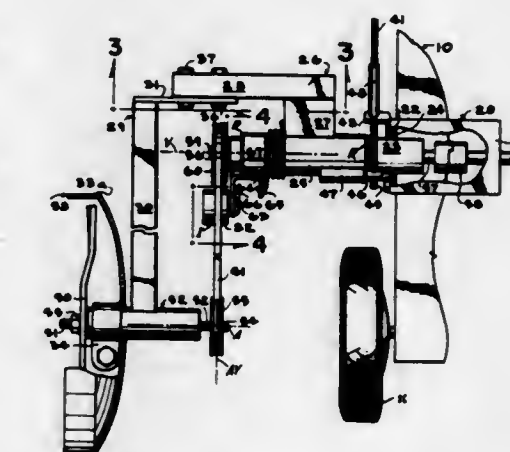


A family of rotary lawnmowers distinguished by one or more of the following characteristics: a structural integration of the shield and engine; coolant induction via the cutting blade; extremely low profile; absence of external flywheel; push-start capability; elimination of magneto ignition; and exhaust damping via discharge under shield.

3,594,997
LAWN EDGER
 William W. Tubesing, 550 Ansley, Decatur, Ga.
 Filed July 3, 1969, Ser. No. 838,827
 Int. Cl. A01g 3/06

U.S. Cl. 56-17.1

9 Claims



A lawn edging and trimming apparatus including a drive element rotatable about a first axis, a support rotatably carrying a driven element wherein the support is rotatable about the first axis and positions the driven element along a second axis parallel to the first and selectively rotates the second axis about a third axis intersecting the first and second axes through the drive and driven elements, drive means for rotating the drive element, flexible drive means drivingly connect-

ing the drive element with the driven element, and a cutting blade carried by the driven element for rotation therewith as well as means for displacing the cutting blade laterally of the support to allow the cutting blade to extend over and behind an elevated object lying between the support means and the cutting blade.

3,594,998

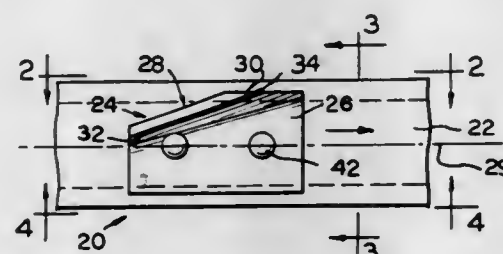
VEGETATION CUTTER ASSEMBLIES

Curt L. Graversen, and Duane M. Gibson, both of Milwaukee, Oreg., assignors to Omark Industries, Inc., Portland, Oreg. Continuation of application Ser. No. 667,829, Sept. 14, 1967, now abandoned. This application Jan. 15, 1970, Ser. No. 4,163

Int. Cl. A01d 55/24

U.S. Cl. 56—290

13 Claims



A cutter 24 has a body secured to a belt and a tilted, power-sharpenable cutter plate secured directly to the body. Cutters 54 and 74 also have keying tabs on the bodies thereof. A cutter 94 has a body secured to a belt by a thin vulcanized layer. A cutter 124 is power sharpenable and has a body embedded in a belt.

3,594,999

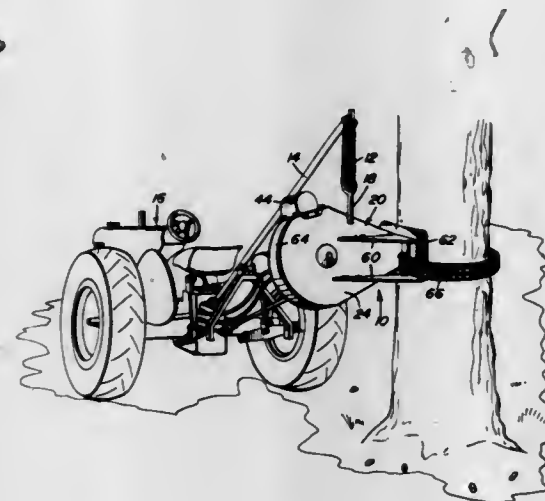
TREE SHAKER

Basil W. Savage, Route 1, Madill, Okla. Filed Mar. 6, 1970, Ser. No. 17,083

Int. Cl. A01g 19/08

U.S. Cl. 56—328 TS

15 Claims



A tractor-mountable shaker for nut and fruit trees including power-driven oppositely swinging eccentric weights mounted within a casing which is in turn chain clamped directly to the trunk of a tree to be shaken. The shaker is suspended from a tractor-mounted boom and is driven from the tractor power takeoff. The tree-clamping chain is hydraulically manipulated for effecting a snug engagement of the shaker against the tree.

3,595,000 MACHINE AND METHOD FOR GATHERING FRUIT AND THE LIKE FROM THE GROUND

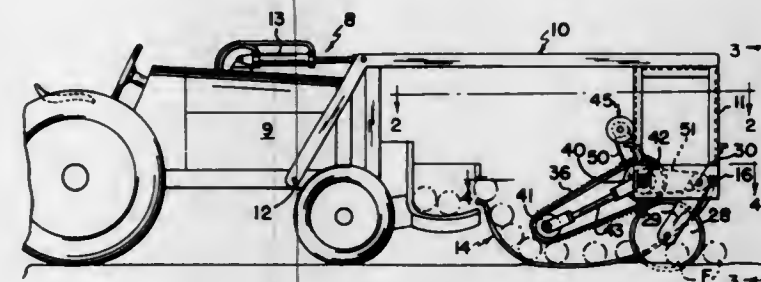
Kenneth H. Recker, Winter Haven, Fla., assignor to Heli-Pic, Inc., Haines City, Fla.

Continuation-in-part of application Ser. No. 717,871, Apr. 1, 1968, now abandoned. This application July 15, 1970, Ser. No. 54,905

Int. Cl. A01d 51/00

U.S. Cl. 56—328

8 Claims



A fruit-gathering vehicle adapted to move over ground onto which fruit has fallen and includes a plurality of parallel runners each pivotally supported at their forward ends on a frame and curving downwardly to intermediate portions adapted to ride longitudinally on the ground, the runners each comprise a pair of parallel rods formed so that the forward portions are spaced apart to receive an individual fruit therebetween and the intermediate portions lie closer to one another so that they move between the ground and the opposite undersides of the fruit positioned by the forward positions of the rods. Fruits are aligned with the runners by discs engaging the ground between adjacent runners forwardly of the runners and which rotate opposite to the direction of movement of the vehicle. The rearward portion of the rods curve upwardly and guide the fruit onto a receptacle. The fruit is propelled rearwardly along the rods by endless moving elements which float and engage the top portions of fruit.

3,595,001

FRUITPICKER

Samuel O. Shumaker, Royal Ambassador, Apt. 1205, 3700 Galt Ocean Drive, Fort Lauderdale, Fla.

Filed Dec. 2, 1968, Ser. No. 780,386

Int. Cl. A01g 19/08

U.S. Cl. 56—338

9 Claims



A fruitpicker which can be mounted on one arm and operated by the hand of that arm at a faster than customary speed, and which is especially useful for picking citrus fruit, has an Y-shaped framework the upper end of which carries a cuplike fruit-receiving head adapted to embrace a piece of fruit having a stem by which the fruit is attached to its tree. The head has a slot in which the stem is confined once the

fruit to be severed is within the head. A normally retracted, slidable cutter blade, positioned on the head to be slidable across the slot to cut through the fruit stem, is actuable by a cable running down along the framework to an operating trigger on the framework and accessible to the hand of the user. Attached to the lower end of the framework is a ring through which the user can insert the arm of that hand for mounting and steadying the picker.

3,595,002

TWISTING AND FORMING DEVICE FOR TEXTILE SPINNING AND TWISTING MACHINES

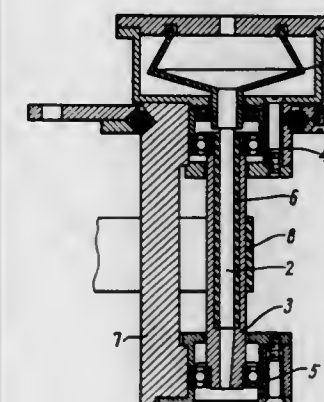
Yakov Ilch Korityssky, Dalny pereulok, 11/13, kv. 33, and Alexandr Ivanovich Schukin, Kotelnicheskaya naberezhnaya, 25/8, kv. 71, both of, Moscow, U.S.S.R.

Filed Apr. 18, 1968, Ser. No. 722,268

Int. Cl. D01h 1/08

U.S. Cl. 57—58.89

3 Claims



In a textile spinning and twisting machine the spindle supporting the chamber is mounted in a driven hollow shaft. A resilient tubular member is utilized to interconnect the spindle and the hollow shaft to obviate a transfer of harmful vibrations from the spindle to the hollow shaft.

3,595,003

FALSE TWISTING DEVICE

Hans Gassner, Schweinfurt, Germany, assignor to Kugelfischer Georg Schafer & Co., Schweinfurt, Germany

Filed July 23, 1969, Ser. No. 843,961

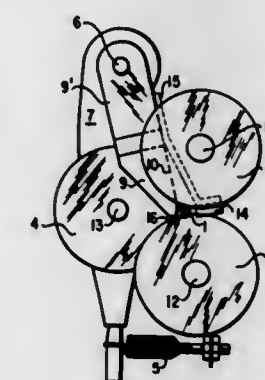
Claims priority, application Germany, Oct. 4, 1968, P 18 01

329.1

Int. Cl. D01h 7/92, 7/46

U.S. Cl. 57—77.45

9 Claims



An elongate false twisting member extending axially along the outer periphery of a plurality of axially spaced-apart parallel rollers which rotatably bear in opposite radial directions against said member so as to determine a fixed radial position for same while simultaneously rotating same.

3,595,004

TEXTILE STRAND ENDS DOWN DETECTING APPARATUS WITH AUTOMATIC RESETTING MEANS

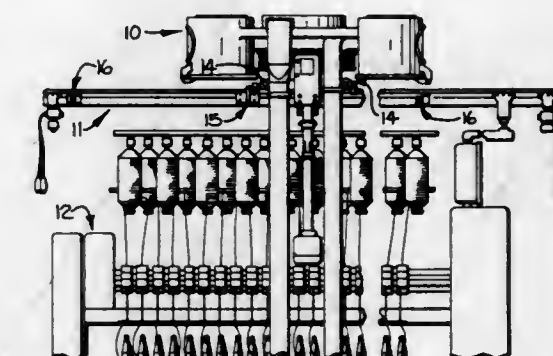
David W. Saunders, Fitchburg, Mass., assignor to Parks-Cramer Company, Charlotte, N.C.

Filed Oct. 14, 1969, Ser. No. 866,264

Int. Cl. D01h 13/26, 13/16, 13/32

U.S. Cl. 57—81

12 Claims



Improved electrical circuitry for use in an apparatus which travels a detector along textile strand processing apparatus such as spinning frames for determining the absence of ends of yarn from locations therealong at which such ends are normally present and wherein the electrical circuitry establishes a lengthwise portion of a traversed textile machine in which an ends down condition is determined by resetting in response to signals generated as the detector travels along the textile apparatus. The resetting electrical circuitry disclosed herein incorporates, with first and second photosensitive detectors, first and second circuits responsive to signals originated from corresponding one of the photosensitive detectors, with one of the circuits comprising a resettable element and performing the function of distinguishing the absence and presence of ends of yarn at locations along a traversed textile apparatus and with the other circuit responding to signals from its corresponding photosensitive detectors by resetting the resettable element of the one circuit.

3,595,005

INFORMATION-TRANSMITTING MEANS FOR TEXTILE STRAND ENDS-DOWN DETECTING APPARATUS

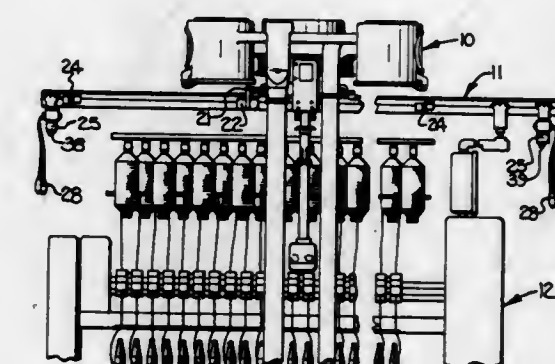
David W. Saunders, Fitchburg, Mass., assignor to Parks-Cramer Company, Charlotte, N.C.

Filed Oct. 14, 1969, Ser. No. 866,266

Int. Cl. D01h 13/26; D01h 13/16; D01h 13/32

U.S. Cl. 57—81

10 Claims



Improved electrical circuit means for use in an apparatus which travels a detector means along textile strand processing apparatus such as spinning frames for determining the absence of ends of yarn from locations therealong at which such ends are normally present and wherein the electrical circuit means responds to a determination that ends are down by transmitting information from a moving portion of the ends down detecting apparatus to a stationary portion thereof. The information transmitting means disclosed herein incorporates a transmitter means mounted for travel with de-

tector and logic circuit means along a predetermined path relative to a traversed textile apparatus and having an electrical lamp energized in response to a determination that ends are down on a traversed textile apparatus, and a stationary receiver means mounted relative to the path of movement of the transmitter means for exposure to the electrical lamp thereof and having a photosensitive element responsive to illumination from the lamp for variation of an electrical characteristic of the receiver.

3,595,006

PIANO TUNING TIME SIGNAL

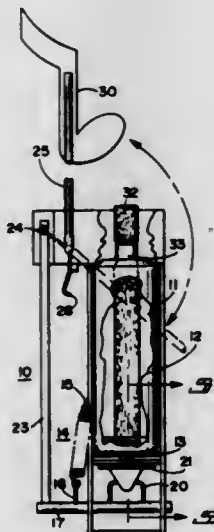
Kirk Lightbourne, 7433 East Thomas Road, Scottsdale, Ariz.

Filed July 13, 1970, Ser. No. 54,332

Int. Cl. G04f 1/00, 11/00

U.S. Cl. 58-1 R

4 Claims



An interval timer for a piano comprising a liquid-holding container reciprocally mounted in a frame. A wick is inserted in the container to aid in the evaporation of the liquid. After a predetermined time the lightened container is vertically shifted causing the rotation of a signal shaft to indicate a given time lapse.

3,595,007

RESONATOR-DRIVEN TIMEPIECE

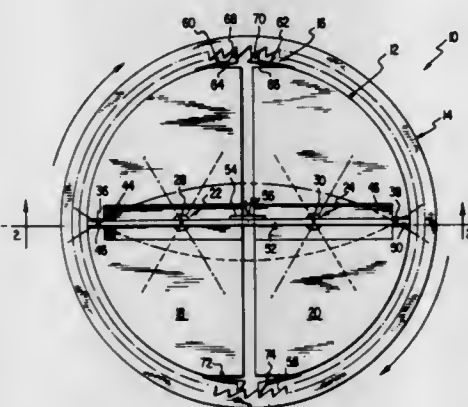
Hugh M. Baker, Jr., Washington, D.C., assignor to HB Engineering Corporation, Silver Spring, Md.

Filed Aug. 29, 1969, Ser. No. 854,215

Int. Cl. G04c 3/00

U.S. Cl. 58-23

6 Claims



A resonator-driven timepiece is disclosed comprising a high Q electromechanical resonator which is capable of high excursions without Q degradation. Because of the high excursions, the gear driven by the resonator includes large teeth. The gear is preferably annular with the resonator disposed within the internal dimension of the gear. The resonator is preferably piezoelectrically driven.

3,595,008
A FLUIDTIGHT CONNECTION FOR A TIMEPIECE WINDING KNOB

Ervin Piquerez, 2854 Bassecourt, Switzerland

Filed Oct. 30, 1968, Ser. No. 771,769

Int. Cl. G04b 37/08

U.S. Cl. 58-90

5 Claims



In a watertight timepiece a tubular member passes through the timepiece casing and a winding shaft passes through the tube with a tubular member and is connected to an elastically deformable winding button which is slidably mounted over an end of the tubular member in a fluidtight manner. The fluidtightness is obtained by contact between the elastically deformable winding button and the tubular member without the interposition of a fluidtight packing, the winding button having an annular inner projection in fluidtight contact with the tubular member.

3,595,009

TIMEPIECE FOR ACHIEVING SPECIAL VISUAL EFFECTS

David L. Pakter, 1192 Park Ave., New York, N.Y., and Thomas R. Krauss, 62-06 Eightieth St., Middle Village, N.Y.

Filed Mar. 30, 1970, Ser. No. 23,610

Int. Cl. G04b 19/00

U.S. Cl. 58-126 A

5 Claims



A timepiece such as a clock or a watch having the capability of providing special visual effects. The timepiece has a stationary face in front of which the hands of the timepiece are located. The conventional sweep-second hand is replaced in the timepiece by a sweep-second disc which is situated in front of the hands and which is transparent so that the hands are clearly visible therethrough. This disc and the stationary face behind the hands are provided with designs of predetermined color and pattern which coact with each other to achieve predetermined visual effects during rotary movement of the sweep-second disc.

3,595,010

ENCLOSED INDICATING DEVICE

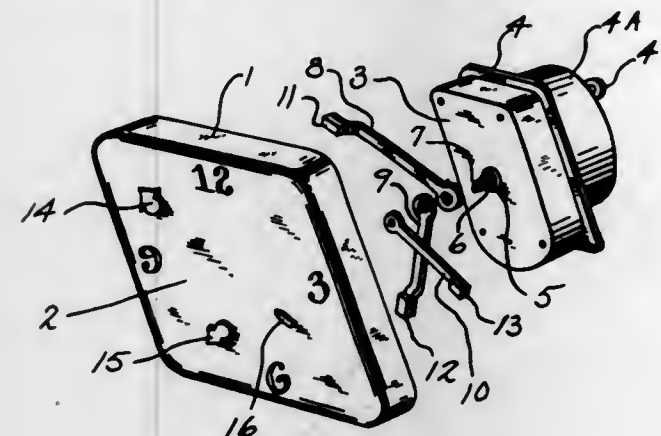
Val Kaiser, 3413 West Wells St., Milwaukee, Wis.

Filed Apr. 9, 1969, Ser. No. 814,591

Int. Cl. G04b 19/00, 45/04

U.S. Cl. 58-126

5 Claims



A clock including second, minute and hour arms terminated at the ends in magnets. The clock is enclosed in a housing having the outer face formed of plastic to transmit magnetic flux. Corresponding small minute, hour and second hands of a magnetic material slidably about the exterior surface of the plastic and are aligned with the appropriate outer ends of the internal hour, minute and second arms. The hands are magnetically coupled and slide over the outer face to indicate the time.

3,595,011

METHOD OF FORMING CHAIN SIDE BARS WITH CURVED BEARING SURFACES

Frl W. Nicholson, Columbus, Ohio, and Gifford E. Rauberts, Morristown, Tenn., assignors to Jeffrey Gallion Inc.

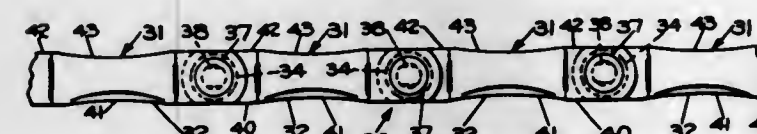
Division of Ser. No. 732,384, May 27, 1968, Pat. No. 3,518,892

Filed Aug. 12, 1969, Ser. No. 849,329

Int. Cl. F16g 13/06

U.S. Cl. 59-8

21 Claims



Method of forming side bars of chain links with inwardly curved bearing surfaces by mechanical deformation of the bearing surfaces, and the bearing surfaces may also be laterally expanded by the mechanical deformation.

3,595,012

SEA PRESSURE OPERATED POWER DEVICE

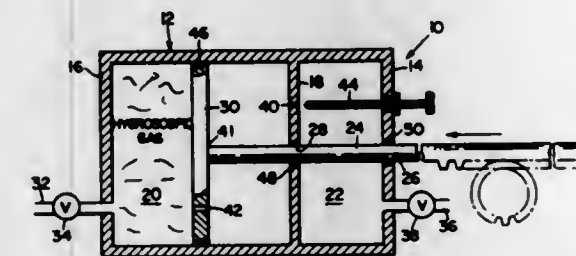
Earl J. Beck, Jr., Ventura, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Feb. 6, 1970, Ser. No. 9,240

Int. Cl. F01k 27/00

U.S. Cl. 60-1

3 Claims



A power source for an underwater tool comprising a hollow cylinder filled with a hygroscopic gas. At sea level the

gas is maintained at atmospheric pressure so that when lowered to deep ocean depths, high pressure sea water will operate a tool connected thereto and then pass into the cylinder through a small orifice. The hygroscopic gas absorbs the water and maintains a constant low back pressure in the cylinder so that the power available remains constant as the cylinder fills.

3,595,013

COMPENSATED SUPERCHARGING DEVICES FOR COMPRESSION-IGNITION ENGINES

Maurice G. Brille, and Yves M. Baguelin, both of Suresnes, France, assignors to Societe Anonyme De Vehicules Industriels et D'Equipements Mecaniques Saviem, Suresnes (Hauts de Seine), France

Filed Jan. 27, 1969, Ser. No. 794,187

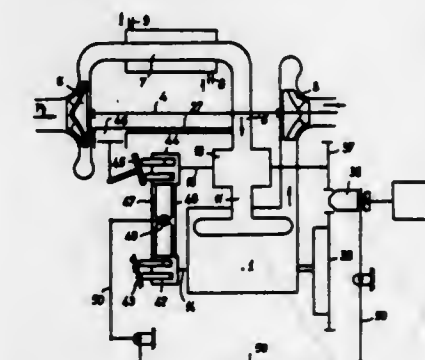
Claims priority, application France, Feb. 7, 1968, Aug. 7, 1968, Aug. 8, 1968, Dec. 5, 1968,

139,048;162,147;162,320;176,778

Int. Cl. F02b 37/04

U.S. Cl. 60-13

8 Claims



A compensated supercharging device for a compression-ignition engine cooled by a liquid at a regulated temperature and already supercharged by a turbosupercharger, said device tending to correct the known inconveniences of this type of supercharging by regulating the temperature and pressure of the air delivered by said turbosupercharger before it is introduced into the engine for all speed and load conditions of said engine.

3,595,014

ROTARY ENGINES

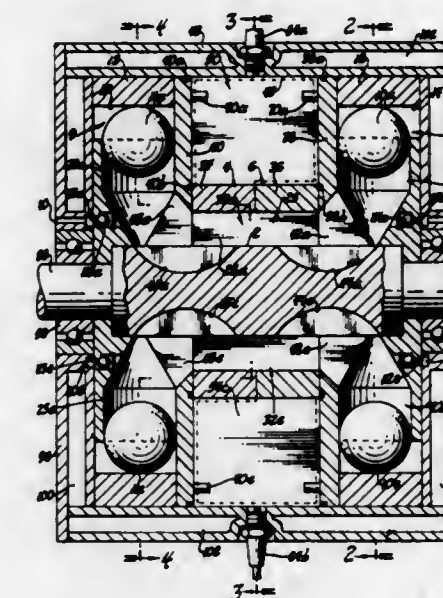
Harold A. McMaster, 707 Riverside Drive, Woodville, Ohio

Filed Dec. 30, 1969, Ser. No. 889,194

Int. Cl. F01b 21/00; F01c 9/00

U.S. Cl. 60-19

124 Claims



A rotary engine of the oscillating rotor or "cat-and-mouse" type including a shaft with a pair of rotors each mounted for

rotation with respect to the shaft and for oscillating rotation with respect to each other. The engine includes drive means having drive members reciprocable in response to oscillating rotation of the rotors with respect to each other, and means responsive to reciprocation of the drive members to cause rotation of the shaft.

3,595,015

EXHAUST GAS TREATMENT MEANS

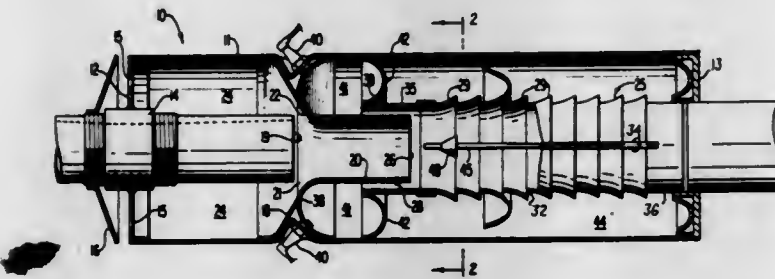
Yuma K. Kretschmer, Farrar, Ga., assignor to Eugene T. Dykes; W. Barrett Howell and William B. Dykes, Atlanta, Ga.

Filed Feb. 18, 1970, Ser. No. 12,232

Int. Cl. F01n 3/10

U.S. Cl. 60-30

3 Claims



A method and apparatus for treating exhaust gases from an internal combustion engine wherein air is mixed with the exhaust gases and the mixture is ignited. The exhaust gases are flowed in a stream through a housing, air is added to the stream to create an air-gas stream, and a portion of the air-gas stream is diverted and flowed in the opposite direction within the housing in a path surrounding the air-gas stream. The diverted portion of the air-gas stream is ignited and added back into the main air-gas stream.

3,595,016

DRIVE LINE FOR A GAS TURBINE POWER PLANT

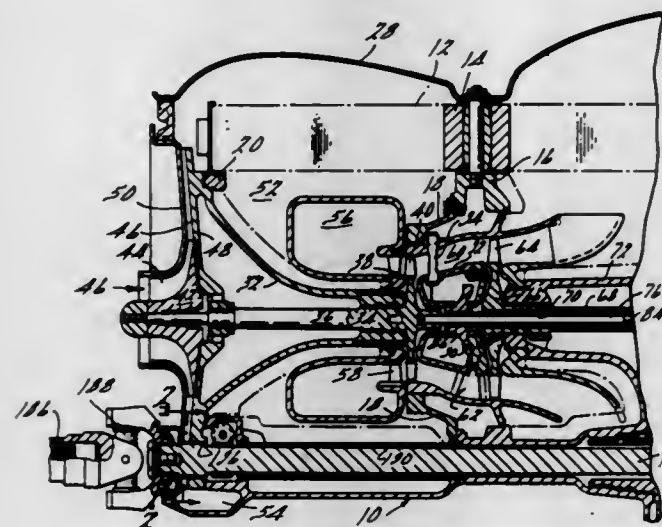
Thomas Rowe Stockton, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Feb. 2, 1970, Ser. No. 7,492

Int. Cl. F02c 3/10

U.S. Cl. 60-39.16

6 Claims



A drive line for a gas turbine engine having an integrated diffuser, a regenerator section, a burner and gasifier section, a power turbine section and a power transmission assembly, power input elements of the power transmission assembly being connected drivably to the power turbine and power output elements thereof being connected to an output shaft extending in parallel disposition with respect to the power turbine shaft and through the gas turbine diffuser housing, the diffuser blades being modified to accommodate the output shaft whereby the overall dimensions of the engine and drive line are reduced to a minimum.

3,595,017
FUEL CONTROL SYSTEMS FOR GAS TURBINE ENGINES

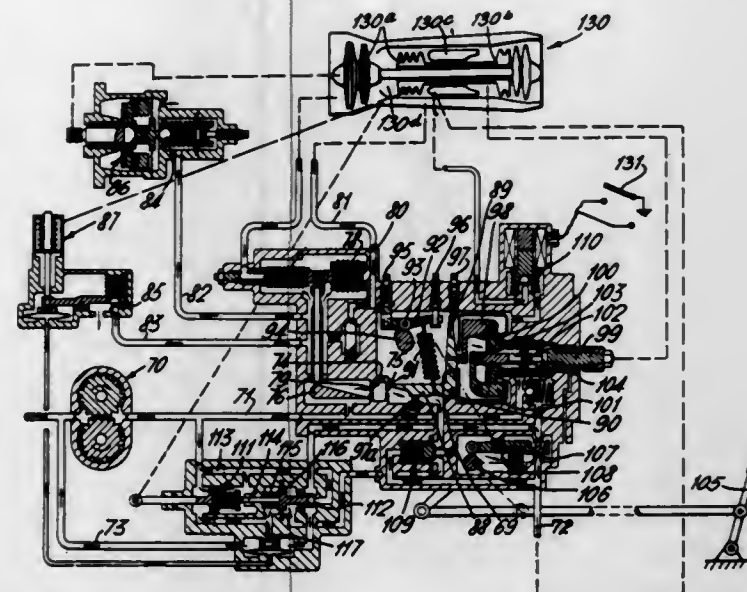
Joseph Lewis Bloom, Bale D'urfe, Quebec, Canada, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Mar. 11, 1969, Ser. No. 806,095

Int. Cl. F02c 9/08, 9/10

U.S. Cl. 60-39.28

1 Claim



A fuel control system operates by restricting fuel flow by means of two variable restrictors in series, and by spilling the remaining fuel via a spill valve to a return line. The first restrictor is variable by apparatus sensitive to changes of air pressure at the compressor of the engine with which the system is used. The second restrictor is variable both by a force which is a function of the desired speed of the engine and by a device which is sensitive to engine speed and which opposes the said force as engine speed increases. The spill valve is actuated upon by fuel pressure upstream of the first restrictor so as to tend to increase fuel spillage, and by a device sensitive to engine speed and by fuel pressure downstream of the second restrictor so as to tend to reduce fuel spillage. The two restrictors are aligned orifices opening into an unobstructed chamber which lies between them, the orifices being controlled by blades engaging the sides of their respective orifices remote from the chamber.

3,595,018

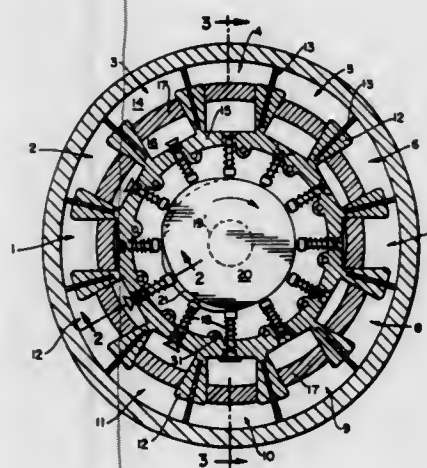
ROTARY ENGINE

Edward T. Saylor, Jr., 144 E. 22 St., New York, N.Y.
Continuation-in-part of application Ser. No. 687,947, Nov. 9, 1967, now Patent No. 3,485,174. This application Dec. 18, 1969, Ser. No. 886,421

Int. Cl. F02g 3/00; F02b 57/10

U.S. Cl. 60-39.61

7 Claims



Various configurations of rotary engines including internal combustion rotary engines are disclosed wherein pressure ex-

erted by the motive gas is transmitted by means of an intermediate liquid against the outer eccentric casing, thus causing relative rotary movement between the casing and a central rotor.

3,595,019

METHOD AND APPARATUS FOR THE SYNCHRONIZED CONTROL OF TWO HYDRAULIC DRIVES

Heinz-Gunter Ehluss, Neuendercherweg 72, Tornesch/Holstein, Germany

Filed Sept. 22, 1969, Ser. No. 859,888

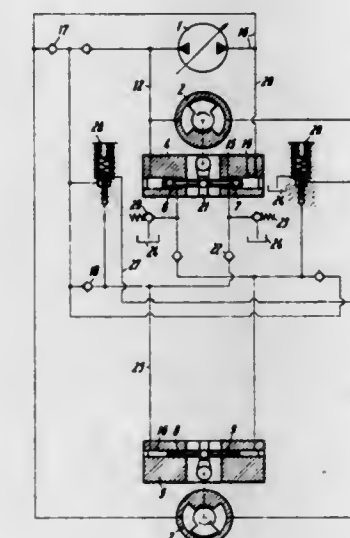
Claims priority, application Germany, Sept. 25, 1968, P 17

76 120.5

Int. Cl. F15b 11/22

U.S. Cl. 60-52 VM

5 Claims



Two reversible hydraulic drives, e.g. for operating ship's stabilizing fins, are supplied by a single hydraulic feed pump.

A pipeline connecting the drives is maintained at a settable pressure level, and lack of synchronism between the drives, manifested by a variation in pressure in that pipeline, is automatically corrected by a feed of pressure oil to, or a bleeding of pressure oil from, the connecting pipeline.

3,595,020

METHOD FOR PRODUCING BURNABLE GASES FOR THRUST ENGINES

Johannes Schubert, Unterhaching, and Rolf Fuchs, Poing, both of, Germany, assignors to Bolkow Gesellschaft mit beschränkter Haftung, Ottobrunn bei, Munich, Germany
Continuation of application Ser. No. 671,658, Sept. 29, 1967, now abandoned. This application Apr. 14, 1970, Ser. No. 28,201

Int. Cl. F02k 7/08, 9/02

U.S. Cl. 60-204

4 Claims



Burnable gases under pressure for operating engines such as thrust engines and particular rocket and ramjet engines

are produced by arranging together two solid propellant charges, one of which comprises an auxiliary propellant charge having a high thermal efficiency and the other constituting a main propellant charge comprising a material of low heat of fusion and evaporation. The auxiliary charge is ignited by a fuse device and will burn off adjacent the main charge but shielded therefrom by a burn-off insulation. The burnable gases which are produced are directed by their own pressure through a gas duct into a combustion chamber where they are admixed with an oxidizer which may be supplied under the pressure force of the gases themselves.

3,595,021

FUEL FEED SYSTEM FOR REHEAT-COMBUSTION IN GAS TURBINE POWER PLANTS

Roger Henri Tissier, Paris, France, assignor to Societe National D'Etude Et De Construction De Moteurs D'Aviation, Paris, France

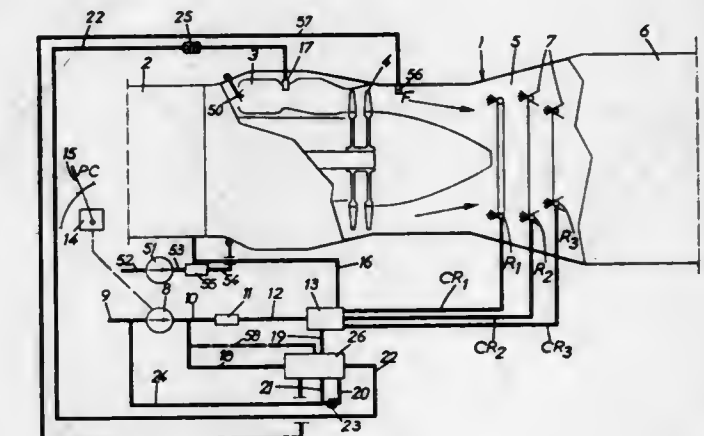
Filed Oct. 7, 1969, Ser. No. 864,306

Claims priority, application France, Oct. 10, 1968, Sept. 15, 1969, 169,476; 6,931,271

Int. Cl. F02k 3/10

U.S. Cl. 60-243

25 Claims



A fuel feed system for the reheat combustion chamber of a gas turbine power plant, comprising a reheat combustion fuel pump, at least one fuel injector for such reheat combustion chamber, a fuel-metering device in a feed line from said pump to said injector or injectors, a fuel bypass means connected to bypass said metering device, and a shutoff device for closing the bypass means when the pressure of fuel prevailing in the injector or injectors exceeds a predetermined value.

3,595,022

THERMODYNAMIC REACTION DRIVE

Reinhart Radebold, and Hermann Lang, both of Berlin, Germany, assignors to Licentia Patent-Verwaltungs G.m.b.H., Frankfurt am Main, Germany

Filed Apr. 9, 1969, Ser. No. 835,279

Claims priority, application Germany, Apr. 1, 1967, July 11, 1967, L 56 149; L 56 963

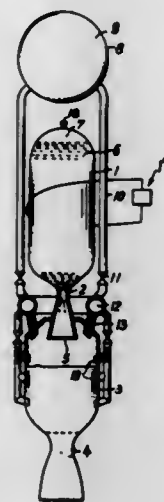
Int. Cl. F02k 9/02, 7/10

U.S. Cl. 60-258

10 Claims

A thermodynamic reaction drive or rocket engine which employs liquefiable solid propellant. An alkali metal, which is used as the propellant, is stored in the fuel tank of the rocket engine in the solid state and then, whenever engine operation is desired, liquefied by heating to the necessary temperature. The liquid propellant is fed from the fuel tank through a De Laval nozzle into the mixing or combustion chamber where it is combined with an oxidizer. The propellant, which can be forced through the nozzle primarily by means of its own vapor pressure, is changed over at the nozzle into a two-phase flow. The oxidizer, which is simultaneously introduced into the mixing chamber at a higher pressure than the pres-

sure in the chamber, effects the combustion of the propellant so that the internal energy of the products of combustion



may be converted to kinetic energy in an appropriate thrust nozzle.

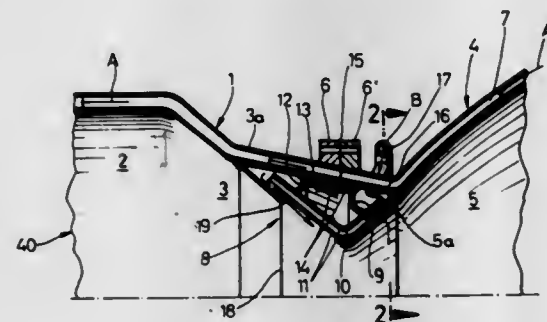
3,595,023

ROCKET ENGINE COMBUSTION CHAMBER COOLING
Karl Stockel, Ottobrunn, Germany, assignor to Bolkow Gesellschaft mit beschränkter Haftung, Ottobrunn, Germany

Filed Jan. 11, 1968, Ser. No. 698,377
Claims priority, application Germany, Jan. 16, 1967, B 90747 1a/46g
Int. Cl. F02k 9/02

U.S. Cl. 60-260

14 Claims



A liquid-cooled rocket combustion chamber construction includes a thrust nozzle and is characterized by the cooling of the walls using a plurality of separate cooling circuits which are independent from each other.

In one embodiment the combustion chamber includes a first or head section which comprises the combustion chamber and a convergent wall portion of the nozzle which is joined through a flange to a second or trailing section which includes a small convergent portion and the divergent portion of the nozzle. A nozzle insert is formed as a continuation of the convergent and divergent portions. At least one first cooling circuit includes a plurality of axially extending passages defined along the length of the head section and trailing section. A second circuit for cooling includes an annular inlet which is connected at the divergent trailing end of the nozzle insert and provides means for directing a fluid in counterflow arrangement along the nozzle section wall and then for directing the cooling fluid in the form of a mist into the combustion chamber at the nozzle section.

Another embodiment includes three separate and independent wall cooling circuits, one fluid circuit comprising means

for circulating a cooling fluid in association with the walls of the combustion chamber head section and another circuit providing means for circulating fluid in association with the trailing section, and a third fluid conduit connection for the nozzle insert.

3,595,024

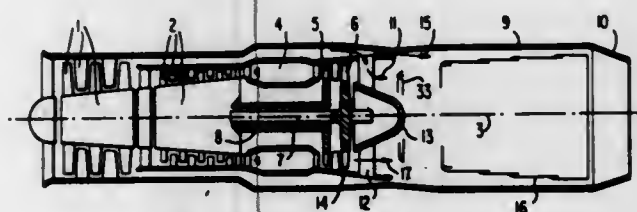
DUCTED FAN-JET ENGINE

Gottfried Kohler, Friedrichshafen, and Eberhard Bader, Munich, both of, Germany, assignors to Motoren-und Turbinen-Union, GmbH, Munich, Germany

Filed May 8, 1969, Ser. No. 822,968
Claims priority, application Austria, May 8, 1968, A4425/68
Int. Cl. F02k 3/08

U.S. Cl. 60-261

5 Claims



A ducted fan-jet power plant in which a part of the bypass airflow supplied by the low-pressure compressor is conducted through hollow turbine discharge guide blades, open at their trailing edges, for the purpose of mixing the bypass flow and the main flow of the power plant within the area of the turbine discharge guide blades.

3,595,025

ROCKET ENGINE COMBUSTION CHAMBER

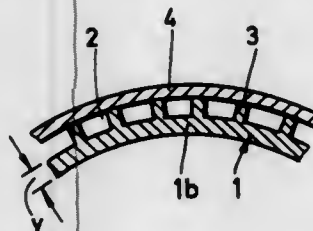
Karl Stockel, Ottobrunn; Carl-Helmut Dederra, Ottobrunn; Kuno Dreyer, München; Just Sohlmann, Ottobrunn, and Michael Kaufman, Neubiberg, all of, Germany, assignors to Messerschmitt-Bölkow Gesellschaft mit beschränkter Haftung, Munich, Germany

Filed July 9, 1969, Ser. No. 840,373
Claims priority, application Germany, July 11, 1968, P 17 51 691.5

Int. Cl. F02k 11/02; C23b 7/00; B23p 15/26

U.S. Cl. 60-267

11 Claims



A combustion chamber construction includes an inner wall having longitudinally extending cooling channels defined in the exterior thereof and an outer wall which is bonded to the inner wall by galvanizing, both the inner wall and outer wall are made of a single piece of an oxygen-free copper or equivalent material such as silver or molybdenum. The cooling channels are advantageously cut in accordance with the method of the invention such as by machining and formed with the least wall thickness in the area of the thrust nozzle and with the relatively greatest wall thickness in the area of the discharge of the combustion chamber. The internal wall thickness at the head portion of the combustion chamber is made of medium thickness. After the cooling channels are machined into the inner wall portion the channels are filled with a filler material which is electrically conductive and has a low melting point so that upon galvanizing it is melted out. In some instances an intermediate layer is positioned between an outer relatively thick and strong layer and inner

wall of the combustion chamber, and the three layers are galvanized together.

3,595,026

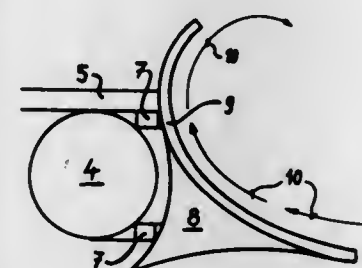
BREAKWATER

Richard Scholl, Hergiswil, Switzerland, assignor to Resa AG., Hergiswil, Switzerland

Filed Apr. 4, 1969, Ser. No. 813,480
Claims priority, application Switzerland, Apr. 5, 1968, 5204/68
Int. Cl. E02b 3/06

U.S. Cl. 61-5

7 Claims



There is disclosed a floating breakwater. Such breakwater may have elements arranged side by side with a lateral space between them such that part of the oncoming waves can pass in between. The elements may have a U-shaped horizontal cross section. They may have an arcuately curved vertical cross section so that each element can divert an oncoming wave upwardly and back upon itself.

ERRATUM

For Class 61-920 see:
Patent No. 3,595,351

3,595,027

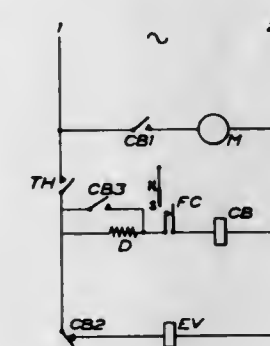
STARTING CIRCUIT FOR ELECTRIC MOTOR

Andrew George Heron, Stocksfield, England, assignor to Heron Electrical Devices Limited

Filed July 9, 1969, Ser. No. 840,309
Claims priority, application Great Britain, Aug. 15, 1968, 38992/68
Int. Cl. F25b 41/00

U.S. Cl. 62-158

3 Claims



A circuit including a circuit breaker for starting an electric motor driving a fluid pump with output and return pipes, comprising an initiating electric contact, a short circuit pipe connected between said output and return pipes, an electromagnetic valve in said short circuit pipe adapted to open on operation of said initiating contact and close when said motor has started, and a fluid-operated contact in series with said circuit breaker such that said breaker cannot close until the flow past said flow-operated contact is reduced to a predetermined value.

3,595,028

CONTROL MEANS FOR AIR-CONDITIONING SYSTEM
Paul D. Schrader, Louisville, Ky., assignor to General Electric Company

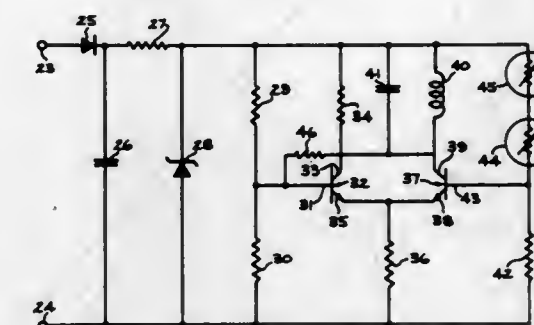
Filed Oct. 2, 1969, Ser. No. 863,218
Int. Cl. F25d 17/04

U.S. Cl. 62-176

6 Claims

In an air conditioner there is provided a thermistor to sense the dry bulb temperature of the air entering the

evaporator coil and another thermistor to sense the dry bulb temperature of the air leaving the evaporator coil. The thermistors are electrically connected into a control circuit



3,595,029

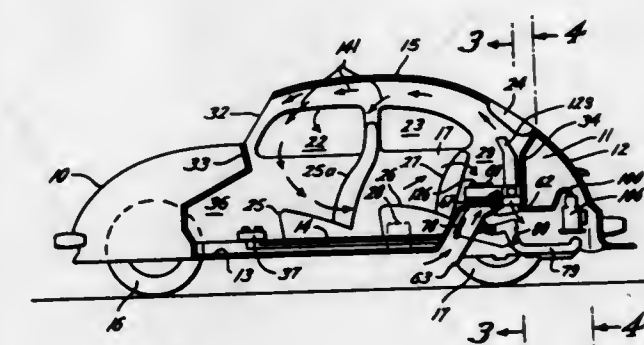
AIR CONDITIONING FOR VOLKSWAGEN-TYPE AUTOMOBILES

Henry W. Lende, Jr., San Antonio, Tex., assignor to Heattransfer Corporation, San Antonio, Tex.

Continuation-in-part of application Ser. No. 794,714, Jan. 28, 1969. This application Sept. 8, 1969, Ser. No. 855,989
Int. Cl. B60h 3/04

U.S. Cl. 62-244

3 Claims



Air-conditioning apparatus particularly adapted for small cars of the Volkswagen type and comprising an encased condenser and evaporator forming a reversible heat exchange unit of the heat pump type which may be conveniently stowed in the space behind the rear seat and which directs heated or cooled air forwardly along the interior roofline, then reversely through the passenger space. The limited space beneath the dashboard, therefore, is unencumbered by the evaporator and control units as heretofore and air circulation is improved, while installation is facilitated.

3,595,030

DEVICE FOR COOLING BOTTLED LIQUIDS

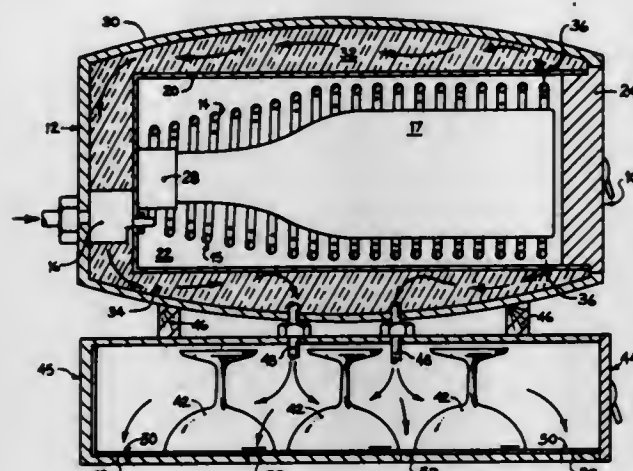
Donald J. Roslonski, 8030 U.S. Hyw. 130, Pennsauken, N.J.
Filed Aug. 12, 1969, Ser. No. 849,314
Int. Cl. F25d 11/02

U.S. Cl. 62-441

5 Claims

A portable device for cooling bottled liquids, such as wine, including a thermally insulated container and a coil of tubing positioned therein within which a liquid-containing bottle is adapted to be placed. The surface of the tubing facing in-

wardly of the coil has a plurality of perforations therein so that a gaseous refrigerant introduced into the tubing will flow

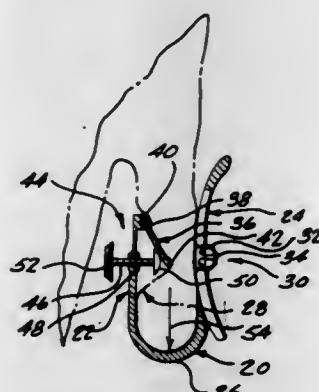


circular knitting machine are moved without the aid of springs or pivoted connections into and out of positions of engagement with the fabric produced on the machine, movement of the stitch helpers being so guided that they are disposed to move the fabric downwardly into positions against the edge of the dial and to hold the fabric in such positions while dial needles are pushed to latch clear positions, the stitch helpers being caused to release the fabric and assume retracted positions before the needles cast off.

3,595,033
RETRACTABLE GUARD CAM FOR PATTERN WHEEL KNITTING APPARATUS
Harry Agulnek, Brooklyn, N.Y., assignor to The Singer Company, New York, N.Y.
Filed June 12, 1969, Ser. No. 832,564
Int. Cl. D04b 15/76
U.S. Cl. 66—50 A 5 Claims

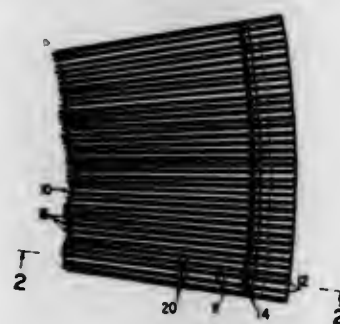
out of the perforations and radially inwardly of the coil against a bottle disposed within the coil.

3,595,031
EARRING CLAMP HAVING ADJUSTABLY POSITIONABLE PIVOTED MEMBER WITH RETRACTING MEANS
Emory L. Weimer, Box 57, Orondo, Wash.
Filed Oct. 7, 1968, Ser. No. 765,578
Int. Cl. A44c 7/00
U.S. Cl. 63—14 D 8 Claims



A nonslipping, nonpinching mount for an ear ornament, having means by which a downward force thereon will increase engagement thereof with the ear lobe correspondingly. The earlobe-engaging device includes a pivoted member, a positioning means for adjusting the pivoted member toward or away from the ear, and spring means for automatically retracting the pivoted member as it is adjusted away from the earlobe.

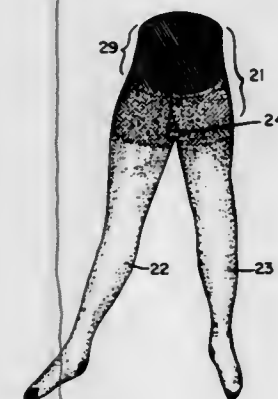
3,595,032
CYLINDER AND DIAL CIRCULAR KNITTING MACHINE WITH CAM-ACTUATED STITCH HELPERS
Donald W. Reagan, Hialeah, and Lester Mishcon, Miami Beach, both of Fla., assignors to The Singer Company, New York, N.Y.
Filed Apr. 6, 1970, Ser. No. 25,705
Int. Cl. D04b 9/06
U.S. Cl. 66—20 9 Claims



Stitch helpers mounted in the dial of a cylinder and dial

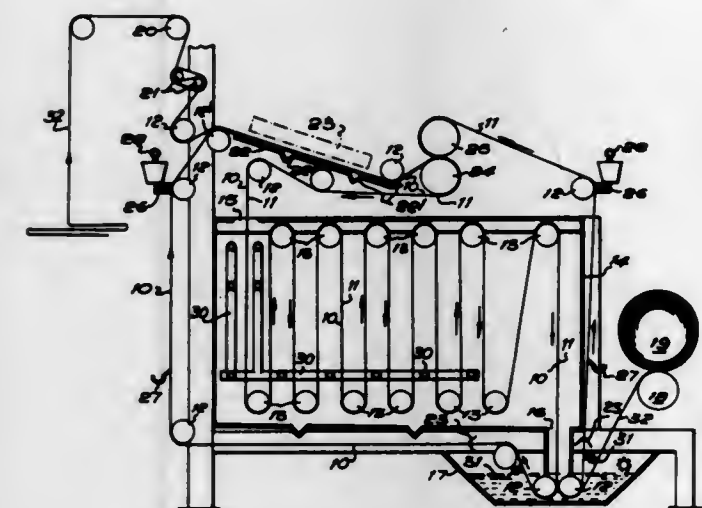
A retractable guard cam is provided at each of the pattern wheel feed stations of a circular knitting machine. Such retractable guard cam, which prevents the uncontrolled flight of needles from a raise cam, is located on the radially inward side of each cam section block including a pattern wheel, but can be retracted from the radially outward side of the block to a position permitting needles to be raised without interference from the cam.

3,595,034
PANTY HOSE SUPPORT GARMENT
Sam C. Safrit, Winston-Salem, N.C., assignor to Hanes Corporation, Winston-Salem, N.C.
Filed July 25, 1968, Ser. No. 747,655
Int. Cl. A41b 9/00
U.S. Cl. 66—177 1 Claim



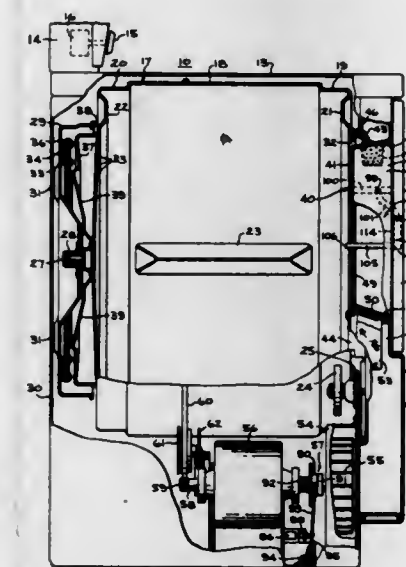
Knitted panty hose having a midriff encircling support portion comprising elastic fabric.
In recent years, knitted ladies' panty hose have achieved wide popular appeal.

3,595,035
METHOD AND APPARATUS FOR THE TREATMENT OF SHEET MATERIAL
Francis Elric Stringer, Marple, England, assignor to Leemetals Limited, Macclesfield, England
Filed Nov. 4, 1968, Ser. No. 773,201
Claims priority, application Great Britain, Nov. 11, 1967, 51397/67
Int. Cl. B05c 1/14, 3/136, 3/138
U.S. Cl. 68—5 5 Claims



A method for the continuous treatment of fabrics in which the fabric passes between two moving bands to one or both is applied a bleaching or other chemical preparations the bands with the fabric sandwiched therebetween traversing a heated treatment chamber or kier with means for controlling the temperature of the treatment zone and the concentration of the chemical preparations, the fabric after treatment being rinsed and wound into a roll. Apparatus is also provided for carrying out the method.

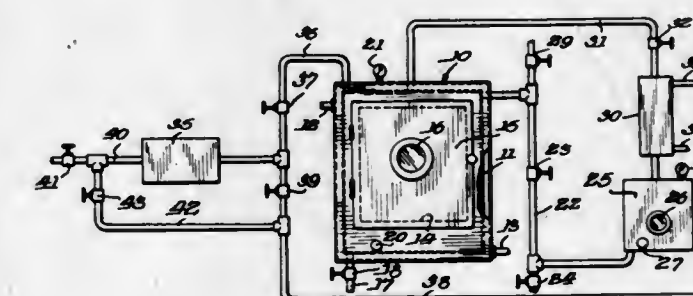
3,595,036
DISPENSER FOR TREATING CHEMICAL
Laddie A. DePas, Louisville, Ky., assignor to General Electric Company
Filed Nov. 24, 1969, Ser. No. 879,033
Int. Cl. D06f 33/02, 39/02
U.S. Cl. 68—12 5 Claims



In an automatic fabric drying machine including an enclosure rotatable about a nonvertical axis to impart a tumbling action to the fabrics, air heating and circulating means adapted to heat and circulate a stream of air through the enclosure, means adapted to selectively energize and deener-

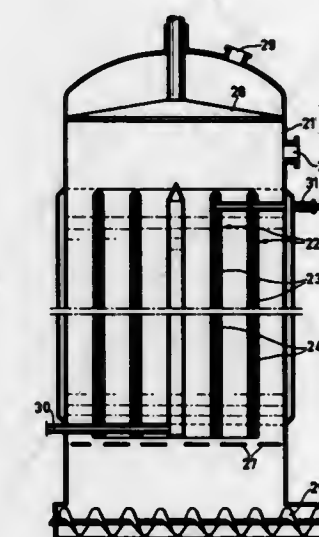
gize the air heating and circulating means, an outer protective cabinet having an opening therethrough into the enclosure, and a door pivotally mounted on the cabinet to close the opening; a dispenser is provided for slowly introducing water and treating chemical into the enclosure. The dispenser comprises a valve controlled reservoir tank carried by the door and including a valve operator. An actuating means incorporated in the cabinet is adapted to actuate the valve operator only when the door is in a closed position adjacent the cabinet. In one embodiment the actuating means comprises a portion of the cabinet adapted to contact the valve operator and cause actuation thereof when the door is closed. In another embodiment the actuating means comprises an actuator adapted to contact the valve operator in response to a condition indicating initiation of the fabric treating operation.

3,595,037
CLOSED CLEANSING SYSTEM
Joseph Pompei, 1420 South Ridgeland Ave., Berwyn, Ill.
Filed June 14, 1968, Ser. No. 774,601
Int. Cl. D06f 43/08
U.S. Cl. 68—18 7 Claims



A closed cleansing system for degreasing purposes. The cleaning chamber is also used as a solvent still, and the solvent is circulated through the system in a closed circuit to achieve improved results. Disposal of oil and dirt from the system may be accomplished by means of removable absorbent granules and pads or by a drain system. In one form of the invention the solvent is condensed in the bottom of the cleaning chamber and sealed therefrom by a sliding aperture plate acting as a valve to facilitate chamber access.

3,595,038
APPARATUS FOR WASHING FIBROUS SUSPENSIONS
Carl Arne Bergholm, Nynashamn; Per-Erik Andersson, Sundsvall, and Gustaf Rune Hellerqvist, Sundsvall, all of Sweden, assignors to Svenska Cellulosa Aktiebolaget, Sundsvall, Sweden
Filed June 14, 1968, Ser. No. 737,161
Claims priority, application Sweden, June 20, 1967, 8,680/67
Int. Cl. D21c 9/04
U.S. Cl. 68—181 6 Claims



In washing paper pulp or similar fibrous suspension the suspension is moved intermittently vertically through a

column. In the dwell periods, washing liquid is forced through the fibrous suspension, and the resulting "extract" removed, in a generally horizontal direction through perforate screening members forming portions of the column.

3,595,039

**SAFETY MECHANISM FOR ANTITHEFT
ARRANGEMENTS APPLICABLE TO AUTOMOBILES**
Lucien Charles Hippolyte Juy, 75, Rue General Fauconnet
Dijon, Cote D'Or, France

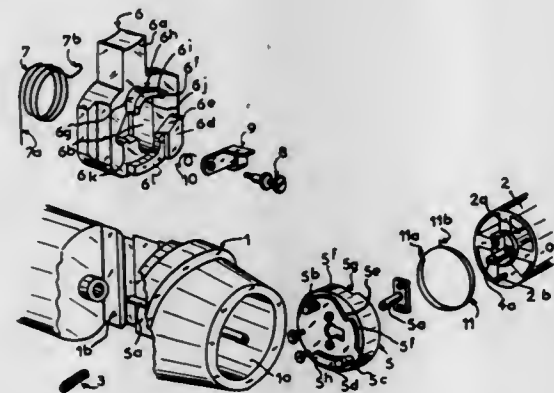
Filed May 12, 1969, Ser. No. 823,882

Claims priority, application France, May 21, 1968, Sept. 30, 1968, 117;192

Int. Cl. B60r 25/02; E05b 65/12

U.S. Cl. 70-252

15 Claims



A safety locking mechanism for automobiles wherein the key turning with the lock rotor controls the switch of the vehicle circuitry through a rod coaxially carried by the rotor. The latter releases the bolt of actual locking means for a predetermined angular setting of the key which releases a yielding stop and allows thereby a spring to urge the bolt into its locking position. Another spring urges the rotor back into its normal position for which the engine is operative as soon as the starter has been actuated for a further position of the key. Repeated actuation of the starter is also prevented by an auxiliary contrivance.

3,595,040

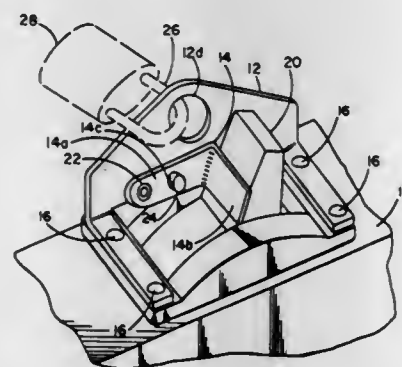
HANDLE LOCK ATTACHMENT
Roger D. Curl, Cedar Rapids, Iowa, assignor to Square D Company, Park Ridge, Ill.

Filed Aug. 1, 1969, Ser. No. 857,262

Int. Cl. H01h 27/00; G05g 5/00

U.S. Cl. 70-203

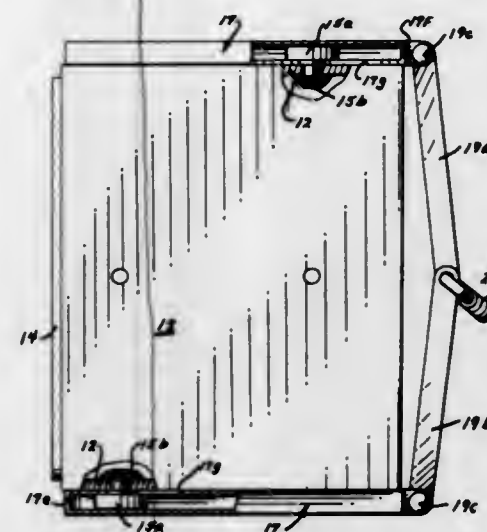
5 Claims



A handle lock attachment securable to the casing of a molded-case electric circuit breaker and having a pivotable handle locking member securable either by a screw or a padlock in interfering relationship with operation of the handle of the circuit breaker.

3,595,041
LOCKING ARRANGEMENT
John E. Leeper, 211 East Columbia St., Evansville, Ind.
Filed Nov. 20, 1969, Ser. No. 878,267
Int. Cl. E05b 73/00; F16b 41/00
U.S. Cl. 70-232

4 Claims



A locking arrangement having particular adaptability for use in preventing the theft of communication equipment from a vehicle characterized by hollow side members having keyway portions for selectively receiving and covering the bolts normally used to secure the communication equipment to a mounting bracket, and arms on each hollow side member pivotal to a locking position and maintained in such position by a conventional lock. In an alternative invention embodiment, a chain and lock, in tension, maintain the aforesaid hollow side members in an antitheft position.

3,595,042

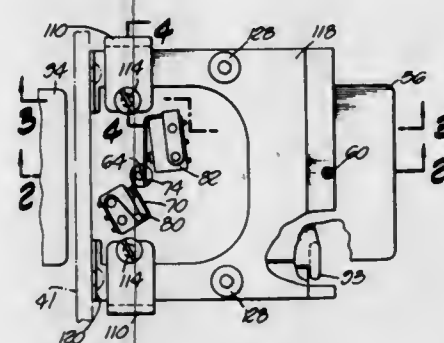
LOCKING MECHANISM
Bruce S. Sedley, Glendale, Calif., assignor to H. O. Boehme, Inc., Chatsworth, Calif.

Filed Aug. 25, 1969, Ser. No. 862,590

Int. Cl. E05b 47/00

U.S. Cl. 70-276

19 Claims



An improved, programmable locking mechanism, particularly useful for controlling access to restricted areas, such as parking lots, convention centers, private clubs, and the like. The access control unit is adapted to be operated by a properly coded pass card provided with a plurality of magnetized areas or portions (commonly referred to as magnetic "spots") arranged in a predetermined pattern. The unit includes electromagnetic means for selectively nullifying or changing the polarity of the magnetic spots to validate or invalidate the pass card. The unit further comprises a locking pin core adapted to be moved by a properly coded pass card to a forward position wherein it will actuate a suitable switch to operate a barrier (e.g., parking lot gate, door, turnstile, etc.) or an indicator. The core is slidable between a fixed upper plate and a fixed lower plate, and is provided with a plurality of locking pin channels extending vertically through the thickness thereof. The lower plate functions as a locking

plate. It is provided with a plurality of wells or recesses which are in substantial alignment with the locking pin channels in the core when the core is in its rearward (locked) position. A plurality of magnetic locking pins are slideably mounted in the core channels and normally extend into the locking plate wells to normally inhibit relative movement between the core and locking plate. A program card receiving slot or pocket is provided adjacent the upper surface of the core, between the fixed upper plate and a top plate, for receiving a program card; and a pass card receiving slot is provided adjacent the lower surface of the core between the locking plate and a bottom plate, for receiving a properly coded pass card. The program card has magnetized portions or "spots" arranged therein in a predetermined pattern designed to attract selected locking pins out of their respective recesses in the locking plate, and the magnetized spots in a properly coded pass card are arranged in a pattern to repel the remaining locking pins out of the locking plate recesses to free the core for forward movement. The unit is operated by inserting a properly coded pass card into its slot and against a flange on the core to urge the core to its forward position and actuate a switch which will operate the barrier or indicator. The access control unit is further provided with one or more electromagnets located beneath the pass card receiving slot for nullifying or reversing the polarity of one or more of the magnetic spots in the pass card, thereby changing the magnetic coding on the card. This prevents the card from being reused to operate the same unit a second time since not all of the locking pins will be repelled out of their locking plate wells by the altered coding of magnetic spots on the card.

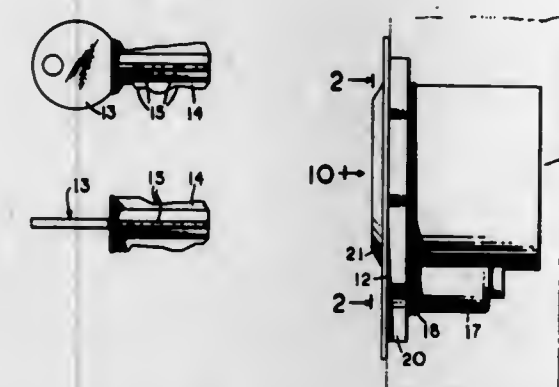
The pass card may be "revalidated" (recoded to restore the original magnetic code on the card) by inserting the card into another access control unit. This second unit is programmed to receive the altered pass card and nullify or reverse the polarities of some of the magnetic spots therein to restore the original magnetic code on the card. The second unit may, for example, be located at the exit from the restricted area and programmed to be operated by the altered pass card to actuate a barrier control switch.

3,595,043

KEYLOCK MECHANISM
Daniel A. Williams, 5516 Dump Ave., Los Angeles, Calif.
Filed Feb. 10, 1969, Ser. No. 797,863
Int. Cl. E05b 25/00

U.S. Cl. 70-383

11 Claims



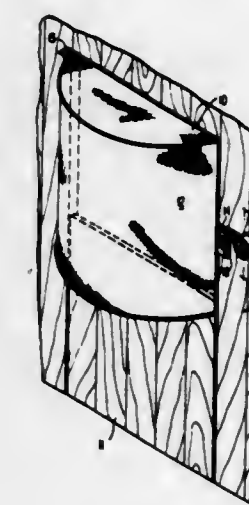
A keylock mechanism is disclosed herein having a housing holding an outer cylinder and rotatably supporting a middle cylinder which, in turn, supports an inner cylinder rotatably mounted on a plug of a ratchet mechanism, all of which are in coaxial relationship. A plurality of tumbler chambers are formed in the outer cylinder resiliently holding a portion of a plurality of pins of varying lengths adapted to be combined to lock or release the cylinders and plug. The middle cylinder, inner cylinder and the plug are formed with openings adapted to be selectively aligned with selected ones of the chambers so as to slidably receive the set of combined pins carried in said selected chamber. A ratchet mechanism connected between the inner cylinder and the plug permits the openings therein and in the middle and inner cylinders to be selectively aligned with chamber openings in the outer cylinder so that a multiplicity of pin tumbler combinations can be chosen. An engineer's key is employed to rotate or set

the middle and inner cylinders and their associated openings with respect to the outer cylinder chambers to change combinations and a guest or operative key is employed to actuate the pin tumblers in each of the selected chambers so as to rotate the inner cylinder and the plug to release the lock.

3,595,044

EMERGENCY RELEASE FOR LOCKED DOORS
Hjalmar L. Hicks, 4031 Royer Road, Toledo, Ohio
Filed Apr. 29, 1970, Ser. No. 33,005
Int. Cl. E05b 63/00; E05c 19/08
U.S. Cl. 70-465

6 Claims



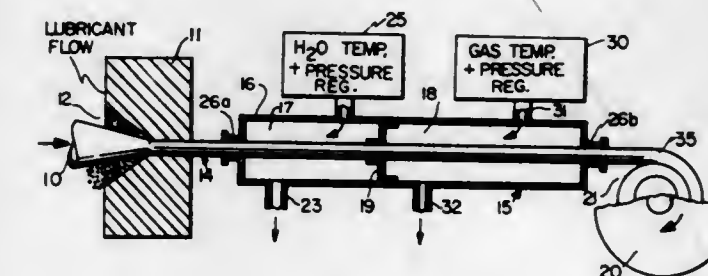
An emergency release for locked doors incorporating a glass covered device for enabling the door to be opened. The glass closure is first broken affording access to a device, which is manually operated to release the door. The ordinary keylock, such as a padlock, which secures the door may remain in locked condition, and still the door is opened. In the event of an emergency, such as a fire, access to the interior of the house, stall, or the like can be quickly gained without the necessity of a key ordinarily required for the purpose.

3,595,045

WIRE CLEANING MEANS AND METHOD
Billy F. Fuqua, Owensboro, Ky., assignor to Kentucky Electronics, Inc., Owensboro, Ky.
Filed Sept. 5, 1968, Ser. No. 757,655
Int. Cl. B21c 43/00, 1/00

U.S. Cl. 72-39

6 Claims



A wire drawing process includes a liquid cleaner station and gas drier station on stream between a lubricating die and spooling reel. Liquid and gas are passed upstream in a tubing to a common outlet, and serve to cool and temper the wire by relative temperatures of the wire at the die, the liquid and the air stations. Concentric pipes with the inner one perforated and enveloping the wire are provided with a barrier between contiguous liquid and gas stations.

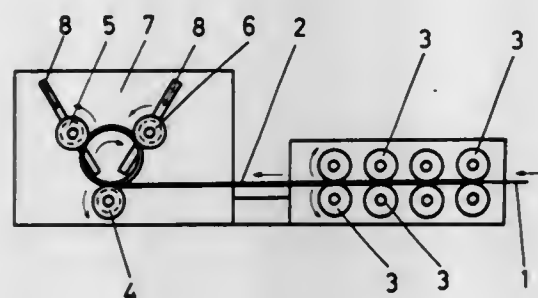
3,595,046

**METHOD AND DEVICE FOR MANUFACTURING
HELICALLY SEAMED TUBE**

Eino Kalervo Malkki, Etelä Hesperiankatu 18 A, and Valentin Silde, 3 linja 23 B, both of Helsinki, Finland
Filed Dec. 18, 1967, Ser. No. 691,642
Claims priority, application Finland, Dec. 21, 1966, 3404/66
Int. Cl. B21c 37/12

U.S. Cl. 72-49

1 Claim



A helically seamed tube is produced from a strip-shaped profiled blank by turning the profiled blank by a revolving rolling device to the extent of one lead of the helical seam and bringing the profiled blanks which will form the seam into seaming contact with each other. At least three rolling devices are in contact with the helical seam and finish the seam while supporting the tube.

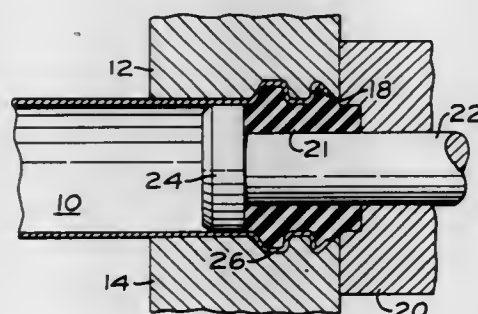
3,595,047

METHOD OF FORMING O-RING GROOVES

William K. Fanning, Morton, and Vincent R. Hodel, Roanoke, both of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Feb. 19, 1969, Ser. No. 800,575
Int. Cl. B21d 13/06

U.S. Cl. 72-58

5 Claims



A method of forming O-ring grooves in a tube; inserting an end of the tube within a die and pulling or pushing a plunger against a cylindrical resilient member, forcing the resilient member to exert a pressure against the walls of the tube, thereby forcing the tube against the die surfaces.

3,595,048
BELLOWS

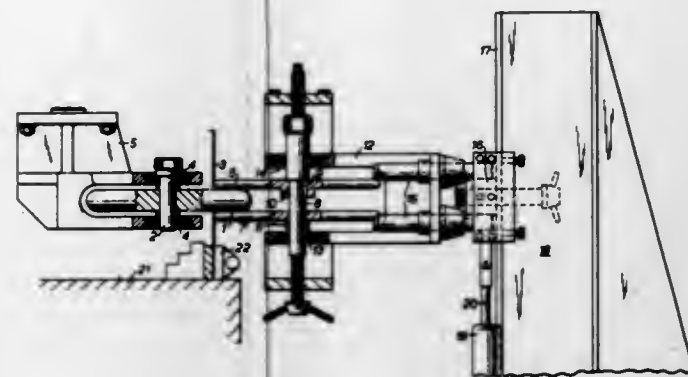
Gordon C. Holt, Pontardulais, Swansea, Glamorgan, South Wales, assignor to Teddington Bellows Limited, Pontardulais, Swansea, Glamorgan, South Wales
Filed Jan. 30, 1969, Ser. No. 795,166
Int. Cl. B21d 17/04

U.S. Cl. 72-84

12 Claims

A method and apparatus for forming convolutions in a tube, the method including the steps of arranging a single roller to bear against one wall of the tube and pair of rollers to bear against the other wall of the tube, rotating the tube, moving the axes of the single roller and pair of rollers towards each other and simultaneously moving two of the

rollers towards each other and simultaneously moving two of the rollers along their axis or axes towards the third roller



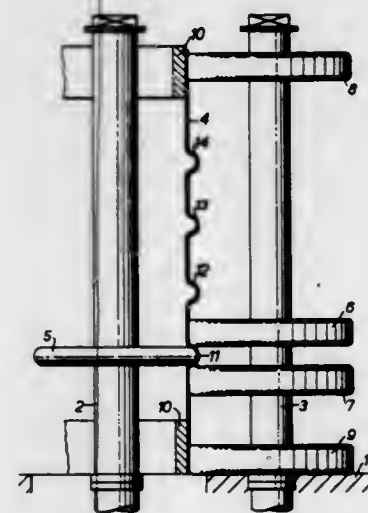
whereby a convolution is formed in one operation in the wall of the tube as said tube is rotated.

3,595,049
BELLOWS

Gordon C. Holt, Swansea, Glamorgan, South Wales, assignor to Teddington Bellows Limited, Pontardulais, Swansea, Glamorgan, South Wales
Filed Jan. 30, 1969, Ser. No. 795,149
Int. Cl. B21d 17/04

U.S. Cl. 72-110

13 Claims



A method and apparatus for forming convolutions in a tube, the method including the steps of securing a reinforcing ring to each end of a tube, supporting one end of the tube, arranging rollers on each side of the wall of the tube and forming a convolution in the wall of the tube by rotating the tube with respect to the rollers; the convolution so formed extending radially outwardly with respect to the remainder of the tube wall.

3,595,050

COIL WINDING MACHINE

John A. McDonald, Morton; James B. Scotti, Pekin; Teddy R. Young, East Peoria, and Roland K. Bass, Chillicothe, all of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 1, 1969, Ser. No. 811,750
Int. Cl. B21f 3/04; B02c 19/00

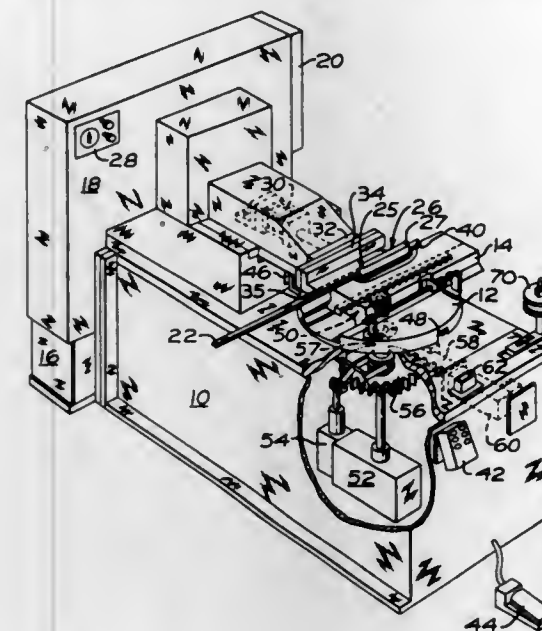
U.S. Cl. 72-142

12 Claims

A coil winding machine for forming edge-wound or flat-on-flat coils, featuring an indexable and rotatable die, against which the material from which the coil is to be formed is held under pressure by a wiper bar. Edge-wound coils are acted upon by a wiper bar having a surface formed thereon which serves to motivate the coil turns upwardly as they are formed

so as to make room for the incoming material. The flat-on-flat coils are acted upon by a powered roller wiper bar which

justment of at least one of them. The pipe to be bent is advantageously fed through a hopper, or guide, and between opposed calibrated bending rollers and thereafter between



is actuated so as to press the material against the die, and particularly about the ends thereof as the die is rotated.

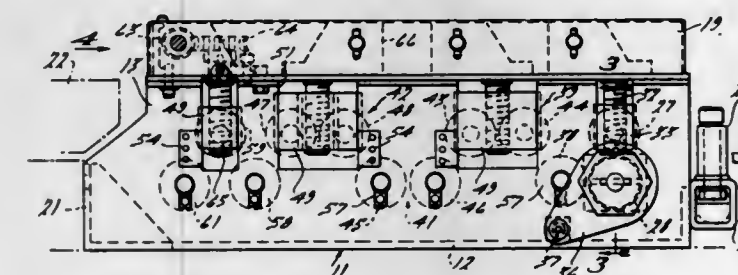
3,595,051

LEVELING DEVICE

Glenn R. Bunnell, Dearborn, Mich., assignor to Special Engineering Service, Inc., Dearborn, Mich.
Filed May 15, 1969, Ser. No. 825,016
Int. Cl. B21d 1/02

U.S. Cl. 72-164

5 Claims



A device for leveling metal sheets being enrolled and fed to a press comprising pinch rolls for initially feeding the material, and a plurality of pairs of upper and lower leveling rolls. Each pair comprises two rolls in tandem, the pairs being alternately above and below the sheet. A single roll beneath the sheet is disposed between the pinch rolls and the first pair of leveling rolls, and three single rolls are disposed alternately above and below the sheet after the last pair of leveling rolls.

3,595,052

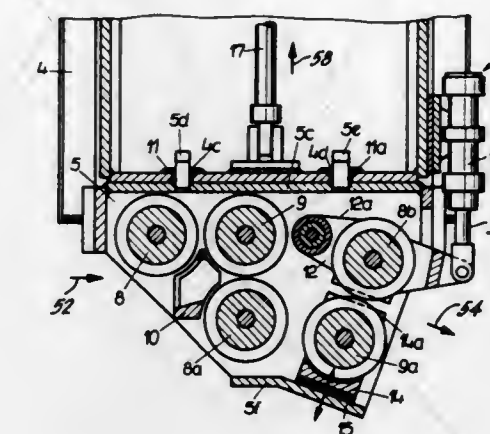
PIPE BENDING DEVICE

Gerhard Steck, Rheinhäusen, and Hans-Dieter Weitermann, Duisburg, both of, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany
Filed Dec. 9, 1968, Ser. No. 782,282
Int. Cl. B21d 5/14, 9/10

U.S. Cl. 72-171

13 Claims

A device for the continuous prebending, particularly of hot-rolled pipes which are adapted to be wound on a separate reel after the prebending includes a magazine or removable block mounting a plurality of rollers for the bending operation. The magazine includes guide bars or supporting flanges which interengage with receiving structures on a drive frame containing the motor drive and speed gearing. The motor drive includes telescopic shaft elements which may be oriented in alignment with the corresponding shaft elements of the rollers and coupled thereto after the magazine is fitted to the frame. The rollers comprise calibrated bending and calibrating rollers, the latter being mounted on the magazine frame in a manner permitting ad-



pure calibrating rollers. The last group of rollers, namely the calibrating rollers are mounted in the magazine frame so that they can be moved through a wide range.

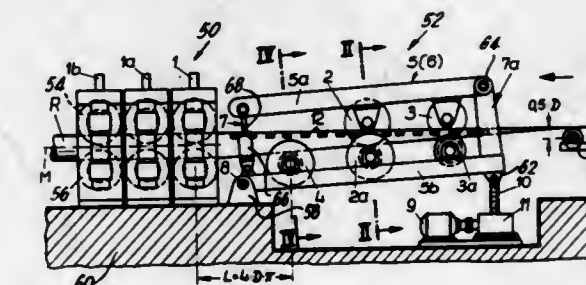
3,595,053

ROLLING MILL SYSTEM

Willi Oppermann, Duisburg, Germany, assignor to Demag Aktiengesellschaft, Duisburg, Germany
Filed Mar. 26, 1969, Ser. No. 810,683
Claims priority, application Germany, June 14, 1968, P 17 52 560.9
Int. Cl. B21d 5/08

U.S. Cl. 72-181

11 Claims



A rolling mill includes an arrangement of a plurality of grooving rollers or rolls in a row with forming rollers which are carried in a mounting frame for operation on a continuously fed strip or plate to bend the plate into a tubular configuration which is fed as formed into association with the rolls of the grooving stands. A feature of the construction is that a single forming roller and two sets of upper and lower forming rollers are arranged on a frame which includes a pivotally mounted lower frame member carrying the lower rollers and a pivotally mounted upper frame member carrying the upper rollers. The frame members are arranged in a rectangular configuration and mounted for pivotal movement about a lower end adjacent the grooving stands. The opposite end is connected to a member which may be moved vertically by suitable driving mechanism to change the elevation of the entire forming roller sets carried in the frame. In addition, the upper rollers of the two roller sets which are spaced further away from the grooving stands than the single forming roller may be shifted so that they may be lifted upwardly from the material being operated upon.

3,595,054

DOUBLE THREE HIGH PLANETARY MILL

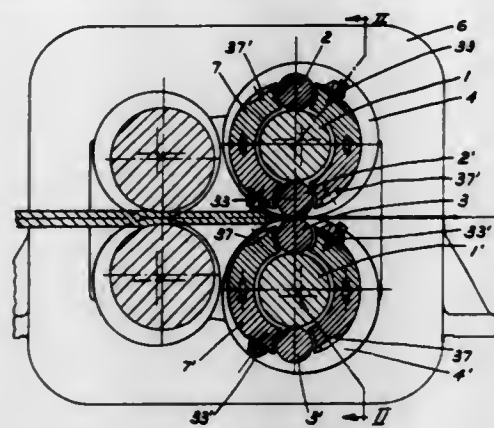
Tadeusz Sendzimir, c/o T. Sendzimir, Inc. P.O. Box 1350, Waterbury, Conn.
Filed May 1, 1969, Ser. No. 820,719
Int. Cl. B21b 21/00

U.S. Cl. 72-190

14 Claims

A planetary rolling mill with nonoverlapping rolling cycles, i.e. a pair of work rolls leaves contact with the strip before a succeeding pair of work rolls engages the strip, wherein tor-

sional vibrations of the drive elements are minimized, in that torque stresses on the drive elements are relieved before the



end of each rolling cycle, i.e. before each pair of work rolls leaves contact with the strip.

3,595,055

CONTINUOUS ROLLING-MILL TRAIN, PARTICULARLY A ROD MILL

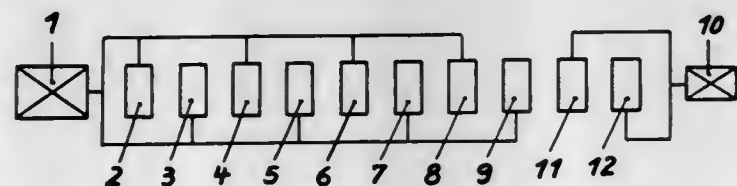
Hans-Heinrich Rohde, Hoesel, Germany

Filed Feb. 4, 1969, Ser. No. 796,323

Int. Cl. B21b 1/16

U.S. Cl. 72-226

2 Claims



A continuous rolling mill, particularly a rod mill, in which the sets of rolls are arranged in two groups in series with one another, with two separate drives, each actuating one group of sets of rolls by means of intermediate gears, the first group of sets of rolls having a definite percentage reduction per pass from one set of rolls to the next, and a pull being exerted upon the stock that is being rolled between the last set of rolls of the first group and the first set of rolls of the second group, and the last set of rolls of the first group being switchable at will into the line of drive of either the first group or the second group, preferably by means of two shifting clutches operable alternatively, interposed between the last set of rolls of the first group and the two driving lines.

3,595,056

MACHINE FOR ROLL FORMING SECTIONS FROM SHEET MATERIAL

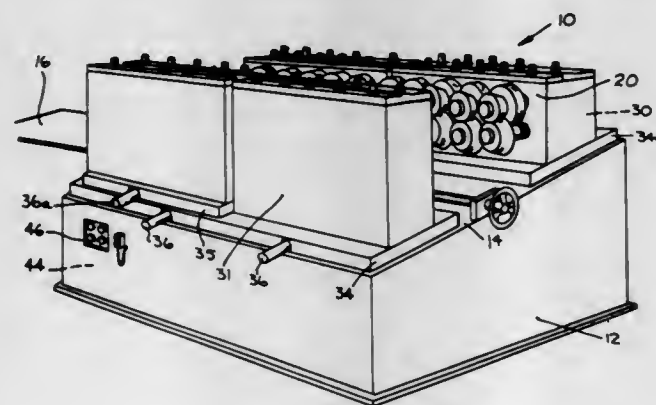
Andrew H. Hutton, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio

Filed July 11, 1969, Ser. No. 841,062

Int. Cl. B21d 5/08

U.S. Cl. 72-181

14 Claims



An improved machine and method for roll forming sec-

tions having a web which is provided with at least one flange from sheet material.

3,595,057

STRETCHER FOR STRETCH FORMING SHEET AND PLATE STOCK

Robert A. Mackenzie, Chagrin Falls, Ohio, assignor to The Cyril Bath Company, Cleveland, Ohio

Filed Apr. 15, 1969, Ser. No. 816,222

Int. Cl. B21d 11/02

U.S. Cl. 72-302

7 Claims



The stretcher comprises a frame with two stretch units mounted thereon for adjustment toward and away from each other for accommodating therebetween selected lengths of sheet or plate stock to be stretched or stretch formed. A male die is supported between the units when stretch forming is to be effected.

Each unit comprises a linkage rockable by power means about a horizontal pivot extending transversely of the stock and tensioning dimension, and carries a stock gripping head.

Rocking of the linkages causes the heads to swing about their pivots in directions away from each other for stretching the stock and toward the frame for laying the stock onto the die.

The stretcher is characterized in that the horizontal pivot is adjustable along a path extending generally upwardly and downwardly normal to the plane of the stock, and the units can be latched securely in adjusted positions along the frame.

With these adjustments, a preselected exact amount of total stretch can be imparted to the stock.

3,595,058

METHOD OF FORMING SLUGS FROM ROD STOCK

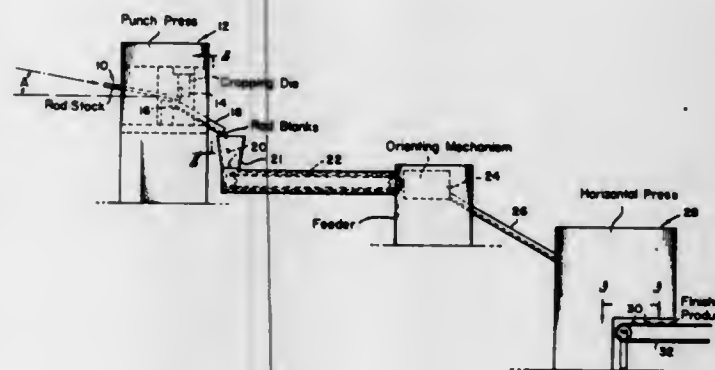
Charles J. Beneke, Louisville, Ky., assignor to Reynolds Metals Company, Richmond, Va.

Filed Jan. 28, 1969, Ser. No. 794,581

Int. Cl. B21d 28/00; 22/00; B21k 21/06

U.S. Cl. 72-339

9 Claims



A method of forming slugs from rod stock which provides a work-hardened center and completely eliminates burrs from the slugs. Suitably sized and straightened rod stock is fed to a first press where it is subjected to the action of a pair of cropping dies to form a cylindrical blank. The latter is fed into an extrusion cavity of a second press, the volume of which is slightly more than the volume of the cylindrical

blank. When the cylindrical blank is impacted in this extrusion cavity a slug is formed with a work-hardened center and flat, unburred surfaces on the upper and lower peripheral surfaces thereof.

3,595,059

METHOD FOR SHAPING PRODUCTS MADE OF FOAM METAL BY PROGRESSIVE LOCALIZED CRUSHING OF FOAM STRUCTURE

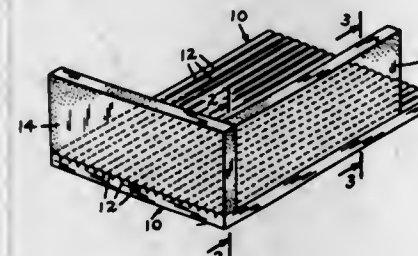
George H. Erb, Cuttingsville, Vt., assignor to American Velcro Inc., Manchester, N.H.

Filed July 10, 1969, Ser. No. 840,772

Int. Cl. B21d 17/00

U.S. Cl. 72-362

8 Claims



Method of shaping foam metal products to provide accurate fit of such products with surfaces such as ribbed or grooved surfaces of a rigid body of metal, glass, plastic and the like by crushing surface regions of a foam metal blank against the surface to which product is to fit. Crushing operation is carried out by progressively pressing blank against surface, with relative movement between blank and surface in direction of length of ribs or grooves, until, under combined effect of pressure and friction, surface regions of the blank permanently assume shape of surface. Relative movement and heat of friction imparts desirable burnishing and densification of the crushed surface regions of the foam metal product. Method provides low cost procedure for producing scrapers, doctor blades, walls or partitions which must accurately fit against a grooved or ribbed surface even though such surface has irregularly spaced grooves or ribs of nonuniform depth or height.

3,595,060

METHOD OF FORMING METAL ALLOYS

Bernard Brian Hundy, Woodstock, England, assignor to Pressed Steel Fisher Limited, Cowley, Oxford, England

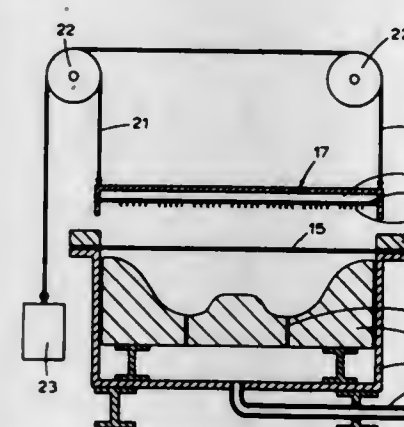
Filed Mar. 18, 1969, Ser. No. 808,229

Claims priority, application Great Britain, Mar. 21, 1968, 13,678/68

Int. Cl. B21d 26/00

U.S. Cl. 72-364

2 Claims



A method of forming superplastic metal alloys by heating the alloy to a temperature at which it is superplastic and then forming the alloy, in which the formed alloy is heated to a temperature above the superplastic temperature range in order to render it resistant to deformation before it is removed from the forming tool.

888 O.G.-48

3,595,061

APPARATUS FOR FORMING CURVED METAL BARS SUCH AS AUTOMOBILE BUMPER

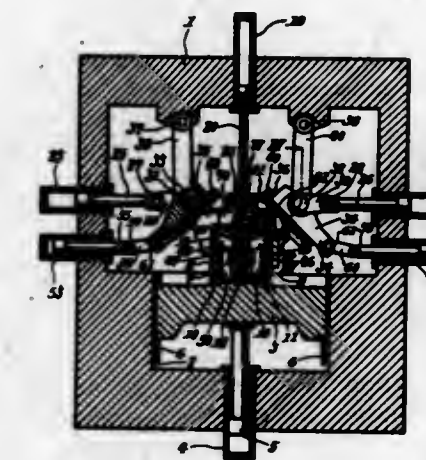
Michio Bessho, Himeji-shi, Japan, assignor to Kawasaki Yoko Kabushiki Kaisha, Takasago-shi, Hyogo-ken, Japan

Filed Sept. 4, 1969, Ser. No. 855,092

Int. Cl. B21d 5/02

U.S. Cl. 72-381

2 Claims



In forming apparatus of the type having a split-type male die assembly and a pair of female die members rockable to roll-bend the opposite end portions of the blank in cooperation with the male die assembly, a pair of auxiliary hydraulic assemblies are provided to drive the bottom portions of the respective female die members toward each other thereby to make the rolling action of the female members on the associated male members more accurate and stable irrespective of the curvature required of the bumper end portions.

3,595,062

THERMOCOUPLES FOR DTA

Robert L. Stone, Austin, Tex., assignor to Columbia Scientific Industries Corporation, Austin, Tex.

Filed Apr. 5, 1968, Ser. No. 719,021

Int. Cl. G01n 25/00

U.S. Cl. 73-15 B

12 Claims



Apparatus for differential thermal analysis, which can exhibit good sensitivity, includes as a differential thermocouple a loop of wire shaped to accept and support a sample dish, a thermoelectric bead in the loop of wire, and at least one electric lead wire extending downwardly from the loop of wire such that it can support the loop of wire and the sample dish during analysis. A thermocouple which has two thermoelectric beads disposed in parallel between its leads exhibits good sensitivity for differential thermal analysis.

3,595,063

GAS ANALYZER SYSTEM

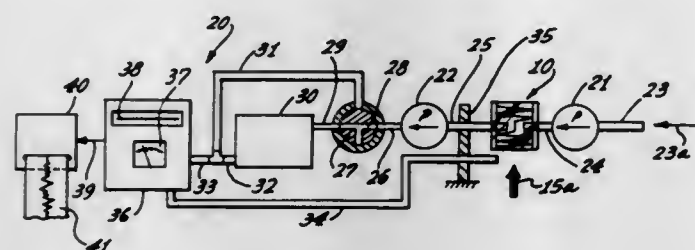
Johannes Martin Loew, Tallfingen, Germany, assignor to Fritz, Hellige & Co., G.m.b.H., Freiburg im Breisgau, Germany

Filed July 30, 1969, Ser. No. 846,180
Claims priority, application Germany, July 31, 1968, P 17 73 950.3

Int. Cl. G01n 31/00

U.S. Cl. 73-23

5 Claims



A gas analyzer system incorporating a mixing chamber, having a diffusion member, for combining a stream of mixing gas with a stream of carrying gas, such carrying gas containing a certain gas, the quantity of which transported in a unit of time will be determined by the gas analyzer system. The mixing chamber combines the aforementioned streams of gas to form a measuring gas which is then analyzed by the system. The system further includes an input pump and an output pump connected to the mixing chamber so as to provide equal quantities of gas transport per unit time within the mixing chamber. A diffusion container may be incorporated between the output pump and the analyzing portion of the system so as to further ensure proper diffusion of the gases.

3,595,064

SEPARATION DETECTOR

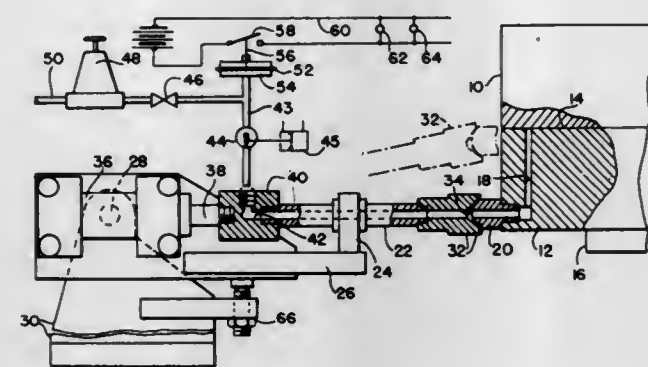
Walter H. Van Deberg, Berkley, Mich., assignor to Earl A. Thompson Manufacturing Co., Ferndale, Mich.

Filed Aug. 28, 1969, Ser. No. 853,909

Int. Cl. G01m 3/26

U.S. Cl. 73-37

7 Claims



Separation of mating faces in a pattern for forming sand molds is detected by blowing air into a passage through one of the mold halves terminating against the parting face of the other mold half and by measuring the pressure in the passage. Apparatus for performing this detection has a tube slidable in and out against a connection on the pattern leading to the passage. Air is supplied to this tube under control of an on-off valve at a constant pressure source through a control orifice. A pressure sensor is connected to the tube. The tube is slidably mounted in a bracket and is moved against the mold or away from it by a double-acting hydraulic cylinder. The bracket is pivoted to a fixed support so that the tube can follow movement of the pattern while maintaining pressure-tight connection with it.

3,595,065

DIFFERENTIAL PRESSURE CROWN INSPECTOR

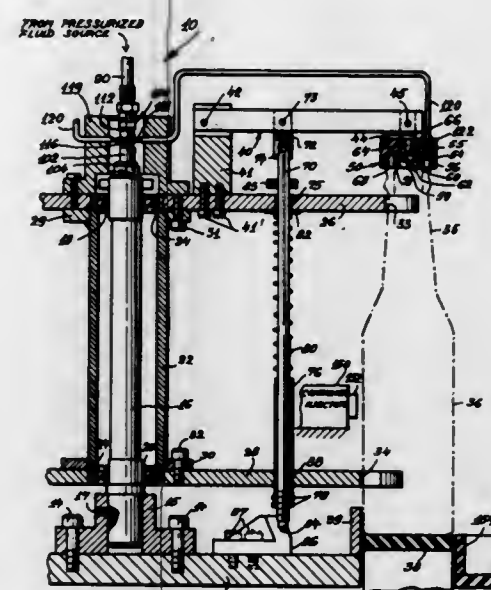
Harry E. Scribner, 18600 Glenwood Lane, Brookfield, Wis.

Filed Sept. 17, 1969, Ser. No. 858,576

Int. Cl. G01m 3/02

U.S. Cl. 73-37

10 Claims



This apparatus inspects the top of bottles, containers or other articles as they move along on a conveyor past an inspection position. Resilient sensor heads are carried on rotating star wheels which engage each container in turn. One sensor head engages the top of a bottom or container and fluid under pressure or vacuum is applied to the head. If the top of the bottle container is defective, fluid leaks thereover and an ejection device is operated that automatically ejects the defective bottle or container.

3,595,066

METHOD OF HYDROSTATICALLY TESTING A STORAGE TANK FOR LOW TEMPERATURE LIQUEFIED GASES

Katsuro Yamamoto, Tokyo, Japan, assignor to Bridgestone Liquefied Gas Company Limited, Tokyo, Japan

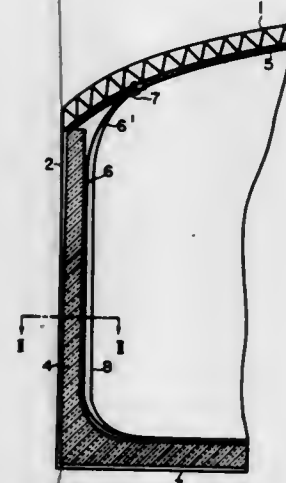
Filed Nov. 3, 1969, Ser. No. 873,362

Claims priority, application Japan, Nov. 4, 1968, 43/80268

Int. Cl. G01m 3/02

U.S. Cl. 73-37

3 Claims



A method for hydrostatically testing storage tanks for liquefied gases of the type having an inner suspended membrane upstanding corrugations. The corrugations extending outwardly of the inner tank are supported by the outer tank but the innerwardly extending corrugations are supported during the test with resilient air-filled hoses closed at the

lower end and interposed between the outer tank and the inner tank. The hoses are spaced circumferentially of the inner tank and vertically in the spaces between an outer tank insulating liner and the inwardly extending corrugations.

3,595,067

METHOD AND APPARATUS FOR DETERMINING THE FIRMNESS OF FILLERS IN CIGARETTE RODS OR THE LIKE

Joachim Von Der Lohe, Hamburg; Heinz Gretz, Hamburg, and Uwe Heltmann, Luneburg, all of, Germany, assignors to Hauni-Werke, Harbor & Co. KG, Hamburg, Germany

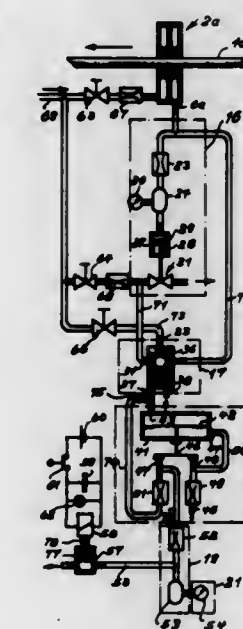
Filed Oct. 2, 1968, Ser. No. 764,482

Claims priority, application Germany, Oct. 9, 1967, P 16 32 208.0

Int. Cl. G01b 13/08

U.S. Cl. 73-37.6

28 Claims



The firmness of rodlike fillers in cigarettes or cigarette rods is determined by directing an air stream against the wrapper of a cigarette or cigarette rod and by measuring the extent of deformation which the filler undergoes in response to deforming pressure of the air stream. The results of measurements can be utilized to furnish visual indications of firmness, to furnish visual indications of differences between a desired firmness and the measured firmness, to furnish visual indications of average firmness of predetermined adjustment of the machine which produces the filler.

3,595,068

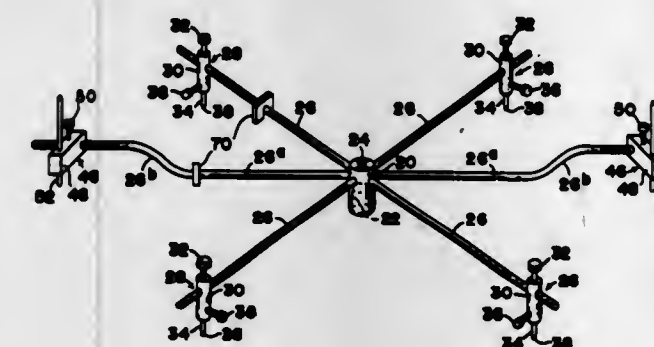
METHOD AND APPARATUS FOR BALANCING PNEUMATIC TIRE AND SUPPORT

Frank O. Skidmore, 2513 Third St., Cuyahoga Falls, Ohio
Continuation-in-part of application Ser. No. 667,573, Sept. 13, 1967, now abandoned. This application June 26, 1968, Ser. No. 761,360

Int. Cl. G01m 1/14

U.S. Cl. 73-66

6 Claims



The method of substantially dynamically and statically balancing a pneumatic tire and its support wheel or rim

which includes the steps of

1. measuring the distance that sidewall and/or tread portions of the tire extend axially from the support to determine any differences in these distances,
2. compensating for any differences in the distances by securing a compensating weight on the support diametrically opposite to the greatest difference distance to thereby balance statically with a compensating weight, positioned on the opposite side of the tire support in alignment in an axial direction.

3,595,069

ULTRASONIC SENSING SYSTEM

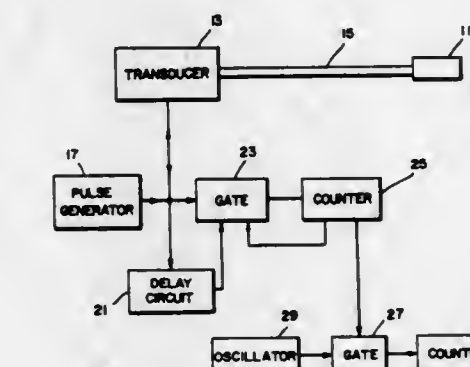
Kenneth A. Fowler, Medfield, Mass., assignor to Panametrics, Inc., Waltham, Mass.

Filed Feb. 14, 1969, Ser. No. 799,333

Int. Cl. G01n 24/00

U.S. Cl. 73-67.2

11 Claims



The system disclosed herein employs an ultrasonic sensor having an acoustic resonance frequency which is a function of a parameter to be measured. Acoustic energy is applied to the sensor in a single pulse having a duration which is on the order of half the period of the nominal resonance frequency of the sensor. The sensor then rings substantially at its exact resonance frequency. After a delay which permits transient effects to die out, the ringing frequency is determined by timing several cycles of the ringing, the frequency so determined being indicative of the value of the sensed parameter.

3,595,070

MOISTURE AND TEMPERATURE DETECTION

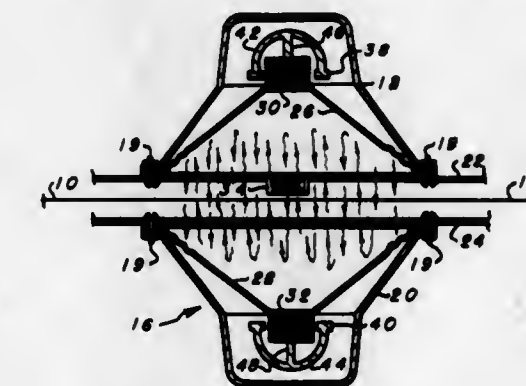
Philip N. Smith, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Dec. 22, 1969, Ser. No. 886,827

Int. Cl. G01n 5/02

U.S. Cl. 73-73

10 Claims



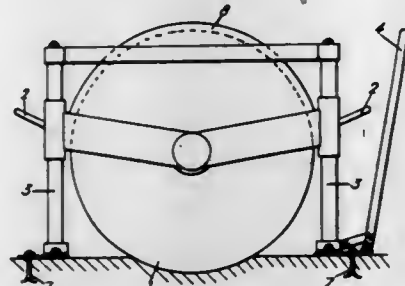
Method and apparatus to continuously detect and measure the moisture level and/or temperature of a moving web of material. The web of material is run between a pair of vibrating members which rapidly move air back and forth through the web of material to bring the moisture content of the air into equilibrium with the moisture content of the fabric.

3,595,071

METHOD FOR DETERMINING STRESSES IN SOIL
 Manuel Coelho Mendes Da Rocha, Av. dos Estados Unidos da America, 95-3 Dt.; Jorge Neves Da Silva, Rua Cabo Verde, 14-2 Dt., and Joao Jose Andrade Baptista Lopes, Av. do Brasil 182-1 A, all of Lisbon, Portugal
 Filed Sept. 26, 1967, Ser. No. 670,699
 Int. Cl. G01n 3/00

U.S. Cl. 73-88

2 Claims



A novel improved method of more economically expeditiously and more accurately obtaining stress determinations existing originally as in an undisturbed test soil, rock or other medium which method comprises cutting a smooth, very thin slot in the surface of the medium to be tested so as not to unduly disturb the stabilized natural structure of it and the adjoining medium, inserting a flat-type jack of a size and thinness corresponding essentially to the slot dimension so as to substantially completely fill the slot without need of infilling between the jack sides and test medium to thereby minimally and negligibly disturb the state of stress therein, subsequently applying on the walls of the major dimension of the slot, by means of a fluid pressure directed into said flat-jack, a force to cancel those minimal stresses in the test medium resulting from the initial cutting of the slot, and then finally measuring the pressure strains exerted by the fluid pressure in said jack on the sidewalls of the slot, whereby initial stress which existed in the test medium before the application of a disturbing action can be readily calculated. Such calculations may be derived from using the known mathematical theory of elasticity, and further a graphic curve can be plotted of the deformations as a function of the slot depth from which to derive the modulus of elasticity of the test medium.

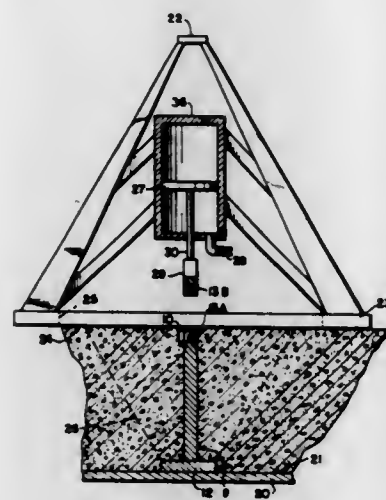
3,595,072

CONCRETE TESTING MEANS

Owen Richards, 4306 Rosemary St., Chevy Chase, Md.
 Filed July 22, 1969, Ser. No. 843,448
 Int. Cl. G01n 3/00

U.S. Cl. 73-88

4 Claims



The strength of concrete or equivalent materials is tested in situ after various degrees of cure by means of one or more test members buried in place in the green concrete slurry. The member has a shank with an enlarged head which can be

stressed until the concrete fractures to leave a crater, thus giving a rupture modulus strength value and permitting inspection of the interior concrete structure. Destructive testing is not necessary if a predetermined strength value is to be tested and the concrete withstands the test. This provides a test of the actual conditions found in any structural site and under conditions which may otherwise vary with shape, cure conditions, etc.

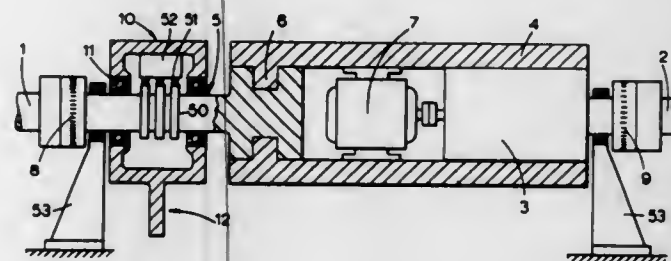
3,595,073

METHODS AND ARRANGEMENTS FOR TESTING INDUCTION MOTORS

David Gwilym Orwel Morris, Flat C, 5 Kensington, Church St., London, W.8, England
 Filed Apr. 16, 1968, Ser. No. 721,864
 Claims priority, application Great Britain, Apr. 19, 1967, 17890/67
 Int. Cl. G01l 3/22

U.S. Cl. 73-134

19 Claims



Method apparatus Apparatus for testing induction machines by the back-to-back technique. The shafts of the motors are coupled together such that they will turn in the same direction through a motor or motor and gearbox combination. The motor or motor and gearbox combination enables the torques in the shafts of the motors being tested to be balanced.

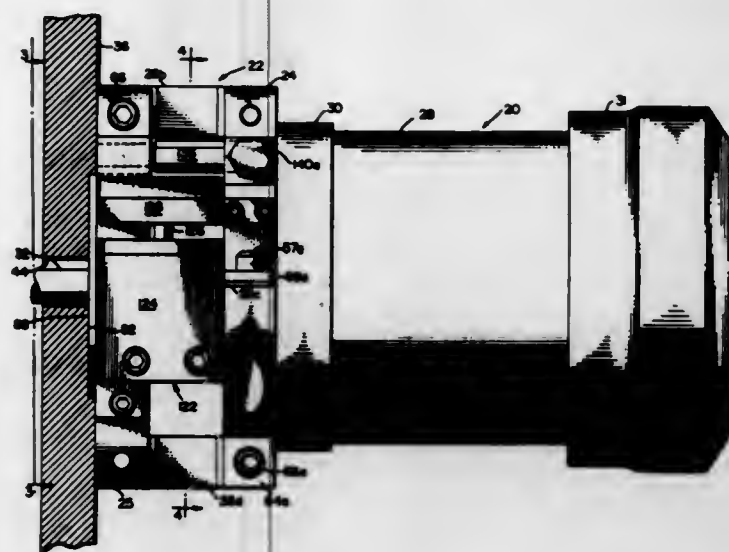
3,595,074

TORQUE TRANSDUCER

Clarence Johnson, 31649 Trillium Trail, Cleveland, Ohio
 Filed Oct. 30, 1968, Ser. No. 771,868
 Int. Cl. G01l 3/02

U.S. Cl. 73-136 R

34 Claims



A torque transducer for measuring the torque input or output of a rotary machine, such as a motor or generator, and comprising a pair of axially spaced apart end plates respectively fixed to the housing of the machine and to a fixed or stationary support surface coaxially of the machine's input or output shaft axis and a plurality of flexure plates each disposed axially between and clamped at opposite ends to the end plates. The rotary machine is supported solely by the

torque transducer from the support surface such that when it is horizontally oriented it is mounted in cantilever fashion at the unsupported ends of the flexure plates. By operating such rotary machines as a motor or generator, a reaction or counter-torque, which is proportional to the torque input or output, is produced and applied to the housing of the machine. The flexure plates are flexed and twisted under the influence of the applied reaction torque, allowing the housing of the machine to turn about the torque transferring shaft axis through an angle that is closely proportional to the torque input or output of the machine. This angle of rotation is measured to provide a readout of the magnitude of torque input or output.

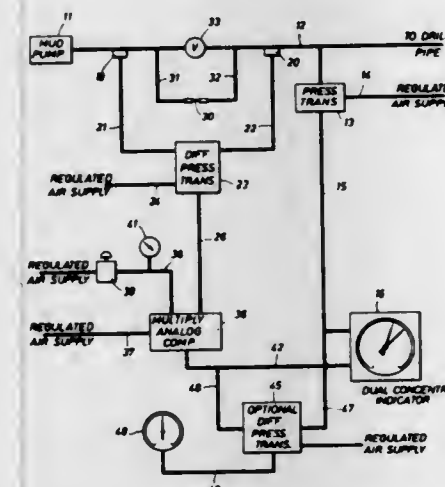
3,595,075

METHOD AND APPARATUS FOR SENSING DOWNHOLE WELL CONDITIONS IN A WELLBORE

Ethell J. Dower, Houston, Tex., assignor to Warren Automatic Tool Company, Houston, Tex.
 Filed Nov. 10, 1969, Ser. No. 875,462
 Int. Cl. E21b 47/06

U.S. Cl. 73-155

6 Claims



A method and apparatus for sensing downhole well conditions in a wellbore having a drill string suspended therein and pump means and conduit means for circulating drilling fluid down the well. The apparatus includes a pressure transmitter for sensing the circulating pressure of input drilling fluid being circulated down the well and generating a first signal representative thereof. It could also include means in the form of a differential pressure transmitter for sensing a pressure drop of the drilling fluid along a portion of the conduit means and generating a second signal representative thereof. Readout means in the form of dual concentric pressure gauges are provided for reading out a change between the signals as an indication of a change in downhole well conditions, such as loss of drilling fluids or incursion of formation fluids into the well.

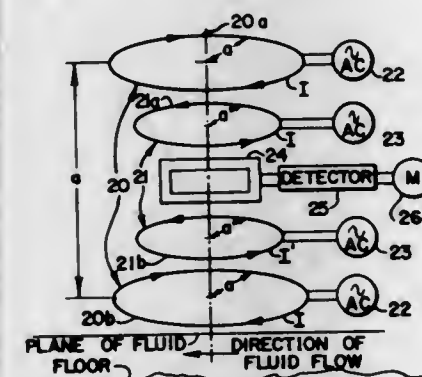
3,595,076

DEVICE FOR MEASURING VELOCITY

Leonard J. Eyges, 21 North Road, Bedford, Mass.
 Filed May 12, 1969, Ser. No. 823,588
 Int. Cl. G01p 5/08

U.S. Cl. 73-194 EM

7 Claims



A device for measuring the relative speed of an object which is moving with respect to a conducting fluid or vice

versa and which includes means for establishing a primary magnetic field through the fluid and means for detecting and measuring the secondary magnetic field induced by said primary field in a manner such that the primary field does not substantially disturb the measurement of the secondary field.

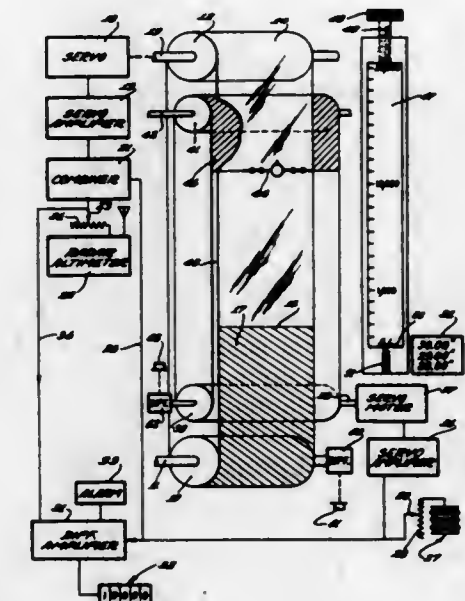
3,595,077

ALTIMETER

Earl Stuart Perkins, Oak Brook, Ill., assignor to Butler National Corporation, Oak Brook, Ill.
 Filed May 21, 1969, Ser. No. 826,529
 Int. Cl. G01c 21/00

U.S. Cl. 73-178

6 Claims



An altimeter which continuously presents to the pilot of an aircraft the altitude of the aircraft above ground and in which the ground reference moves relative to a fixed sea level reference with inputs to the altimeter being supplied by barometric altimeters and absolute altimeters. A pair of moving belts are supported between two pairs of rollers and carry indicia for showing the relationship between the aircraft, sea level and the ground beneath the aircraft.

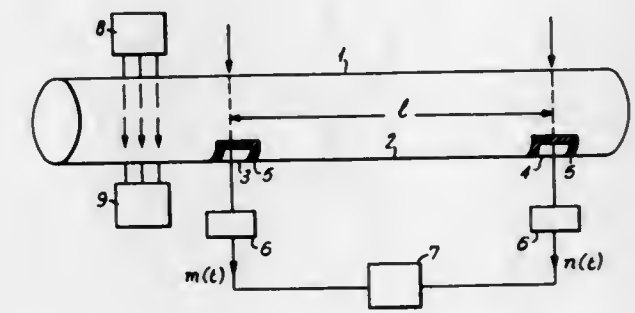
3,595,078

POWDER FLOW MEASUREMENT

Maurice Sidney Beck, 10 Hazelhurst Road, Bradford 9, Yorkshire, England, and Andrzej Plaskowski, ul. Anielewicz 33 m 27, Warsaw, Poland
 Filed Apr. 3, 1968, Ser. No. 756,969
 Claims priority, application Great Britain, Sept. 6, 1967, 40688/67
 Int. Cl. G01f 1/00

U.S. Cl. 73-194 F

11 Claims



The flow of a particulate material when conveyed hydrodynamically by means of a flowing fluid has a noise

content consisting of random variations in the concentration of the particulate material. This noise content is sensed at two points separated by a known distance along the flow path of the material, and the sensed disturbances are cross-correlated to establish a transit time for a given disturbance between the two points, thus enabling the flow rate of the particulate material to be determined.

3,595,079

FLUID FLOW VELOCITY MEASURING APPARATUS

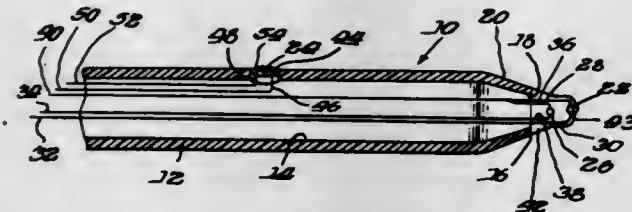
Allen R. Grahn, Chicago, Ill., assignor to Northwestern University, Evanston, Ill.

Filed Nov. 13, 1967, Ser. No. 682,355

Int. Cl. G01f 1/00

U.S. Cl. 73-204

11 Claims



Apparatus for measuring instantaneous fluid flow velocity including a probe having fluid flow velocity, temperature and direction sensor thermistors selectively positioned thereon. The sensor thermistors are connected in an electrical circuit including bridge circuits adapted to compensate for changes in temperature of the fluid being measured. The circuit establishes an output signal proportional to the flow velocity of the fluid and having a polarity dependent upon the direction of fluid flow. The circuit further computes the acceleration, mean velocity and peak velocity of fluid flow. The measuring apparatus is calibrated by a calibrator having a piston-cylinder arrangement adapted to effect predetermined fluid flow through a flow conduit which supports the probe such that its sensor thermistors are disposed within the flow stream. The calibrator includes a potentiometer circuit operative to establish an electrical signal proportional to the velocity of fluid flow past the probe sensors. The output signal of the measuring apparatus may then be compared to the signal produced by the calibrator potentiometer circuit and the measuring apparatus adjusted to bring the signals into desired phase and magnitude relation.

3,595,080

FLOW SENSOR

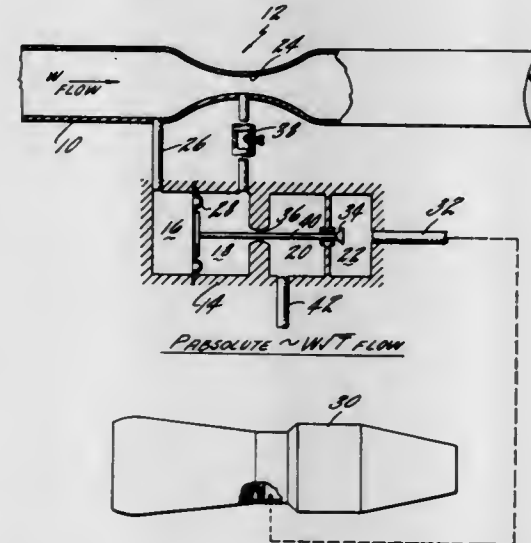
George C. Rannenberg, Granby, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 5, 1968, Ser. No. 773,495

Int. Cl. G01f 1/02

U.S. Cl. 73-213

3 Claims



A mass flow sensor for a compressible fluid applies pressure upstream of the throat of a venturi to one side of the

diaphragm and the pressure between three serially connected restrictions leading fluid from a high pressure source to the throat of the venturi to the other side of the diaphragm. The first restriction is made variable and attached to the diaphragm such that the pressure between it and the second restriction is regulated so that said intermediate pressure is proportional to the mass flow through the venturi.

3,595,081

FLOWMETERS

William A. Byars, London, England, assignor to Elliott Brothers (London) Limited, London, England

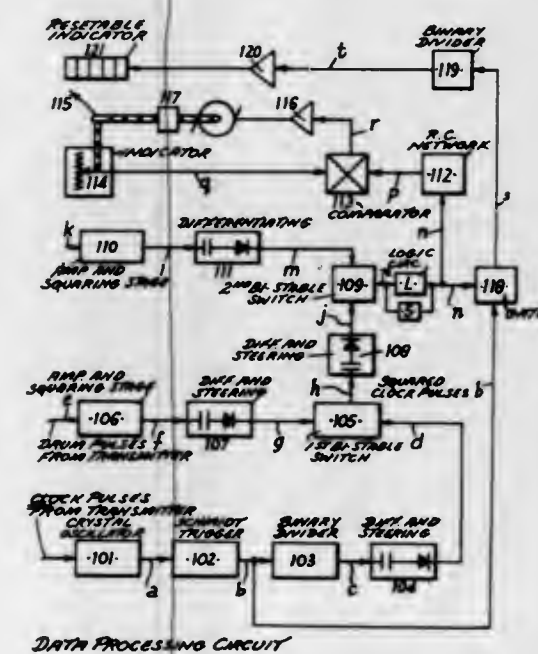
Filed Sept. 16, 1968, Ser. No. 762,232

Claims priority, application Great Britain, Sept. 28, 1967, 44,187/67

Int. Cl. G01f 1/06

U.S. Cl. 73-231 R

7 Claims



A fluid flowmeter which gives an output pulse for each unit of fuel passing through the meter and which also gives pulses at a characteristic "zero flow" rate when no fluid is flowing. Inhibitor means are provided to prevent zero flow rate pulses from affecting the indicator means and in order to check the accuracy of the flowmeter switch means are provided for overriding the inhibitor means at will so that zero flow rate pulses may be used to give a flow rate indication.

3,595,082

TEMPERATURE MEASURING APPARATUS

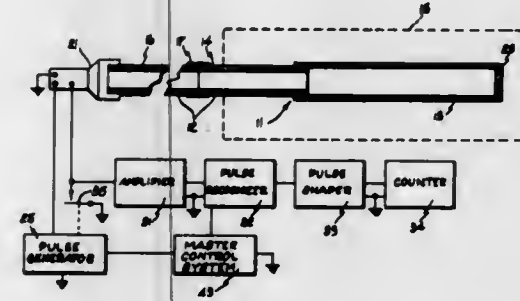
Park H. Miller, Jr., Del Mar, Calif., assignor to Gulf Oil Corporation

Filed Mar. 4, 1966, Ser. No. 531,985

Int. Cl. G01k 11/24

U.S. Cl. 73-339 A

8 Claims



A method and apparatus for measuring temperature under difficult environmental conditions, in which the temperature

of a fluid between two reflective means is determined acoustically by recording the received reflections and determining their spacing by pulse compression techniques.

3,595,083

MEASURING INSTRUMENT FOR BALLS AND THE LIKE

Horst Rudolf Dassler, Vaduz, Liechtenstein

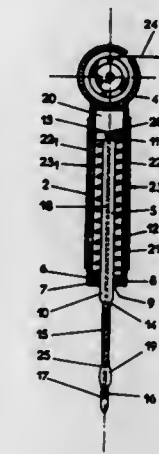
Filed Apr. 28, 1969, Ser. No. 819,589

Claims priority, application France, Nov. 14, 1968, 173,645

Int. Cl. B60c 23/02; G01f 7/16; G01g 3/02

U.S. Cl. 73-389

5 Claims



A measuring instrument for inflated balls having a spring biased piston slideably held within a graduated cylinder. A pin is attached to the piston and extends outwardly from the cylinder for insertion into the valve of a ball. The pin is hollow and permits the air pressure within the ball to push the piston against its spring bias to indicate such pressure on the graduated cylinder. The same structure also provides means for weighting the ball by supporting it on the pin and determining the amount of spring deflection, and said instrument includes a linear measuring device for measuring the ball dimensions.

3,595,084

DIGITAL TRANSDUCER SYSTEM

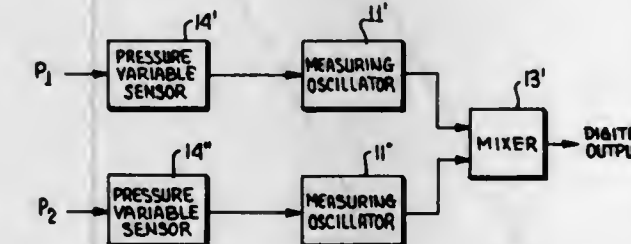
Robert N. Bailey, and James L. Strom, both of Augusta, Ga., assignors to Continental Can Company, Inc., New York, N.Y.

Filed Feb. 27, 1970, Ser. No. 14,778

Int. Cl. G01n 9/12

U.S. Cl. 73-398

14 Claims



A digital measuring transducer system is disclosed wherein a pair of oscillators are employed in combination with a mixer to produce an output from the mixer having a pulse repetition frequency equal to the difference in pulse repetition frequencies between the two oscillators and representative of a sensed condition. At least one of the oscillators employs a resonant circuit in the feedback path and a pressure-variable capacitive sensor is connected into the resonant circuit to vary the output frequency of the associated oscillator to produce a difference in frequencies between the two oscillators and a resultant output from the mixer indicative of the

pressure condition adjacent the sensor. The second oscillator may be a reference oscillator providing a predetermined reference output frequency or the second oscillator may have a pressure-variable capacitive sensor associated therewith such that the pulse or digital output from the mixer is representative of differential pressure.

3,595,085

INDICATING DEVICES

Robert S. Harrah, 4108 DuPont, Houston, Tex.

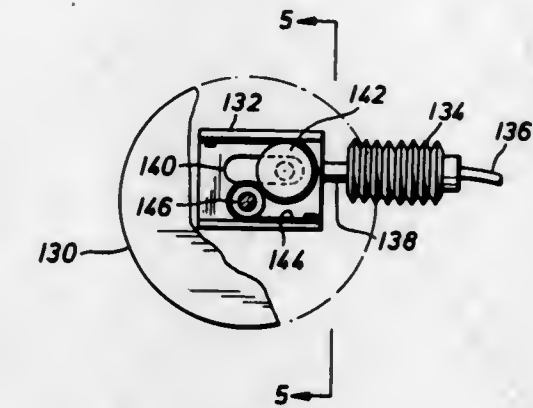
Division of Ser. No. 731,950, May 24, 1968, Pat. No. 3,555,909

Filed Mar. 9, 1970, Ser. No. 17,601

Int. Cl. G01f 7/04

U.S. Cl. 73-410

14 Claims



In meter movements wherein a pointer moves across a scale in response to relatively small deflections of a Bourdon tube, bellows or the like, improved means comprising motion transferring means operatively connected to the transducer and connected to the pointer wherein the pointer is rotated relative to the scale by operation of a frictionless and gearless mechanism converting the transverse movement of the transducer to rotation of the pointer.

3,595,086

EXTRACTION AND STORAGE ARRANGEMENT

Claude Jean-Philippe Bonnet, Paris; Robert Laucournet, L'Hay-Les-Roses, and Jean Alexandre Guigan, Paris, all of France, assignors to F. Hoffmann-La Roche & Co. Aktiengesellschaft, Basle, Switzerland

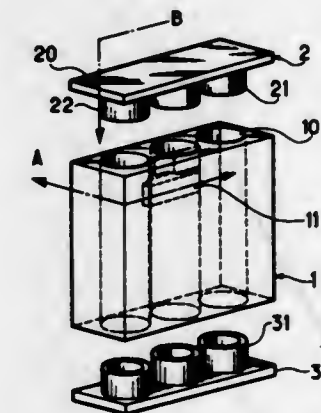
Filed Nov. 20, 1969, Ser. No. 878,477

Claims priority, application France, Dec. 27, 1968, Nov. 21, 1968, PV 181344/68; PV 174805/68

Int. Cl. G01n 1/18

U.S. Cl. 73-421 R

18 Claims



Device for sampling and multiple stocking of a liquid substance, includes a compact set of tubes arranged in a row with the openings of each end face stopped up by a plug. The set of tubes are fitted, near one of its ends, with channels communicating between the tubes when the plug at said end

is in a first position, but isolates each tube when the plug is in a second position.

3,595,087

SAMPLING APPARATUS

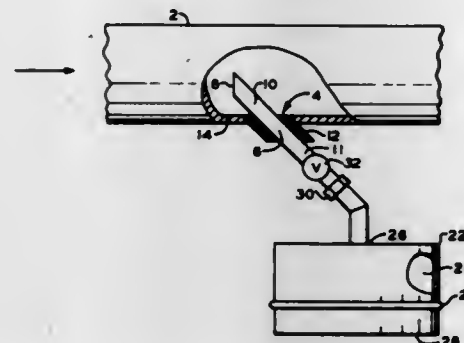
Robert W. Starks, Merrillville, Ind., assignor to Phillips Petroleum Company

Filed Oct. 20, 1969, Ser. No. 867,731

Int. Cl. G01n 1/20

U.S. Cl. 73-422 R

4 Claims



An apparatus for removing samples of product flowing through a conduit. The apparatus has a rotatable and reciprocal sample tube disposed within the conduit with said tube being movable to various positions within the conduit.

3,595,088

METHOD AND APPARATUS FOR SAMPLING GRANULAR SOLID MATERIAL

Henry-Gilbert Meunier, Liege, Belgium, assignor to Centre National De Recherches Metallurgiques, Brussels, Belgium

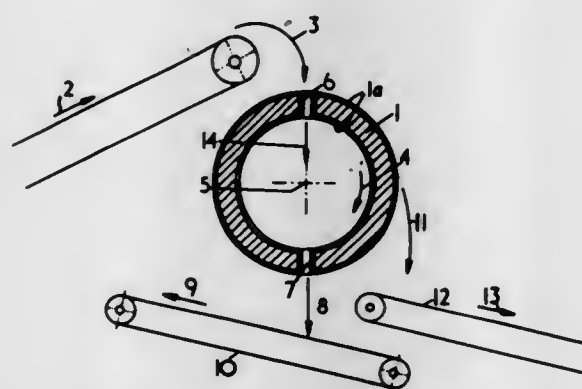
Filed Aug. 5, 1969, Ser. No. 847,600

Claims priority, application Luxembourg, Oct. 10, 1968, 57063

Int. Cl. G01n 1/20

U.S. Cl. 73-424

3 Claims



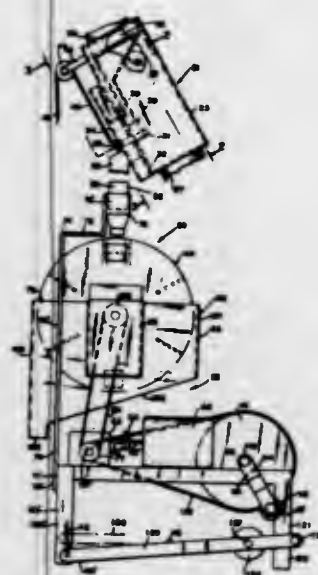
Granular solid material is continuously supplied to a surface by a suitable conveyor and is made to advance continuously over the surface, the surface having one or more openings which are periodically placed in the path of the material over the surface so that samples of the material fall through. The surface can have an antiadhesive coating. The sampled material is normally taken up continuously by a suitable conveyor which may include an inclined surface over which the samples are caused to advance to form a continuous train of sampled material. In a preferred form, the granular material is supplied to the upper surface of a drum which has its axis horizontal and has longitudinal gaps in its cylindrical surface. The drum is rotated so that material periodically falls in at the top of the drum and the sampled material within the drum periodically falls out at the bottom of the drum.

3,595,089 ROTARY GRAIN SAMPLER DEVICE

Frank J. Jirik, Fisher, Minn.
Filed Sept. 23, 1969, Ser. No. 860,330
Int. Cl. G01n 1/10

U.S. Cl. 73-424

4 Claims



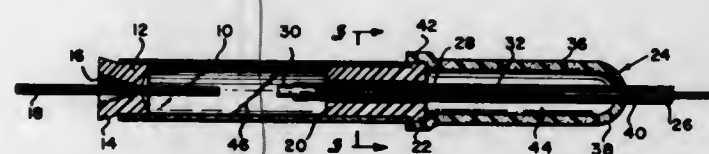
The invention comprises a main diverter mechanism and a subdividing mechanism. The main diverter mechanism has a reciprocating pivotably mounted funnel which pivots back and forth through a stream of grain to divert a sample of the grain. The subdividing mechanism has a rotary wheel with diverting funnels mounted therein with the rotary wheel receiving the diverted sample of grain and the funnel in the rotary wheel subdividing and diverting a further sample of the grain. The rotary wheel has a pair of annular side flanges to hold the funnel within open areas therebetween to allow the portion of the grain not diverted by the funnel in the rotary wheel to pass through the open areas in the wheel. A housing surrounds the lower end of the wheel and receives the grain passing through the open areas in the wheel. The housing has a spout opening at its lower end to allow the grain to travel out of the housing.

3,595,090 APPARATUS FOR DRAWING FLUID INTO, AND DISCHARGING FLUID FROM, A PIPETTE

Michael E. Drummond, Springfield, and John E. Robinson, West Chester, both of, Pa., assignors to Drummond Instrument Company, Broomall, Pa.
Filed Sept. 17, 1969, Ser. No. 858,809
Int. Cl. G01n 1/14

U.S. Cl. 73-425.6

9 Claims



An apparatus for drawing fluid into, and discharging fluid from, a pipette. The apparatus includes a tubular member having caps sealing both ends thereof, a pipette partially inserted into the tubular member through one of the caps and a cylindrical member inserted through the other cap partially into the tubular member. A piston is slidably positioned therein and has a plunger manually operated so as to move the piston longitudinally of the cylindrical member. A squeeze bulb is fitted over a terminal of the tubular member, the squeeze bulb having an aperture through which the cylindrical member extends and complete evacuation of the tube is effected by exerting pressure on the squeeze bulb which

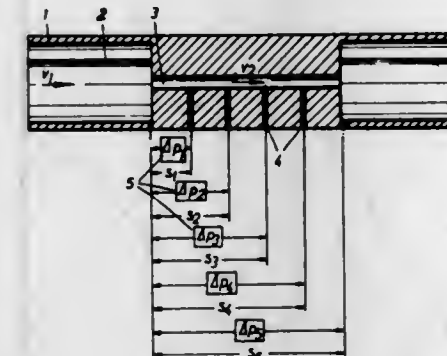
forces air into the pipette to expel any fluid remaining therein. The outer periphery of the cylindrical member is slightly spaced from the wall of the cap defining the aperture therein to provide communication between the squeeze bulb and the interior of the tubular member.

3,595,091 METHOD AND APPARATUS FOR DETERMINING THE GRAIN STRUCTURE OF DISPERSED SOLID MATERIALS AND FOR DETERMINING THE INSTANTANEOUS SOLID MATERIAL CONTENT OF FLOWING GASES

Paul Bernutat, Cecilien Allee 68, 4000 Dusseldorf, Germany
Filed Nov. 24, 1969, Ser. No. 879,311
Claims priority, application Germany, Nov. 25, 1968, P 18 10 711.4
Int. Cl. G01n 15/02

U.S. Cl. 73-432 PS

4 Claims



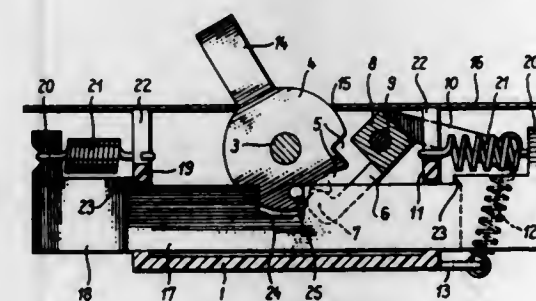
A method of and device for determining the grain structure of dispersed solid materials and for determining the momentary contents in solid particles in a gas flow, according to which the solid particle-gas flow is in a measuring nozzle subjected to a change in velocity, and in which the pressure differences inherent to the different behavior of the solid particles in said gas flow during the change in the velocity of the gas flow are measured over the length of the measuring nozzle whereupon from the course in the change of pressure over the length of the nozzle the grain structure of the dispersed solid particles and the momentary contents in solid particles are calculated.

3,595,092 TUNER FOR COMMUNICATION CARRIERS

Rudolf Mayer, and Helmut Storz, both of Rottweil, Germany, assignors to Messrs. R & E Hopt KG, Rottweil, Germany
Filed July 28, 1969, Ser. No. 845,266
Claims priority, application Germany, July 31, 1968, P 17 66 860.9
Int. Cl. F16h 35/18

U.S. Cl. 74-10.27

13 Claims



Turners for communication carriers, especially for radio and television sets, having a number of switches which can be shifted from the off-position to the on-position against the action of a spring. The switches are retained in the on-position by stop members interconnected in such a manner that, when one switch is shifted to its on-position, all of the other

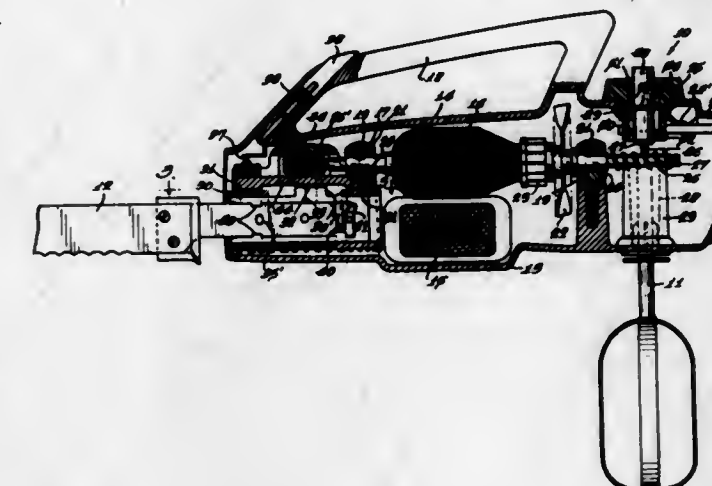
switches are released for return into their off-position. The switches take the form of toggle switches comprising switch buttons rocking about a common axle and having a circular notched section provided concentrically with their axle of rotation.

3,595,093 ELECTRIC KITCHEN APPLIANCE

Jean P. Du Bois, Niles, and Eugene S. Wassel, La Grange, both of, Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Continuation of application Ser. No. 464,286, June 16, 1965, now abandoned. This application Sept. 23, 1968, Ser. No. 761,780
Int. Cl. F16h 19/02

U.S. Cl. 74-16

2 Claims



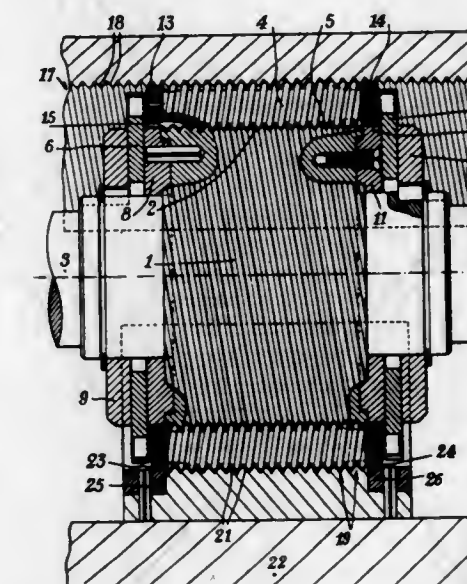
A combined electric hand mixer and knife having an elongated housing with knife blades extending lengthwise from one end thereof and mixer beaters depending from the other end thereof with separate control means to function when the unit is used for either cutting or mixing.

3,595,094 RACK AND WORM MECHANISM

Pierre Lemor, Ville D'Avray, France, assignor to Aktiebolaget Svenska Kullagerfabriken, Goteborg, Sweden
Filed June 27, 1969, Ser. No. 837,077
Claims priority, application France, June 27, 1968, 156,850
Int. Cl. F16h 27/02, 1/18, 55/04

U.S. Cl. 74-89.14

2 Claims



Device for transforming a movement of rotation into a movement of translation by means of a high-efficiency rack

and worm mechanism characterized in that the rack teeth formed on one portion of a cylinder consist of a multithread tapping of a solid member, in that the worm coaxial with said rack has a number of threads generally equal to that of said rack, and that a plurality of externally screw-threaded planet rollers are disposed around said worm and mesh both with said worm and said rack, the helix angle of the threads formed on said planet rollers threads being the same as that of the worm threads and of opposite direction whereby the planet rollers rolling without slip on the worm are held against any axial movement in relation to said worm.

3,595,095

BIASSING DEVICES

Brian Neville Read, and Reginald John Holmes, both of Stafford, England, assignors to The English Electric Company Limited, London, England

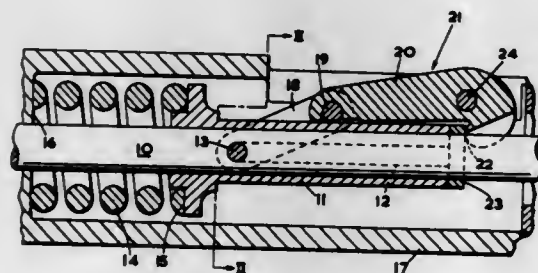
Filed Mar. 17, 1969, Ser. No. 807,549

Claims priority, application Great Britain, Mar. 15, 1968, 12637

Int. Cl. F16h 21/44

U.S. Cl. 74-100

7 Claims



A biasing device for biasing an actuator member which is longitudinally movable between two limiting positions to the direction in which it has been moved beyond a position intermediate the two positions. The device comprises a pair of link members pivotally engaging the actuator member at the ends of a transverse pin, and a bellcrank lever pivoted at its elbow on a fixed pivot and pivotally engaging the link members at one of its arms. Movement of the other arm of the bellcrank lever in response to movement of the actuator member is referred to a helical compression spring coaxially arranged on the actuator member by a sleeve formed with slots through which the pin projects to engage the link members.

3,595,096

DRILL-SPINDLE DRIVE FOR HIGH SPEEDS

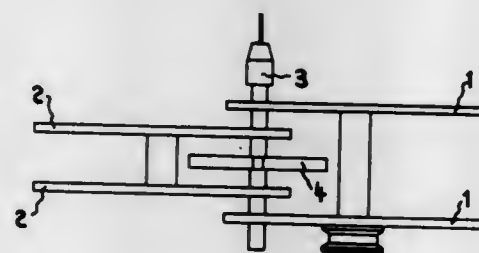
Karl Adler, Grenchen, and Georges Ducommun, Feldbrunnen, both of, Switzerland, assignors to Bivator S. A., Geneva, Switzerland

Filed Oct. 21, 1969, Ser. No. 868,019

Int. Cl. F16h 13/02, 15/08

U.S. Cl. 74-206

5 Claims



A drill-spindle drive for high speeds, wherein the spindle is held between supporting and driving rollers, radial vibration of the spindle being avoided and high precision obtained by selecting the angle between the normals at the points of contact of each two corresponding rollers of the supporting and driving roller system with the drill spindle at most 100°.

3,595,097
A CHAIN INCLUDING LINK PLATES HAVING SWAGED PORTIONS

Kumakichi Araya, No. 2, Daishoji Seki-machi, Kaga-shi, Ishikawa-Prefecture, Japan

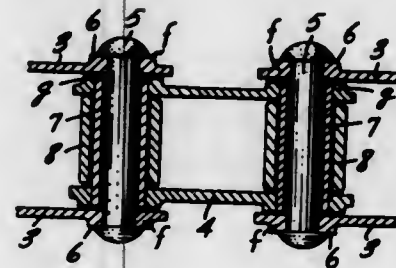
Filed July 1, 1969, Ser. No. 838,181

Claims priority, application Japan, Feb. 24, 1969, 44-13218

Int. Cl. F16g 13/02

U.S. Cl. 74-250

5 Claims



This invention relates to a link plate of chain provided with swaged portions of substantial thickness formed around each opening for inserting a pivot pin or a bushing for mounting a sleeve roller in one side thereof in order to obtain an improved press fit between the link and the pivot pin or the bushing.

3,595,098

PIN LINK PLATE OF CHAIN HAVING A DETENT MEANS FOR PIVOT PIN

Araya Kumakichi, No. 2, Daishoji Seki-machi, Kaga-shi, Ishikawa-prefecture, Japan

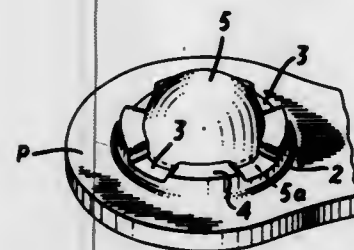
Filed July 1, 1969, Ser. No. 838,182

Claims priority, application Japan, Feb. 24, 1969, 15,551/69

Int. Cl. F16g 13/02

U.S. Cl. 74-250

3 Claims



This invention relates to a pin link plate of chain having detent means for receiving a pivot pin inserted into an end opening thereof. The detent means includes a plurality of ridges and depressions disposed alternately along a top edge of a tubular swaged portion formed around each opening perforated through the link plate and the projected end portion of the pivot pin is peened over the ridges and depressions of the swaged portion.

3,595,099

FLAT-LINK CHAIN

Ilya Ilich Ivashkov, 9 Parkovaya ulitsa 43/26, kv. 198, and Vasily Alexandrovich Frolov, Ferganskaya ulitsa, 18, kv. 263, both of Moscow, U.S.S.R.

Filed Jan. 2, 1970, Ser. No. 279

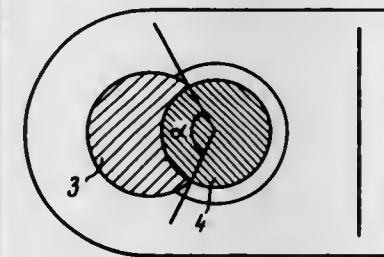
Int. Cl. F16g 13/04

U.S. Cl. 74-251 R

1 Claim

A flat-link chain, hinge joints of whose links are formed by supporting members secured at the end portions of plates and contacting each other by their external working surfaces of which one is convex and the other is concave, in which chain the angle, formed by the planes passing through the axis of the supporting member having a convex working surface and the edges of the working surfaces of the supporting member having a concave working surface, and embracing

the concave working surface is not less than $720^\circ/n$, wherein n is the number of teeth of the smallest sprocket with which



the chain may cooperate. The proposed chain is reliable and durable in operation with sprockets having any predetermined number of teeth.

3,595,100

HYDROSTATIC LUBRICATING DEVICE FOR THE ZONES BETWEEN THE INTERENGAGING ELEMENTS OF A WORM AND AN INTERNALLY THREADED MEMBER

Friedrich Stark, Langensellbold; Wilhelm Steinmetz, Dorfles near Coburg, and Heinz Pohlein, Steinrodortstell Blumenrod, all of, Germany, assignors to Werkzeugmaschinenfabrik Adolf Waldrich Coburg, Coburg, Germany

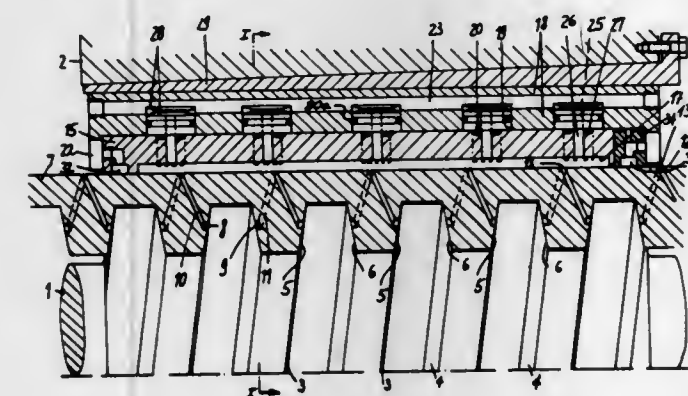
Filed July 10, 1969, Ser. No. 840,743

Claims priority, application Germany, July 12, 1969, P 17 75 174.5

Int. Cl. F16h 1/20

U.S. Cl. 74-409

8 Claims



A hydrostatic lubricating device for lubricating the interengaging portions of the teeth of a worm and an internally threaded member by utilizing distributor means for directing lubricant to only those portions of the teeth that are in engagement. This distributor means comprise bars having openings which open to and communicate with other openings in the internally threaded member to supply lubricant to the interengaging teeth. The bars are maintained in engagement with a side surface of the internally threaded members by the pressure on the lubricant and additionally, if desired, by springs.

3,595,101

RECIPROCATING PUMP HAVING IMPROVED CRANKSHAFT BEARING ARRANGEMENT

Jesse F. Cooper, Jr., Tulsa, Okla., assignor to Gaso Pump and Burner Manufacturing Company, Tulsa, Okla.

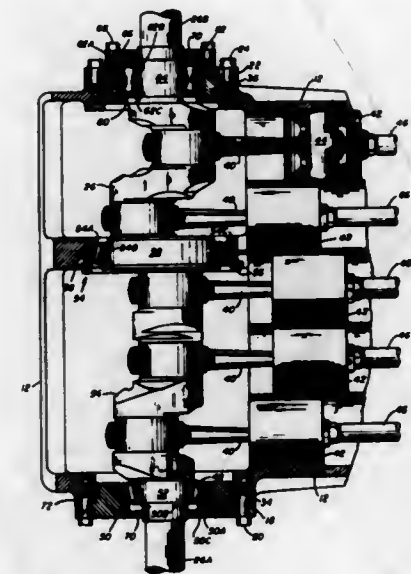
Filed July 11, 1969, Ser. No. 840,937

Int. Cl. F16c 9/03

U.S. Cl. 74-596

6 Claims

In a pump employing a crankshaft to reciprocally drive



within the pump housing by a forward and an intermediate thrust bearing unit and a rearward straight bearing unit.

3,595,102

HYDRAULIC CONTROL SYSTEM OF AUTOMATIC TRANSMISSIONS

Minoru Ohya, and Sumio Uozumi, both of Toyota-shi, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

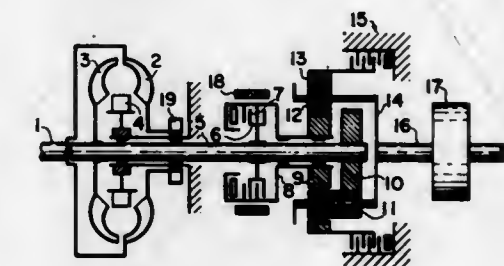
Filed Jan. 27, 1970, Ser. No. 6,174

Claims priority, application Japan, May 9, 1969, 44/35560

Int. Cl. F16h 47/00; B60k 21/10

U.S. Cl. 74-645

7 Claims



An automatic transmission, for motor vehicles and the like, includes a torque converter having at least one stator wheel, a speed change gear connecting the converter to an output shaft, and hydraulic servos controlling components of the speed change gear. A hydraulic control system for the automatic gear shift includes respective hydraulic pressure sensing openings in the suction and pressure sides of at least one stator vane, and a pressure regulating valve regulating a line pressure applied to the servos. A control valve is subjected to the pressures on the suction and pressure sides of the stator vane, and controls the pressure regulating valve to regulate the line pressure, applied to the servos, in accordance with variations in the hydraulic pressures on the suction and pressure sides of the stator vane.

3,595,103

ANGULAR DRIVE ARRANGEMENT

Ernest Wildhaber, 124 Summit Drive, Rochester, N.Y.

Filed May 29, 1969, Ser. No. 828,942

Int. Cl. F16h 1/28

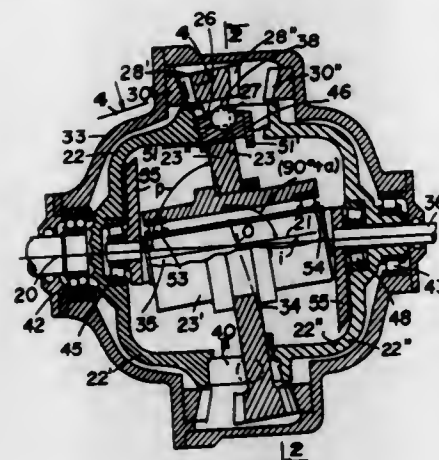
U.S. Cl. 74-800

12 Claims

This angular drive arrangement contains an element and a part having axes intersecting at a fixed angle. Rolling means constrain them to turn at a one to one ratio with respect to each other. Arms of said element reach through openings provided on said part and are connected on the opposite side of said part, so that the element may be journaled on both sides of said part.

In a planetary transmission a pair of equal stationary bevel gears straddle and mesh with a pair of equal gears rigid with

said part. Each gear of said part has preferably one tooth more than its mate. The part is a single planet capable of ap-



plying driving load in diametrically opposite regions, with minimum bearing loads.

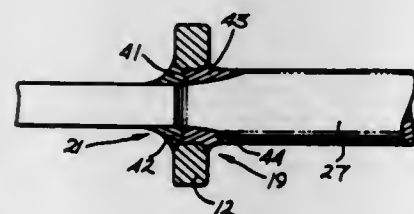
3,595,104

KNIFE CONSTRUCTION

John N. Cooper, 2200 Burbank Blvd., Burbank, Calif.
Division of Ser. No. 682,470, Nov. 13, 1967, Pat. No. 3,481,038
Filed Nov. 20, 1969, Ser. No. 877,550
Int. Cl. B21k 11/00

U.S. Cl. 76-104

5 Claims



The knife construction disclosed herein includes a blade, handle tang and hilt composed of different materials which are fusibly joined along their common surfaces employing selected brazing materials and selected brazing and tempering temperatures to produce a nonporous fusion joint of high strength and prolonged longevity.

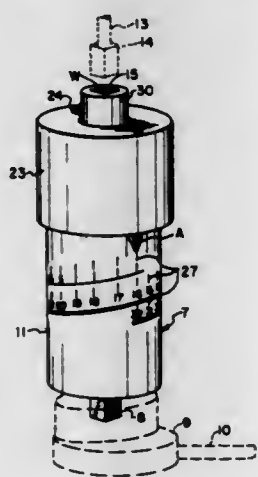
3,595,105

TORQUE MEASURING TOOL UNIT

Theodore R. Wagner, 257 Lansing St., Aurora, Colo.
Filed Dec. 5, 1968, Ser. No. 781,396
Int. Cl. B25b

U.S. Cl. 81-52.4

12 Claims



In this torque measuring tool unit, a plurality of drive transmitting balls are spaced circumferentially in coplanar relationship around the common axis of two driving and driven housing sections, the balls being in one of said housing sections and pressed by individual coiled compression springs

releasably into registering recesses of uniform size and depth provided in the other of said housing sections. A screw element threaded in one of the housing sections relative to the other provides an adjustable backing for the springs, and when this screw is tightened it enables the balls to transmit higher torque, and vice versa. A detent and pointer turn with the screw relative to graduations on the housing to hold the screw in a set position and indicate the torque setting. The torque measuring tool unit is connected between a driving unit and a tool such as a screw driver or wrench to protect the work against overtightening of a screw of nut and prevent stripping of threads.

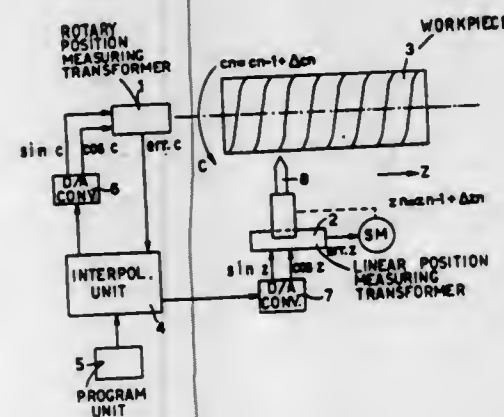
3,595,106

DIGITAL POSITION CONTROL DEVICE FOR APPARATUS SUCH AS MACHINE-TOOLS HAVING A ROTATABLE MEMBER

Piero Pomella, and Luciano Lauro, both of Ivrea, Turin, Italy,
assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Turin, Italy
Filed Sept. 16, 1968, Ser. No. 760,012
Claims priority, application Italy, Sept. 16, 1967, 53044-A/67
Int. Cl. B23b 3/00, 1/00

U.S. Cl. 82-1

6 Claims



A numerical control device for machine-tool operation in which a tool or workpiece, or both, must be both translated linearly and rotated. The two motions are correlated as necessary, for instance, to cut a screw thread.

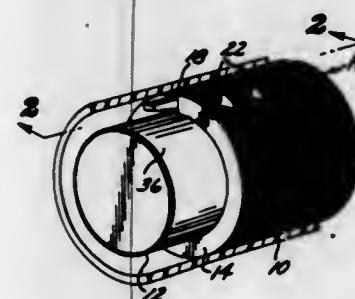
3,595,107

PLASTIC PIPE TAPERING DEVICE

Stephen Dackow, 808 E. Ocean Front, Balboa, Calif.
Filed Nov. 5, 1969, Ser. No. 870,583
Int. Cl. B23b 5/16

U.S. Cl. 82-4 C

10 Claims



A rotary tool for concurrently forming a circumferential taper of desired angulation on an end portion of a length of plastic pipe and facing the end extremity of said portion to be normal to the longitudinal axis of the pipe.

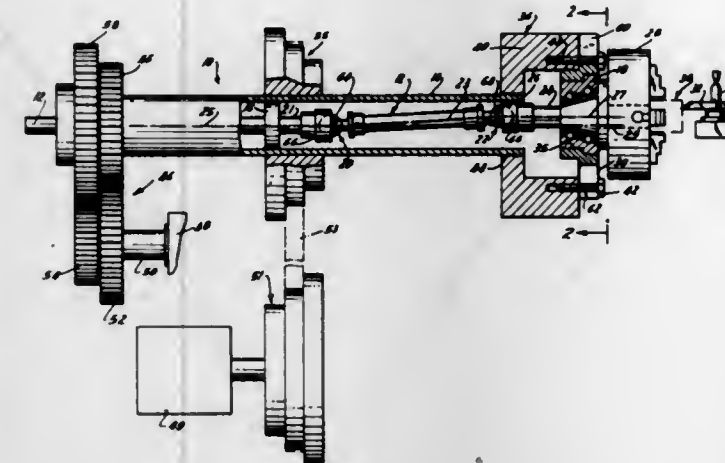
3,595,108

APPARATUS FOR IMPARTING A NON-CIRCULAR SHAPE TO AN ARTICLE

Istvan Priscsak, New Milford, Conn., assignor to Benrus Corporation, Ridgefield, Conn.
Filed June 16, 1969, Ser. No. 833,337
Int. Cl. B23b 5/44

U.S. Cl. 82-18

15 Claims



Apparatus for rotating an article relative to a cutting means, characterized by a flexible inner shaft which is rotatable within an outer shaft and connected thereto in a manner which is effective to superimpose the rotation of the outer shaft on the inner shaft. The inner shaft is flexed to a position at which its axis of rotation is eccentrically located relative to the axis of rotation of the outer shaft. Means are provided to rotate the shafts at different speed simultaneously, and the article, which is held in a chuck at the end of the inner shaft, is therefore turned at one rotative speed and eccentrically moved at a different rotative speed. Thus, when this article contacts a cutting tool, a noncircular shape is imparted thereto, the shape being varied by changing the respective speeds of the shaft and/or the degree of eccentricity of the inner shaft with respect to the outer shaft.

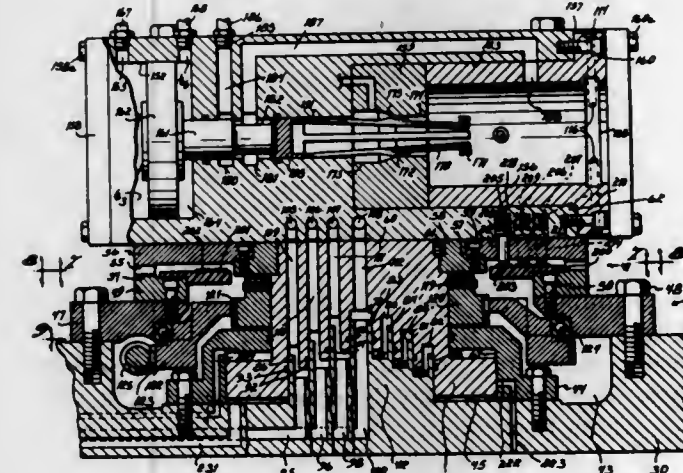
3,595,109

TOOL TURRET

Robert K. Burroughs, Batavia, and Timothy A. Wakefield, Cincinnati, both of Ohio, assignors to The R. K. LeBlond Machine Tool Co., Cincinnati, Ohio
Division of Ser. No. 631,991, Apr. 19, 1967, Pat. No. 3,513,734
Filed Jan. 7, 1970, Ser. No. 1,176
Int. Cl. B23b 3/36

U.S. Cl. 82-34

6 Claims



An indexable tool turret for use in a machine tool having an automatic tool changer. The turret has two tool stations,

both of which have a motor operated clamp for securing a tool in the station with a locating surface of the tool clamped against a locating surface of the turret. Each station has a plurality of air jets directed at the tool when it is inserted into the station so that dirt and debris are blown clear of the tool and particularly its locating surfaces automatically as the tool is inserted into the station. Indexing of the turret is effected by lifting the tool turret clear of a gear coupling and rotating the turret to a new index position after which it is lowered to reengage the gear coupling. A hydraulic motor raises and lowers the turret and functions as a relatively friction free hydraulic thrust bearing to support the turret in the raised position while it is indexed.

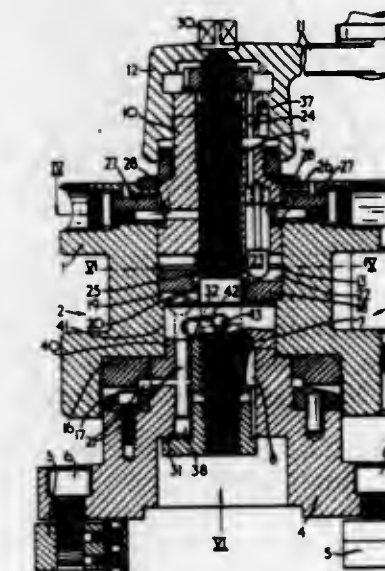
3,595,110

INDEXIBLE TURRET FOR A MACHINE TOOL

Walter E. Topliss, Belgrave; Frederick Ellard, Thurmaston, and David A. Harlow, Wigston Magna, all of England, assignors to Alfred Herbert Limited, Foleshill Coventry, Warwickshire, England
Filed June 20, 1969, Ser. No. 835,020
Claims priority, application Great Britain, Oct. 16, 1968, 49,030/68
Int. Cl. B23b 29/28

U.S. Cl. 82-36 A

6 Claims



A machine tool turret of the kind comprising a toolholder, a soleplate, an axially engageable coupling acting between the toolholder and the soleplate to locate the toolholder in an indexed position with respect to the soleplate, an indexing ring for effecting indexing of the toolholder from one indexed position to another, a cam turned by the indexing ring for effecting separation of said coupling to effect indexing of the toolholder and a shaft for turning the indexing ring. The turret also includes a nut engaged by said shaft and constrained to move axially thereon relatively to the soleplate on turning of the shaft, initial turning of the shaft in one direction moving said shaft axially of the nut to unclamp the toolholder by effecting separation of the indexing ring from engagement with a supporting surface therefor on the toolholder and continued turning of the shaft in said one direction effecting turning of the indexing ring, without further axial movement of the shaft, the nut instead of the shaft moving axially of the soleplate, axial separation of said coupling then occurring, followed, after indexing of the toolholder, to said other indexed position, by reengagement of said coupling and turning of the shaft in said other direction effecting axial movement of said nut followed finally by axial movement of the shaft and the indexing ring to reclamp the toolholder by reengaging the indexing ring with said supporting surface on the toolholder.

3,595,111 METHOD AND APPARATUS FOR FORMING WORKPIECES

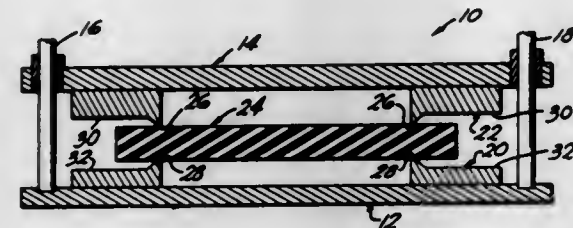
Welcome D. Hershberger, 16135 Petro Drive, Mishawaka, Ind.

Filed Mar. 5, 1969, Ser. No. 804,556

Int. Cl. B26d 7/08

U.S. Cl. 83-19

10 Claims



Apparatus for cutting foam rubber and the like to a desired shape from a blank of foam rubber material. The apparatus includes a punch and die set which has complementary cutting edges adapted to abut against each other when the set is closed, and complementary lands on one side of each cutting edge in spaced relation when the set is closed for engaging and compressing the blank as an incident to closing the set, thereby causing controlled internal flow of the material immediately prior to the material being cut so that the cutting operation produces an article of the desired shape. A method of cutting an article to a desired shape is disclosed comprising the steps of applying pressure to a portion of a blank of resilient material so as to cause internal flow within the elastic limits of the material across the intended path of cut, and then cutting the material on said intended path of cut while maintaining the pressure on the blank.

3,595,112 MACHINE-TOOL CLAMP ASSEMBLY

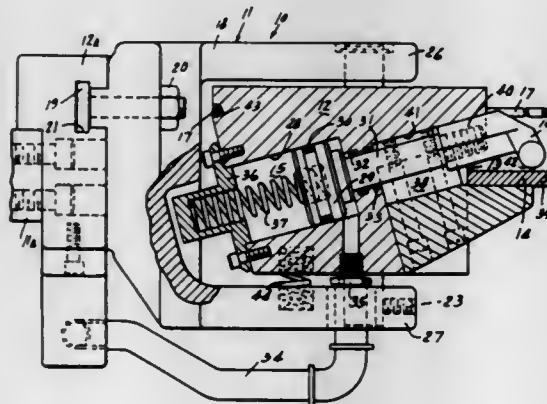
Robert P. De George, Kenmore, and James J. Pancook, Tonawanda, both of N.Y., assignors to Houdaille Industries, Inc., Buffalo, N.Y.

Filed Feb. 24, 1969, Ser. No. 801,280

Int. Cl. B26d 7/02

U.S. Cl. 83-62

11 Claims



A machine tool has a workpiece positioning mechanism including a carrier which is reciprocated in one axis to position the workpiece which is held by a clamp assembly. The clamp assembly is mounted on the carrier to be free to move vertically and has a resiliently yieldable bumper responsive to any obstruction. The clamp assembly includes a clamp member which moves in a direction which is inclined to the horizontal for drawing the workpiece against a locating surface on the clamp assembly. Both the actuator and the clamp member move in a direction which is inclined to the horizontal.

3,595,113 PUNCH PRESS TOOLING

John H. Herzog, Red Wing, Minn., and Ronald C. Hill, Corfu, N.Y., assignors to Houdaille Industries, Inc., Buffalo, N.Y.

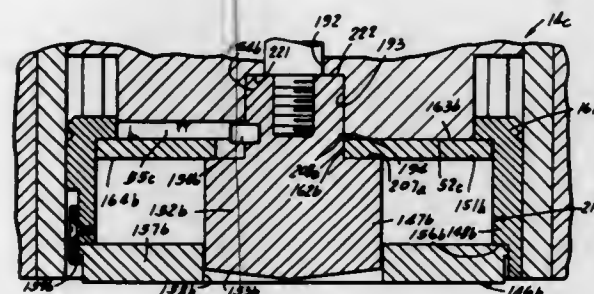
Division of Ser. No. 714,957, Mar. 21, 1968, Pat. No. 3,548,700

Filed July 9, 1970, Ser. No. 53,487

Int. Cl. B26d 7/18

U.S. Cl. 83-136

5 Claims



A punch, stripper sleeve and die member, when out of the press, are nested together to form a nestable tool assembly which can be rapidly handled as a unit and inserted and removed from a punch holder and drive assembly of a punch press.

3,595,114 WEB SLITTING APPARATUS

Howard Osborn, Aylesbury, and Charles Samuel George Trill, Bledlow, both of England, assignors to Wiggins Teape Research & Development, Limited, London, England

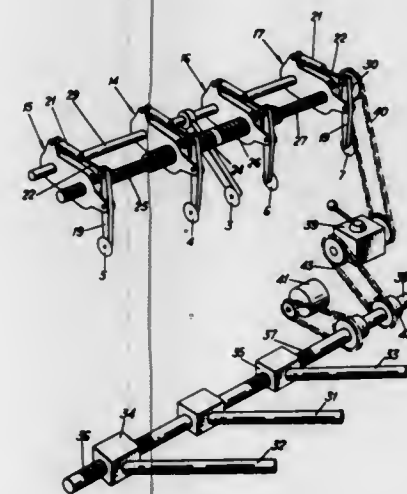
Filed June 4, 1969, Ser. No. 830,346

Claims priority, application Great Britain, June 7, 1968, 27293/68

Int. Cl. B65h 35/02

U.S. Cl. 83-158

12 Claims



A web of paper drawn from a reel is slit longitudinally by knives to form a plurality of ribbons of equal width. The knives are mounted on position-adjusting means arranged simultaneously to adjust the positions of the knives relative to the centerline of the reel in order to determine the width of the ribbons. The ribbons may be engaged by a first set of turner bars which turn the direction of movement of the ribbons through 90° and by a second set of turner bars which again turns the direction of movement of the ribbons through 90° to superimpose them one over the other. Ribbons may be slit from webs drawn separately from two reels and by the turner bars be superimposed one over the other.

3,595,115 PORTABLE LATH SLITTING MACHINES

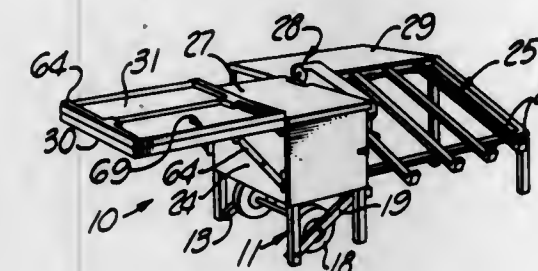
Norman A. Pelletier, La Puente, Calif., assignor to Dimco

Filed Apr. 30, 1969, Ser. No. 820,598

Int. Cl. B26d 7/06; B23d 19/04

U.S. Cl. 83-165

13 Claims



A readily portable metal lath slitting machine having a retractable carriage crosswise of its heavier end equipped with lever means for convenience and ease of shifting the carriage between extended and retracted positions. The machine slits one or several layers of lath simultaneously with ease. Extendable work-supporting tables provide ample space for accommodating large sheets of stock material and fold compactly against the machine into a size permitting the machine to be rolled by one man through normal-size doors and into a conventional passenger elevator.

3,595,116 SEVERING BLADE WITH BEVELED GRIPPING EDGE

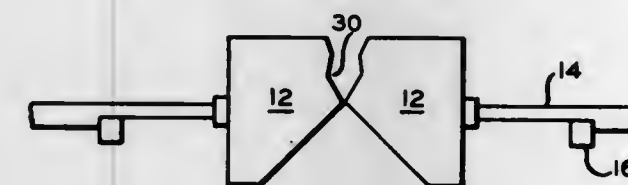
Dixie E. Gilbert, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Aug. 18, 1969, Ser. No. 850,802

Int. Cl. B26d 7/02, 7/08

U.S. Cl. 83-176

8 Claims



Square cuts are obtained in thermoplastic tubing and the like by means of closing cooperating gripping jaws on the tubing, which jaws have a leading cutting edge and an offset gripping edge which slopes back to an outer surface of the blade.

3,595,117 PERFORATION MACHINES

Karl Einar Lage Grettve, Lilla Edet, Sweden, assignor to Lilla Edets Pappersbruks Aktiebolag, Lilla Edet, Sweden

Filed Nov. 8, 1968, Ser. No. 774,234

Claims priority, application Sweden, Nov. 9, 1967, 15,358/67

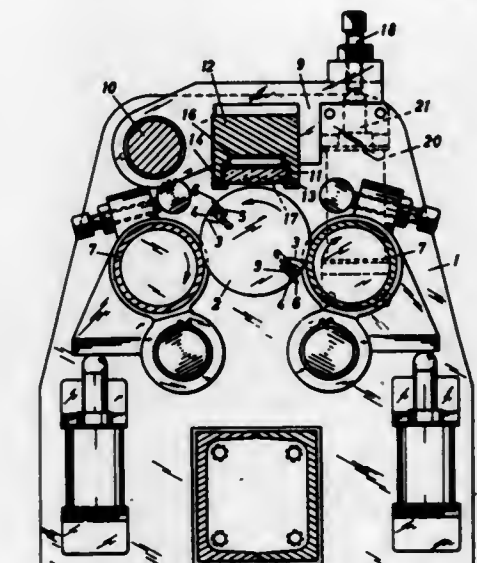
Int. Cl. B26d 1/56; B26f 1/20

U.S. Cl. 83-349

2 Claims

The present invention relates to a machine for perforating, in the transverse direction, paper webs, such as toilet paper and household paper, and webs of similar material. The main object of the invention is to provide a machine which is simple and safe in its construction and which operates at a very high accuracy and further ensures a perforation without causing any noticeable wearing of the parts of the machine involved in the perforation. The object aimed at has been achieved by shaping the abutment means of a longitudinal border reaching into the movement path of the knives and outside the periphery of the roller, and an elongated pad extending parallel to the roller axis, said pad at the side turned towards the roller provided with abutment and sliding sur-

faces, for the knife which are extending in the transverse direction of the pad, said surface arranged with some



distance from each other and adapted to rebound when being hit by the knife.

3,595,118 GUITAR PICK

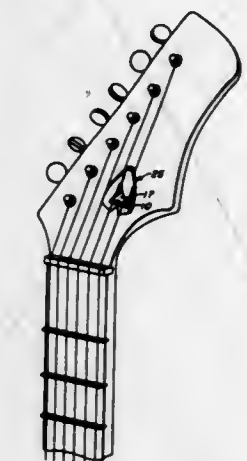
Ande Dale Paxton, Rte. 2, Box 271, Yakima, Wash.

Filed Sept. 8, 1969, Ser. No. 855,859

Int. Cl. G10d 3/16

U.S. Cl. 84-322

4 Claims



A pick made of thin, flat, stiff but springy plastic sheet material which is gripped between thumb and forefinger when picking or strumming the strings of a guitar. A noncircular aperture is located adjacent the butt end of the pick and acts as a female spline to resist rotation of the pick between the thumb and finger gripping the same. A slit or slot in the clip provides access to said aperture for admitting a guitar string thereto and thus attach the pick to the instrument and prevent separation of the pick and the instrument when the latter is not being used. The invention also provides means for storing a reserve supply of several picks right on the guitar in a manner which does not interfere with playing the latter.

3,595,119 XYLOPHONE-LIKE SOUND PRODUCING UNIT

Leendert Hendrik Kuipers, Albertus Perkstraat 16, Hilversum, Netherlands

Filed July 25, 1969, Ser. No. 844,786

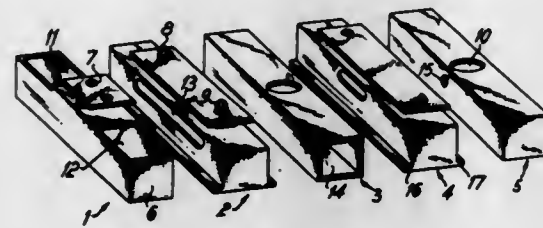
Int. Cl. G10d 13/08

U.S. Cl. 84-403

7 Claims

A sound producing unit comprises a plurality of resonator members of equal size arranged in a row to form an

xylophonelike musical instrument. Each resonator member has a contact opening and over the contact opening of each resonator there is positioned a sound bar of a size chosen to produce a distinctive note or tone. The construction includes



an additional opening defined in each resonator member to provide for variations of tonal quality and character and it permits the construction of the resonators so that they are all of equal size.

3,595,120

MUSIC LABORATORY

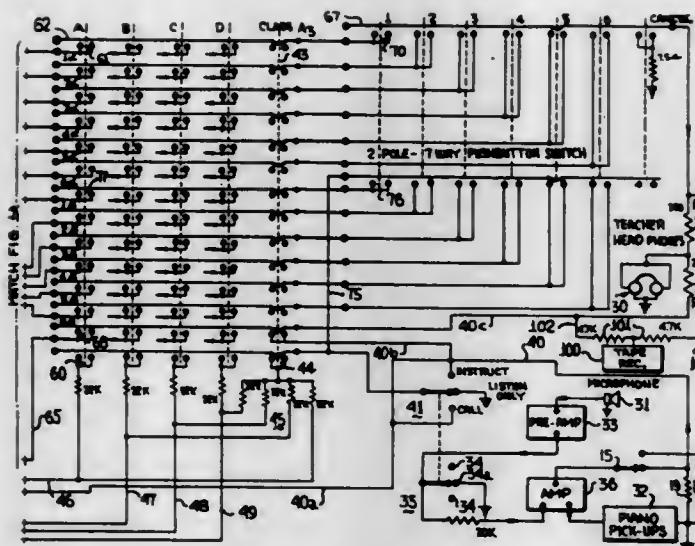
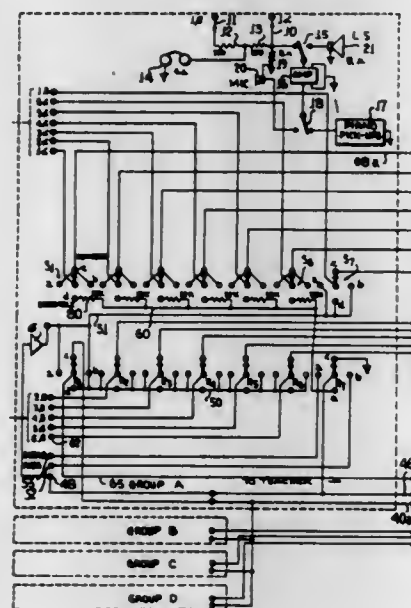
Daniel W. Martin, and Robert G. Morgan, both of Cincinnati, Ohio, assignors to D. H. Baldwin Company, Cincinnati, Ohio

Filed Apr. 5, 1968, Ser. No. 719,126

Int. Cl. G09b 15/08

U.S. Cl. 84-470

42 Claims



A system of class intercommunication which provides:

- (1) individual channels between a teacher and
 - (a) any student of the class, or
 - (b) any of several preselected groups of students of the class, or
 - (c) the entire class.
- (2) provision for ensemble playing within one or more of the groups.

- (3) provision for group instruction from audio aids, all under control of the teacher only.

Programming is achieved by rotary group programming switches, which determine the character of the facilities, e.g., individual, audio aids, and ensemble, by interlocked group selection switches which enable selection of one group to the exclusion of the others, by further interlocked selection switches which enable selection of an individual student to be monitored or privately instructed, and by a switch which enables the teacher to provide any or all groups with instruction simultaneously. A minimum number of switch actuators is provided, physically grouped for easy access and control within the span of one hand.

3,595,121

EDUCATIONAL TOY

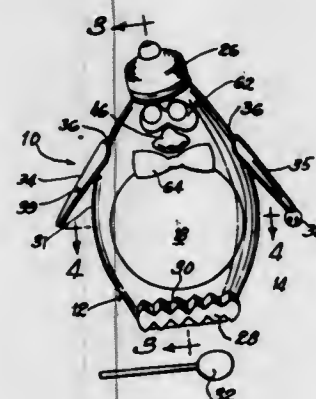
Ronald G. Magers, Chicago, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.

Filed Sept. 16, 1969, Ser. No. 858,293

Int. Cl. G09b 15/00

U.S. Cl. 84-470

6 Claims



An educational toy construction comprising a body portion supporting a plurality of different sound producing elements. An opening is defined in the interior of the body portion, and an access slot is provided for receiving a record. The sound track on the record instructs the user of the toy regarding the manner of producing the various sounds and also provides information relative to the character of the sounds produced.

3,595,122

PROGRAMMED SYSTEM FOR COMPLEX POLYTEMPI MUSIC AND BALLET PERFORMANCES

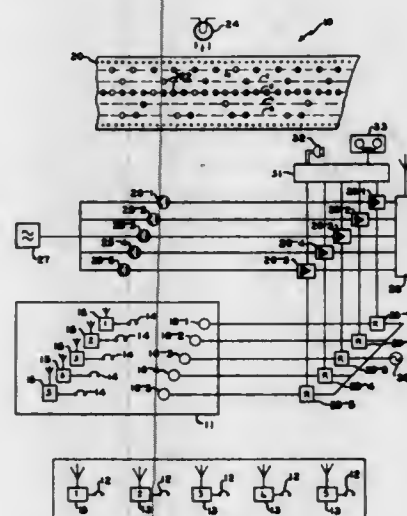
Mihai Brediceanu, 1019 James St., Syracuse, N.Y.

Filed June 15, 1970, Ser. No. 46,169

Int. Cl. G04f 5/02; G04b 19/00

U.S. Cl. 84-484

3 Claims



A programmed system for polytempi music and dance has a mechanically operated timer with means for operating a

group of electrical circuits to produce audio and visual signals at a preselected tempo for each circuit. Each circuit is connected to transmit an audio signal including a radio signal at the selected tempo, and a visual signal at the same tempo at a signal light in the orchestra. Each musician has a headphone to receive the audio signal for his group in the orchestra and each dancer has a miniaturized radio receiver and earphone to receive the radio signal for his group of dancers. A command system may also be provided to transmit verbal signals to a selected group or all of the groups of dancers and musicians.

3,595,123

RADIAL ASSEMBLY-TYPE SPRING RETAINING RINGS

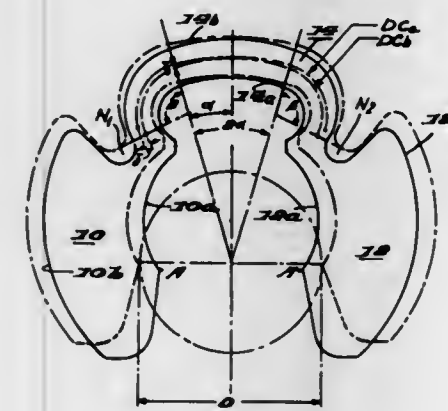
Hugo Wurzel, Rego Park, N.Y., assignor to Waldes Kohinoor, Inc., Long Island City, N.Y.

Filed Aug. 25, 1969, Ser. No. 852,866

Int. Cl. F16b 21/18

U.S. Cl. 85-8.8

5 Claims



A clip-type retaining ring designed for radial assembly in the groove of a shaft or the like comprising diametrically opposed ring segments or jaws connected by a flexible bending arm having substantially increased arcuate length as compared to the arcuate length of the bending arm of known clip-type retaining rings, as endows said ring with large deflection possibilities and thereby increased holding power as compared to that of prior art clip-type retaining rings.

3,595,124

CONTROLLED TORQUE BOLT

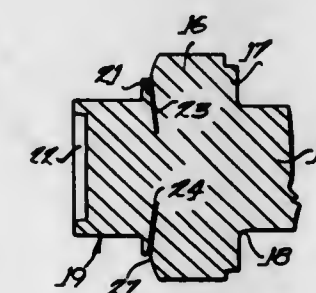
Robert O. Lindstrand, Rockford; Gehle D. Loomis, Rockford, and Rudolph C. Kozlik, Roscoe, all of Ill., assignors to Keystone Consolidated Industries, Inc., Peoria, Ill.

Filed May 19, 1969, Ser. No. 825,771

Int. Cl. F16b 31/02

U.S. Cl. 85-61

7 Claims



A controlled torque bolt having a threaded shank and a driving head integral with and adapted to shear off of the bolt upon the application of a predetermined torque by a driver upon the driving head. The bolt also includes an enlarged flange or head forming the head of the bolt when secured in the work, the driving head and the enlarged head being in-

tegral with the bolt and defined by a fold or undercut therebetween which also defines the plane of shear for the driving head. An alternate embodiment of the bolt positions a washer in the fold or undercut.

3,595,125

PICK-UP STAKE-POCKET TIE RING

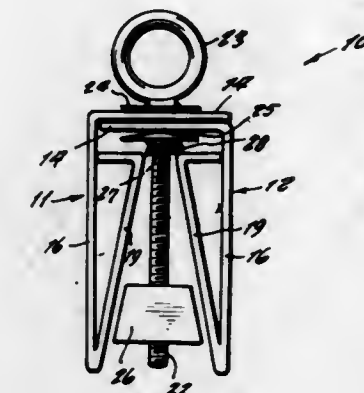
Charles H. Jacobs, 712 Willis Avenue, Rapid City, S. Dak.

Filed June 30, 1969, Ser. No. 837,524

Int. Cl. F16b 13/06

U.S. Cl. 85-76

2 Claims



A tie-down for use on a pickup truck, the device comprising a pair of metal straps that are each bent into a triangular shape with one leg extended and having a slot therethrough, the straps being positioned together with the slotted legs placed one over the other so that a threaded shank of an eye bolt is fitted through the slots, the shank having a wedge screwed upon it which thus bears pressure on one side of each of the triangular shapes.

3,595,126

FUZE INITIATOR

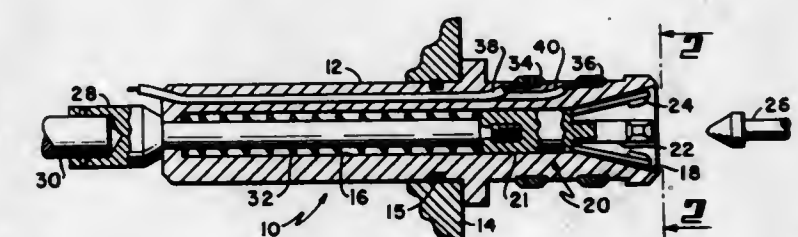
David C. Norton, Fort Walton Beach, Fla., assignor to Avco Corporation, Richmond, Ind.

Filed Aug. 14, 1969, Ser. No. 849,993

Int. Cl. F41f 5/02; B64d 1/04

U.S. Cl. 89-1.5 D

7 Claims



A fuze initiator is disclosed for initiating a fuze based upon the principle that an initiating force can be transmitted to a gripping element which will respond to the force similarly to a human hand reaction. The initiator includes biased open individual gripping members mounted for slidable movement in a divergent bore portion of a housing. The gripping members close about a fuze engagement shaft in response to movement of the gripping members from the divergent portion to a straight bore portion.

3,595,127

DEVICE FOR LAUNCHING FLYING BODIES

Arnold Stangl, Munich, and Franz Pfister, Hochstadt, both of, Germany, assignors to Bolkow Gesellschaft mit Beschränkter Haftung, Ottobrunn near Munich, Germany

Filed July 26, 1965, Ser. No. 475,627

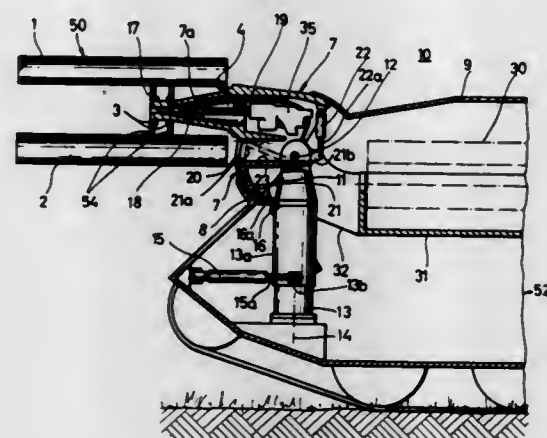
Int. Cl. F41f 23/00

U.S. Cl. 89-1.815

10 Claims

1. A device for launching flying bodies particularly reaction-driven missiles, comprising a substantially ball-shaped

pivot member, means pivotally mounting said pivot member for pivotal movement about a first normally horizontal axis and about a second normally vertical axis, at least one first and one second flying body launching tube rotatably mounted on said pivot member, control means operatively connected to said pivotal mounting means for said pivot member for pivoting said pivot member about said first and second axes, said pivot member having a loading opening



defined therethrough below the pivotal mounting of said launching tubes thereon, said first and second launching tubes being rotatable between a firing position at which one of said first and second launching tubes extends above said ball member and a loading position at which one of said first and second launching tubes extends in alignment with the loading opening defined in said ball member, and a closure flap carried by said ball member and movable between a position closing said opening and a position opening said opening.

3,595,128 BOLT ASSEMBLY

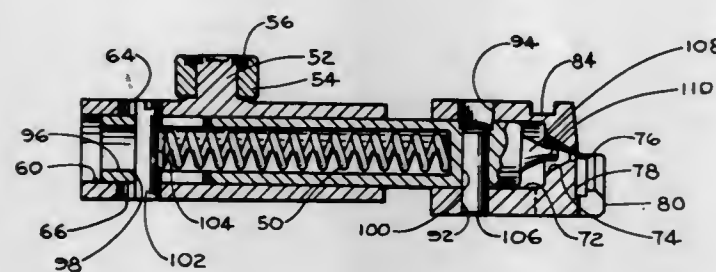
John P. Hoyt, Jr., Burlington, Vt., assignor to General Electric Company

Filed Oct. 22, 1969, Ser. No. 868,380

Int. Cl. F41d 7/02

U.S. Cl. 89-12

9 Claims



A bolt assembly for a Gatling gun, which gun has a stationary housing with the conventional elliptical cam track; a rotor assembly and a plurality of barrels, adapted to receive a like plurality of said bolt assemblies; includes means for cocking, searing and resetting the firing pin responsive to the longitudinal disposition of the bolt.

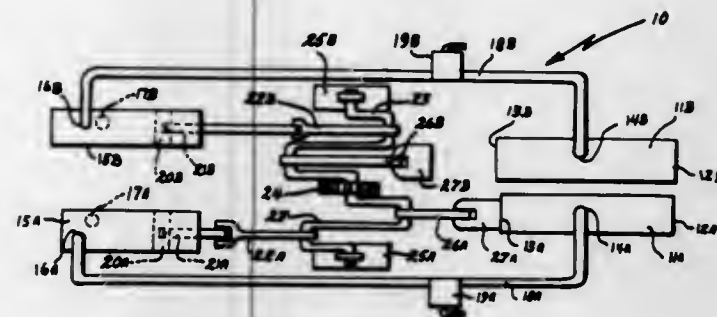
**3,595,129
VARIABLE RATE SINUSOIDAL ACTION MACHINE GUN**
Jack N. Bender, 3089 A Concord, Hill AFB, Utah, and Raymond Lashley, Box 88, Rte. 1, Hooper, Utah
Filed Nov. 5, 1969, Ser. No. 874,195
Int. Cl. F41d 5/08, 5/10

U.S. Cl. 89-130

1 Claim

A machine gun in which controlled chamber pressure and weapon recoil, through suitable linkages, connections, and controls, turn a crankshaft to which the breechblock is connected. As a result, the breechblock moves sinusoidally,

thereby permitting gentle handling of ammunition, higher firing rates, and positive firing rate control, from very low to



very high rates. The machine gun has at least one barrel, with a breechblock for each barrel.

3,595,130 GEAR MAKING

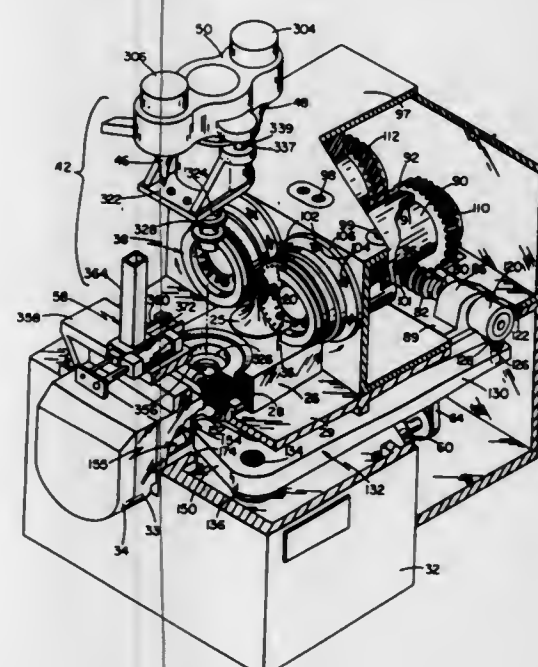
Paul Maker, Marion, Mass., assignor to Bird Island, Inc., Boston, Mass.

Continuation-in-part of application Ser. No. 778,579, Nov. 25, 1968, now abandoned. This application July 25, 1969, Ser. No. 844,925

Int. Cl. B23f 5/20

U.S. Cl. 90-3

32 Claims



Generating tooth profiles with a cutter having cutting edges which move about a common cutter axis, the workpiece also being rotated about an axis, the workpiece and cutter undergoing relative movement along a path, cutter and workpiece having basic rates of movement about their respective axes, with one of the basic rates being increased or decreased by a differential rate depending upon the rate of said relative movement, so that for each desired tooth profile the cutting edges will make a series of cuts tangent to the desired profile at a succession of lines, the basic rates of movement of the cutting edges and the workpiece about their respective axes having a ratio dependent on the ratio of the number of teeth in the gear to the number of cutting edges so that each edge will make a cut tangent to a desired profile as the latter passes across the path of movement of the respective cutting edge and so that between successive cuts tangent to any one desired profile there intervenes complete revolution of the workpiece.

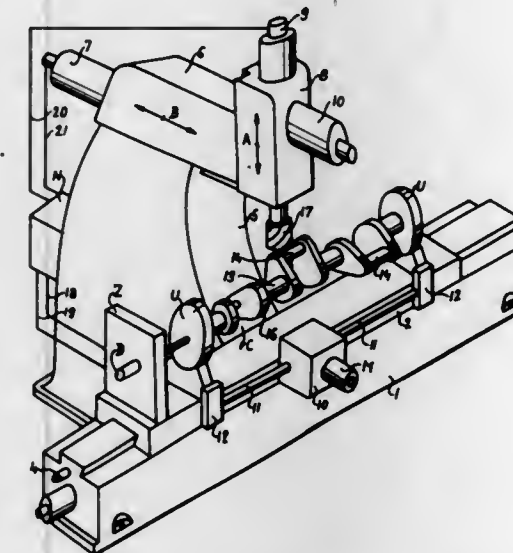
**3,595,131
METHOD OF MACHINING CRANK STRUCTURES**
Frantisek Rozanek; Oldrich Brabec; Jaroslav Chmelik; Miroslav Malek; Lubomir Kres, and Ivan Kraus, all of Plzen, Czechoslovakia, assignors to SKODA oborovy podnik, Plzen, Czechoslovakia
Continuation-in-part of application Ser. No. 700,173, Jan. 24, 1968, now abandoned. This application Jan. 27, 1969, Ser. No. 794,182

Claims priority, application Czechoslovakia, Jan. 24, 1967, 537-67

Int. Cl. B23c 1/18

U.S. Cl. 90-13.9

9 Claims

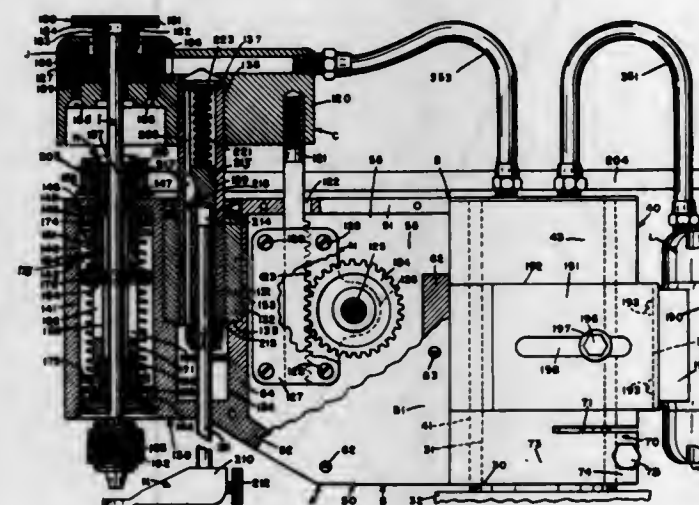


A method of machining a crank structure and in particular a crankpin. During machining of the crankpin it is rotated about a predetermined axis which extends parallel to the axis of the crankpin. A milling cutter is maintained in engagement with the crankpin and rotated synchronously therewith, and the milling cutter is simultaneously rotated about its own axis so as to effect the cutting operations while the milling cutter turns simultaneously and synchronously with the crankpin. The axis of the milling cutter extends perpendicularly to the axis of the crankpin and is initially displaced beyond the crankpin axis during a rough cutting operation where a cutting end face of the milling cutter engages the crankpin, this end face being situated in a plane perpendicular to the axis of the milling cutter. During a finish cutting operation the axis of the milling cutter is displaced so as to perpendicularly intersect the axis of the crankpin, and the milling cutter and crankpin are again turned synchronously through the circular paths.

**3,595,132
DEPTH-CONTROLLED DRILL PRESSES**
Ralph S. Thacker, 4434 Los Feliz Blvd., Los Angeles, Calif.
Filed May 12, 1969, Ser. No. 823,773
Int. Cl. B23c 1/06; B23b 47/20

U.S. Cl. 90-14

12 Claims



A depth-controlled drill press having a supporting means

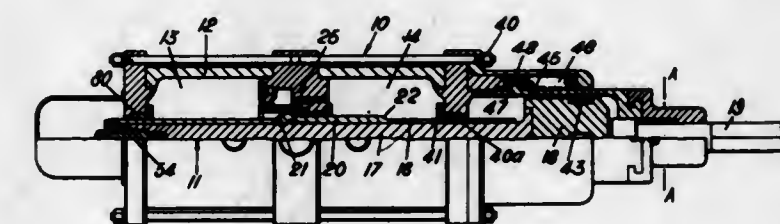
including a head slidably mounted in the body of said supporting means and manually movable toward and from a work rest carried by the body, a quill rotatably mounted in said body and held from axial movement, a motor rotating said quill, a tool supporting spindle received within said quill guided for axial movement and restrained from rotation relative to the quill. The upper end of the spindle is held attached to said head by an electromagnet and pushed away from the work by a spring when the electromagnet is deenergized by circuitry actuated upon the tool engaging a metallic member in the work.

**3,595,133
TRANSDUCER FOR PRODUCING MECHANICAL OSCILLATIONS**
Keith Foster, Birmingham, England, assignor to National Research Development Corporation, London, England
Filed July 1, 1969, Ser. No. 838,237
Claims priority, application Great Britain, July 2, 1968, 31606/68

Int. Cl. F15b 15/22

U.S. Cl. 91-390

16 Claims



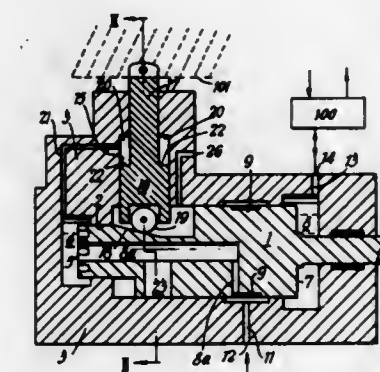
A transducer for converting fluid pressure oscillations into mechanical oscillations usable as a rock breaking tool comprises a differential area piston sliding in a cylinder having two chambers therein. One chamber is connected to the oscillating pressure fluid source, and a valve arrangement including a fluid storage space ensures that the pressure in the storage space is greater than the algebraic mean pressure in the first chamber. A position control valve prevents slow drift or rapid excessive movements of the piston.

**3,595,134
RECIPROCATORY MOTORS**
Phillip Butterworth, Bramhall, England, assignor to Butterworth Hydraulic Developments Limited
Filed Jan. 31, 1969, Ser. No. 795,535
Claims priority, application Great Britain, Feb. 12, 1968, 6795/68

Int. Cl. F15b 15/17; F01b 7/18, 9/00

U.S. Cl. 91-417

13 Claims



A reciprocatory fluid pressure operated motor in which a piston having a cam profile on its peripheral surface is axially reciprocated in a piston cylinder and a spool with its axis disposed radially with respect to the piston axis is biased through its spool cylinder to abut the piston and ride over the cam profile during axial reciprocation of the piston by which

movement is imparted to the spool along its axis, and in which thrust means, preferably in the form of hydrostatic pads, is provided between the piston and its cylinder to oppose the radially directed force applied on the piston through the spool from the biasing means associated with the spool and maintain the piston in balance.

3,595,135

FLUID OPERATED POWER DEVICE

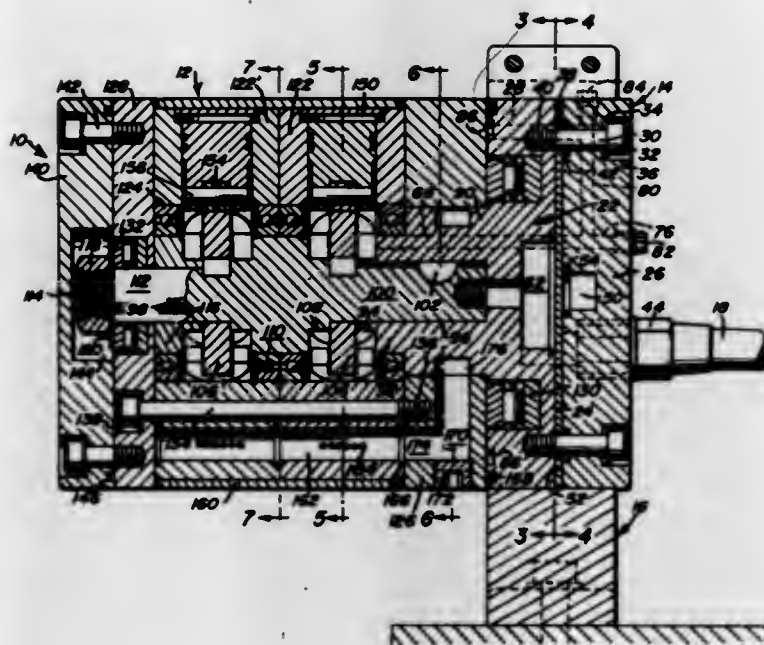
Clifford T. Deane, South Charleston, W. Va., assignor to Stampco, Inc.

Filed Oct. 17, 1969, Ser. No. 867,264

Int. Cl. F01b 1/06, 13/06, 31/10

U.S. Cl. 91-492

15 Claims



One or more cylinder blocks slidably mounting radially reciprocable pistons are rotatably mounted in assembled relation with a valve block on a stationary valve spindle and cam assembly. Fluid is conducted between the radial chambers in the cylinder blocks and the ports in a manifold plate through passages formed in the valve block and spindle.

3,595,136

METHOD AND APPARATUS FOR REDUCING TORQUE CHANGES IN ROCK SHAFTS

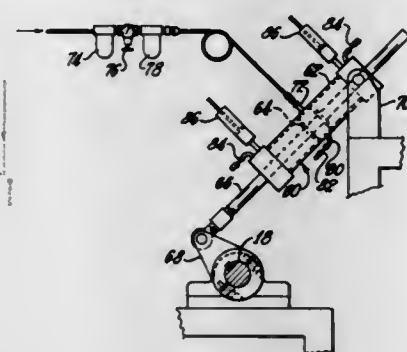
Richard E. Pitt, Newark, Ohio, assignor to Owens-Corning Fiberglass Corporation

Filed May 2, 1969, Ser. No. 821,259

Int. Cl. F01b 31/04

U.S. Cl. 92-143

9 Claims



A pneumatic cylinder connected between an eccentric on a rock shaft and a structural support, for absorbing energy during one quarter of the cycle of the rock shaft during which it is decelerated, and for putting the absorbed energy back into the rock shaft during the next quarter cycle when it is accelerated. The pneumatic cylinder is preferably a dou-

ble-acting one with a center port to accomplish the energy absorption and redelivery to the rock shaft, at both ends of the shaft rocking movement. The rate of energy absorption and subsequent reapplication may be controlled by supplying superatmospheric pressure to the center port, and/or by starting the compressive cycle prior to the midpoint of the oscillating cycle. The later is accomplished by using a piston-side port valving arrangement wherein the piston has a length that is a sizable proportion of its stroke. The cylinder may be cooled by utilizing a center exhaust port opposite the inlet port, and causing a continual flow through the low pressure end of the cylinder after the piston has proceeded past the inlet port. Bleeds may be provided at opposite ends of the cylinder to reduce the reapplication force of the cylinder, and adjustable chamber means may also be provided on one or both ends of the cylinder for adjusting the absorption rate.

3,595,137

FILTER TIPS FOR CIGARETTES

Desmond Walter Molins; Edward George Preston, and Donald John Barber, all of London, England, assignors to Molins Machine Company Limited, London, England

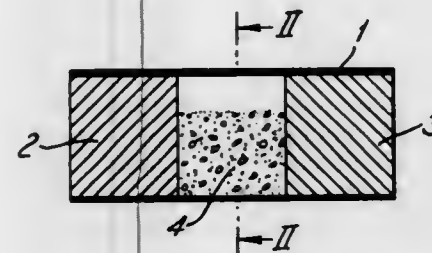
Filed Aug. 9, 1968, Ser. No. 751,622

Claims priority, application Great Britain, Aug. 18, 1967, Aug. 29, 1967, 38293/67; 39456/67; 39457/67

Int. Cl. B31d

U.S. Cl. 93-1 C

9 Claims



The manufacture of cigarette filters containing a particulate filtering material in a compartment in which beads of polystyrene are expanded within the compartment to take up excess space in it and prevent smoke bypassing the filtering material.

3,595,138

BUNDLING APPARATUS FOR FLATTENED TUBE SECTIONS COMING FROM A TUBE-MAKING MACHINE

Friedrich Franz Brockmüller, and Gustav Kuckhermann, both of Lengerich Westphalia, Germany, assignors to Windmoller & Holscher, Lengerich, Westphalia, Germany

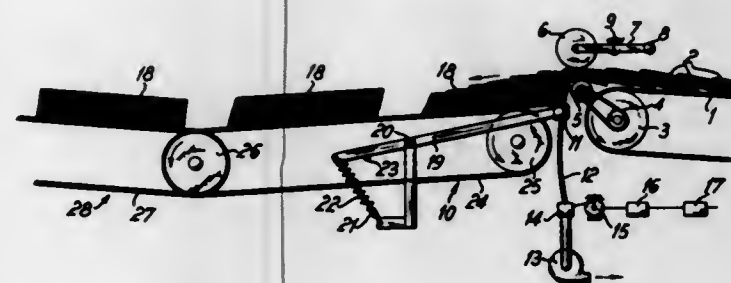
Filed Dec. 23, 1969, Ser. No. 887,513

Claims priority, application Germany, Dec. 24, 1968, P 18 16 976.1

Int. Cl. B65h 33/00

U.S. Cl. 93-93 DP

10 Claims



A bundling apparatus for flattened tube sections coming from a tube making machine comprising a first conveyor for depositing the tube sections thereon in an overlapping scale formation followed by a continuously movable endless second conveyor for bundling the tube sections. The first conveyor is passed over a direction changing roller at the delivery end of the first conveyor adjacent a receiving end of

the second conveyor. A' suction beam is disposed between the delivery end of the first conveyor and the receiving end of the second conveyor with the suction beam being adapted to have its suction effect interrupted after a bundle of a predetermined number of tube sections has been formed. A rotatable supporting roller for the tube sections having a smaller radius than the direction changing roller is positioned parallel to the direction of the changing roller and is disposed between the suction beam and the delivery end of the first conveyor.

3,595,139

APPARATUS FOR NESTING BAGS

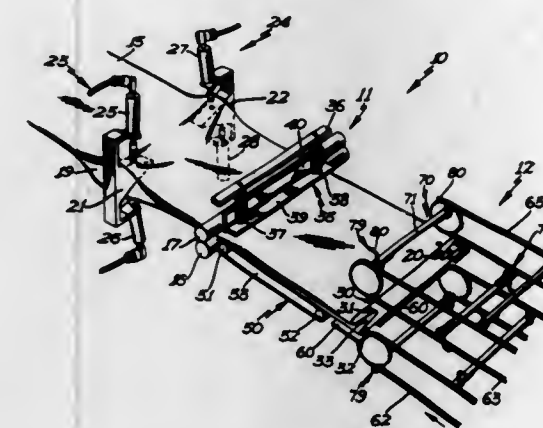
Richard C. Adams, West Barrington, R.I.; Thomas J. Monahan, Swansea, Mass., and George A. Picotte, Johnston, R.I., assignors to G. T. Schjeldahl Company, Northfield, Minn.

Filed July 18, 1969, Ser. No. 842,972

Int. Cl. B31b 29/14, 45/00; B65b 43/26

U.S. Cl. 93-33

14 Claims



Apparatus for loading a series of bags onto a mandrel in nested relationship with each bag in the series being disposed inside of its next succeeding neighbor in the series, the apparatus handling the bags accomplishing the operation with both positive loading and positive release, with the release being accomplished at substantially the same point in each cycle. The apparatus includes a delivery means such as a first conveyor which delivers the individual bags to be loaded in series relationship onto a second conveyor. The second conveyor has a plurality of pickup means for releasably engaging the surface of each bag, and thereafter transporting these engaged bags in stable disposition to a predetermined discharge point. The second conveyor means is provided with means to open the bag relatively widely so as to permit the bottom of the next preceding bag to be received within the walls of the widely opened top.

3,595,140

SUPPORTING OR PROTECTING MAT

Curt Fredrik Lundin, P.O. Box 45, 182 51, Djursholm, 1, Sweden

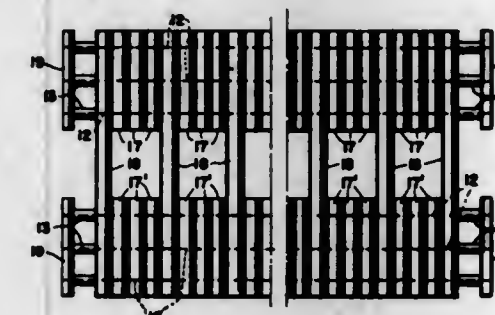
Filed Dec. 23, 1968, Ser. No. 786,107

Claims priority, application Sweden, Dec. 29, 1967, 18,020/67

Int. Cl. E01c 9/00

U.S. Cl. 94-4

12 Claims



A load supporting or structural protection mat assembled from a group of heavy duty elongate tubular members placed

parallel and joined by ropes extending normally through the adjacent tubular members from one end to the others enabling the mat to be rolled if desired. The lengths and the arrangement of different length tubular members can be varied for weight reduction, and the tubular members can be made from metal or plastic. Fins, nails and embedded granular material can be incorporated in and on the tubular members. End members of the mat can be made as handles or, made with special shapes will enable end to end attachment of individual mats. Such mats are contemplated as bridge beds, roadways, runways or other reinforcement surface over the ground.

3,595,141

PAVEMENT AND BRIDGE JOINT SEALS

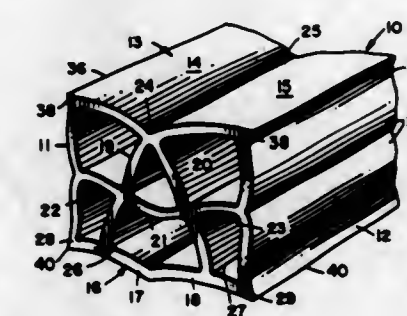
Donald R. Boney, North Baltimore, and Frank Kenneth Hall, Findlay, both of Ohio, assignors to The D. S. Brown Company, North Baltimore, Ohio

Filed Dec. 26, 1968, Ser. No. 786,889

Int. Cl. E01c 11/10

U.S. Cl. 94-18

9 Claims



Elongated, hollow elastomer seals particularly useful for the sealing of concrete pavement joints, bridge deck joints, etc. against intrusion by liquids and incompressible solids and embodying bottom wall; substantially flat, elongated sidewalls; and an internal, thrust structure or network having elongated, downwardly diverging webs in the transversely median portion of the network and diverging from an apex at or below the longitudinal midportion of the top wall and one or more pairs of elongated, transversely laterally extending webs extending between the diverging webs and respective sidewalls.

3,595,142

EXPANSION RUBBER JOINT FOR ROADS AND BRIDGES

Carlo Via, Milan, Italy, assignor to Societa Applicazioni Gomma Antivibranti SAGA S.p.A., Milan, Italy

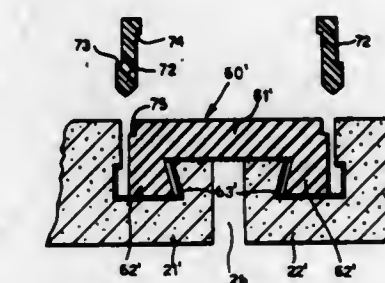
Filed Oct. 2, 1969, Ser. No. 863,100

Claims priority, application Italy, Mar. 12, 1969, 13976-A/69

Int. Cl. E01c 11/10

U.S. Cl. 94-18

9 Claims



An expansion joint for road or bridge sections comprises a resilient strip straddling the gap between two adjacent sections, and beads along the edges of the strip running along the gap. The beads are received in the cavity of a channel,

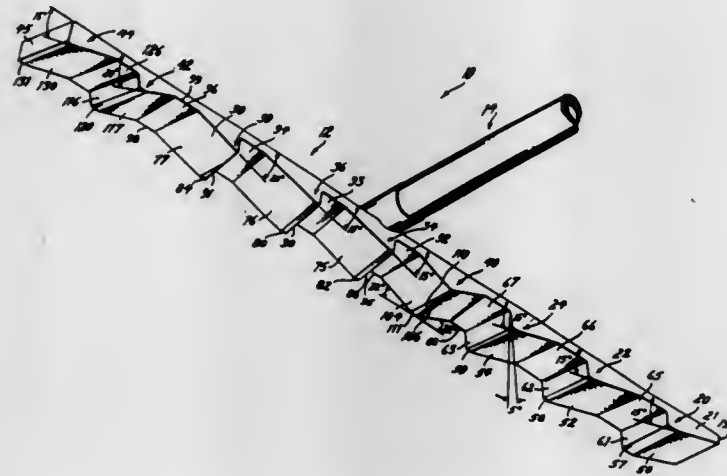
and are wedged in the channel by a resilient wedge member which prestresses the joint to prevent puckering of the edges of the strip when it is under traction.

3,595,143 SCORING TOOL

Salvatore Polselli, 20 Chiara Drive, Harrisburg, Pa.
Filed Apr. 13, 1970, Ser. No. 27,586
Int. Cl. E01c 23/16

U.S. Cl. 94-45

10 Claims



A tool for scoring concrete strips which are to be used as traffic lane dividers. The tool comprises two groups of teeth which are set in oppositely facing relation so that they cut oppositely facing reflective surfaces into the surface of the concrete. This enables the divider formed thereby to reflect the headlights of oncoming cars in both directions. Additionally the pattern of the teeth offer a distinctive sound pattern when the vehicle tires pass over them.

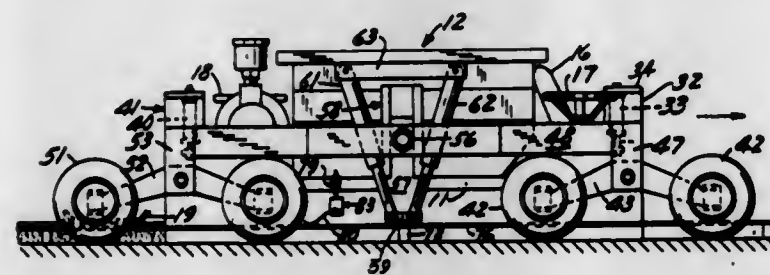
3,595,144

SUSPENSION AND LEVELING MECHANISM

Rink, Richard H., Huron, S. Dak., assignor to Huron Manufacturing Corporation, Huron, S. Dak.
Filed Aug. 14, 1968, Ser. No. 752,667
Int. Cl. E01c 19/48

U.S. Cl. 94-46

2 Claims



A grading machine suspension and control system comprising a four-point transport support adjustably attached to said frame at three points and grade-position locators for manual or automatic operation of power means to adjust said frame on the transport support.

3,595,145

SOIL COMPACTING MACHINE

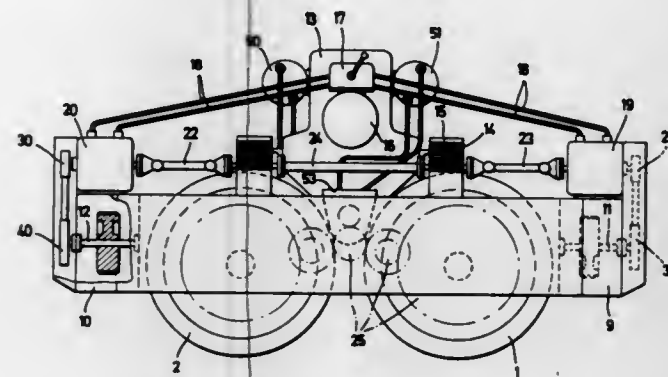
Joachim Mozdzanowski, Boppard (Rhine), Germany, assignor to Bopparder Maschinenbaugesellschaft mbH., (BOMAG), am Gueterbahnhof, Boppard (Rhine), Germany
Filed Aug. 26, 1969, Ser. No. 853,173
Claims priority, application Austria, Sept. 11, 1968, A 8850
Int. Cl. E01c 19/28

U.S. Cl. 94-50

12 Claims

A soil compacting machine has a frame carrying two soil compacting rollers mounted in tandem and at least two out

of balance centrifugal force generators for vibrating the rollers as they roll the soil. At least one of the generators is mounted on the frame in front of the rollers and at least one other generator is mounted on the frame behind the rollers



and both these generators are carried on shafts which extend longitudinally in the direction of travel of the machine and are relatively short compared with the width of the frame and the axial length of the rollers.

3,595,146 CAMERA

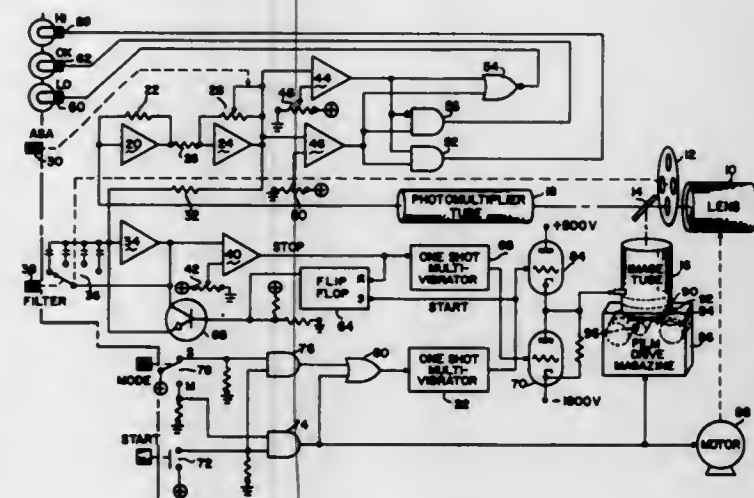
Quentin S. Johnson, Fairfax, Va., assignor to Singer-General Precision, Inc.

Filed Feb. 13, 1969, Ser. No. 798,999

Int. Cl. G03b 17/00

U.S. Cl. 95-1

6 Claims



A high speed camera having a gated image intensifier tube in the optical path and having automatic exposure controls for gating the image tube according to the lighting conditions sensed by a photomultiplier tube which shares the optical image with the image tube. The image intensifier may amplify the image by a factor of 50,000 or more so that fast exposures may be made of extremely low-illuminated objects.

3,595,147

PHOTOELECTRIC DRAFTING APPARATUS

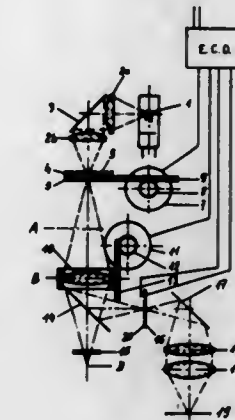
Karl Blattner, Rain 698, Kuttigen Aargau, Switzerland
Filed Aug. 23, 1968, Ser. No. 754,908
Claims priority, application Switzerland, Aug. 25, 1967, 12,054/67
Int. Cl. G03b 29/00

U.S. Cl. 95-12

4 Claims

The apparatus includes a light source, a first aperture diaphragm and a condenser lens, the lens producing a real image of the aperture upon passing light through the diaphragm, a partially silvered mirror disposed at the rear of the condenser at an angle of 45° to the optical axis thereof to transmit part of the light beam emerging from the condenser lens and to reflect the remaining part of this light beam through an angle of 90°, a second aperture diaphragm to receive the reflected part of the light beam and for determin-

ing the thickness of the drawn stroke, a mirror and lens for forming an image of the second aperture on the photographic layer of a photoelectric cell to continuously measure the light intensity and disposed in the path of the light beam which is



transmitted by the partially silvered layer which cell controls a servometer for a movable wedge filter which is arranged behind the first aperture diaphragm and which adjusts the light intensity which passes from the aperture of the first diaphragm onto the condenser lens.

3,595,148 TOY CAMERA

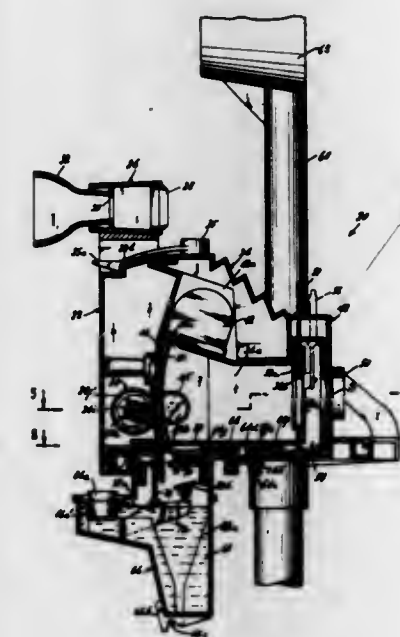
George Cagen, Brooklyn, N.Y., assignor to Ideal Toy Corporation, Hollis, N.Y.

Filed Feb. 19, 1969, Ser. No. 800,512

Int. Cl. G03b 17/50

U.S. Cl. 95-13

13 Claims



A toy camera permitting "amateur" or youthful photographers to take and develop photographs of substantial quality without complex attendant mechanism. The camera includes a self-contained detachable developing tank which communicates with and accepts exposed elements from the camera's film roll feed structure. Following each exposure, a film advance mechanism causes the exposed film segment to be advanced a predetermined length into the developing tank and at the same time places a fresh segment of unexposed film in the exposure position. A severing mechanism is then operated to cut the exposed segment from the continuous film roll, after which the severing member acts to block light from entering into the camera body during development.

3,595,149

SHUTTER COCKING AND FILM METERING DEVICE FOR A CAMERA

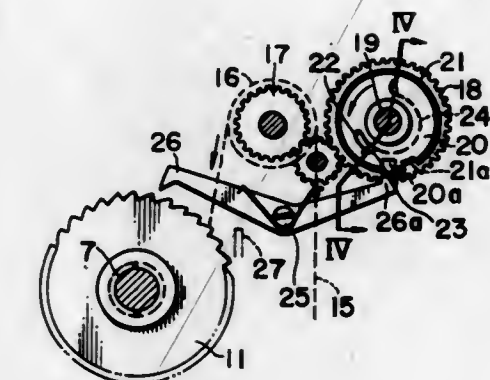
Sakae Fujimoto, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed July 5, 1968, Ser. No. 742,719

Claims priority, application Japan, July 10, 1967, 42/59584
Int. Cl. G03b 1/40, 1/62

U.S. Cl. 95-31

4 Claims



A member for driving the shutter cocking device is fixed on a shaft interlocked to the film winding knob, and the member for driving a film winding spool is connected frictionally to said knob. When the film is wound up by a predetermined amount, and the spool driving member comes to a stop, said member releases its grip on the shaft, and the shaft is further rotated to drive the shutter cocking device.

3,595,150

FILM MAGAZINE LOCATING MEANS

Dieter Engelsmann, Unterhaching, Germany, assignor to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

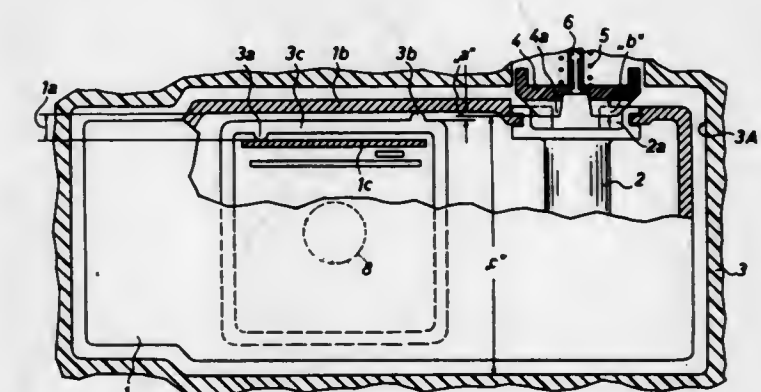
Filed Mar. 19, 1969, Ser. No. 808,447

Claims priority, application Germany, Mar. 26, 1968, A 29 521

Int. Cl. G03b 17/26, 17/28

U.S. Cl. 95-31 CA

10 Claims



A magazine for photographic film is provided with two spaced-parallel external walls which define a groove serving to receive, with certain clearance, an elongated rib provided in the chamber of the camera housing. Such clearance is reduced, when the magazine is fully inserted into the chamber, by one or more projections which are provided on the rib and engage the adjoining wall or walls of the magazine. The projection or projections ensure that the claws of the rotary coupling member of the film-transporting mechanism in the housing properly engage the claws on the takeup reel of the magazine which is accommodated in the chamber.

3,595,151

FILM METERING DEVICE

Dieter Maas, Munich, and Richard Schmiel, Unterhaching, both of, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

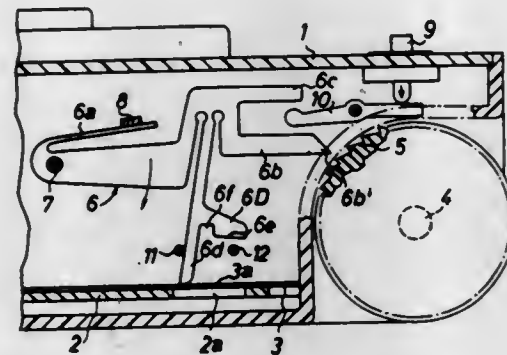
Filed Sept. 16, 1969, Ser. No. 858,463

Claims priority, application Germany, Sept. 21, 1968, P 17 97 375.0

Int. Cl. G03b 1/62

U.S. Cl. 95—31 FM

12 Claims



A film metering device in a camera for use with film having a perforation for each film frame consists of a toothed film transporting wheel which can be held against rotation by a rigid pawl forming part of a control lever which is biased from a starting position through an intermediate position and to an operative position in which the pawl engages the wheel. The lever has a springy arm which tracks the film and enters an oncoming perforation to permit movement of the lever to its intermediate position. The arm is deformed in response to further transport of the film and permits movement of the lever to its operative position upon completed transport of the film by the length of a frame. A follower element forming part of the springy arm engages a cam element formed on the camera having to lock the arm in its tensed operative position. The shutter release serves to unlock the springy arm and to return the lever and arm to their starting position.

3,595,152

EXPOSURE CONTROL SYSTEM INCORPORATING A MASTER ACTUATOR

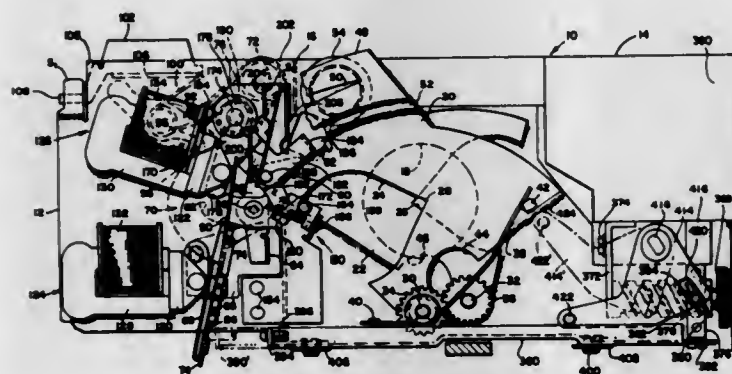
Lawrence M. Douglas, Easton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed June 30, 1969, Ser. No. 837,682

Int. Cl. G03b 9/00, 7/08

U.S. Cl. 95—53 R

47 Claims



A photographic exposure control mechanism for use with a programmed exposure control system which automatically regulates both aperture area and exposure interval. The mechanism features a master actuator member which performs operation functions both before and during an exposure sequence and during cocking operations. In its preexposure mode, the master actuator is latched in an initial position which maintains the engagement of releasable magnetic armatures with appropriate contact areas of the electromagnets of the control system. Spring members are mounted

upon and movable with the actuator member to assure appropriate contact of the armatures with the electromagnets. At the commencement of an exposure operation, the master actuator pivots to release an aperture regulating mechanism and cause the commencement of automatic aperture regulation. Simultaneously, the master actuator releases the engagement of the spring members from the armatures, thereby permitting their selective release by the electromagnets. The movement of the actuator may also be used to perform switching functions for a control circuit. The master actuator also functions during a cocking sequence to maneuver control elements and their associated armatures into appropriate reengagement with their respective electromagnets. In a preferred embodiment, the aperture is formed as an arm-shaped lever which is pivotally mounted upon the supporting structure of the exposure mechanism.

3,595,153

ELECTRICALLY OPERATED SHUTTER

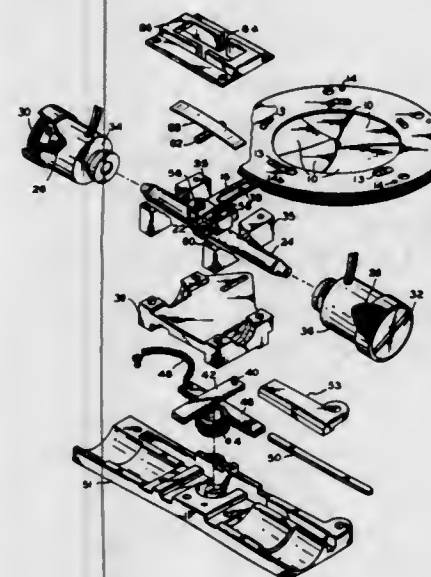
Ivar Saul, Portland, Oreg., assignor to Tektronix Inc., Beaverton, Oreg.

Filed July 28, 1969, Ser. No. 845,354

Int. Cl. G03b 9/24

U.S. Cl. 95—53

7 Claims



A camera shutter, actuated to its open position by an electrically operated solenoid, provides a settable aperture opening. The stroke of the solenoid mechanism is constant for opening and closing the shutter, and an actuator arm between the solenoid and the shutter drive ring is rotatable upon an adjustable cam operated pivot for predetermining the shutter-open aperture. A second solenoid is employed for closing the shutter, while detent means holds the shutter in either open or closed position.

3,595,154

PHOTOGRAPHIC CAMERA WITH ELECTRONIC TIMING DEVICE AND LEADTIME CONTROL FOR SELF-TIMER PHOTOGRAPHS

Winfried Espig, Calmbach, Black Forest, Germany, assignor to Prontor-Werk Alfred Gauthier G.m.b.H., Calmbach, Black Forest, Germany

Filed Sept. 3, 1968, Ser. No. 757,050

Claims priority, application Germany, Sept. 2, 1967, P 15 97 361.2

Int. Cl. G03b 9/64

U.S. Cl. 95—53.3

5 Claims

A camera having an electronic time setting device including an electromechanical open-time stop for the shutter drive. With this there is provided an electronic delaying circuit which can be transferred into an operational readiness

state for temporarily locking the action of the shutter following the depression of the release button, and a signal light

3,595,156

EQUIPMENT FOR DEVELOPING PHOTOGRAPHIC FILM

Walter Zimmermann, Freudenstadt, Schwarzw., Germany, assignor to Messrs MAFI Fiedler & Zimmermann, Freudenstadt, Germany

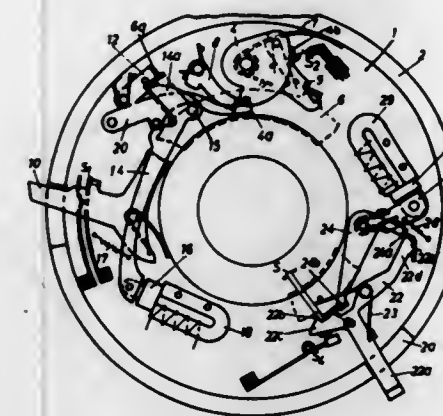
Filed Oct. 4, 1968, Ser. No. 765,236

Claims priority, application Germany, Oct. 6, 1967, P 15 97 709.0

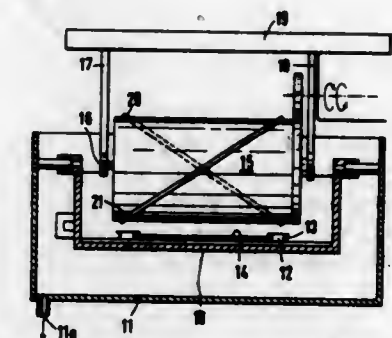
Int. Cl. G03d 3/00

U.S. Cl. 95—89

10 Claims



control which indicates both the beginning and the end of the operation of the delayed action cutoff.



3,595,155

SINGLE REFLEX CAMERA WITH INTERCHANGEABLE OBJECTIVE LENS HAVING SPRING DIAPHRAGM AUXILIARY SHUTTER AND FLASH LIGHT SWITCH OPERABLE BY THE CAMERA SHUTTER RELEASE

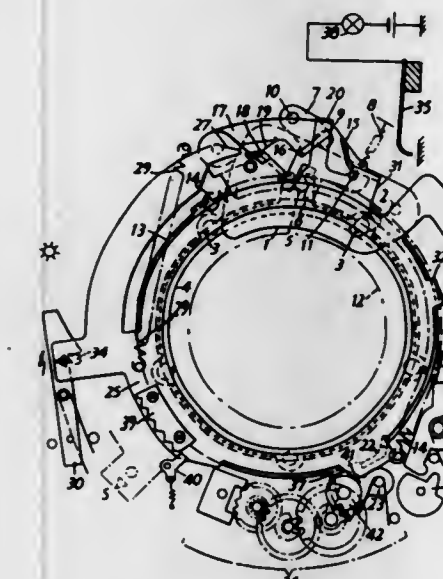
Rolf Noack, Dresden; Johannes Weise, Dresden, and Wolfgang Krause, Gorlitz, all of, Germany, assignors to Veb Pentacon Dresden Kamera-und Kinowerke, Dresden, Germany

Filed Sept. 20, 1968, Ser. No. 761,224

Int. Cl. G03b 9/02

U.S. Cl. 95—64

3 Claims



A single lens reflex camera having a shutter mechanism operated by a shutter release is provided with an interchangeable lens housing. The lens housing includes an objective lens, an auxiliary shutter and a switch which when closed connects a source of supply voltage to a flash light, a drive ring on the lens housing is urged in one direction by a first spring means and when released from a cocked position actuates the auxiliary shutter and the switch. A spring diaphragm in the housing is urged to a fully open position by a spring and a release means in the housing engages the camera shutter, when the lens housing is connected to the camera, to release the drive ring from a cocked position to initiate an exposure and to permit the spring diaphragm to change from a fully open position to a preset working aperture for flashlight exposure before the auxiliary shutter opens.

3,595,157

APPARATUS FOR RUPTURING A PROCESSING FLUID CONTAINING POD IN A PHOTOGRAPHIC CASSETTE

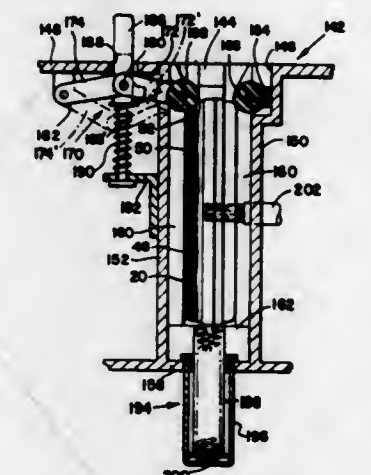
Philip G. Baker, Peabody; Gerald Cook, Lynnfield, and Rogers B. Downey, Lexington, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed July 3, 1969, Ser. No. 838,832

Int. Cl. G03d 3/00

U.S. Cl. 95—89

21 Claims



Apparatus for receiving a cassette containing a pod of processing fluid for photographic material, for rupturing such pod and for expelling such fluid therefrom. Typically, the fluid filled pod is mounted within the cassette adjacent a support surface and initially protected by a removable cover plate. After removing the aforementioned cover plate to expose the pod, the cassette is inserted into the apparatus against the force of a coiled spring and between a pair of rollers mounted for rotation about parallel axes. One of these rollers is mounted on an overcenter mechanism to exert a force progressively across the pod during the insertion

process when the overcenter mechanism is in a first position whereby the pod is ruptured and the fluid expelled therefrom. In a first embodiment, when the cassette has been fully inserted into the apparatus, the rollers exert a downward force on the cassette to lock the cassette in position. Displacement of the overcenter mechanism into its second position withdraws the roller connected thereto from contact with the cassette permitting the spring to eject the cassette permitting the spring to eject the cassette from the apparatus. In a second embodiment a releasable latch engages a recess of the cassette to lock the cassette in position against the force exerted thereon by the ejection spring. Displacement of the overcenter mechanism into its second position simultaneously withdraws both the roller connected thereto and the latch from contact with the cassette to facilitate its ejection from the apparatus.

3,595,158

PHOTOGRAPHIC PROCESSING APPARATUS

John Geoffrey Long, Surbiton, England, assignor to The Pavelle Corporation, New York, N.Y.

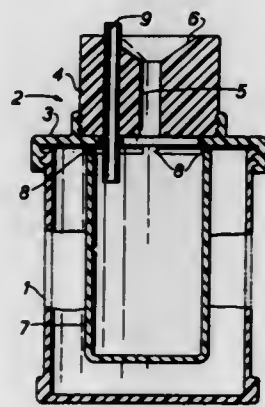
Filed Mar. 8, 1965, Ser. No. 437,952

Claims priority, application Great Britain, Apr. 28, 1964, 17605/64

Int. Cl. G03d 1/14

U.S. Cl. 95—90.5

16 Claims



A photographic processor formed by an outer chamber with an inner chamber supported therein having walls which are spaced from the walls of the outer chamber. A cap seals both the inner and outer chambers and contains an opening through which liquid may be introduced into the inner chamber when the processor is upright. Openings are provided in the inner chamber adjacent the cap so that processing liquid may flow therethrough into the outer chamber when the processor is held horizontally and a liquid may subsequently flow therethrough and out through the opening in the cap when the processor is inverted.

3,595,159

GRAPHIC ARTS FILM PROCESSOR

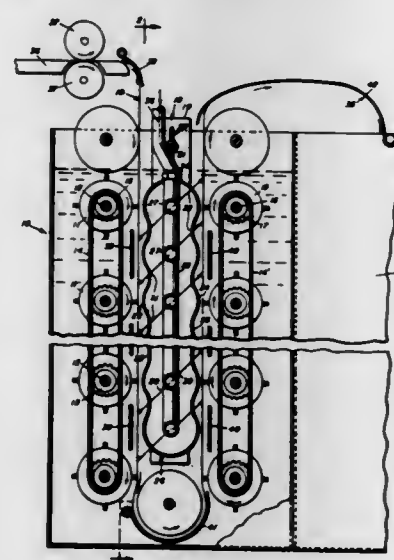
Glen C. Bull, 2800 Quebec St. N.W., Washington, D.C.

Filed Dec. 13, 1967, Ser. No. 690,296

Int. Cl. G03d 3/04

U.S. Cl. 95—94

16 Claims



An apparatus for processing graphic arts sheets including an enclosure for the processing fluid, a fluid circulating

system, and a series of rollers within the enclosure. The rollers have ridged portions on their periphery which establish a continuously moving point of contact with the sheet as it is being processed. The fluid circulating system directs streams of processing fluid against both sides of the sheet in the direction of movement of the sheet through the enclosure.

3,595,160

FILM STRIP PROCESSING DEVICE

Hendrik Jan Mensinga, Rijswijk, Netherlands, assignor to N.V. Optische Industrie De Dode Delft, Van Mierevelaan, Delft, Netherlands

Filed June 16, 1969, Ser. No. 833,584

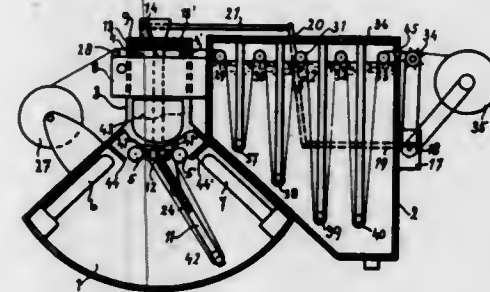
Claims priority, application Netherlands, June 28, 1968, 6

809 126

Int. Cl. G03d 3/12

U.S. Cl. 95—94

7 Claims



A film strip processor having one or more processing tanks with a narrow neck portion through which the film is fed into and out of the tank, and a wider lower portion with a film guiding member that is oscillatable about an axis near the neck of the tank to provide intense agitation of the processing liquid.

3,595,161

METHOD AND APPARATUS FOR REFUSE DISPOSAL

Wells A. Webb, Berkeley, Calif., assignor to Webbco Research & Development Corporation, Berkeley, Calif.

Filed Oct. 23, 1969, Ser. No. 868,680

Int. Cl. B65f 1/12; B30b 13/00

U.S. Cl. 100—35

14 Claims



Method and apparatus for the disposal of solid waste material in which the refuse is transported out to sea to a

disposal barge. The barge is provided with a large diameter telescoping pipe extending below the surface. The upper end of the pipe extends approximately 50 feet above the surface. The refuse is conveyed from the barge to the upper end of the pipe and discharged into the pipe. The accumulation of material in the pipe from the surface of the sea to the top of the pipe causes the material to be forced downward in the pipe until it reaches the 300 foot level below the surface. Water pressure at that level compresses virtually all of the refuse in the pipe so that it descends to the sea bottom. The end of the pipe is provided with a trap for any of the materials which will float even after being compressed at that depth.

3,595,162

METHOD FOR PRESSING LIQUID OUT OF FIBROUS OR WOODLIKE MATERIAL

Kurt Heinrich, An Mevissen 5, Wevelinghoven, Germany

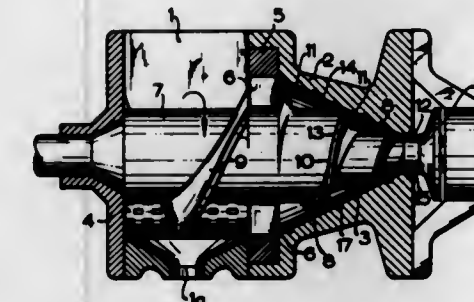
Division of Ser. No. 745,055, Apr. 2, 1969. This application

Nov. 26, 1969, Ser. No. 880,232

Int. Cl. A47j 19/02; B30b 9/02, 9/12

U.S. Cl. 100—37

6 Claims



A method of pressing liquid out of fibrous material, such as particulated sugarcane or the like, in which the material is subjected in a tapering screw press to a continuously increasing pressure as it is forced from the large to the small diameter and of the press so that the material will leave the small diameter end of the press in substantially dry condition while the liquid pressed out from the material is caused to flow in countercurrent to the material and is discharged from the press in the region of the large diameter thereof.

3,595,163

FLY PRESS

Willi Baumann, Oetishelm, Wurttemberg, Germany, assignor to Firma Hiller & Lutz, Oetishelm am Wurt, Germany

Filed Aug. 15, 1969, Ser. No. 850,390

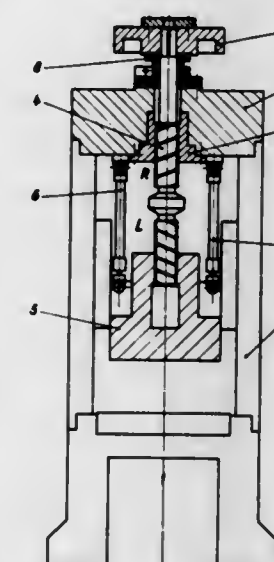
Claims priority, application Germany, Aug. 29, 1968, P 17 77

057.9

Int. Cl. B30b 1/08

U.S. Cl. 100—270

13 Claims



A nut is carried by a traverse, which forms part of a frame. A press screw has two oppositely handed screw threads near

opposite ends. One of said screw threads is in threaded engagement with said nut. A press ram is in threaded engagement with the other of said screw threads. A flywheel is mounted on said press screw for rotation therewith. Drive means are provided to reciprocate said press screw so that said ram is reciprocated at a higher speed than said press screw.

3,595,164

EGG CARTON PRINTER

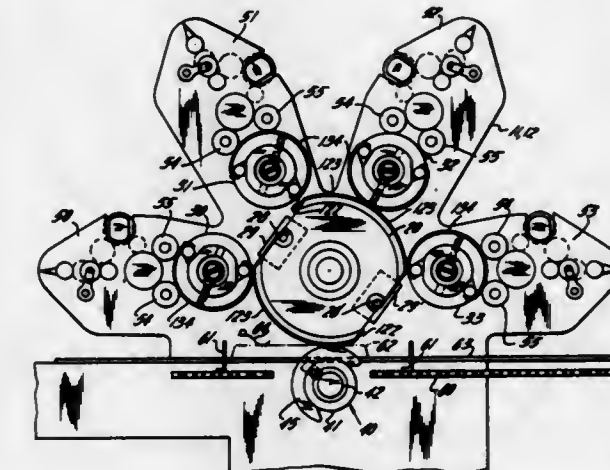
John C. Hovekamp, Elyria, Ohio, assignor to Wood Industries, Inc., Plainfield, N.J.

Filed Apr. 9, 1969, Ser. No. 814,648

Int. Cl. B41f 17/16, 13/24

U.S. Cl. 101—37

4 Claims



The printing device for multicolor decorating the top of egg cartons or the like articles has a central blanket cylinder with four plate cylinders contacting it for transferring an inked image thereto, each one of the plate cylinders having its own inking device. An impression cylinder is arranged which has a saddle on a part of its circumference for supporting the cavernous top of the egg carton and pressing the top surface of it against the blanket cylinder for having the image which has been inked on the blanket cylinder, printed on it. Power-operated linkage mechanism for separating the plate cylinders from the blanket cylinder and for throwing off simultaneously the inking rollers of the inking devices is arranged.

3,595,165

ADDRESSING MACHINE WITH TOGGLE-LINK MECHANISM

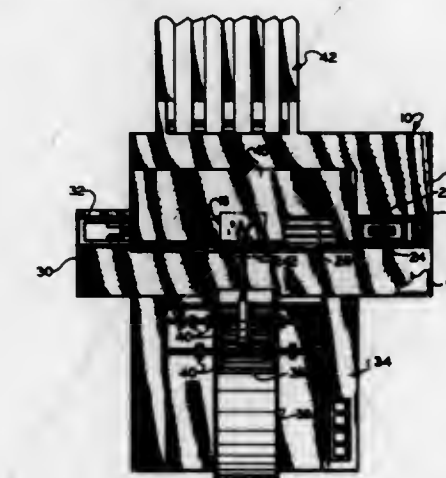
Richard A. Smith, Andover; Richard M. Gile, Kingston, and David S. Wilson, Rockland, all of Mass., assignors to Dymo Industries, Inc., Emeryville, Calif.

Filed Nov. 26, 1969, Ser. No. 880,302

Int. Cl. B41f 47/06; B41f 3/04

U.S. Cl. 101—48

12 Claims

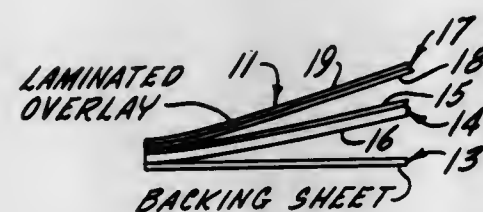


An addressing machine of the type in which addresses are sequentially printed upon workpieces by a print roller which

is reciprocated into contact with a stencil placed between the print roller and a table on the frame of the machine upon which the workpiece is located, the reciprocation of the print roller being accomplished by a toggle-link mechanism mounted upon the frame of the machine, the toggle-link mechanism having a link which is pivotally mounted on the frame and is selectively movable with respect to the table to selectively change the spacing between the print roller and the table for accommodating workpieces of different thicknesses.

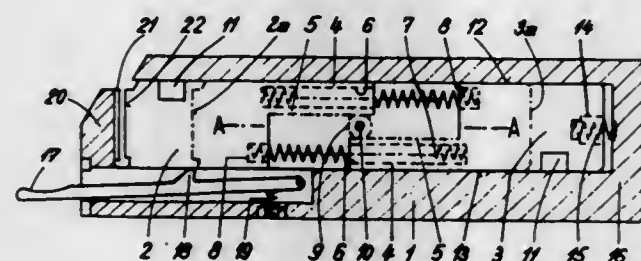
3,595,166
THREE-LAYER STENCIL ASSEMBLY HAVING PLASTIC OVERLAY SHEET
Herbert P. Sherman, Chicago, Ill., assignor to Bell & Howell Company, Chicago, Ill.
Filed Feb. 20, 1969, Ser. No. 800,972
Int. Cl. B41n 1/24

U.S. Cl. 101-128.2 10 Claims



There is disclosed an improvement in the mimeograph stencil art comprising the manufacture of an overlay sheet for either a conventional typewriter stencil or in particular a stencil which can be prepared by means of heat transfer with a thermocopy and with this overlay sheet is capable of either thermal production or conventional typewritten production, comprising a sheet of tissue which has been coated on one side, only, with a film of elastomeric plastic, such as polyvinyl chloride or polypropylene.

3,595,167
IMPACT PRINTING MECHANISM
Armin Wirth, Zurich, Switzerland, assignor to Wirth Gallo & Co., Zurich, Switzerland
Filed Oct. 7, 1968, Ser. No. 765,473
Claims priority, application Switzerland, Jan. 11, 1968, 586/68
Int. Cl. B41f 1/38; B41j 9/26
U.S. Cl. 101-287 3 Claims

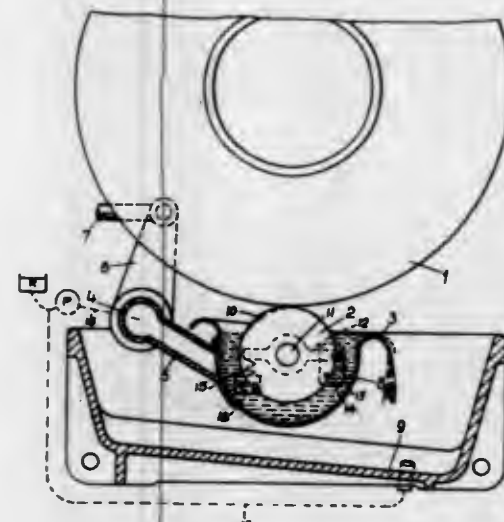


An impact printing mechanism comprising a pair of elements which move oppositely of each other so that the algebraic sum of the momenta of the elements is null during their motion and at the instant of impact of one of the elements on an associated printing plate.

3,595,168
INKING DEVICE FOR THE FORM CYLINDERS OF GRAVURE PRINTING PRESSES
Karl A. Klingler, and Rudolf Frey, both of Frankenthal, Pfalz, Germany, assignors to Schnellpressenfabrik Frankenthal Albert & Cie Aktiengesellschaft, Frankenthal-Pfalz, Germany

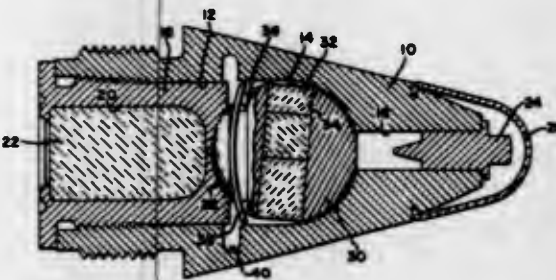
Filed Sept. 3, 1968, Ser. No. 757,042
Claims priority, application Germany, Aug. 31, 1967, P 16 11 286.0

Int. Cl. B41f 31/32 4 Claims



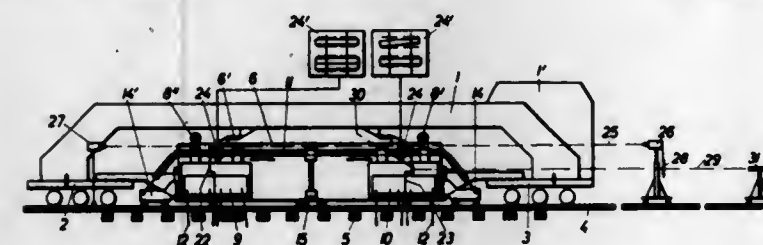
This invention provides an inking device for the form cylinder of a gravure printing press. The inking device comprises an inking roller immersed in an ink trough which is provided with means for adjustment. The inking device is adjustable to provide a contact pressure resulting in a thin, uniform layer of ink being supplied to the entire surface of the form cylinder.

3,595,169
TIME DELAY FUZE
Richard T. Ziemba, Burlington, Vt., assignor to General Electric Company
Filed Sept. 18, 1969, Ser. No. 858,975
Int. Cl. F42c 15/26
U.S. Cl. 102-79 2 Claims



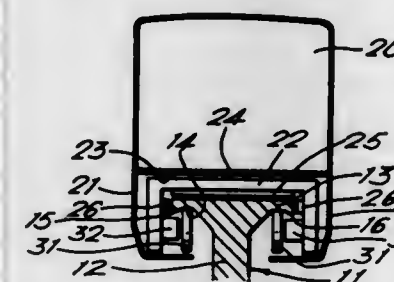
A time delay fuze for a projectile includes a ball rotor journaled for rotation within a cavity in the fuze. The firing pin, said cavity and the booster charge lie along the longitudinal axis of the fuze. The rotor carries a detonator in a diametral bore, and a dished retaining ring mounted on a seat cut into the ball normally fixes the ball with the detonator out of alignment with the longitudinal axis of the fuze. To release the rotor, the dished ring must be flattened and moved aft by setback force and must be enlarged by centrifugal force.

3,595,170
MOBILE TRACK TAMPER
Franz Plasser, and Josef Theurer, both of Johannesgasse 3, Vienna, Austria
Filed Dec. 18, 1968, Ser. No. 784,639
Claims priority, application Austria, Jan. 2, 1968, 1/68
Int. Cl. E01b 27/16
U.S. Cl. 104-12 26 Claims



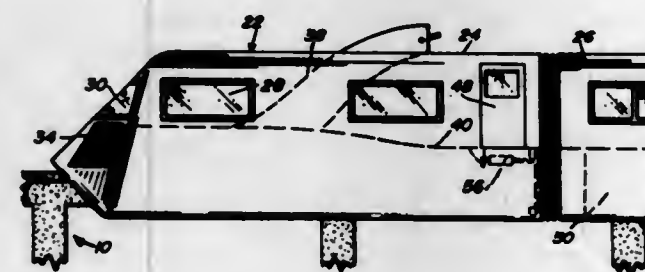
A mobile track tamper with a plurality of "twin" tamping tool assemblies has means for controlling the movement of the assemblies in the track direction in response to the location of a tie to be positioned between the opposed tamping tools of each assembly.

3,595,171
TRACTION UNIT FOR AN AIR CUSHION VEHICLE
Francis Ernest Sheppard, Oadby, England, assignor to Rolls-Royce Limited, Derby, England
Filed July 29, 1969, Ser. No. 845,795
Claims priority, application Great Britain, Aug. 8, 1968, 37933/68
Int. Cl. B61b 13/08
U.S. Cl. 104-23 FS 5 Claims



The invention concerns a traction unit for an air cushion vehicle which is adapted to be driven over a T-shaped rail or rails, the traction unit comprising at least one driving wheel which is rotatable about an horizontal axis and which is adapted for driving engagement with the underside of the head of a respective rail, a motor for driving the or each driving wheel, and air cushion means which, in operation, maintain the traction unit in a desired position with respect to the rail or rails such that the or each driving wheel is urged upwardly against the respective rail.

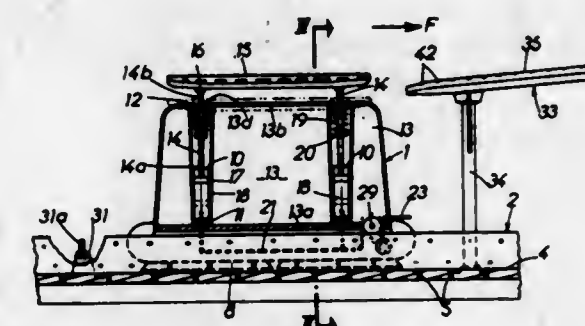
3,595,172
JET PROPELLED AIR CUSHION MONORAIL VEHICLE
John Van Veldhuizen, 31601 SW. 197th Ave., Homestead, Fla.
Filed Sept. 29, 1969, Ser. No. 861,614
Int. Cl. B61b 13/08
U.S. Cl. 104-23 FS 9 Claims



An air propelled vehicle including one or more lengthwise arranged and articulated cars. Each of the cars defines a longitudinal open-ended downwardly opening cavity or recess for bracingly receiving an elongated monorail structure along which the cars are to be moved and the lead car includes air pump means for intaking air and discharging air under pressure rearwardly for propulsion. Further, the cars include corresponding side plenum chambers communicated with each other and outlets for discharging air under pressure into the recesses for support of the cars by a cushion of air formed between the surfaces of said cars defining downwardly opening recesses and the opposing surfaces of the monorail structure. Further, the plenum chambers are in direct communication with the compressed air discharging air of the air pump means and the rearwardly opening outlet for discharging propulsion air is provided with throttle structure whereby the amount of propulsion air being discharged may be varied.

gitudinal open-ended downwardly opening cavity or recess for bracingly receiving an elongated monorail structure along which the cars are to be moved and the lead car includes air pump means for intaking air and discharging air under pressure rearwardly for propulsion. Further, the cars include corresponding side plenum chambers communicated with each other and outlets for discharging air under pressure into the recesses for support of the cars by a cushion of air formed between the surfaces of said cars defining downwardly opening recesses and the opposing surfaces of the monorail structure. Further, the plenum chambers are in direct communication with the compressed air discharging air of the air pump means and the rearwardly opening outlet for discharging propulsion air is provided with throttle structure whereby the amount of propulsion air being discharged may be varied.

3,595,173
TRACK SHUNTING SYSTEM FOR MOVABLE PARTS FOLLOWING A GUIDING TRACK
Francois Louis Giraud, Plaisir, France, assignor to Societe De L'Aerotrain, Paris, France
Filed June 26, 1969, Ser. No. 836,880
Claims priority, application France, June 28, 1968, 157,251
Int. Cl. B61b 13/08; B60v 1/02; E01b 26/00
U.S. Cl. 104-23FS 11 Claims

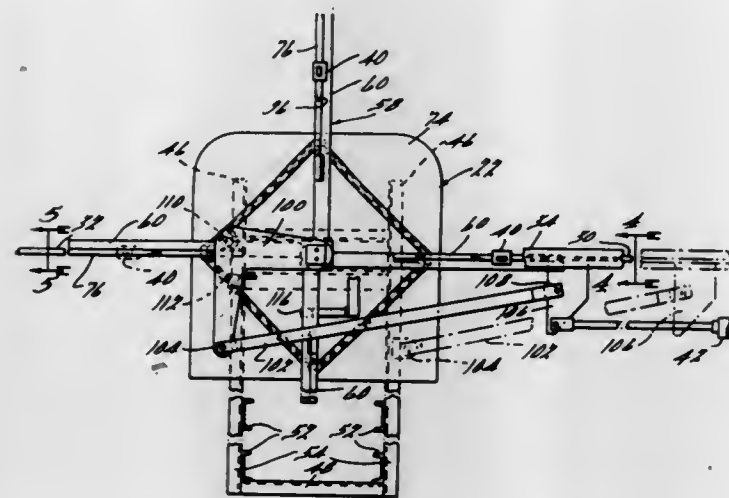


A switching system for ground effect conveying tracks over which a vehicle or the like movable part is adapted to move over a compressed fluid cushion fed with fluid through flap valves which allow the desired sustaining and guiding energy to be released only in registry with the movable part passing over them. The switching system provides means for shifting the movable part off such a track and back onto the same or another main track through the agency of an auxiliary track lying above the location of the movable part which is free to rise above the main track it is following. The feed of guiding and sustaining fluid is cut off when the movable part arrives at a point registering with a predetermined auxiliary track while the latter engages the movable part by raising an auxiliary structure carried by said movable part and provided with a large surface subjected to the fluid jets produced by the auxiliary track and forming sustaining cushions equivalent to those provided by the first-mentioned track.

3,595,174
SYNCHRONIZED TURNABLE FOR A RECIPROCATING CONVEYOR
Robert J. Juve, Sterling Heights, Mich., assignor to Udyllite Corporation, Warren, Mich.
Filed Nov. 20, 1969, Ser. No. 878,486
Int. Cl. B65g 25/10, 47/24

U.S. Cl. 104-99 10 Claims
A conveying apparatus comprising a rail on which a plurality of work carriers are movably mounted and are intermittently advanced therealong by means of a reciprocating pusher mechanism. The rail is formed with a gas as defined by two spaced rail sections, between the ends of which a turn-around transfer mechanism is positioned for receiving work carriers from one rail section and transferring them to the

other rail section in a manner so as to effect a 180° rotation thereof. The operation of the turnaround transfer unit is

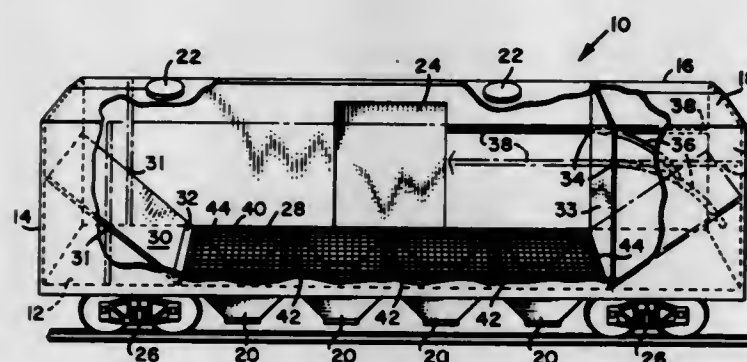


achieved in response to and in synchronization with the movement of the reciprocating pusher mechanism.

3,595,175
CONVERTIBLE FREIGHT-HOPPER CAR
Robert J. Austill, 2236 Dianne Drive, Santa Clara, Calif.
Filed Aug. 8, 1969, Ser. No. 848,645
Int. Cl. B61d 3/04, 3/06, 17/10

U.S. Cl. 105-243

10 Claims



A vehicular hopper-box freight carrier adapted for transporting freight in granular and/or bulk form. The freight carrier includes a floor surface having a plurality of apertures opening to hopper means for discharging freight of granular form and of sufficient strength to support freight in bulk form above the surface. The carrier includes primary bulkhead means positioned to guide granular freight towards the hopper means and secondary bulkhead means adapted to longitudinally support freight in bulk form.

3,595,176
ADJUSTABLE AUTOMOBILE FRAME LOADING SYSTEM
Keith W. Broiling, Olympia Fields, Ill., assignor to Portec, Inc., Chicago, Ill.

Filed Apr. 10, 1969, Ser. No. 815,133

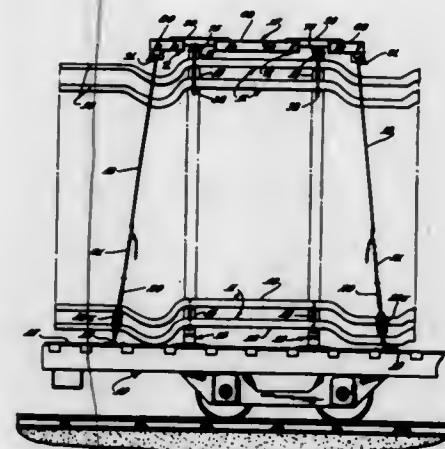
Int. Cl. B60p 7/08; B61d 45/00

U.S. Cl. 105-367

12 Claims

Stacking apparatus for tying horizontally extending vehicle frames to the deck of a flat car arranged to accommodate stacking of frames of different lengths and widths, for adjustment of the locations of the supporting pedestals on the deck of the flat car. The bottom frame is supported on spaced pedestals on the deck of the flat car and spacers between the frames space the frames apart. Locating and load bearing rods extending through the spacers and frames, interlock the frames and transfer the weight of the frames to the bottom pedestals. A harness in the form of an open rectangular frame extends over the top frame of the stack of frames and is seated on the top spacers and is tied to the deck of the

vehicle by tiedown rods or chains. The harness is provided with seats for the top spacers, which are adjustable laterally and longitudinally, to conform to automobile frames of various lengths and widths. The pedestals are mounted for adjustable movement laterally and longitudinally of the vehicle



and are locked in adjustment by locking members having locking engagement with anchoring members for the pedestals and holding the anchoring members in place and accommodating longitudinal adjustable movement thereof, to adjust the positions of the anchoring members along the car.

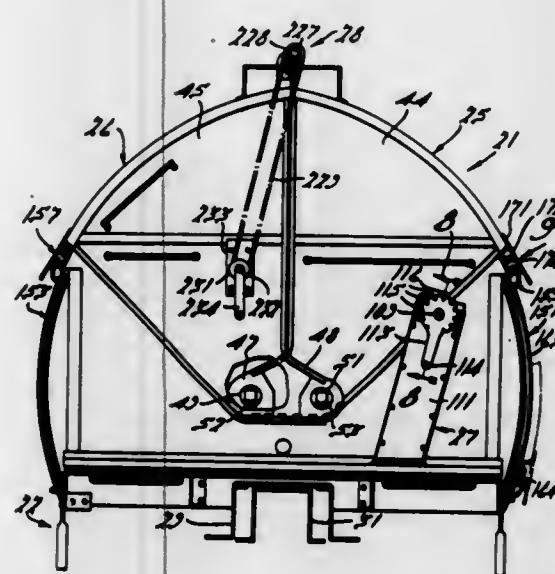
3,595,177
RAILWAY CAR
James R. Bennett, New Boston; Harvey W. Chapman, Detroit; Tibor Matyas, Plymouth; John P. Moorhead, Northville; Gilbert F. Oakley, Livonia, and Jackson A. Shook, Northville, all of, Mich., assignors to Evans Products Company

Filed Dec. 26, 1967, Ser. No. 693,536

Int. Cl. B61d 39/00; E05b 65/14

U.S. Cl. 105-377

31 Claims

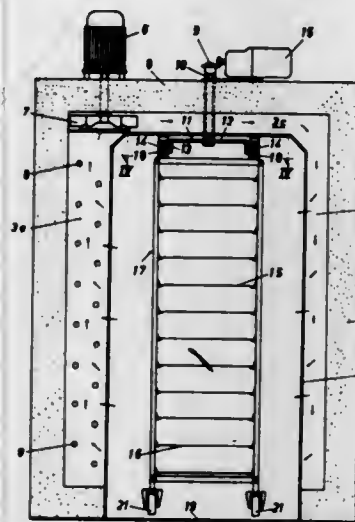


A railway car particularly adapted to carry coiled sheet steel or like shaped articles and embodying an integral cover arrangement for covering the transported goods. The cover arrangement includes a pair of cover halves and a drive mechanism that is operable to selectively open and close the cover halves. Separate counterbalancing spring mechanisms are provided at each end of the cover halves to selectively adjust the preload. In addition, an intermediate supporting arrangement is provided for supporting the cover halves, and a locking mechanism is provided for sequentially closing the cover halves and for retaining them in their closed position. A stop mechanism also is provided to preclude side-to-side swaying of the cover halves when they are in their closed position.

3,595,178
BAKERY OVEN
Karl Edvard Olof Dahlen, Boras, Sweden, assignor to Elektro-Dahlen A B, Boras, Sweden
Filed Sept. 23, 1968, Ser. No. 761,737
Claims priority, application Sweden, Oct. 6, 1967, 13,685/67
Int. Cl. A21b 1/00

U.S. Cl. 107-55

8 Claims

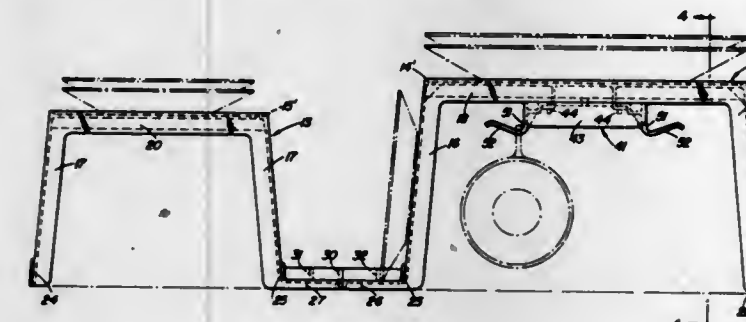


For facilitating the cleaning of bakery ovens and preventing damage due to corrosion, mechanism is provided for rotating the tray cart or truck within the oven, with such mechanism being located in the top of the oven and so designed that the mechanism, when the cart is pushed into the oven, will lift the cart free of the oven floor.

3,595,179
DINNERWARE RACK
William D. Taylor, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Jan. 16, 1969, Ser. No. 791,705
Int. Cl. A47b 47/00

U.S. Cl. 108-30

4 Claims



A dinnerware rack comprising a combination plate and cup stand having a top shelf and a pullout cup rack releasably slidably mounted under said shelf, and a smaller stand having a lower level top shelf, said stands having separably interconnected base racks for supporting dishes between the stands, said smaller stand when disconnected being nestable in said cup and plate stand.

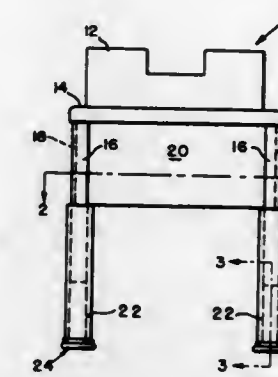
3,595,180
ADJUSTABLE HEIGHT DEVICE FOR DATA PROCESSING EQUIPMENT
Vincent H. Swoyer, Rochester, N.Y., assignor to Module Computer Corporation, Rochester, N.Y.
Filed Feb. 10, 1969, Ser. No. 797,948
Int. Cl. A47b 9/00

U.S. Cl. 108-144

1 Claim

A card punch for a data processing machine is mounted on a table which is supported by four legs, each of which is rectangular in cross section. Each leg at its lower end extends slidably into the upper end of one of four, identical, tubular

extensions, which also are rectangular in cross section. A disc-shaped foot or skid is removably mounted in the lower end of each extension. The extensions support the equipment at a height from which it can be operated readily by a person



standing at the table; and when the extensions are removed by sliding them off from the lower ends of the table legs, the latter then support the table at a lower level, which is convenient for operating the equipment from a seated position.

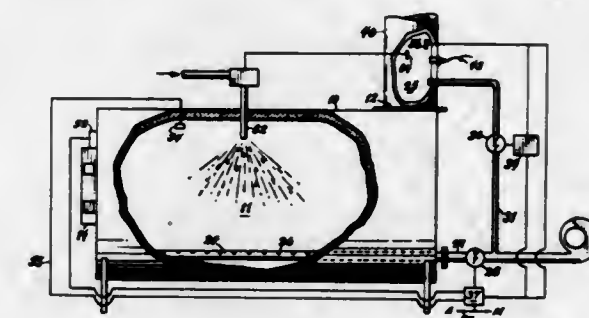
3,595,181
AIR MODULATION FOR WASTE INCINERATOR
William M. Anderson, Wellsville; Lubertus Bakker, Wellsville, and Richard F. Stockman, Friendship, all of, N.Y., assignors to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Apr. 15, 1970, Ser. No. 28,895

Int. Cl. F23q 5/00

U.S. Cl. 110-8 A

7 Claims

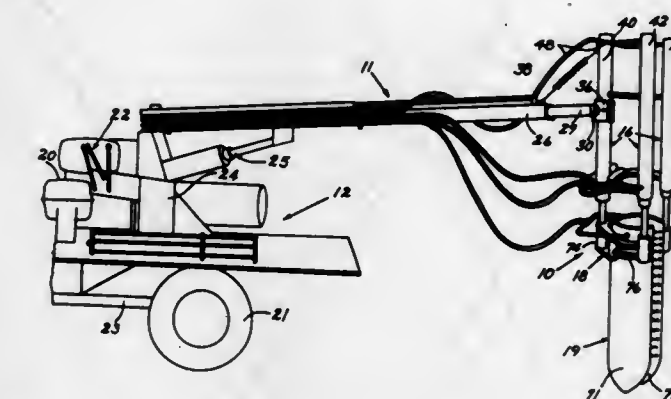


An incinerator having a principal combustion chamber and one or more secondary combustion chambers together with the controls that provide a predetermined range of temperature in all chambers to effect continuous and complete combustion of the waste matter placed therein.

3,595,182
APPARATUS FOR UNDERGROUND TREATMENT OF POLES
Frank S. Clapp, 2750 South Platte, Englewood, Colo.
Filed Oct. 10, 1969, Ser. No. 865,366
Int. Cl. B27k 3/10; A01c 23/02

U.S. Cl. 111-6

8 Claims



An apparatus for the pressure injection of preservatives to the ground-implanted portion of a pole, includes convex,

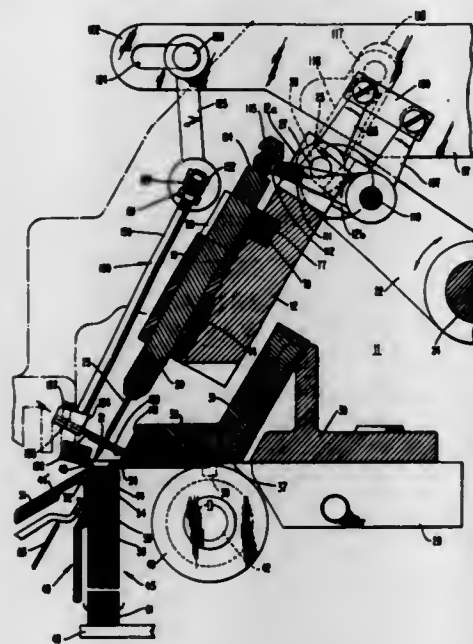
spadelike, injection probes for surrounding the pole and applying preservatives over a large area of the buried end of the pole. The probes are hollow and have a multiplicity of holes in each convex pole facing surface. The apparatus grips the pole, and the probes are driven into the ground by hydraulic piston and cylinder motors.

3,595,183

BOOK SEWING MACHINE AND METHOD

William W. Stoothoff, Ramsey, N.J., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed July 24, 1968, Ser. No. 747,347
Int. Cl. D05b 65/00; B42b 3/00
U.S. Cl. 112-21

28 Claims



A cyclically operable book sewing or stitching machine and method wherein book signatures are successively stitched to provide spaced parallel rows of single or tail stitches and looped or chain stitches extending through the folds of each signature and connecting successive signatures together. Means is provided for interrupting the chain stitch at the end of the sewing operation upon a book, the operation of such means being initiated by the same means which operate a means for severing the tail thread, so that the stitchings of successive books are entirely disconnected from each other.

3,595,184

TUFTING MECHANISM FOR PRODUCING SHAG FABRICS

Charles W. Watkins, Soddy, Tenn., assignor to The Singer Company, New York, N.Y.
Filed June 23, 1970, Ser. No. 49,087
Int. Cl. D05c 15/22, 15/24
U.S. Cl. 112-79 R

16 Claims



This disclosure relates to tufting machines for economically producing relatively long nap tufted fabrics hereinafter

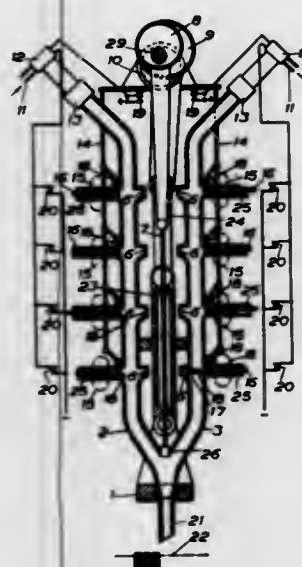
referred to as shag pile or shag fabrics. The disclosure is more specifically directed to a looper construction for a tufting machine and having means for defining the path of travel of the loops of yarn about said looper such that when the loops are severed one leg of said loops will be substantially longer than the other.

3,595,185

NEEDLE ASSEMBLY FOR A TUFTING MACHINE

Stanley Shorrock, Brarmar Somerset Avenue; Norman Ian Buckley, 1, Wilworth Crescent, and Alan Fish, 9 Fenisccliffe Drive, all of Blackburn, England
Filed Jan. 13, 1969, Ser. No. 790,527
Int. Cl. D05c 15/08
U.S. Cl. 112-79

6 Claims



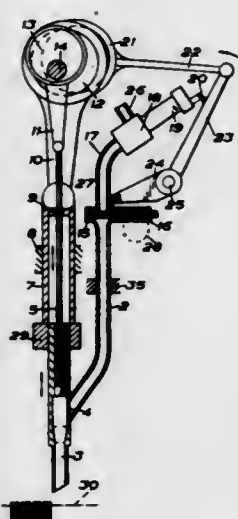
A needle assembly for a tufting machine, designed to supply a selected one of a number of yarns which may be of different colors, to a hollow needle during each stroke thereof, and insert the resulting colored tufts with a backing fabric. The needle is associated with a feed tube having a number of yarn entry tubes, and yarn can be fed from each entry tube into the feed tube, cut off, and blown down to the needle. A ram holds the yarn in the needle during a stroke thereof.

3,595,186

NEEDLE ASSEMBLY FOR A TUFTING MACHINE

Stanley Shorrock, Brarmar, Somerset Avenue, Wiltshire, Blackburn, and Alan Fish, 9 Fenisccliffe Drive, Cherry Trees, both of, England
Filed Jan. 13, 1969, Ser. No. 790,736
Claims priority, application Great Britain, Jan. 13, 1968, 2014/68
Int. Cl. D05c 15/08
U.S. Cl. 112-79

8 Claims



A needle assembly for a tufting machine, comprising a hollow reciprocating needle, a stationary feed tube for the nee-

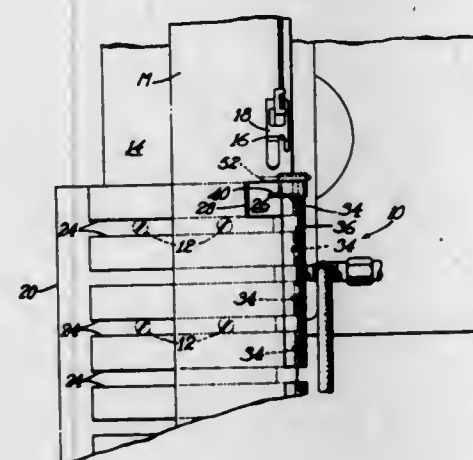
dle having at least one bore the axis of the lower end of each bore making an acute angle with the axis of the needle, pressure air means for transferring a short length of tufting material from a feed entry through the feed tube into one end of the needle, and a ram actuated to press the tuft into the needle and accompany the needle and tuft during a stroke of the needle to penetrate a backing fabric, the tuft being left in the backing fabric on completion of the stroke.

3,595,187

EDGE GUIDANCE AND HEMMING DEVICES

Richard W. Gray, Marblehead, Mass., assignor to USM Corporation, Boston, Mass.
Filed Jan. 28, 1970, Ser. No. 6,510
Int. Cl. D05b 35/02
U.S. Cl. 112-141

7 Claims



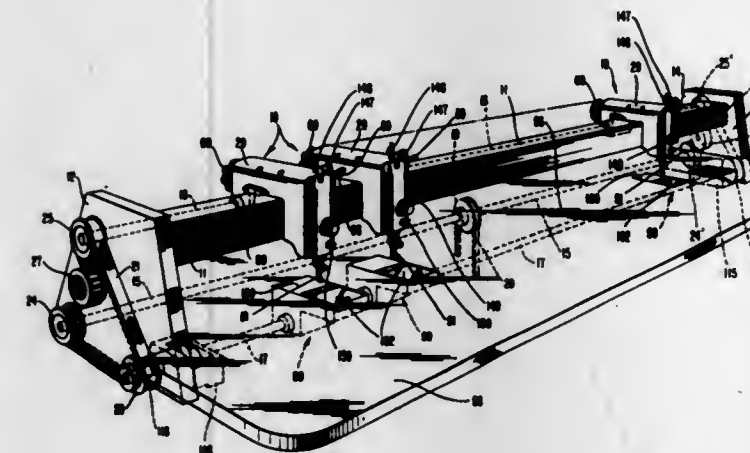
Automatic edge guidance and hemming of flexible sheet material, especially fabric, is achieved by one or more jets of fluid, commonly air, directed normal to the margin of the material and into a duct formed for guiding and folding the margin. A roll hem may be produced in a single jet-and-duct device, or single and double hem folds may be provided employing a plurality of preferably laterally aligned and spaced feed-duct sections.

3,595,188

SEWING MACHINE

Albert A. Schmedding, and Ernest L. Pfeifer, both of Oradell, N.J., assignors to Bergenfield Development Co., Inc., Dumont, N.J.
Filed Apr. 11, 1968, Ser. No. 720,632
Int. Cl. D05b 69/02
U.S. Cl. 112-221

18 Claims



Sewing machine, here illustrated as a machine for simultaneously embroidering a plurality of pieces of goods with an

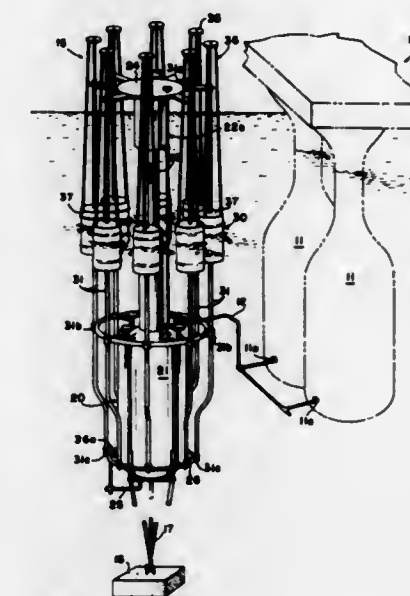
identical pattern or for embroidering a plurality of identical patterns on a single piece of goods. The illustrative machine comprises a plurality of embroidering stations, a plurality of embroidering mechanisms each of which is disposed at a respective embroidering station, and means for traversing the goods relative to the mechanisms at the stations to embroider the goods in accordance with the pattern.

3,595,189

WAVE-ACTUATED LOAD COMPENSATOR

William B. McLean, and Edgar N. Rosenberg, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy
Filed Feb. 2, 1970, Ser. No. 7,497
Int. Cl. B63b 35/00, 35/44
U.S. Cl. 114-0.5

6 Claims



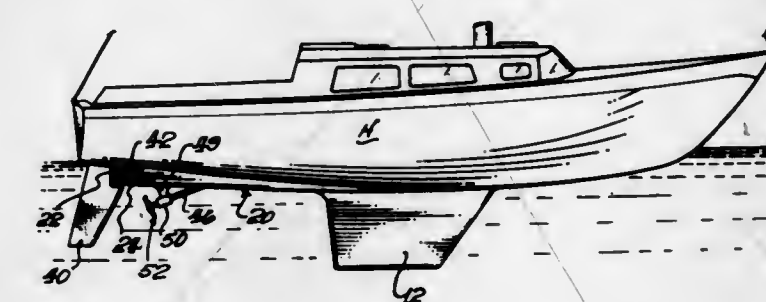
A wave-actuated floating load compensator having a chamber located substantially below the area of surface wave turbulence receives liquids, usually excess ballasting water or bilge water from a remotely disposed floating hull. A plurality of, preferably eight, reciprocally actuated pumping units is circumferentially disposed about the submerged chamber to ensure dynamic stability. A valve, provided on a chamber, meters the amount of fluid entering and the pumping units pump the fluid into the surrounding water. The valve and the pumping units thusly prevent inadvertent overloading of the compensator and its possible sinking. Having floats concentrically carried and guided on its associated pumping unit, eliminate costly seals and complicated linking mechanisms found in known devices.

3,595,190

SAILBOAT CONSTRUCTION

Charles W. Lapworth, P.O. Box 1756, Newport Beach, Calif.
Filed Sept. 29, 1969, Ser. No. 861,630
Int. Cl. B63b 35/00, 3/38
U.S. Cl. 114-39

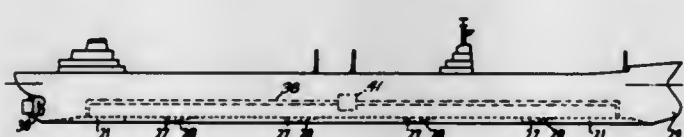
1 Claim



A sailboat construction for an auxiliary-powered sailboat. The construction includes a hull having a bilge and provided

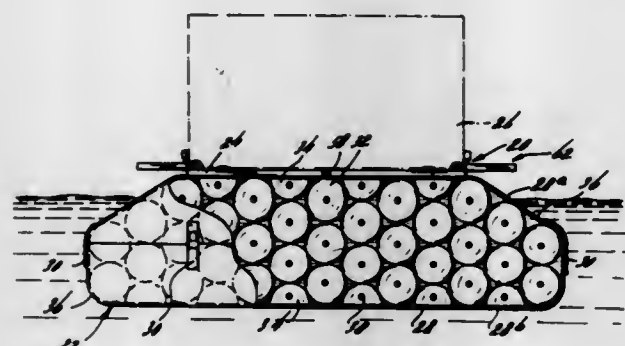
at its intermediate portion with a fin keel. A hollow skeg depends from the rear portion of the hull, with the interior of the skeg serving as drain passage means leading to the bilge. A vertically extending rudder post is supported by the hull adjacent the skeg. A spade rudder is secured to the rudder post, the upper front portion of the rudder being formed with a vertically extending rudder surface abutting the rear edge of the skeg and the downwardly and forwardly extending rudder surface abutting the rear portion of the skegs lower edge. A drive shaft extends through the skeg to a supporting strut depending from the skeg.

3,595,191
SHIPS AND BOATS
John Wakelam Grundy, 63, Cleveland Road, North Shields, Northumberland, England
Filed Oct. 11, 1968, Ser. No. 766,715
Int. Cl. B63b 1/38
U.S. Cl. 114-67 11 Claims



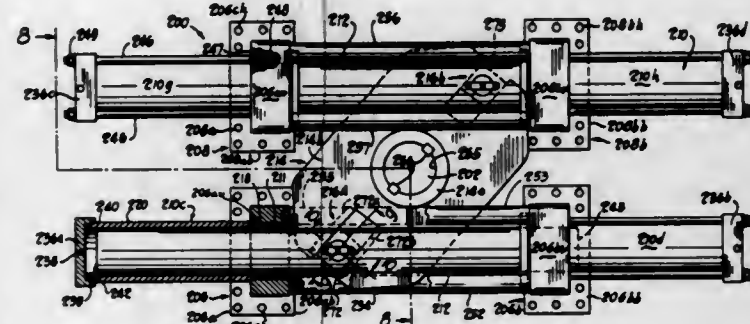
The hull of a ship of the kind which is driven by submerged propellers is provided with a downwardly facing recess divided by longitudinal and transverse partitions into separate pockets for containing air. The pockets preferably extend over substantially the whole of the bottom of the hull and are arranged in rows extending substantially from the bow to the stern of the vessel. An air duct is provided extending between the frontmost and rearmost pocket in each row.

3,595,192
FLOATING CARGO CARRIER
Virgilio P. Vega, 8207 Queen Anne's Drive, Silver Spring, Md.
Filed July 30, 1969, Ser. No. 846,162
Int. Cl. B63b 25/00
U.S. Cl. 114-72 11 Claims



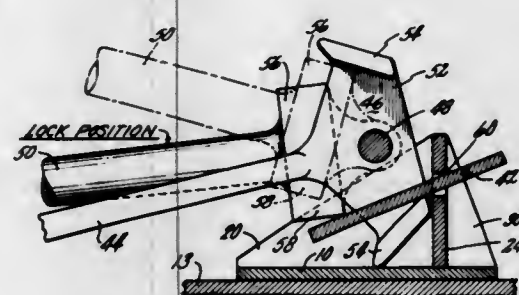
A floating cargo carrier ideally useful for loading and unloading cargo on and from ships and waterborne transfer of the cargo. The carrier includes a preferably rigid cargo support platform and an underlying gas inflatable float to buoyantly support the platform and cargo loaded thereon on water. Foldable catwalks are attached to the platform on either side to facilitate, when the catwalks are in a raised horizontal position, cargo handling, and when folded down constituting vertical platform supports and protection means for the float when deflated.

3,595,193
STEERING MECHANISM FOR SHIPS
William E. Heese, Akron, Ohio, assignor to Allen Electric and Equipment Company
Filed June 6, 1968, Ser. No. 776,286
Int. Cl. B63h 25/30
U.S. Cl. 114-150 11 Claims



Fluid actuators for rotating a rudder stock of a ship utilizing a plurality of cylinders with piston rods or rams that operate a tiller attached to the rudder stock. Provision is made for self-alignment of the actuator and the tiller.

3,595,194
ANCHOR CHOCK
Robert D. Wolff, West Simsbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Oct. 6, 1969, Ser. No. 863,884
Int. Cl. B63b 21/22
U.S. Cl. 114-210 8 Claims



Apparatus for stowing an anchor of the fluked variety on the deck of a ship has a boxlike anchor chock fixed to the deck which is open at one end to receive the crown end of the anchor. A locking tongue pivoted at one of its ends adjacent the closed end of the chock extends into the chock compartment and, when an anchor is inserted into the chock, overlies a pair of spaced crown plates which are integral with the fluke casting of the anchor. The anchor is inserted with the free end of its shank raised above the deck and as the shank is lowered onto the deck a knob on the shank engages the free end of the tongue and depresses the latter into engagement with the crown plates and renders the anchor assembly immovable. The forward end of the shank may be lashed or otherwise secured to the deck in conventional fashion if extremely heavy seas are to be encountered.

3,595,195
OFFSHORE VESSEL MOORING SYSTEM
Wouter H. Van Eek, Johan De Groot, and Simon F. Westra, all of Hague, Netherlands, assignors to Shell Oil Company, New York, N.Y.
Filed Dec. 31, 1968, Ser. No. 789,028
Claims priority, application Netherlands, May 8, 1968, 6806466
Int. Cl. B63b 21/50
U.S. Cl. 114-230 7 Claims

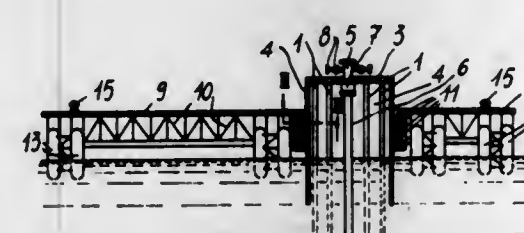
An offshore vessel mooring system in which a one-point mooring buoy has attached thereto a mooring cable and

floating hose which are maintained in an extended condition along the surface of the water by a floating propulsion unit



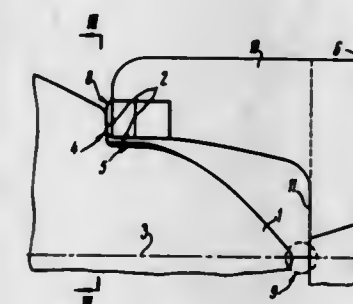
attached to the free ends of the mooring cable and floating hose to thereby facilitate the mooring of a vessel.

3,595,196
FLOATING PLATFORM FOR VESSEL MOORING
Bruno Riffeser, Milan, Italy, assignor to S.T.O. Società Trasporti & Oleodotti S.p.A., Milan, Italy
Filed Feb. 12, 1969, Ser. No. 798,623
Claims priority, application Italy, Apr. 16, 1968, 15325A/68
Int. Cl. B63b 21/00, 21/52
U.S. Cl. 114-230 3 Claims



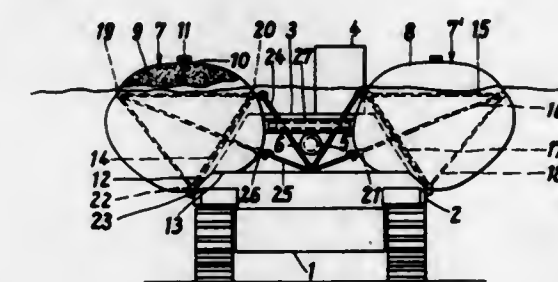
Floating platform comprising a rigid structure driven into the sea bottom and projecting from the sea surface, and a floating platform freely rotatable and vertically movable with respect to the rigid structure, but restrained thereto in its transverse displacements. The floating platform is of an elongate shape in order to enable a vessel moored thereto to be disposed in accordance with the best strong side wind, the platform being also capable of varying its height relative to the sea surface, in which it can be completely immersed.

3,595,197
PUSHER VESSEL ADAPTED FOR TOWING BY PUSHING
Boris Vladimirovich Bogdanov, ulitsa Mining, 17, kv. 37; Valery Nikolaevich Starostin, ulitsa Genkind, 52, kv. 3, and Vitaly Ivanovich Erykin, Moskovskoe shosse, 151, kv. 12, all of Gorky, U.S.S.R.
Filed Jan. 16, 1969, Ser. No. 791,732
Int. Cl. B63b 21/00
U.S. Cl. 114-235 R 4 Claims



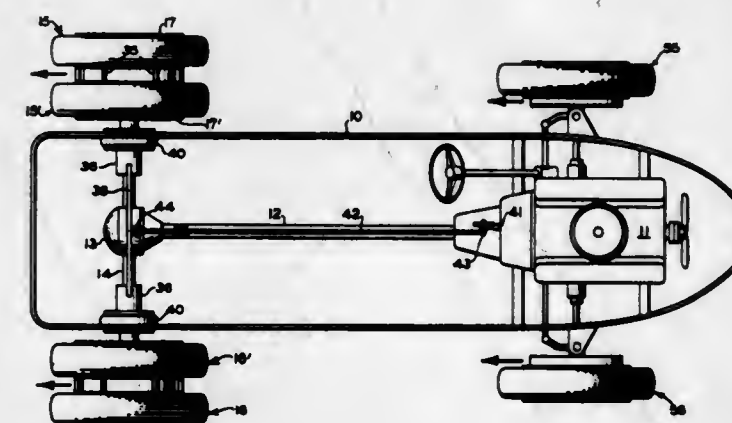
A pusher tug, that is a vessel designed or adapted for towing by pushing, has two downward-extending symmetrical recesses whose surface transversal with relation to the plane of symmetry of the vessel serves as a thrust member interacting with the respective thrust member on the aft end of the pushed vessel.

3,595,198
ARMORED VEHICLE FLOAT STRUCTURE
Fritz Hacker, Kellenstrasse 31, 714 Ludwigsburg-Ossweil, Germany
Filed Feb. 7, 1969, Ser. No. 797,495
Claims priority, application Germany, Feb. 9, 1968, P 15 56 456.4
Int. Cl. B63f 3/00
U.S. Cl. 115-1 9 Claims



An armored vehicle is provided with a plurality of porous baglike shells and foam material to be introduced into the shells to produce floats oppositely positioned on the vehicle by means of spacing braces and tension struts, with rigid members secured to the floats to provide the floats with a shape complementary to the vehicle external shape.

3,595,199
JET PROPULSION SYSTEM FOR AMPHIBIOUS VEHICLE
Juan Faxas, Central Aguirre, P.R.
Filed Dec. 19, 1969, Ser. No. 886,804
Int. Cl. B63f 3/00
U.S. Cl. 115-1 12 Claims



A jet propulsion system for amphibious vehicles characterized in that the pump or pumps are located externally of the hull. The aft and/or forward drive wheels of the vehicle are modified so that their hub plates function as axial flow pumps which discharge parallel to the axle and thence into respective drumlike pressure casings which are provided with rearwardly directed jet discharge orifices. The pressure casings can be rotated the desired degree in the vertical plane which in turn controls the angle of jet discharge relative to the horizontal. This capability affords optimum planing characteristics during water borne travel, assists in effecting transition from water onto a steep bank, and enables the vehicle to be easily rocked free should it become bogged down in mud.

3,595,200

DIFFERENTIAL PRESSURE INDICATOR

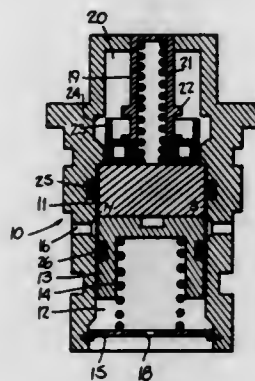
Guido D. Cilento, Madison Township, N.J., assignor to Fairfield Facility, Commercial Filters Division of the Carborundum Co., Lebanon, Ind.

Filed June 3, 1968, Ser. No. 734,143

Int. Cl. G011 19/12

U.S. Cl. 116—70

5 Claims



A pressure-sensitive indicator comprises a housing having a first means movable towards and away from a first position. A second means, movable towards and away from the first means, is normally retained towards the first means when the first means is in the first position. The first and second means are spaced apart by separating means. The second means is retained away from the first means until the first means is returned to the first position.

3,595,201

DEVICE APPROPRIATE FOR THE IDENTIFICATION OF ANIMALS

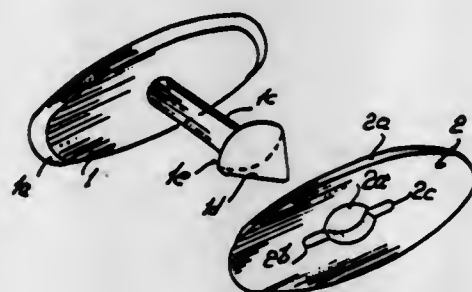
Theodoros Antonio Gerardo Oudenhoven, Vita Dumas, 499 Punta Chica, Partido San Fernando, Buenos Aires, Argentina

Filed Oct. 20, 1969, Ser. No. 867,705

Int. Cl. G01d 21/00

U.S. Cl. 116—114

2 Claims



A two-part identification device to be inserted in the pierced ear of an animal comprises an elliptical deformable plastic plate having a circular opening with oppositely disposed grooves to receive another similar plastic plate having a dowel which is inserted through the animal's ear into the opening in the first plate, the tip of the dowel being spear shaped with a flat base whose margin is defined by a pair of intersecting ogive lines.

3,595,202

FLAGSTAFF

Aniceto R. Visitacion, 705 West 179th St., New York, N.Y.

Filed Oct. 22, 1969, Ser. No. 868,337

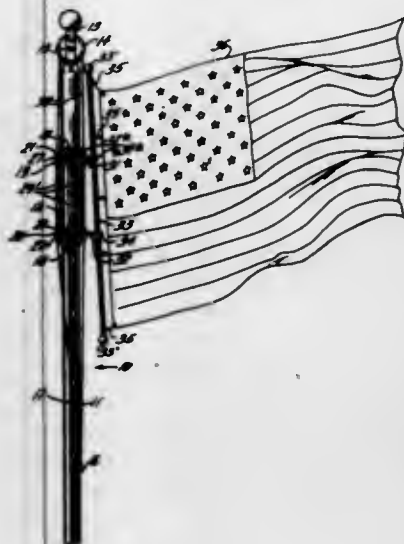
Int. Cl. G09f 17/00

U.S. Cl. 116—174

10 Claims

A flagstaff having a relatively short axially movable sleeve which is prevented from rotating about the staff. The sleeve has a pair of spaced-apart discs on its upper end portion and a pair of spaced-apart discs on its lower end portion. A ring-shaped member is freely rotatable between the discs of each pair of discs. Each of the ring-shaped members has an arm

radially extending therefrom, and a bar having several perforations is attached to the arms so that a flag may be easily



hooked on the bar and thus can swing and whirl around the flagstaff without winding itself around it.

3,595,203

APPARATUS FOR COATING EDGES OF PLANK MATERIALS SUCH AS PARTICLE BOARD PLYWOOD AND OR PLATEN BOARD

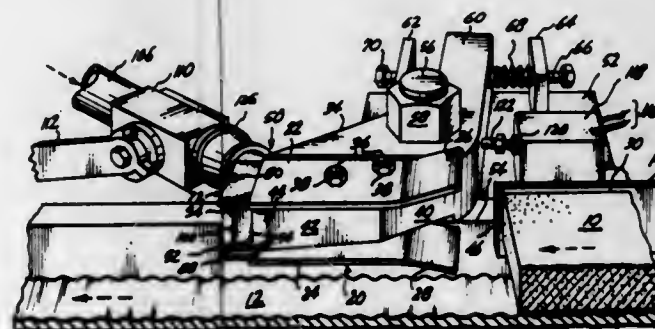
Jack A. Fabulich, 2101 No. Baltimore, Tacoma, Wash.

Filed Aug. 2, 1968, Ser. No. 749,672

Int. Cl. B05c 9/00

U.S. Cl. 118—2

3 Claims



Edges of materials such as plywood and particle boards are coated and consequently sealed, producing an attractive edge appearance enhancing the utilization of such boards for shelving, etc. The apparatus and method used, continuously feeds a finishing substance having plastic properties into full contact with the edge of a board which is relatively moving by a pressurized emitting source of the plastic coating substance. This plastic emitting source structure confines the flow of plastic under pressure on board edges by utilizing a nozzle exit structure which has angular or beveled corners to receive the respective corners of particle or plywood board edges, etc., to thereby establish a uniform layer of coating across the width of the board edges without any plastic coating escaping to coat either the top or bottom surfaces of the boards.

3,595,204

FLUID APPLICATOR APPARATUS

Donald B. McIntyre, and Frederic S. McIntyre, both of Wellesley Hills, Mass., assignors to Acumeter Laboratories, Inc., Newton, Mass.

Filed Jan. 5, 1970, Ser. No. 530

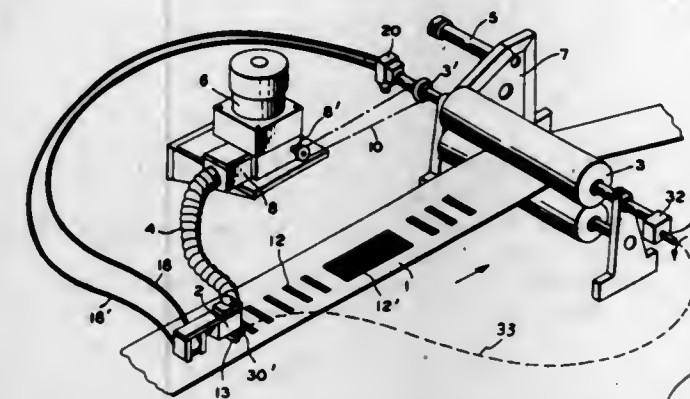
Int. Cl. B05c 11/10

U.S. Cl. 118—8

23 Claims

The present disclosure deals with fluid applicator ap-

paratus wherein a substantially uniform fluid flow is produced through novel lateral-expansion nozzle design for



such purposes as the intermittent application of fluid deposits upon moving sheets or articles.

3,595,205

COATING APPARATUS

Kenneth S. Surprenant, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

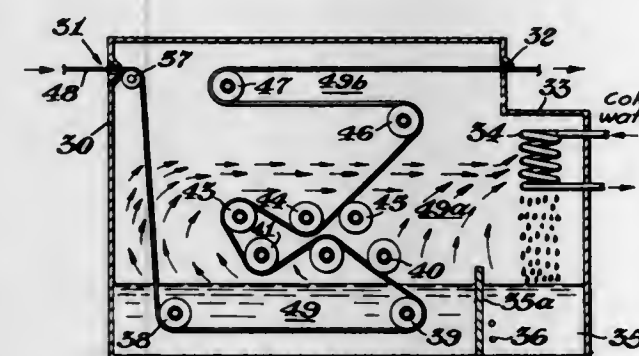
Division of Ser. No. 505,520, Oct. 28, 1965, abandoned.

This application Aug. 6, 1969, Ser. No. 862,569

Int. Cl. B05c 11/00

U.S. Cl. 118—61

1 Claim



A generally closed housing includes means to pass a continuous length material therethrough. Means define a path within said housing for immersing said material in a tank of coating stuff and thereafter pass through a solvent-vapor atmosphere provided by a boiling tank disposed within the housing. Cooling means determine generally the extent of the gaseous environment and means are provided to recover solvent therefrom.

3,595,206

ADHESIVE-APPLYING APPARATUS

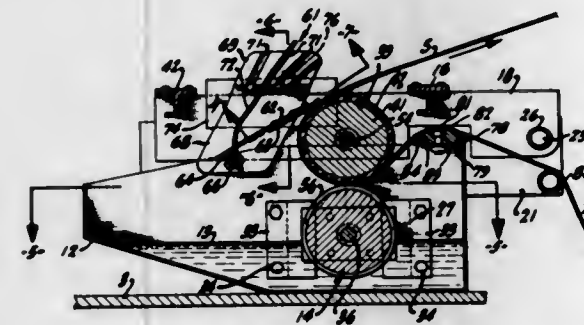
Charles A. Larimer, 230 Palm Ave., Millbrae, Calif.

Filed June 24, 1968, Ser. No. 739,281

Int. Cl. B05c 1/08, 11/02

U.S. Cl. 118—126

1 Claim



Portable apparatus and method for applying adhesive or like flowable material to a surface of a continuous sheet of

material, such as wall covering and the like, in which a patterned nonsmooth applicator roller withdraws adhesive from a source of supply and applies the same to the sheet as it passes over the roller. Pressure adjustment is provided for between the applicator roller and a backup roller. Spring-urged adjustable scraper blade structure insures even distribution of adhesive and removal of any excess adhesive from the sheet. The sheet may be either manually or mechanically drawn through the apparatus during the adhesive applying procedure.

3,595,207

SINKER ROLL FOR HOT-DIP COATING BATH

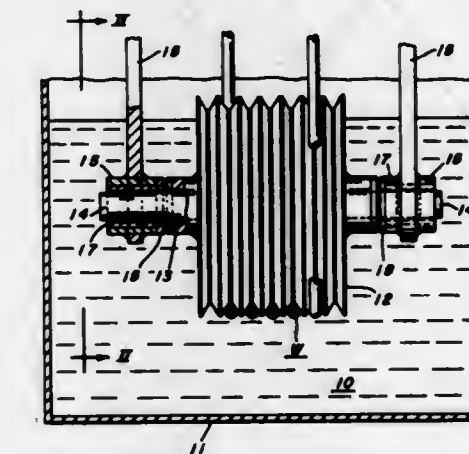
Charles D. Stricker, Monroeville Borough, Pa., assignor to United States Steel Corporation

Filed Feb. 28, 1969, Ser. No. 803,269

Int. Cl. B05c 3/12

U.S. Cl. 118—420

4 Claims



A sinker roll immersed in a bath of molten coating metal has molybdenum trunnions extending from the ends thereof, journaled in molybdenum sleeves set in aligned bearing hubs mounted on the vessel containing the bath.

3,595,208

ELECTROPHOTOGRAPHIC DEVELOPING APPARATUS

Yutaka Koizumi, Yokohama-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

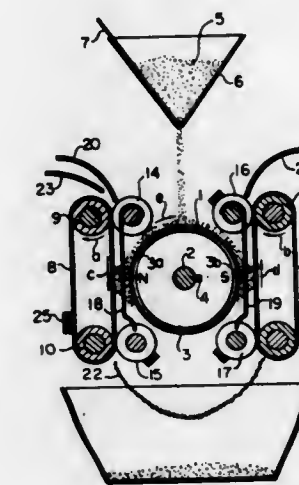
Filed May 28, 1969, Ser. No. 828,581

Claims priority, application Japan, June 8, 1968, 43/48137

Int. Cl. B05b 5/00

U.S. Cl. 118—637

1 Claim



A developing apparatus comprising an electrically insulative cylinder rotatably mounted relative to a fixed magnet therein in which a carrier-toner mix is fed onto said cylinder for forming magnetic brushes on the outer surface of the cylinder for brushing a photosensitive paper bearing an electrostatic latent image. The guiding means for guiding the paper along the brushes comprise generally linear reciprocating

ing means disposed between an endless belt and the cylinder and engaging with guide rollers. The reciprocating means reciprocate transversely to the path of the paper and through the carrier-toner mix of the brushes so that the paper is prevented from deviating from its path and the developer powder forming the brushes is stirred.

3,595,209

HOUSEHOLD PLAY AND EXERCISE POST ASSEMBLY FOR CATS

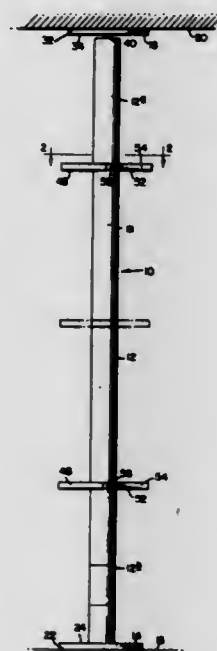
Paul A. Parker, Bouckville, N.Y.

Filed Jan. 28, 1969, Ser. No. 794,735

Int. Cl. A01k 15/00

U.S. Cl. 119-29

2 Claims



A household cat play and exercise post assembly of a knockdown nature which is adapted to be assembled in a stationary vertical floor to ceiling position in a room and is composed of separable wooden post sections joined in end-to-end contact by interfitting removable dowels and horizontal platforms anchored by the dowels at selected joints between the post sections that extend from a floor-engaging baseplate to a ceiling engaging top plate attached to the uppermost post section by a spring-biased dowel.

3,595,210

ROTARY PISTON ENGINE

Antioco Lampis, Via Ubisti 2, Nuoro, Italy

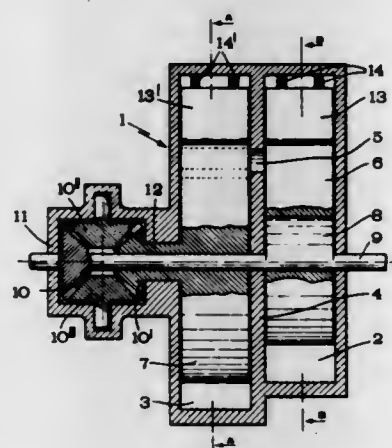
Filed Dec. 18, 1969, Ser. No. 886,192

Claims priority, application Italy, Oct. 6, 1969, 53,591A/69

Int. Cl. F02b 53/08

U.S. Cl. 123-8.41

9 Claims



A rotary piston engine comprising a stator, two rotors of different diameters, each rotatably mounted in a separate chamber in the stator, gear means and a drive shaft for rotat-

ing the rotors in opposite directions, the rotor of smaller diameter having its axis out of alignment with the axis of the rotor of larger diameter so that during rotation of the rotors in opposite directions the rotor of smaller diameter will act as a compressor rotor carrying out also the induction phase while the rotor of larger diameter will carry out the explosion, expansion and exhaust phases.

3,595,211

INTERNAL COMBUSTION ENGINE AIR INTAKE CONTROL MEANS

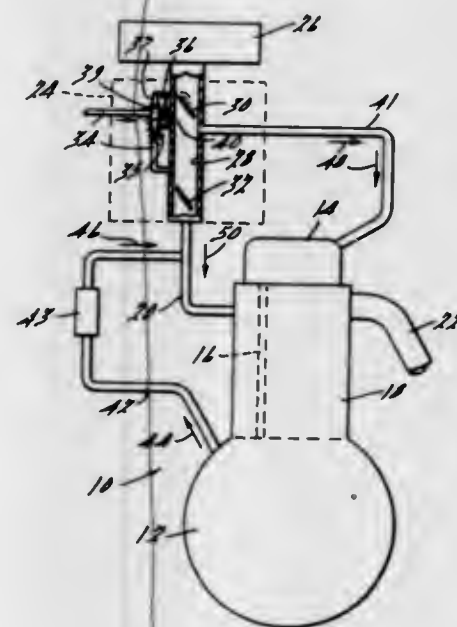
Wayne M. Brehob, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of application Ser. No. 799,293, Feb. 14, 1969, now abandoned. This application July 20, 1970, Ser. No. 56,571

Int. Cl. F02m 25/06; F02I 9/00

U.S. Cl. 123-119 B

5 Claims



An internal combustion engine for a motor vehicle having air intake control means that accurately control the volume of air included in the air-fuel combustion mixture. The intake of ambient air through the engine carburetor is metered and fuel introduced downstream in direct proportion. A portion of this metered air is directed to the crankcase for ventilation purposes prior to introduction of fuel and is exhausted from the lubrication circuit into the engine intake manifold. The lubrication circuit of the engine otherwise is sealed against the entry of ambient air.

3,595,212

SPARKING CIRCUIT FOR AN IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINES

Leslie Barnes, Littleover, Derby, England, assignor to Rolls-Royce Limited, Derby, England

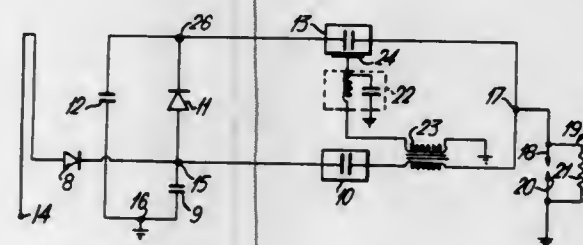
Filed Feb. 17, 1969, Ser. No. 799,688

Claims priority, application Great Britain, Feb. 19, 1968, 8020/68

Int. Cl. F02p 3/06

U.S. Cl. 123-148 E

3 Claims



The invention concerns a sparking circuit for an ignition system for internal combustion engines comprising first and second discharge circuits, the first circuit being operatively

associated with said second circuit via delay circuit means, discharge of the first circuit causing said second circuit to discharge after said first circuit but at less than 1 millisecond thereafter.

3,595,213

ARCHERY BOW WITH FORCE-MULTIPLYING LINKAGE

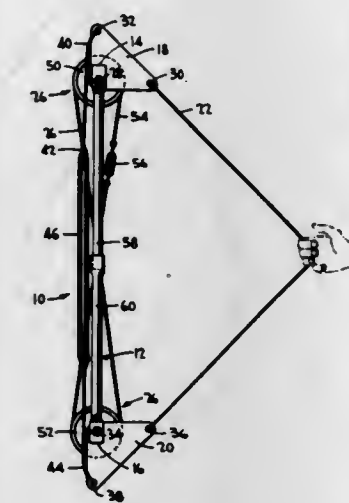
Willis A. Storer, 720 N. Federal Ave., Mason City, Iowa

Filed Apr. 11, 1969, Ser. No. 815,442

Int. Cl. F41b 5/00

U.S. Cl. 124-23

8 Claims



An archer's bow utilizing a pair of end mounted rotatable rocker arm members to develop a mechanical advantage permitting the use of less force to hold the bow in a fully drawn position than would be required without such members. The bow comprises a bow member, end mounted rotatable rocker arm members, a draw cable member or bowstring connecting the rocker arms, an elastic device resisting rotation of the rocker arms, and link means to ensure substantially equal but opposite angular displacement of the rocker arms.

3,595,214

BOW WITH PIVOTAL ARROW QUIVER

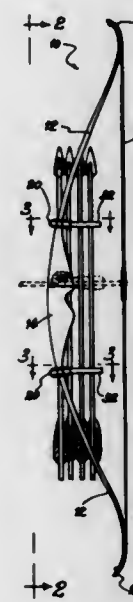
Richard J. O'Malley, Chicago, Ill., and Ronald N. Kolpin, Berlin, Wis., assignors to Kolpin Bros. Co., Inc., Berlin, Wis.

Filed Jan. 21, 1969, Ser. No. 792,345

Int. Cl. F41b 5/06

U.S. Cl. 124-24

8 Claims



A bow quiver construction for attachment to a bow. The construction includes a pair of attaching members and means for securing these members to the strip of the bow on opposite sides of the handgrip. Additional arrow holding mem-

bers are pivotally connected to the attaching members, and means are defined by the arrow holding members for removably holding arrows. The arrow holding members are movable between two positions with the arrows being carried with the members and whereby the bow can be operated in one position while in the other position, the arrows are moved out of the way to permit stringing of the bow.

3,595,215

MAGAZINE-TYPE BOW QUIVER

Marvin L. Wilkie, 8115 W. 62nd Ave., Arvada, Colo., and Archie F. Phillips, 3330 Ames, Denver, Colo.

Filed July 7, 1969, Ser. No. 839,311

Int. Cl. F41c 25/00

U.S. Cl. 124-52

15 Claims



Quiver supporting a plurality of arrows on a bow with the arrows being rotated obliquely to one another about a common axis to separate the heads and fletched ends of adjacent arrows in a balanced array. The quiver comprises a support body including generally U-shaped slotted portions opening through opposite ends of the body with the slotted portions being reversely inclined in opposite directions at the ends of the body about a central fixed line to support the arrows in a stacked arrangement to one another. The terminal ends of the slotted portions along the body turn outwardly to form slot openings facing in opposite directions to receive and discharge the arrows. A leading arrow preferably disposed diagonally across the front of the bow with the point down is discharged from the body in a pivotal action when a force is applied to move it against a centrally disposed stop member. The remaining arrows are automatically advanced along the slotted portions to dispose another arrow in the discharge position each time one is removed.

3,595,216

MOBILE SOLAR WATER HEATER

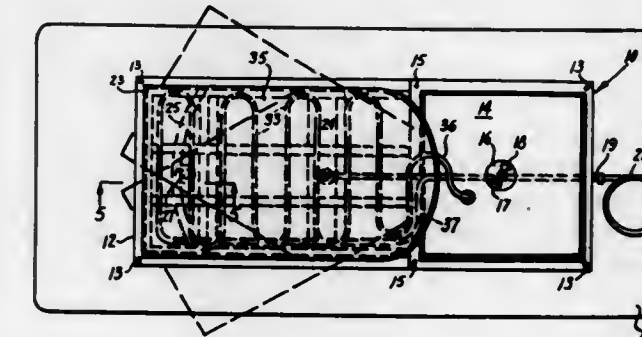
Joseph A. Lanciault, 209 Highland Ave., Tucson, Ariz.

Filed June 17, 1970, Ser. No. 46,861

Int. Cl. F24j 3/02

U.S. Cl. 126-271

4 Claims



A mobile solar water heater mounted on the top of a camper and including a water tank and water heating coils

positioned in a heater box exposed to solar energy. The heater box is adjustable about a vertical pivot so as to be directed at the sun throughout the day.

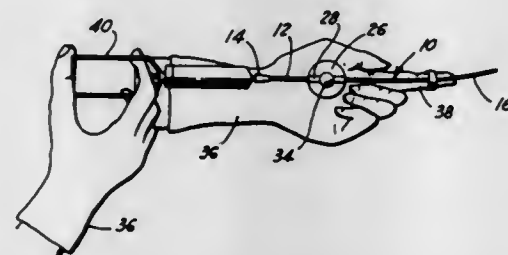
3,595,217

FINE NEEDLE ASPIRATION BIOPSY OF PROSTATE

Robert E. Rheinfrank, 815 S. Denver, Tulsa, Okla.
Filed May 27, 1968, Ser. No. 732,180
Int. Cl. A61b 5/00

U.S. Cl. 128-2 B

2 Claims



A method and means for biopsy of the prostate gland utilizing cytologic studies as a basis for presumptive diagnosis. A biopsy needle is passed through a guide which may be fixed to the operator's gloved finger by a ring member. After the guide is placed on the finger, a finger cot is applied over the apparatus and finger for sterility and to facilitate insertion of the guide and finger internally of the body. The needle is then inserted through the guide and into the substance of the prostate. A syringe is attached to the needle and utilized for withdrawing a tissue sample whereupon slides are prepared for diagnosis of prostatic malignancy.

3,595,218

SYSTEM FOR MONITORING ANIMALS IN MOTION

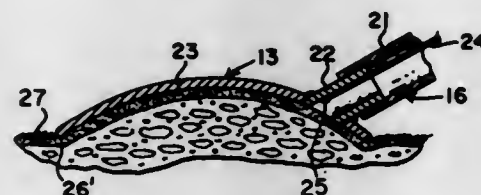
Max B. Kirkpatrick, Andrew G. Harvey, and John M. Sparks, III, all of Box 1509, Wickenburg, Ariz.
Division of Ser. No. 683,719, Nov. 16, 1967.

Continuation of application Ser. No. 781,038, Dec. 4, 1968, now abandoned.

Filed Mar. 17, 1970, Ser. No. 19,519
Int. Cl. A61b 5/04

U.S. Cl. 128-2.06 E

6 Claims



A system for monitoring animals such as horses in motion, such as during swimming exercise, wherein suction cup attached electrodes on the animal are connected by leads to one or more heart action-measuring instruments such as an electrocardiograph and a pulse rate meter, the suction cup, electrodes and all junctures being of similar metal to prevent electrolytic interference with the electrocardiograph-actuating impulses. The suction cups are connected to a powered vacuum source.

3,595,219

HEART RATE SENSOR DEVICE

Sidney L. Friedlander, 4613 La Subida, Tarzana, Calif., and Walter Vincent Blockley, 27727 Pacific Coast Hwy., Malibu, Calif.

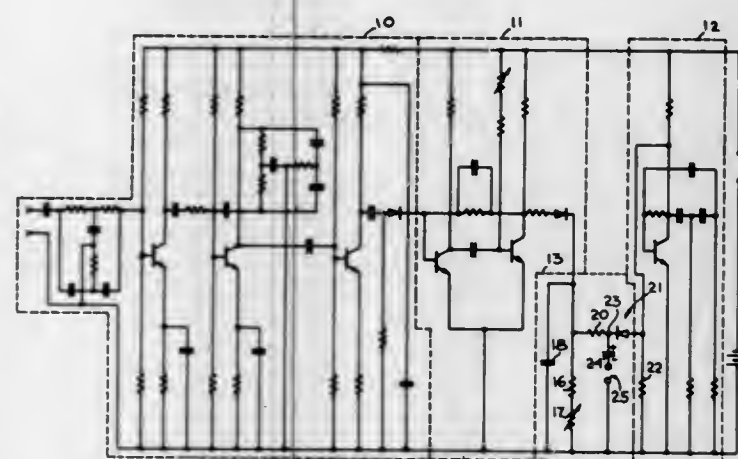
Filed Sept. 27, 1968, Ser. No. 763,122
Int. Cl. A61b 5/04

U.S. Cl. 128-2.06 F

7 Claims

A portable and relatively inconspicuous device for monitoring one's heart beat which is adapted for use by healthy persons engaged in an exercise program as well as by those

who have suffered some form of heart disease is disclosed. The device is set to produce an audio null at a particular heart beat rate. The user is notified by the device when his actual heart rate is either greater or less than the set rate.



The signals used for this purpose are audio signals, one type indicating that the actual heart rate is lower than it should be and another type signal indicating that it is higher. A null indicates that the actual and set rates coincide.

3,595,220

DEVICE FOR MEASURING THE DISTANCE OF AN OBJECT FROM THE FORWARD END PORTION OF AN ENDOSCOPE

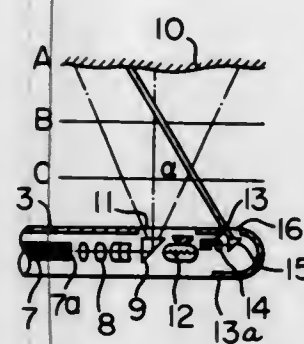
Ichizo Kawahara, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Aug. 2, 1968, Ser. No. 749,809

Claims priority, application Japan, Aug. 8, 1967, Aug. 8, 1967, Aug. 8, 1967, Aug. 29, 1967, 42/50507; 42/50508; 42/50510; 42/50511; 42/73425

Int. Cl. A61b 1/06

U.S. Cl. 128-6

7 Claims



Device for measuring the distance of an object from the forward end portion of an endoscope adapted to be inserted into a hollow portion of a living body or the like for the inspection thereof. The forward end portion is connected to a control housing through an elongated tube. The image of an object is formed in the forward end portion by an objective lens system provided therein on the image is transmitted through the elongated tube so as to be viewed through an ocular means provided in the control housing. In order to determine the distance between the object and the forward end portion of the endoscope, a thin parallel light beam is emitted from the forward end portion toward the object so as to form a light spot thereon.

The distance of the object from the forward end portion of the endoscope is determined by measuring the position of the light spot with respect to the field of view of the endoscope or by measuring the amount of the operation for changing the direction of the thin parallel light beam so as to bring the light spot appearing in the field of view into registration with a predetermined index mark set in the field of view due to the fact that the position of the light spot with respect to the field of view of the endoscope varies as the distance between

the object and the forward end portion of the endoscope varies.

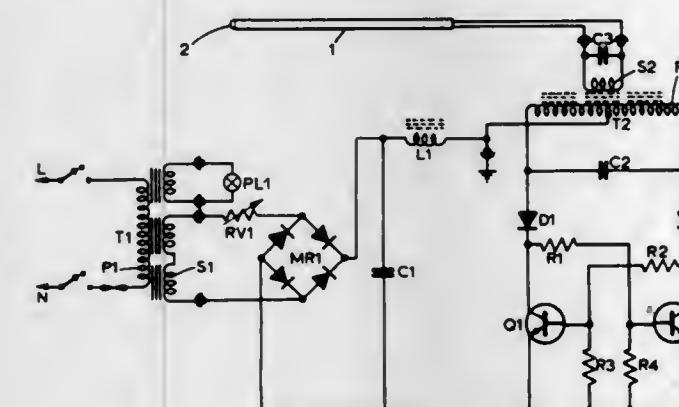
3,595,221

ENDOSCOPIC HAVING ILLUMINATION SUPPLY UNIT

John Harold Blackett, London, England, assignor to Matburn (Holdings) Limited, London, England
Filed Mar. 4, 1969, Ser. No. 804,075
Int. Cl. A61b 1/06

U.S. Cl. 128-6

5 Claims



The disclosure relates to endoscopic instruments. The instrument is supplied through a circuit including a stepdown output transformer. A secondary winding of the transformer is connected with a light source of the endoscope. A push-pull oscillator circuit is connected with the primary winding of the output holdup oscillator circuit is connected to a current source and is arranged to supply current to the primary at a frequency of not less than 15 kHz.

3,595,222

LARYNGOSCOPE

William Noel Vellacott, 71 Albert Road South, Malvern, and Anthony James Sear, 18, Lansdowne Crescent, Malvern, both of Worcestershire, England

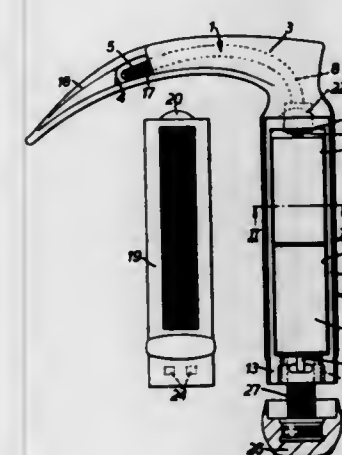
Filed June 10, 1968, Ser. No. 735,689

Claims priority, application Great Britain, June 13, 1967, 27204/67

Int. Cl. A61b 1/06

U.S. Cl. 128-11

8 Claims



A laryngoscope comprising a main body provided by an integral moulding with handle and blade portions the latter of which has a forwardly facing socket for a light bulb. The handle is adapted to house a dry cell battery for operating the bulb and the laryngoscope incorporates a fixed electrical lead comprising a brass tube for electrically interconnecting a side terminal of the bulb with one terminal of the battery. A mobile electrical lead is provided for insertion into the brass tube which is embedded in the blade and which terminates at the socket, and the lower end of the handle incorporates manually operable means for moving the battery upwardly within the handle and towards the blade to an operative position in which the two ends of the mobile lead are respectively

urged into contact with the central end terminal of the bulb and the other terminal of the battery.

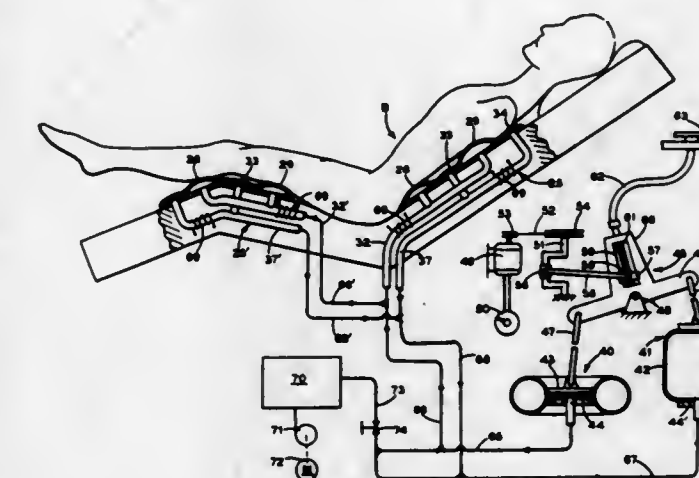
3,595,223

MASSAGING DEVICE

John Frank Castagna, 835 Remsen Ave., Brooklyn, N.Y.
Filed Sept. 3, 1968, Ser. No. 756,983
Int. Cl. A61h 9/00

U.S. Cl. 128-33

1 Claim



A body manipulating and massaging device which includes means for alternately lifting and lowering selected body portions while the body is in a supine condition, to effect a simulated massaging effect; and further, to lift spaced body portions while simultaneously lowering spaced body portions immediately adjacent the lifted body portions and alternating these operations in a rhythmic manner, to further simulate a massaging action.

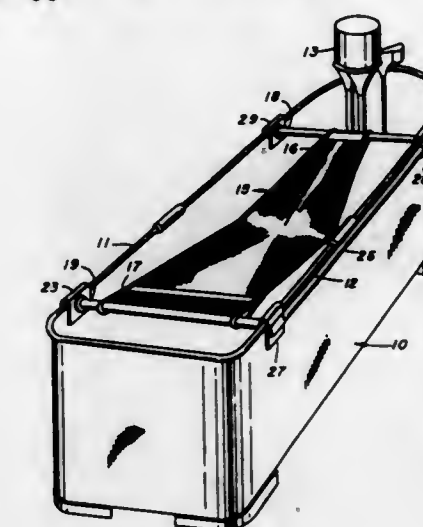
3,595,224

DEVICE FOR HYDROTHERAPY TREATMENT

Gerald L. Walter, Rte 1, Box 146A, Manistee, Mich.
Filed June 21, 1968, Ser. No. 738,932
Int. Cl. A61h 9/00

U.S. Cl. 128-66

8 Claims



A hydrotherapy tank provided with a hammock for suspending a patient within the tank. The hammock is secured to a rack normally resting on the rim of the tub to free the tub of all transverse and longitudinal stresses.

3,595,225

SUPPORT MEANS APPLICABLE TO THE HANDS OF SUFFERERS FROM ARTHRITIS AND THE LIKE

Harriet Howes Beeman, 4034 Montgomery Road, Cincinnati, Ohio

Filed Apr. 28, 1969, Ser. No. 819,707

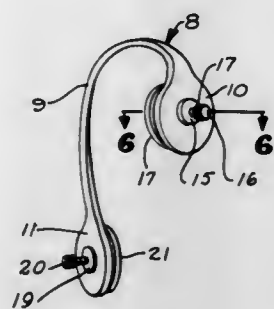
Int. Cl. A61f 5/10

U.S. Cl. 128-77

7 Claims

Support or brace means applicable to portions of a human hand and comprising a twisted, substantially U-shaped,

resilient body portion terminating in pressure applying end portions. The end portions apply pressure in substantially opposite directions. The supports of the present invention may be applied to the hand so as to apply substantially oppositely directed pressures to the distal and proximal metacarpal



joints of the thumb or first digit, and they may be applied to any of the four remaining digits to exert opposite pressures to adjacent digital bones or phalanges to correct misalignment brought about by arthritis and the like, and to relieve the attendant pain.

3,595,226

REGULATED BREATHING SYSTEM

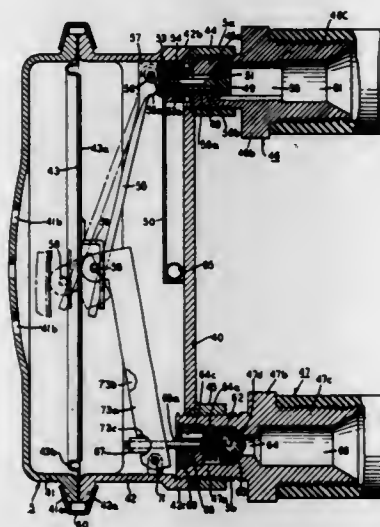
Robert Newcombe, Wayne, N.J., assignor to Air Reduction Company, Inc., New York, N.Y.

Filed Jan. 19, 1968, Ser. No. 699,192

Int. Cl. A62b 7/04

U.S. Cl. 128-142.2

8 Claims



A demand-regulated breathing system; more particularly, a system for supplying life support gases to one or more divers from a diving bell wherein the volume of the intake and exhaust gas to and from each diver is controlled by valves operated by a system of levers coupled to a diaphragm in the wall of the diver's mask.

3,595,227

DIVING VEST

Frederick A. Parker, Broomall, Pa., assignor to General Electric Company

Filed Mar. 7, 1969, Ser. No. 805,293

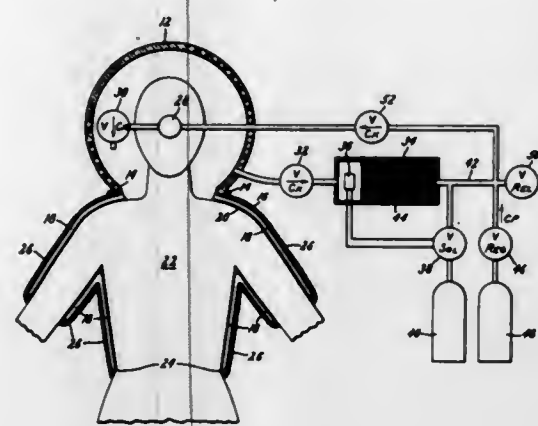
Int. Cl. A62b 7/04

U.S. Cl. 128-142.5

2 Claims

Self-contained underwater breathing apparatus is provided with a nonstretching jacket extending to the user's waist, inside which a flexible double-walled jacket, connected to a transparent helmet, is pressurized so that it seals water out at waist and sleeve ends, and provides a compliance to allow breathing without any change in the total volume of water displaced by the diver and jacket, since inhalation deflates

the flexible bladderlike jacket by approximately the volume inhaled. Improved thermal insulation, ease of breathing,



freedom of breathing circuit from water entry, and ready leak detection result.

3,595,228

FLOW LINE BREAK ALARM DEVICE

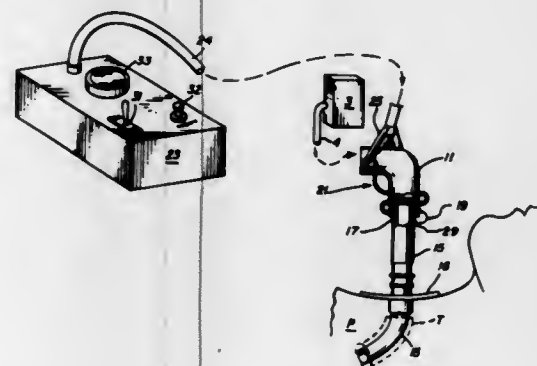
Robert C. Simon, 3159 Vaughn St., Aurora, Colo.; Michael W. Heron, 182 S. Humboldt, Denver, Colo., and Robert E. Swanson, 4725 Highline Place, Denver, Colo.

Filed Nov. 27, 1968, Ser. No. 779,529

Int. Cl. A62b 9/04

U.S. Cl. 128-145.5

12 Claims



A portable alarm device is attached to interfittng coupling portions in a therapeutic apparatus, such as, the metal or plastic coupling portions between a respirator hose and tracheostomy tube, the device including normally engaging electric contacts on the coupling portions which separate with the coupling portions to sense a break. One contact is connected to the patient's body, the other contact connected to a low-power electric pulse generating circuit for triggering an electric switch, the latter being adapted to activate the alarm element when the contacts disconnect to alert hospital personnel.

3,595,229

APPARATUS FOR DELIVERING A GAS INTO THE LUNGS OF A PATIENT

Bertram William Duck, Pyrford, Woking, Surrey, and Charles Esme Thornton Warren, Hollinbourne, Kent, both of, England, assignors to The British Petroleum Company, London, England and Electronic Pneumatic Automation Company Limited, Kent, England

Filed Feb. 6, 1969, Ser. No. 797,043

Claims priority, application Great Britain, Feb. 15, 1968, 7,444/68

Int. Cl. A62b 7/02

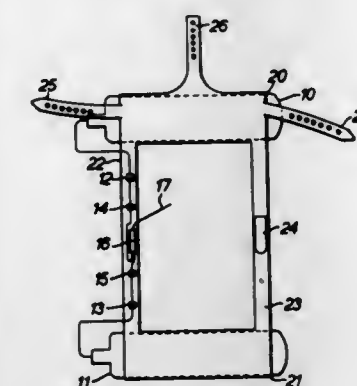
U.S. Cl. 128-145.8

5 Claims

This invention relates to an apparatus for delivering a gas into the lungs of a patient. The apparatus comprises a neck support and the patient's head is held in the extended position by means of straps which are attached to the neck sup-

port. The straps are conveniently used to secure the mouthpiece over the patient's nose and mouth.

a plurality of secondary flow nipples and a network of internal ducts for dividing the main stream of the aforesaid liquid.



In an embodiment particularly suitable for rescue work a gas (oxygen) cylinder is used as the neck support.

3,595,230

INTRAVENOUS CATHETER PLACEMENT UNIT WITH TUBULAR GUIDE SHEATH

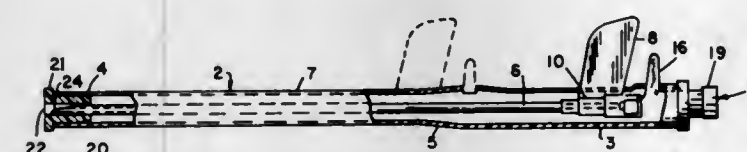
George M. Suyeoka, Chicago, and Dean R. Katerndahl, Wheaton, both of, Ill., assignors to Abbott Laboratories, Chicago, Ill.

Filed July 25, 1968, Ser. No. 747,502

Int. Cl. A61m 5/00

U.S. Cl. 128-214.4

7 Claims



A catheter placement unit including a catheter shield with a catheter and needle positioned therein and the catheter shield comprising a flexible tubular hollow body having its distal end closed by a frictionally engaged end plug and having a slot of varying width extending through its distal end to a point adjacent but not through its proximal end for guiding the catheter and needle preparatory to and during venipuncture.

3,595,231

DEVICE FOR SIMULTANEOUSLY INJECTING A LIQUID AT A PLURALITY OF INJECTION POINTS

Michel Louis Paul Pistor, Paris, France, assignor to Societe d'ite: A Guerin, Paris, France, a part interest

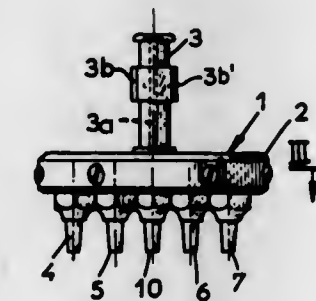
Filed Feb. 17, 1969, Ser. No. 799,673

Claims priority, application France, Feb. 20, 1968, 140,593

Int. Cl. A61m 5/00

U.S. Cl. 128-215

1 Claim

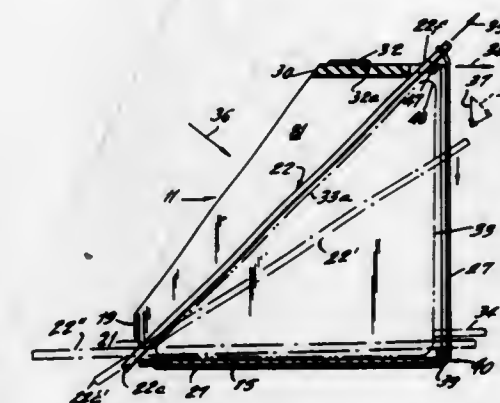


The device consists in dividing a stream of the liquid to be injected into elementary streams feeding nipples connectable to injection needles. The device consists of a body, preferably constituted by a flat cylindrical disc, which comprises a main flow nipple connectable to an injection syringe,

3,595,232
NONGRAVITATIONAL INFUSION ASSEMBLY
Saul Leibinsohn, 11 Hagardom Street, Rishon Lezion, Israel
Filed Aug. 19, 1968, Ser. No. 753,405
Int. Cl. A61m 5/00

U.S. Cl. 128-214

17 Claims



A combined container and fluid dispensing assembly housing a compressible bag of fluid. A slidably mounted pressure bar under control of suitable biasing means is caused to bear against the compressible bag of fluid to provide a substantially constant pressure upon the bag, causing the fluid to be dispensed at a substantially constant pressure throughout the infusion operation. In the inactive state, the housing protects the compressible bag of fluid against any possible damage and further provides additional storage space for the infusion set. No observation or control need be exerted upon the device during an infusion operation in order to maintain fluid flow at a constant rate.

3,595,233

MEDICAL DEVICE FOR INTERNALLY ADMINISTERING MEDICANTS

Robert Fuchslocher, 21 Schwanthalerstrasse, D8 Munich, 15, and Hermann R. Worch, 79 Brandenburgerstrasse, 85 Nuernberg, 33, both of, Germany

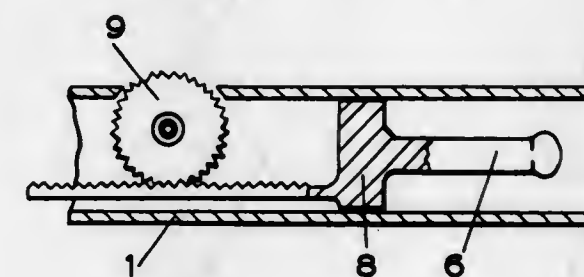
Filed Oct. 6, 1967, Ser. No. 673,436

Claims priority, application Germany, Oct. 14, 1966, June 7, 1967, W 42589; W 39946

Int. Cl. A61m 31/00

U.S. Cl. 128-264

8 Claims



A medical device for internally administering medicants in body passages. The device comprises a hollow cylinder and a detachable nozzle secured to one end of the cylinder and insertable into a body passage. A thin tearable sack for a medicant is secured in the nozzle. An ejector piston formed with a rack portion is slidable in the hollow cylinder. A knurled wheel mounted in the cylinder's wall engages with the ejector piston's rack portion. Rotation of the knurled wheel advances the ejector piston into the nozzle and pushes the medicant through the tearable sack into the body passage.

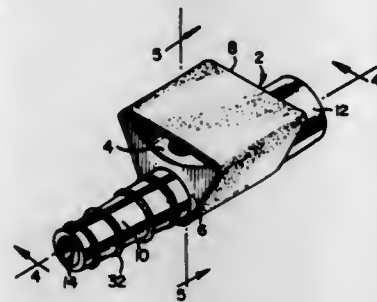
3,595,234 VACUUM CONTROL FOR MEDICOSURGICAL SUCTION TUBE

Isaac S. Jackson, Greenwich, N.Y., assignor to David S. Sheridan, Argyle, N.Y.

Filed Feb. 19, 1969, Ser. No. 800,546
Int. Cl. A61m 1/00

U.S. Cl. 128—276

4 Claims



A vacuum controller for a medicosurgical suction tube is formed with a concave face aligned with a longitudinal bore through the connector. An elliptical opening passes through the concave face to the bore and an elastic band surrounds the central portion of the controller. When a medicosurgical tube assembly attached to the controller is connected to a vacuum source, a suction is not pulled in the tube assembly until the elliptical opening is closed by depressing the elastic band onto the concave face. The elastic band serves to prevent contaminating material entering the tube assembly from the control finger of the operator and suctioned material in the tube from touching the control finger of the operator.

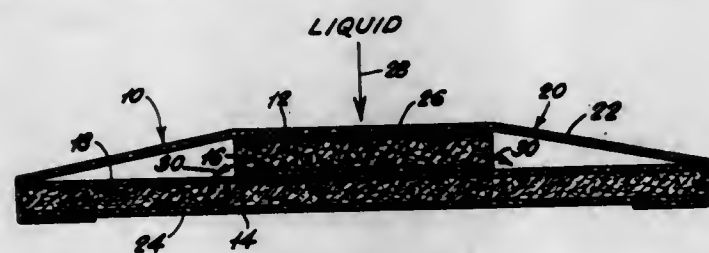
3,595,235 MULTILAYER ABSORBENT PAD

Paul W. Jespersen, Westport, Conn., assignor to Georgia-Pacific Corporation, Portland, Oreg.

Filed May 16, 1969, Ser. No. 825,247
Int. Cl. A61f 13/16

U.S. Cl. 128—284

18 Claims



An absorbent pad, useful as a diaper, sanitary napkin, or medical dressing, which comprises two superposed liquid-absorbent layers and a liquid-resistant layer disposed between the absorbent layers. The facing surfaces of the absorbent layers have different areas and the surfaces of the resistant layer facing the absorbent layers each have less area than the absorbent layer facing surface of greater area so that liquid flowing into and through the absorbent layer having the facing surface of lesser area and contacting the resistant layer will flow about the edges of the resistant layer into the absorbent layer having the facing surface of greater area.

3,595,236 COATING TO AID TAMPON INSERTION AND TAMPONS COATED THEREWITH

Virginia A. Corrigan, Appleton, and Bruce A. Townsend, Oakkosh, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Mar. 17, 1969, Ser. No. 807,490
Int. Cl. A61f 13/20

U.S. Cl. 128—285

10 Claims

An improved coating material for application to the forward portion of absorbent tampons as an insertion aid. The coating comprises a physical mixture of polyethylene glycol

and starch. The coating can be applied to the tampon without penetrating to the interior of the absorbent body and



remains stable under a wide range of handling conditions. Coated tampons are also described.

3,595,237 ADHESIVE ATTACHMENT OF REMOVABLE PROTECTIVE LINERS FOR NETHER GARMENTS

David O. Sargent, Westfield, and Vladimir Marchuk, Somerville, both of N.J., assignors to Personal Products Company

Filed Oct. 6, 1969, Ser. No. 863,887
Int. Cl. A61f 13/16

U.S. Cl. 128—290

8 Claims



A protective liner which is temporarily, but securely, held to the interior crotch portion of nether garments by a thermoplastic, pressure-sensitive adhesive pattern bonded to a thermoplastic protective film provided on the under surface of the liner. The thermoplastic, pressure-sensitive adhesive is permanently fused to the protective film thus preventing delamination of the pressure-sensitive adhesive patterns from the film, and the adhesion level of the pressure-sensitive adhesive is such as to temporarily, but securely, adhere the protective liner to the crotch portion of the nether garment. The thermoplastic adhesive pattern is indirectly applied to the thermoplastic adhesive barrier film to prevent basic distortion of the film which would render it unfit for its intended protective function.

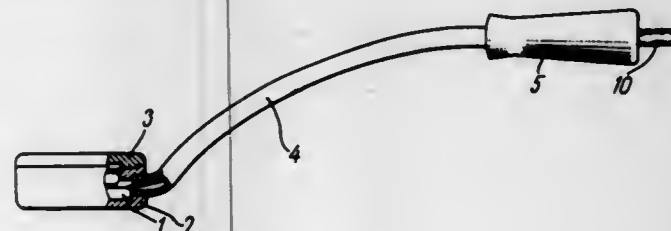
3,595,238 ELECTROSURGICAL APPARATUS TO COAGULATE BIOLOGICAL TISSUES

Stanislav Alexeevich Gavrilov, ulitsa Sheikmana, 19, kv. 149; Mikhail Afanasievich Kostenko, ulitsa Gagarina, 33, kv. 184, and Vasily Vladimirovich Volkov, ulitsa Komsomolskaya, 17, kv. 31, all of Sverdlovsk, U.S.S.R.

Filed Aug. 9, 1968, Ser. No. 751,575
Int. Cl. A61b 17/36

U.S. Cl. 128—303.1

2 Claims



An electrosurgical instrument comprises a box of heat-conducting metal with a cover thereon forming a hermetic enclosure

sure in which there is contained in isolation a heating element and a temperature transmitter. A tubular holder is connected to the enclosure and to a handle and connectors pass through the holder and handle to a temperature-measuring circuit with an indicator and a switch control power circuit adapted for connection to a power source. The temperature-measuring circuit is connected to the transmitter and the power circuit is connected to the heating element, the power circuit and temperature-measuring circuit being contained in a common unit.

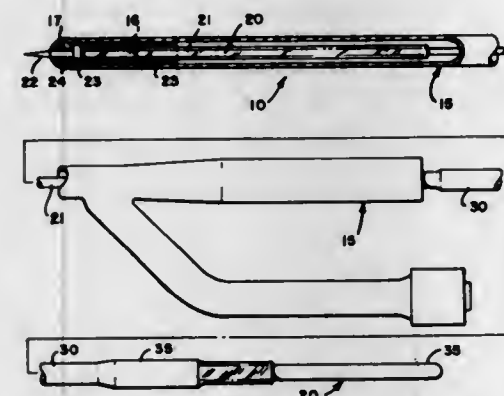
3,595,239 CATHETER WITH ELECTRICAL CUTTING MEANS

Roy A. Petersen, 1685 Westwood Drive, San Jose, Calif.

Filed Apr. 4, 1969, Ser. No. 813,543
Int. Cl. A61b 17/36

U.S. Cl. 128—303.14

10 Claims



A catheter with a flexible catheter tube having an eyelet or ring at the distal end thereof. An obturator in the form of an electrode is removably disposed within the catheter tube and has a tip thereof projecting out of the catheter tube. The ring of the catheter tube limits the extent of the projection of the obturator tip from the catheter tube. A conventional electrosurgical apparatus is connected to the obturator-electrode for producing electrical energy to divide or cut tissue of a body so as to form a passageway through which the catheter tube advances.

3,595,240 HYDROCEPHALUS SHUNT WITH TWO-WAY FLUSHING MEANS

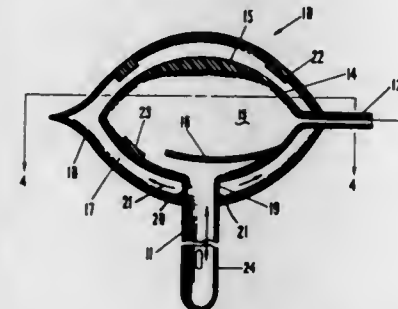
Alan J. Mishler, 59 MacArthur Road, Pueblo, Colo.

Continuation-in-part of application Ser. No. 549,517, May 12, 1966, now abandoned. This application Aug. 7, 1968, Ser. No. 756,713

Int. Cl. A61m 27/00

U.S. Cl. 128—350 V

17 Claims



Drainage devices for use such as ventriculo-atrial shunts are provided which are particularly useful in neurosurgery to divert fluid from the cerebral ventricular system when abnormal collections of cerebrospinal fluid occur secondary to obstruction or failure of reabsorption. The surgical appliances of this invention have a first chamber and an at least partially surrounding second chamber with inlet means to the first and second chamber and outlet means from the second chamber. A valve means allows entrance of fluid to the first chamber

from the inlet means but prevents backflow of fluid to the inlet means from the first chamber while allowing backflow of fluid from the second chamber to the inlet means.

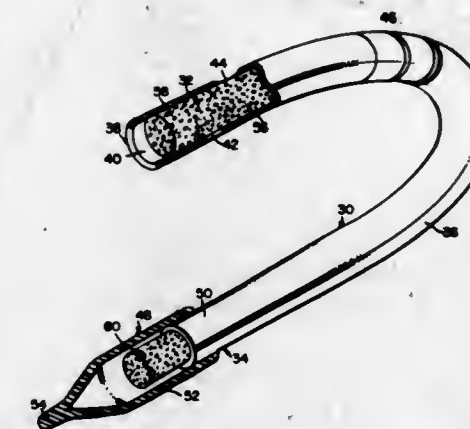
3,595,241 INSURED INTERNAL FLOW MEDICOSURGICAL TUBES

David S. Sheridan, Hook Road, Argyle, N.Y.

Filed Feb. 19, 1969, Ser. No. 800,547
Int. Cl. A61m 25/00

U.S. Cl. 128—350

6 Claims



Medicosurgical tubes have a swab member positioned inside the tube so constructed or arranged that it may be pulled through the tube and out the proximal end. In such a catheter, the lumen is positively protected throughout the tube length against the possibility of blood clots or other matter preventing liquid flow through the tube following the tube insertion procedure.

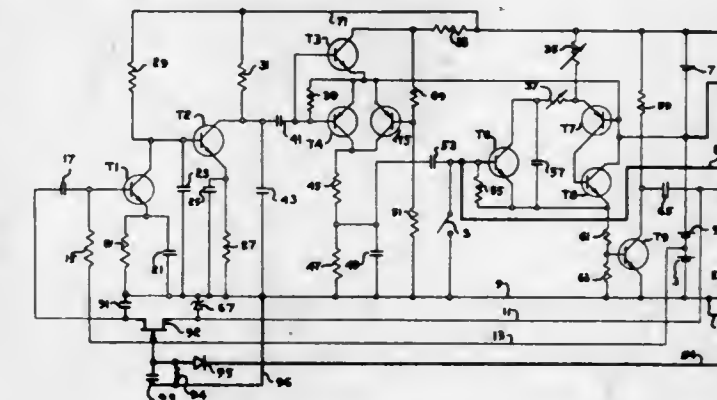
3,595,242 ATRIAL AND VENTRICULAR DEMAND PACER

Barouh V. Berkovits, Newton Highlands, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Mar. 26, 1969, Ser. No. 810,519
Int. Cl. A61n 1/36

U.S. Cl. 128—421

33 Claims



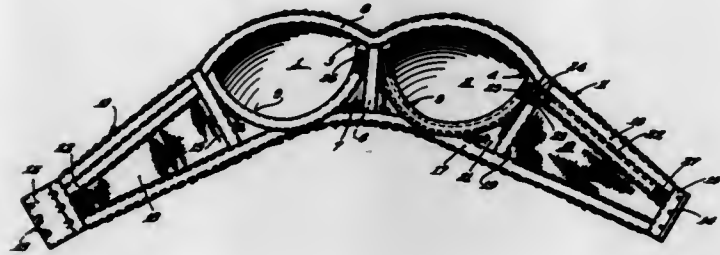
An atrial and ventricular (bifocal) demand pacer. A device is disclosed for providing electrical stimulation to the atrium after a first predetermined time, and to the ventricle after a second predetermined time, where both predetermined times are measured from the last natural heartbeat. The pacer monitors the ventricular endocardial electrogram and programs both the atrial and the ventricular stimulation accordingly. In patients with atrial bradycardia but normal atrio-ventricular (AV) conduction, only the atria are stimulated. When the condition is complicated with AV block, both the atria and the ventricles are pacer controlled. The interval between the atrial and ventricular stimulation is selected to facilitate the proper atrio-ventricular timing sequence. The pacer does not compete with spontaneous ventricular contractions.

3,595,243 UPLIFT BRASSIERE

Arthur H. Mount, 138 Elm Tree Lane, Elmhurst, Ill.
Filed Apr. 28, 1969, Ser. No. 819,647
Int. Cl. A41c 1/14

U.S. Cl. 128-469

3 Claims



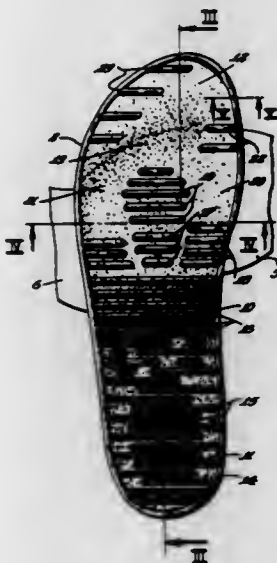
A bandeau or brassiere of the uplift type constructed to positively and mechanically elevate or lift up the breasts of the user automatically when the brassiere is secured around the chest of the user.

3,595,244 FOOT-MASSAGING SANDAL

Richard Kugler, Frankfurt, Germany, assignor to The Scholl Mfg. Co., Inc., Chicago, Ill.
Filed Oct. 30, 1968, Ser. No. 771,727
Int. Cl. A611 5/14

U.S. Cl. 128-582

10 Claims



A foot-massaging sandal of flexible construction so that the toe portion may bend relatively to the other part of the sandal during the walking, and the foot-contacting surface of which sandal is provided with irregularly disposed ridges which effect a massaging action on the plantar surface of the foot.

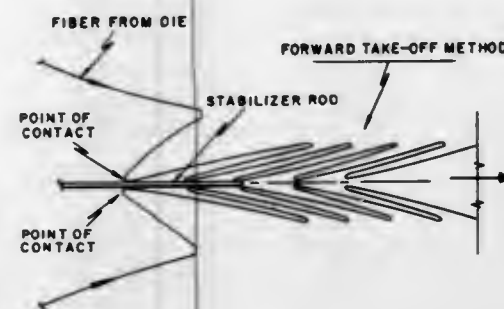
**3,595,245
CIGARETTE FILTER FROM POLYPROPYLENE FIBERS**
Robert R. Buntin; John W. Harding; James P. Keller, and Vellie L. Murdock, all of Baytown, Tex., assignors to Esso Research and Engineering Company
Filed Aug. 14, 1968, Ser. No. 752,655
Int. Cl. A24f 7/04; B01d 27/00

U.S. Cl. 131-269

11 Claims

A roving of entangled and self-bonded fine fibers of polypropylene may be formed by a melt blown roving technique which comprises extruding the polypropylene through a die having the die openings in a circle into a gas stream to attenuate the extruded polypropylene into fibers and collecting the fibers as a tow. The roving or tow of

polypropylene fibers is an aggregation of fiber loops which is essentially cylindrical in shape, made from essentially con-



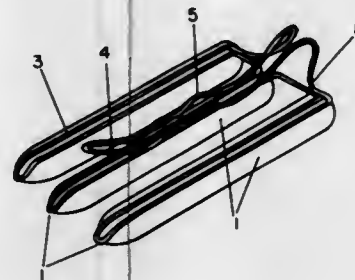
tinuous fibers which are entangled and bonded to each other. The roving or tow may be cut as filters for cigarettes.

3,595,246 ROLLER PADS

Thomas L. Rusnak, Box 138, Hawk Run, Pa.
Filed Oct. 21, 1968, Ser. No. 769,448
Int. Cl. A45d 8/00

U.S. Cl. 132-9

3 Claims



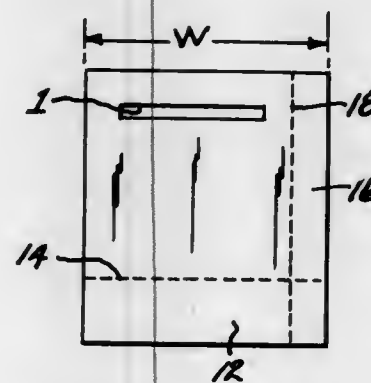
A roller pad consisting of one or more soft and flexible cylinders arranged parallel and connected together at one end, the other end tapering to a point, the assembly being secured to the roller by means of a clip running above and parallel with the cylinders.

3,595,247 HAIR ROLLER PADS

William Anthony Campana, 9234 Gettysburg Drive, Warrensville Heights, Ohio
Continuation-in-part of application Ser. No. 625,188, Mar. 22, 1967. This application Aug. 1, 1969, Ser. No. 850,690
Int. Cl. A45d 1/00

U.S. Cl. 132-9

7 Claims



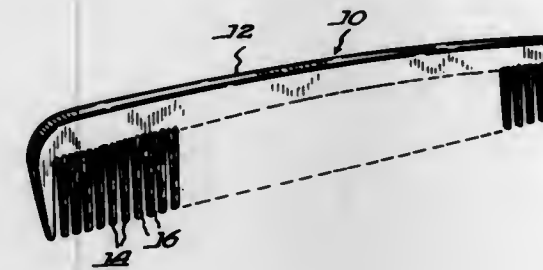
A hair roller pad for protecting the head of the user from the pinching or poking of hair rollers. The pad comprises a relatively thin rectangular-shaped member having an elongated slot adjacent one end thereof. The pad is formed of a reusable flexible moisture-absorbent material, such as resilient polyurethane foam, with the slot permitting free flow of a tress of hair therethrough for winding upon a hair roller. In one embodiment the pad is provided with sections which

3,595,248 CLEANSING DEVICE

Hershel Earl Wright, 18 8th Drive, Decatur, Ill.
Continuation of application Ser. No. 601,088, Dec. 12, 1966.
This application Nov. 8, 1968, Ser. No. 790,493
Int. Cl. A49d 24/00

U.S. Cl. 132-11

5 Claims



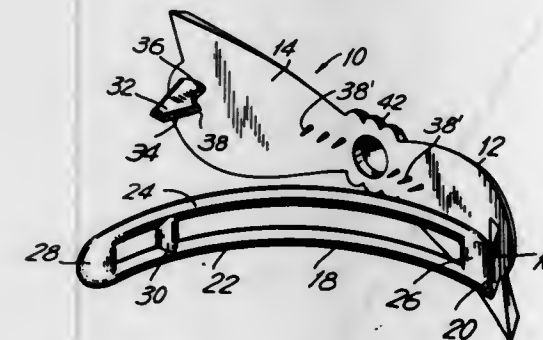
A device for removing undesirable extraneous particles, oils and the like from the shafts of hair, which device may take the form of a conventional comb or brush having teeth or bristles to which an adhesive material is cohesively applied to remove the undesirable particles from the hair shafts.

3,595,249 HAIR CLASP

Nathan L. Solomon, Cedar Lane, Englewood, N.J.
Filed Feb. 20, 1969, Ser. No. 800,927
Int. Cl. A45d 8/24

U.S. Cl. 132-48 R

7 Claims



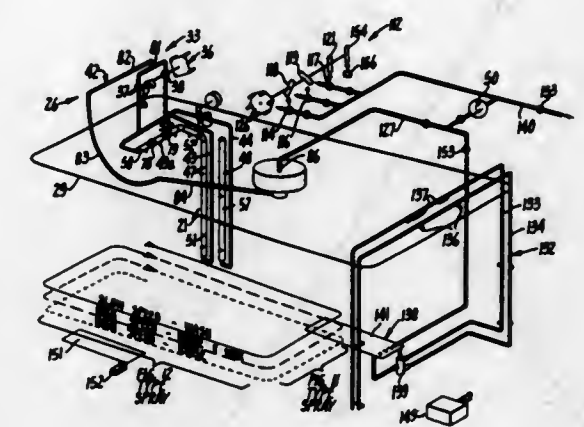
A one-piece flexible hair clasp has an arm hingedly attached at one end with a detent clasp at the other end for releasably holding the arm about a tress of hair. The larger the tress of hair enclosed by the arm, the more the barrette and arm are flexed longitudinally proportionally to more securely hold the arm and tress.

**3,595,250
AUTOMATIC CARWASH APPARATUS**
Mowatt M. Hurst, Menlo Park, Calif., assignor to Malsbary Manufacturing Company, Oakland, Calif.
Filed Apr. 12, 1968, Ser. No. 720,767
Int. Cl. B60s 3/04

U.S. Cl. 134-45

18 Claims

An automatic carwash apparatus of the type having a spray carriage moving around the vehicle on an oblong overhead track. The apparatus is formed to spray cleaning liquid against the vehicle in varying ways to provide more effective cleaning action on hard-to-clean surfaces, such as the front and rear ends, the entire device acting automatically to apply a preconditioner spray as the vehicle enters, wash and then rinse the vehicle, applying wax or other finish conditioners during the rinse operation. Both the preconditioner and wash



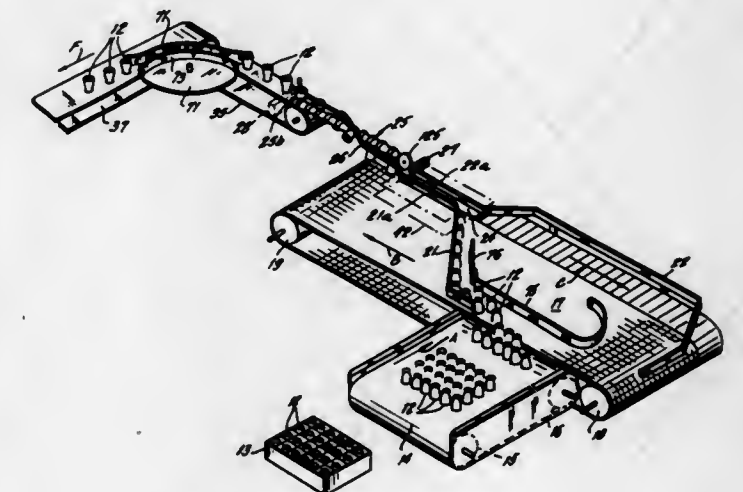
response to the position of the spray carriage relative to the vehicle. Means is provided for automatically accepting money to initiate the operational cycle so that the apparatus may be left to operate without attendants.

3,595,251 CONTAINER WASHING INVERTING AND CONVEYING APPARATUS

John J. Tarantola, Flushing, N.Y., assignor to Arlo Industries, Inc., Peekskill, N.Y.
Filed Dec. 26, 1968, Ser. No. 786,945
Int. Cl. B08b 9/08; B67c 1/06

U.S. Cl. 134-65

10 Claims

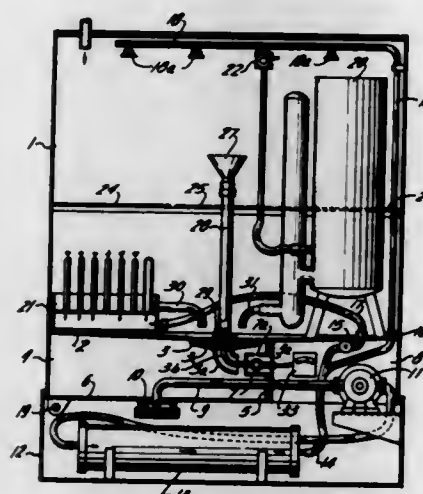


Jars or containers are multiple loaded open end facing down on the upper flight of a meshlike conveyor belt which delivers the containers single-file to an inverting means. Prior to arriving at the inverting means the containers are flushed clean by water sprayed upward through the mesh conveyor and thereafter an airstream, also directed up through the conveyor, acts to dry the containers. The inverting means consists of a screw conveyor and twisted bar means which maintains the containers in operative engagement with the screw conveyor to guide each container for gradual pivoting 180° to a position wherein the mouth faces up at the time the container reaches the output end of the inverting means. In an alternate embodiment for handling straight sided containers, guide rail means is provided to hold each container as it is being moved by the screw conveyor and pivoted by the twisted rail.

3,595,252

APPARATUS FOR CONTROLLED WASHING BY DE-IONIZED HIGH-PURITY, RECIRCULATED WATER, PARTICULARLY ADAPTED FOR SCIENTIFIC GLASSWARE

Giovanni Conte, Via A. Sigimbosco 6, Genova-Quinto, Italy
 Filed June 26, 1968, Ser. No. 740,366
 Claims priority, application Italy, June 28, 1967, 7117A/67
 Int. Cl. B08b 3/02, 9/02
 U.S. Cl. 134-109 6 Claims

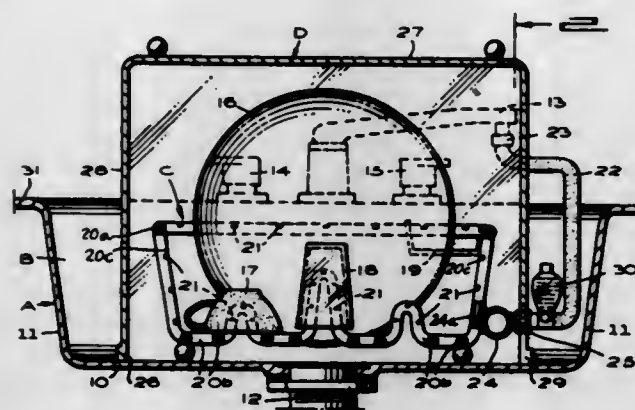


Apparatus for controlled washing of scientific glassware, articles and materials, comprising an open-topped housing adapted to use the de-ionized water produced by one or more ion exchange columns that are arranged in the lower portion of the housing, such housing being provided, at a certain distance from the base, with a partition on which (without requiring watertight relation) spray-washing can be effected with high-purity water that is collected in a underlying container and is recirculated by a motor-driven pump, and a conductimeter connected in the circuit to afford measurement of the specific resistance of wash water and, therefore, the degree of purity of the individual wash areas.

3,595,253

PORTABLE DISHWASHER FOR USE IN SINK

Julio G. Yanez-Pastor, 1390 Solano Drive, Pacifica, Calif., and Antonio Toro, 138 Irvington St., Daly City, Calif.
 Continuation of application Ser. No. 681,792, Nov. 9, 1967, now abandoned. This application Oct. 20, 1969, Ser. No. 869,449
 Int. Cl. B08b 3/02
 U.S. Cl. 134-115 R 7 Claims

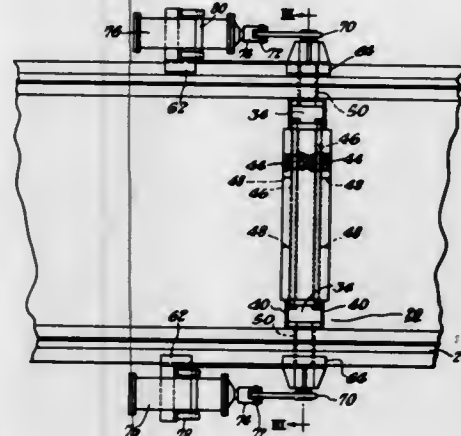


A portable dishwasher for use in a sink having an open meshwork basket adapted to be removably placed in a sink basin to hold dishes and other eating utensils, the basket being made from tubes having perforations to discharge jets of water during washing and rinsing operations. Water is supplied to the tubes by a hose connected to a faucet, and an inverted cup-shaped cover is placed over the basket and its contents to confine the water jets, this cover having a rim at its lower end resting on the bottom wall of the basin.

3,595,254

LIFTING APPARATUS

Ralph C. White, Bethel Park, and Robert N. Christian, Murray, both of, Pa., assignors to The Bushnell Machinery Company, Pittsburgh, Pa.
 Filed Nov. 5, 1969, Ser. No. 874,268
 Int. Cl. B08b 13/00
 U.S. Cl. 134-122 13 Claims

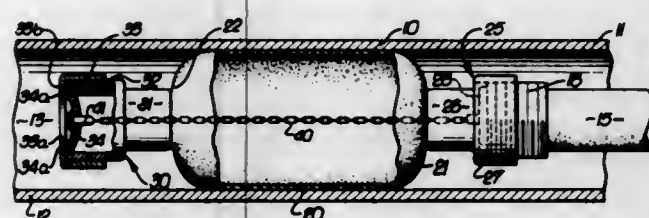


Lifting apparatus for a tank construction, said apparatus comprising a lifting arm shaped to conform substantially with adjacent surfaces of a bottom wall and at least one sidewall of said tank, a pivot shaft secured adjacent the upper end of said arm and passing transversely through said sidewall adjacent the upper edge thereof, and a pivot mechanism for angularly displacing said shaft, said mechanism being mounted on the outside of said tank adjacent said shaft and secured to an outer protruding end of said shaft, said arm being shaped to pass under an elongated member contained in said tank and to raise said member upon operation of said pivot mechanism to a level adjacent the top of said tank and above a level of treatment liquid contained in said tank.

3,595,255

HOSE ATTACHMENT FOR CLEANING CLOGGED DRAIN PIPES

Louis W. Mulinex, 6122 Woodward Ave., Maywood, Calif.
 Filed Jan. 12, 1970, Ser. No. 2,334
 Int. Cl. B08b 9/02
 U.S. Cl. 134-167 C 6 Claims

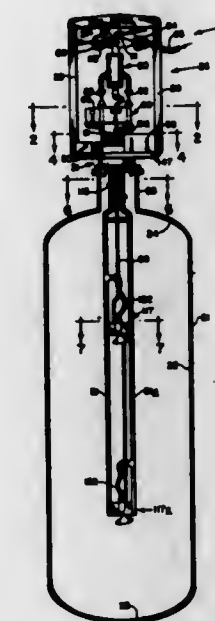


The disclosed device for attachment to the end of a water hose includes an inflatable tube having its near end connected to the hose end by an adapter, a restricted flow opening in the adapter, a fitting on the far end of the tubing section having an outlet valve opening, a moveable valve member captured within the fitting, and normally slack chain means interconnected between the valve member and the adapter and passing through the interior of the flexible tubing, the action of the device in response to water pressure being such that the tubing first inflates outwardly and then longitudinally until the tightening of the chain means causes the valve member to retract thus permitting water to escape from the outlet valve opening.

3,595,256

VESSEL-CLEANING APPARATUS

Robert E. Waltman; Charles A. Cook, and Carl R. Hillman, all of Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y.
 Filed Nov. 22, 1968, Ser. No. 778,180
 Int. Cl. B05b 3/12, 3/14; B08b 3/02
 U.S. Cl. 134-167 12 Claims

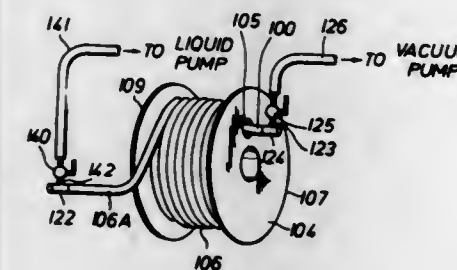


An apparatus for cleaning the interior walls of a vessel utilizing fluid under high pressure. The portion of the device carrying the fluid nozzle assembly is adapted to be inserted through an opening into the interior vessel. The apparatus may utilize one or more nozzle assemblies mounted on a support frame which is rotatable around the vertical axis of the vessel by a drive mechanism that remains outside of the vessel being cleaned. A support assembly has a fixed portion resting on the cleaning apparatus and permits rotation of the portion of the apparatus within the vessel that carries the high pressure nozzle assemblies. A reciprocating mechanism is carried by the rotating portion of the apparatus whereby the nozzle angle may be continually changed to provide movement of the nozzles about the radial axis of the vessel being cleaned. By simultaneous rotation of the nozzle assemblies around the axis of the vessel movement of the nozzle head through a radial arc, the high pressure fluid from the nozzles cleans the entire area of the vessel without excessive overlap. For elongated, cylindrical vessels, a plurality of nozzles are provided for cleaning the upper and lower half of the vessel, respectively. Such nozzles can be operated independently or simultaneously.

3,595,257

VACUUM FILLING PROCESS AND SYSTEM FOR LIQUID-FILLED MARINE SEISMIC CABLES

Richard L. McMahon, Burbank, Calif., assignor to Schlumberger Technology Corporation, New York, N.Y.
 Filed July 22, 1969, Ser. No. 843,499
 Int. Cl. H01b 7/02
 U.S. Cl. 137-1 3 Claims



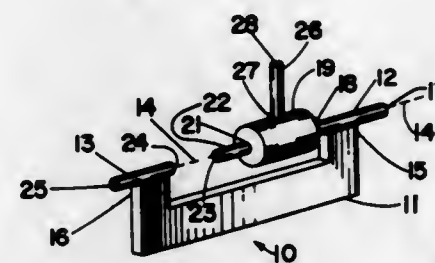
A technique for completely filling a multicompartmented marine seismic cable with a compatible filling liquid such as

kerosene, wherein the air in a hollow cable on a spool is evacuated with a vacuum pump from one end of the cable while the liquid is pumped into the cable through the opposite end until it is full. Improved evacuation and filling means are also provided which prevent loss of vacuum during the filling process.

3,595,258

FLUIDIC GATE ELEMENT

Hans-Dieter Kinner, Attleboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
 Filed Sept. 8, 1967, Ser. No. 666,340
 Int. Cl. F15c 1/18
 U.S. Cl. 137-81.5 3 Claims

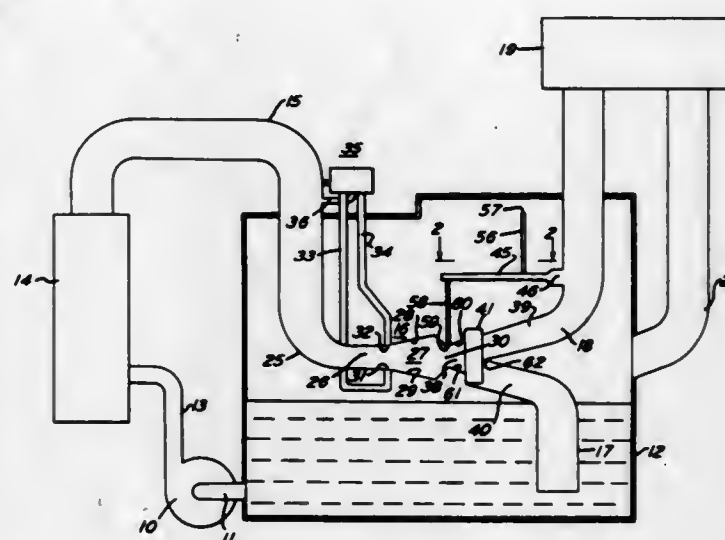


A fluidic gate has a first flow conduit communicating through a chamber to a second flow conduit, with both flow conduits being aligned on a common central axis and with each conduit being individually shorter than the length required for production of a laminar flow therethrough over the flow rates of interest, but said first and second flow conduits having a total serial length otherwise sufficient for production of a laminar flow; a control access communicates with said chamber; a receiver conduit is axially aligned downstream of the combination of chamber and conduits; over the flow rates of interest, a suitable control pressure supplied by means of said control access to said chamber operates to switch the projected flow from said conduit and chamber combination between laminar and turbulent conditions, thereby registering logical one and zero states respectively at said receiver conduit; generally, a specific range of positive control pressures produces a laminar condition of projected flow.

3,595,259

DIVERTING VALVE

Robert B. Adams, Tredyffrin Township, Chester County, Pa., assignor to Moore Products Co., Spring House, Pa.
 Filed July 29, 1969, Ser. No. 845,864
 Int. Cl. F15c 3/00, 1/08
 U.S. Cl. 137-81.5 13 Claims



A diverting valve is provided having no moving parts in contact with the fluid, and a temperature responsive pilot valve which determines proportioning of the flow between

the two outlets of the diverting valve, and a fluidic pilot valve which operates to switch the flow away from one of the outlets when it decreases below a predetermined value in that outlet.

3,595,260

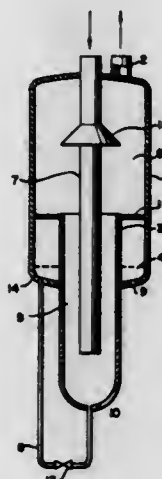
DIP PIPE UNIT FOR A FLARE SYSTEM

Winfried Lotzmann, Bad Hoenningen; Gunter Hein, Lechenich, and Helmut Possek, Wesseling, Rhineland, all of Germany, assignors to Shell Oil Company, New York, N.Y.
Filed Dec. 31, 1969, Ser. No. 889,428
Claims priority, application Germany, Jan. 3, 1969, P 19 00 272.3

Int. Cl. F16k 9/00

U.S. Cl. 137-251

10 Claims



A dip pipe unit for a flare system comprising a normally closed hollow pressure vessel with a gas outlet disposed at the upper portion thereof and a partition dividing the interior of the lower portion into an inner and outer chamber, each of the chambers being open at the top and in communication with the interior of the inner chamber and the bottom of the inner chamber is substantially below the bottom of the outer chamber with a throttle line coupled to the bottom of both the inner and outer chambers for equalizing fluctuations in each of the inner and outer chambers.

3,595,261

AUTOMATIC SHUTOFF VALVE

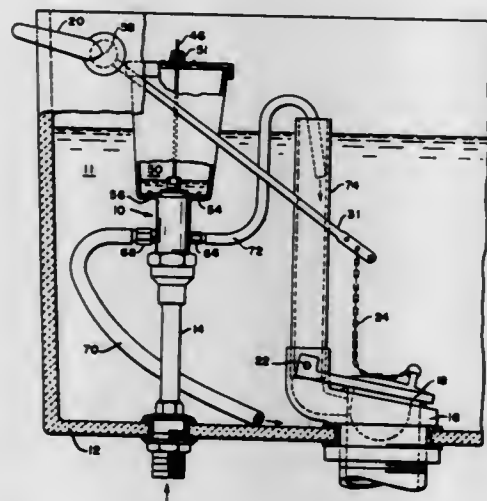
Samuel Abbott, Glen Falls, N.Y., assignor to Venavco, Inc., Glen Falls, N.Y.

Filed Mar. 13, 1969, Ser. No. 806,816

Int. Cl. G05d 9/02

U.S. Cl. 137-403

9 Claims



An automatic valve mechanism controls water flow into a toilet water closet or other environment in which liquid level control is desired. The valve mechanism responds to air pressure created under a diaphragm by a rising water level to

shut off water flow into a water closet to attain a desired water level. The valve mechanism also responds to a decrease in air pressure under the diaphragm caused by a receding water level to allow water flow into the water closet to start again.

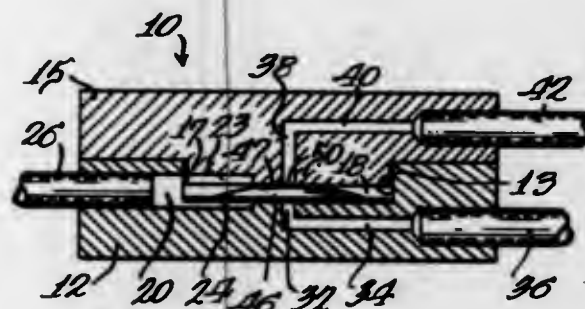
3,595,262

TEMPERATURE-RESPONSIVE SWITCH

Harold L. Fox, and Ruel R. Clark, both of Salt Lake City, Utah, assignors to I-T-E Imperial Corporation
Filed Aug. 12, 1968, Ser. No. 752,034
Int. Cl. F16k 25/00; G01k 3/00; F01p 5/14

U.S. Cl. 137-457

8 Claims



A temperature-responsive fluid switch including a cylindrical valve chamber with a fluid inlet port for directing fluid generally radially into the chamber and opposed central outlet ports extending from the opposite ends of the chamber with a bimetallic disc extending across the chamber and selectively blocking the outlet ports to prevent fluid flow from the inlet port to one of the outlet ports while permitting flow to the other outlet port.

3,595,263

PILOT ACTUATED UNBALANCED PISTON RELIEF VALVE

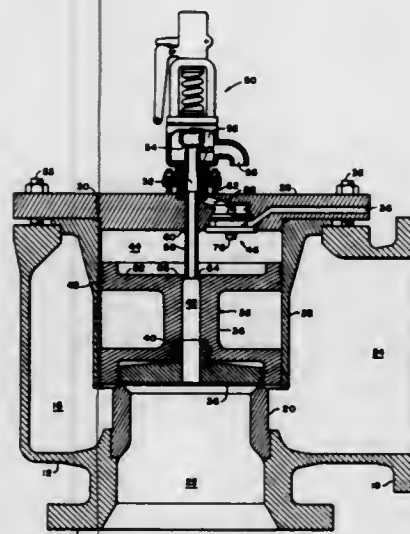
Wilbert D. Greenlaw, Westwood, Mass., assignor to Crosby Valve & Gage Company, Wrentham, Mass.

Filed Dec. 26, 1968, Ser. No. 787,012

Int. Cl. F16k 17/10

U.S. Cl. 137-491

18 Claims



A relief valve member is normally held in seated position by the net force acting on two opposed surfaces thereof having unequal effective areas, both surfaces being subjected to the pressure of the vessel to be relieved. The larger of these areas is situated in a control chamber that may be vented by action of a pilot relief valve, which in turn operates a shuttle valve. The relief valve member has a passage connecting the vessel with the control chamber, this passage also continuously maintaining a control connection from the vessel to the pilot valve.

3,595,264

LOAD CONTROL AND HOLDING VALVE

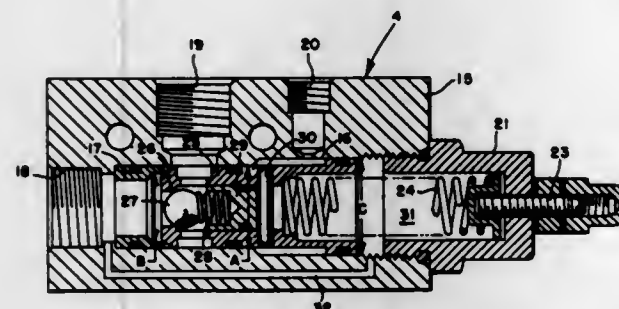
George J. Martin, Lyndhurst, Ohio, assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Jan. 9, 1970, Ser. No. 1,716

Int. Cl. F16k 17/18

U.S. Cl. 137-493

10 Claims



A load control and holding valve having a counterbalance valve with a check valve coaxially therewithin, both valves being closed to lock a fluid motor against downward drift of a load acting thereon. The counterbalance valve comprises a body having a stepped bore with a seat at its small end, and a stepped counterbalance valve member which is spring biased into engagement with the body seat and which has a first relatively small annular area exposed to motor load pressure to open said member in the event of overload due to shock load, load inertia, or thermal expansion of the fluid between the motor and the counterbalance valve. The counterbalance valve member also has a second relatively larger annular area which is exposed to pilot pressure derived from the pressure side of the motor to open the return side of the motor when the load is raised and to throttle or shut off the return side when the load tends to run ahead of the pump. The counterbalance valve member has, its small end, a check valve seat against which is seated a check valve member which permits flow to the motor when it is desired to reverse the direction of actuation of the motor.

3,595,265

SELF-CLEANING ORIFICE CHECK VALVE

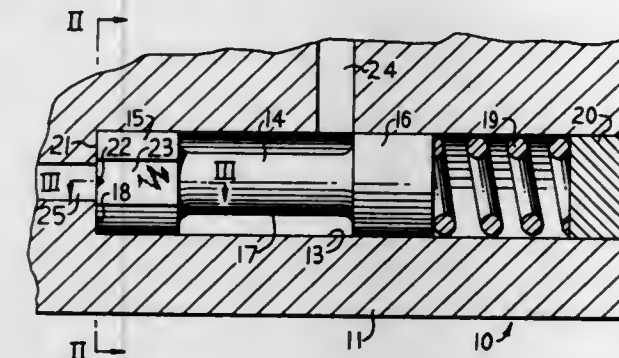
John R. Cryder, and William B. Norick, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 14, 1969, Ser. No. 815,545

Int. Cl. F16k 15/02, 21/02

U.S. Cl. 137-513.5

1 Claim



A check valve that has an orifice formed by a groove in its face which communicates with the upstream and downstream sides of the valve so as to allow restricted flow through the valve when it is closed, and wherein upon opening of the check valve, foreign material which may have lodged in the orifice is flushed out by the fluid flowing through the valve.

3,595,266

VACUUM UNLOADING VALVE FOR DUST COLLECTORS

Roger S. Brookman, East Aurora, and John F. Phillippi, Tonawanda, both of N.Y., assignors to American Precision Industries, Inc., Buffalo, N.Y.

Filed Jan. 27, 1970, Ser. No. 108

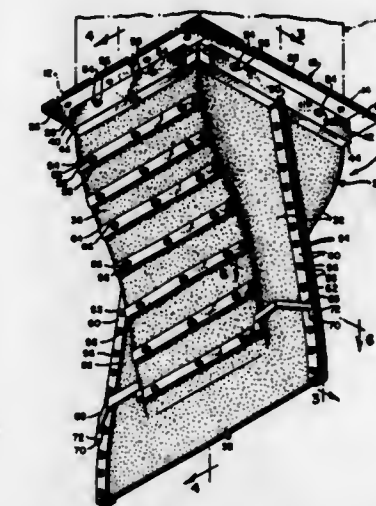
Int. Cl. F16k 15/14

U.S. Cl. 137-519

17 Claims

A vacuum unloading valve for dust collectors operating under negative pressure includes a hollow elongated metal

valve body having a rectangular upper inlet end for direct attachment to the depending rectangular outlet end of the collector and an elongated elastomeric sleeve surrounding and supported internally by the body throughout the greater portion of its length. The valve body includes two pairs of opposite sides, each side of one pair being of horizontally elongated, rectangular outline and each side of the other pair being elongated vertically below each side of the one pair by opposite longitudinal edges converging downwardly along convex, then concave and finally convex exponential curves symmetrical about the central longitudinal axis of each side of the other pair and merging at their lower ends in a vertical plane common to such axes. The valve sleeve includes two



normally flat sheets extending around the one pair of sides onto the other pair and fitting tightly around the upper end of the valve body and loosely around the lower end of the aforesaid edges to provide two pairs of side flaps joined at their outer margins along such axial plane but diverging downwardly from the other pair of sides and connected between such other sides by central flaps and below such edges by lower flaps. The valve also includes bars clamping the upper margins of the sleeve on the body, tying the outer margins of the side flaps together and reinforcing the central flaps, and hinge arms controlling the opening and closing of the valve sleeve which operates automatically in response to the negative operating pressure and weight of material collected.

3,595,267

LIQUID LEVEL CONTROL DEVICE

Howard L. Anderson, Wyandotte, Mich., assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich.

Filed Mar. 17, 1969, Ser. No. 807,609

Int. Cl. G08b 21/00

U.S. Cl. 137-558

3 Claims



A liquid level control device, adapted for use with apparatus for dispensing fluid from a reservoir to a drum or

tank, that includes a conduit and an electrical relay encased in a tubular housing and disposed in the reservoir. The conduit is operable to deliver a stored fluid from the reservoir to the drum of a dispensing machine or the like and the relay is responsive to the level of liquid in the reservoir and connected to means for indicating when the liquid falls below a desired level.

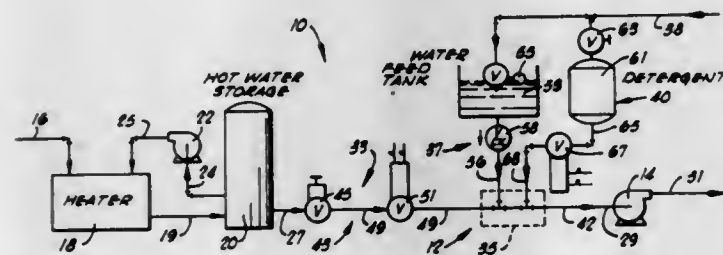
3,595,268

PUMP FEED SYSTEM

Gary L. Archer, 418 S. Sheridan, Wichita, Kans.
Filed July 7, 1969, Ser. No. 839,380
Int. Cl. B60s 3/04

U.S. Cl. 137-565

7 Claims



This invention relates to a pump feed assembly operable to selectively supply various mixtures through any given pump means for discharge therefrom but specifically beneficial in carwash systems. More particularly, this invention relates to a pump feed assembly having a mixing means interconnected to hot and cold fluid supply lines operable to supply a pump means through the mixing means at all times regardless of any mechanical or electrical failure.

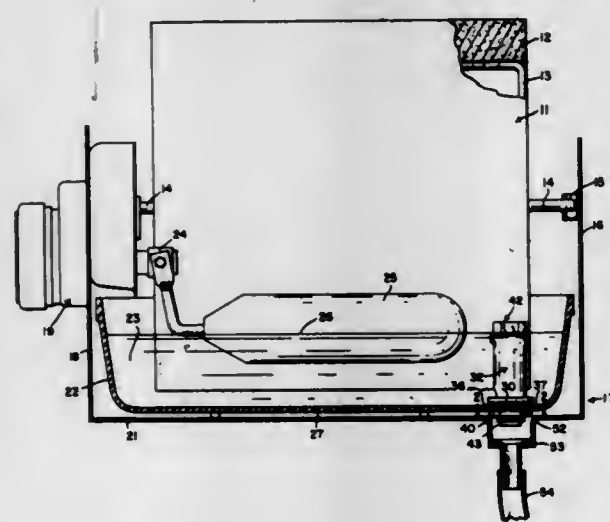
3,595,269

DRAIN VALVE FOR HUMIDIFIER

Richard J. Yeagle, Hartland, Mich., assignor to Skuttle Mfg. Co., Milford, Mich.
Filed June 30, 1969, Ser. No. 837,624
Int. Cl. F24f 3/14

U.S. Cl. 137-577

9 Claims



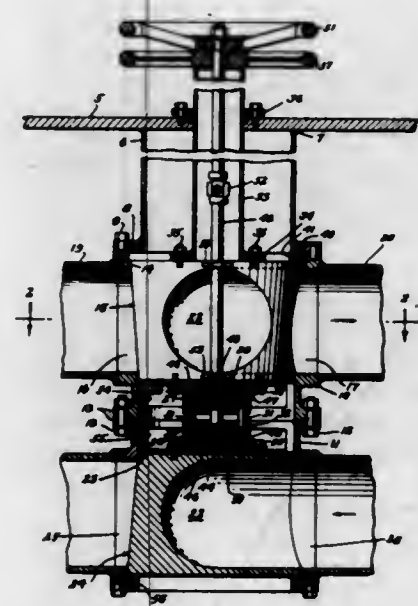
A combined drain and overflow valve assembly adapted for upright mounting in the water reservoir of a humidifier comprises a hollow casing having a lateral inlet port and a hollow core rotatably mounted in the casing. The core has a longitudinal passage open at both upper and lower ends for overflow discharge, and is formed with a small diameter drain port and a larger diameter flush port both intersecting that passage and adapted respectively to register with said inlet in different rotative positions of the core.

3,595,270 PLUG VALVE CONSTRUCTION AND OPERATING MECHANISM

Daniel R. McNeal, Jr., Gwynedd, Pa., assignor to Andale Company, Lansdale, Pa.
Filed Jan. 20, 1970, Ser. No. 4,297
Int. Cl. F16k 11/14, 5/16

U.S. Cl. 137-595

15 Claims



A duplex or double plug valve arrangement having two tapered valve plugs positioned on a common axis and adapted to seat in tapered valve cavities by axial movement in opposite directions. Each valve cavity is provided with three valve ports, two being positioned diametrically opposite to each other and the third midway between the first two. Valve seating mechanism is provided including means reacting against each valve plug to effect seating of the other valve plug. The port and the valve passage in at least one of the valve plugs are of the same circular cross section, such valve passage being in the form of the passage in a 90° pipe bend.

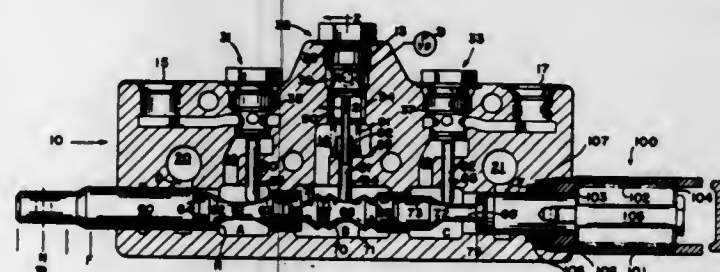
3,595,271

DIRECTIONAL FLOW CONTROL VALVE WITH FLOAT AND CHECK VALVE STRUCTURE

Vaughn A. Nelson, Downers Grove, Ill., assignor to International Harvester Company, Chicago, Ill.
Filed June 30, 1969, Ser. No. 837,527
Int. Cl. F16k 11/10

U.S. Cl. 137-596.2

9 Claims



An improved directional flow control valve having a housing including an intake port, two motor ports adapted for connection to opposing sides of a hydraulic motor and an exhaust port for return of fluid from the hydraulic ram to the reservoir, the motor ports having check valve means interposed therein which normally preclude the return of fluid from said hydraulic ram to said valve housing, with control means within said valve housing for actuating the check valve means to selectively interconnect the intake port with either of the motor ports or to interconnect said motor parts with each other and the exhaust port to obtain a float condition within the hydraulic ram.

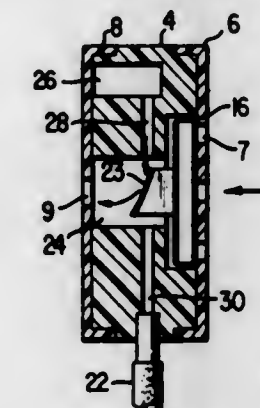
3,595,272

FLUID SWITCH

Clayton E. Conklin, El Paso, Tex., assignor to Automatic Systems of America, Inc., El Paso, Tex.
Filed Apr. 10, 1969, Ser. No. 815,122
Int. Cl. F16k 11/02

U.S. Cl. 137-612

5 Claims



A fluid switch in which a fluid stream traversing an inlet and a first outlet is deflected by a vane, which pivots in response to impingement of an externally generated fluid flow, to switch the fluid stream to a second outlet. Upon cessation of the externally generated fluid, the fluid stream automatically returns the vane to its initial state, enabling the fluid stream to reenter the first outlet.

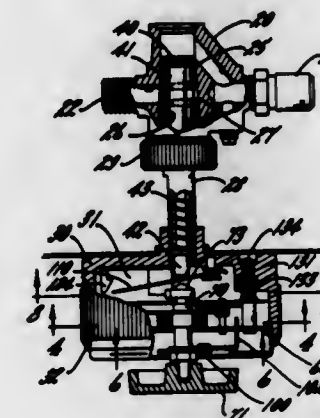
3,595,273

TIMER FOR RANGE TOP BURNER

Walter F. Kolodziej, La Salle, Ill., assignor to General Time Corporation, Stamford, Conn.
Filed July 16, 1969, Ser. No. 842,167
Int. Cl. F16k 21/06, 31/48

U.S. Cl. 137-624.12

8 Claims



A timer for range top burner or the like having a throttle valve and a poppet valve in series with one another for cutting off the flow, the throttle valve having a rotating shaft and control knob and the poppet valve having a stem telescoped in the shaft and biased outwardly to a position of shut off. A timer assembly mounted on the knob has an axially extending main shaft with a dial at the outer end and a cam at the inner end. Adjacent the cam for acting upon the stem is a latchable member. Provision is made for axial movement of the cam, in the present instance by floatingly mounting the frame of the timer assembly, so that the gas is turned on (a) when the dial is pushed in to set the latch and (b) when the knob is turned. The dial is rotated to a set position and is timely restored to its reference position whereupon the cam engages the latch to release the stem of the poppet to shut off further flow of gas.

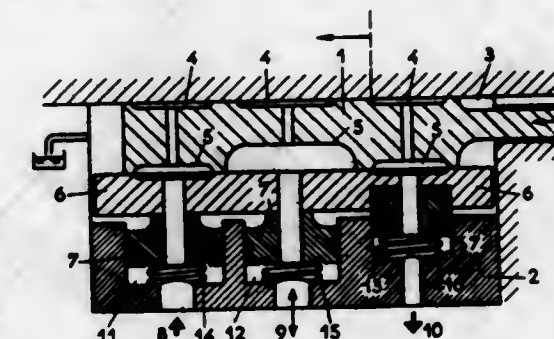
3,595,274

REVERSE CYCLE VALVE

Jacques Faisandier, 32 Bld Felix Faure, 92 Chatillon-Sous-Bagneux, France
Filed Mar. 26, 1968, Ser. No. 716,047
Claims priority, application France, Apr. 7, 1967, 101,936
Int. Cl. F16k 11/06, 39/04

U.S. Cl. 137-625.25

2 Claims



A reverse cycle valve having a flat internal chamber, the flat valve member of which is pressed against a port-forming plate by pistons, said pistons being lodged in the stationary part of the valve and pressing through the medium of a floating plate.

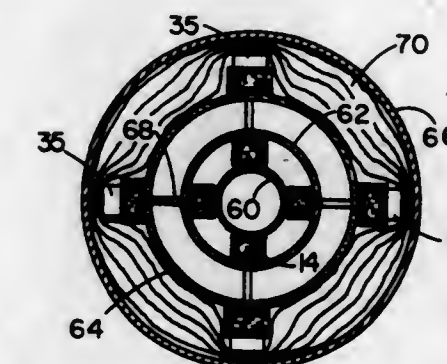
3,595,275

SPACER MEANS FOR CRYOGENIC COAXIAL TUBING
Thornton Steans, and Lewis B. Thompson, Jr., both of Winchester, Mass., assignors to Vacuum Barrier Corporation, Woburn, Mass.

Filed July 24, 1968, Ser. No. 747,134
Int. Cl. F16l 9/18

U.S. Cl. 138-114

12 Claims



Spacer means for semiflexible coaxial tubing comprises a strip of fibrous thermal insulating material having an abrasive resistant facing or facings helically wound singly or doubly with opposite pitch around an inner tube. The spacer means may include a moisture impermeable package, enclosing getter particles, functioning as one or both of the facings after rupture to expose the particles. The spacer means is useful in coaxial tubing having evacuated annular spaces radially inwardly and radially outwardly of intermediate concentric tubing providing an annular concentric space for flow of fluid between said evacuated spaces.

3,595,276

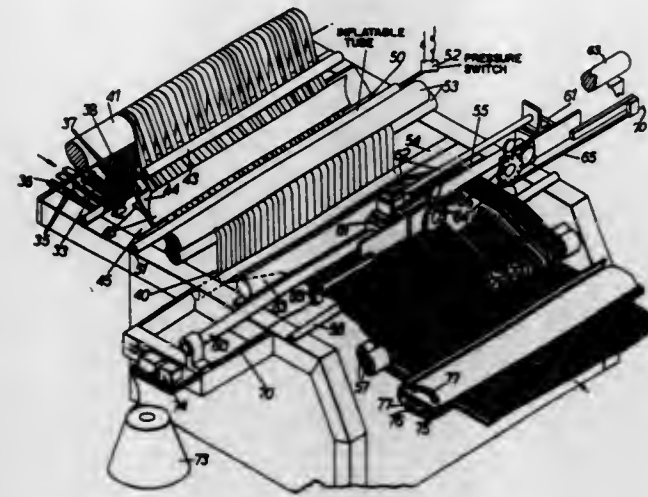
METHOD AND APPARATUS FOR INTRODUCING A WEFT THREAD INTO A SHEET OF WARP THREADS
Andrzej Wrzesien, West Didsbury, England, assignor to Rolls-Royce Limited, Derby, Derbyshire, England
Filed Jan. 21, 1969, Ser. No. 792,646
Int. Cl. D03d 41/00, 47/00

U.S. Cl. 139-11

11 Claims

This invention concerns a method of introducing at least one weft thread into a sheet of warp threads so as to assist in holding the sheet together, the said method comprising employing at least one toothed wheel which is rolled transversely across the sheet periodically to raise and lower predeter-

mined warp threads in a sequence which permits the passage of the weft thread transversely of at least a part of the sheet,



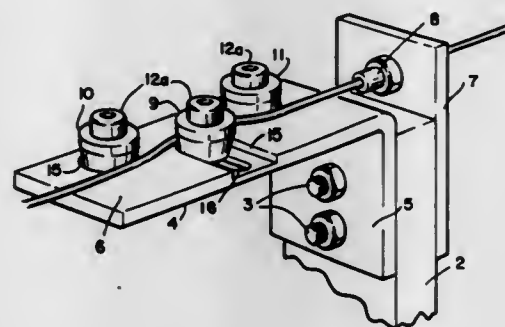
and introducing the said weft thread over and under the said predetermined warp threads.

3,595,277

WIRE STRAIGHTENER

Richard M. Lefever, Springettsbury Township, York County, Pa., assignor to The McKay Company, Pittsburgh, Pa.
Filed July 7, 1969, Ser. No. 839,347
Int. Cl. B21d 3/02; B21f 1/02; B21d 3/04
U.S. Cl. 140-147

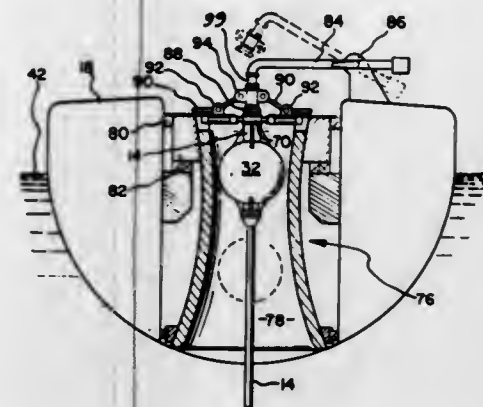
13 Claims



A wire straightener comprising a planar plate, means for drawing wire having a cast along and in contact with the planar plate and in a plane parallel to the plane of the planar plate and means engaging the wire in staggered positions at opposite sides as it is drawn along and in contact with the planar plate snugging the wire against the planar plate so that axial rotation of the wire is minimized and the wire is delivered from the straightener substantially straight and free from cast. Means may be provided for controlling orientation of the wire as it moves into contact with the planar plate so that its cast lies in said plane parallel to the plane of the planar plate. Wire may be fed from a coil whose axis is substantially normal to the plane of the planar plate whereby to control the orientation of the wire as it moves from the coil into contact with the planar plate so that its cast derived from coiling lies in said plane parallel to the plane of the planar plate. A turntable may carry the coil of wire, turning to pay out wire from the coil as the wire moves from the coil into contact with the planar plate. The wire-engaging means may be rotatable elements whose axes intersect the plane of the planar plate, such elements increasing in diameter from the planar plate outwardly, as conical rollers. Cylindrical rollers whose axes are inclined to the planar plate may be employed. Elements of the surfaces of the conical or cylindrical rollers make an angle of between about 45° and about 85° with the planar plate. Means may be provided for varying the distance between the rotatable elements at opposite sides of the wire to accommodate the straightener to wires of different casts or stiffness.

3,595,278
TRANSFER SYSTEM FOR SUBOCEANIC OIL PRODUCTION
Herbert J. Lilly, Jr., Mission Viejo, and Chris D. Dobler, Garden Grove, both of, Calif., assignors to North American Rockwell Corporation
Filed Sept. 11, 1969, Ser. No. 857,107
Int. Cl. B65b 1/04, 3/04
U.S. Cl. 141-1

1 Claim



A transfer system for offshore petroleum production has a vertically movable riser extending from a collection tank on the ocean floor to a storage on the ocean surface. The riser is releasably attachable by a pivotal connection to the tanker during flowing operation and disconnectable during storms or otherwise violent sea states. In the disconnected mode, the riser remains submerged under the ocean surface to avoid excessive structural loading. The riser is articulated and moored by a system of weights and floats to maintain tension within acceptable stress limits throughout a wide range of changes in vertical and some horizontal movement of the tanker.

3,595,279
TUBE FILLING ATTACHMENT FOR TRANSFER OF CONTENTS FROM ONE ELEMENT TO ANOTHER
David H. Jaffe, Scotch Plains, N.J., assignor to Head-to-Toe Products, Rahway, N.J.
Filed Sept. 16, 1969, Ser. No. 858,269
Int. Cl. B65b 1/04, 3/04
U.S. Cl. 141-2

2 Claims



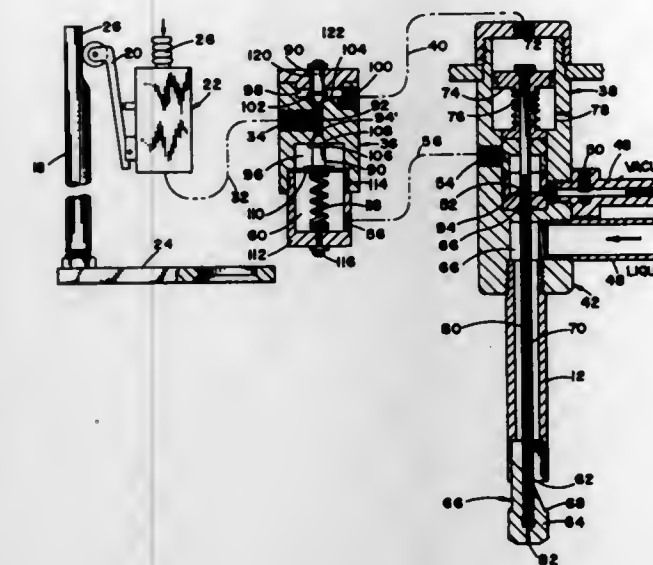
A method of recharging small empty portable collapsible tubes with a flowable liquid cosmetic, toilet preparation or medicinal good by means of a recharging fixture, to which the small tube is attached and a large stored fluid container is also attached to dispense sufficient quantities as desired.

3,595,280
AUTOMATIC FILLING VALVE
Thomas E. Fissel, Hanover, Pa., assignor to Chisholm-Ryder Company of Pennsylvania, Hanover, Pa.
Filed Aug. 1, 1969, Ser. No. 846,874
Int. Cl. B65b 3/26

U.S. Cl. 141-40
An automatic-filling valve unit has a nozzle disposable within the neck of a container and a flow control valve is located on the lower end of said nozzle for quick shutoff. The valve is opened by air pressure and closed by a spring. Vacuum is drawn through the lower end of the nozzle constantly while filling of a container progresses and is interconnected to a control valve for the air pressure which operates

5 Claims

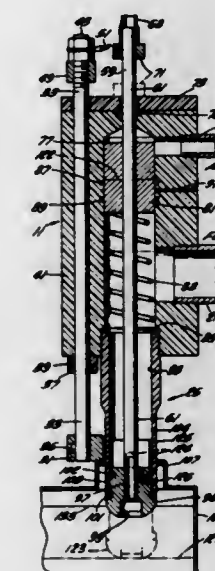
the flow control valve, whereby when liquid rising in the container reaches the suction inlet on the nozzle, the control



valve is actuated to release the air pressure instantly and permit the spring to close the flow control valve.

3,595,281
AUTOMATIC CONTAINER-FILLER VALVE
Herman Laub, III, 244 N. San Marino Ave., San Gabriel, Calif.
Continuation of application Ser. No. 566,906, July 18, 1966, now abandoned, which was a Continuation of application Ser. No. 809,472, Mar. 13, 1969, now abandoned. This application Ser. No. 876,209, Dec. 1, 1969
Int. Cl. B65b 31/06
U.S. Cl. 141-46

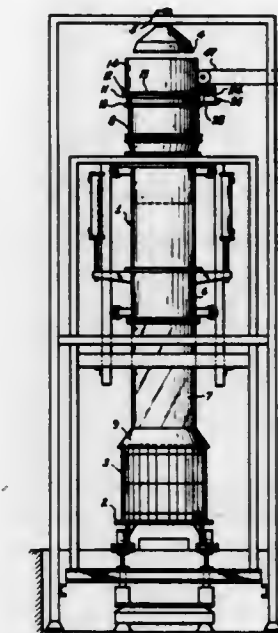
43 Claims



An electromechanical apparatus is disclosed for filling containers and shutting off automatically when the container is filled. The valve does not seal on the container to be filled and has an air-operated slide tip that can move up and down and which moves up as the level of the fluid rises to a predetermined level. The valve dribble-finishes the fill, instead of snapping shut, and reopens to meter fill slowly at the end of the fill cycle, thereby eliminating error resulting from premature shutoff which is ordinarily caused by roiling fluid, entrained air or surface suds.

3,595,282
APPARATUS FOR COMPRESSING LOOSE MATERIAL INTO CONTAINERS
Francis B. Fishburne, and Clarence H. Hinnant, Jr., both of c/o Arnold Roylance Kruger and Duke, Suite 315, 1225 Connecticut Ave. N.W., Washington, D.C. 20036
Filed July 29, 1969, Ser. No. 845,746
Int. Cl. B65b 1/24
U.S. Cl. 141-73

13 Claims



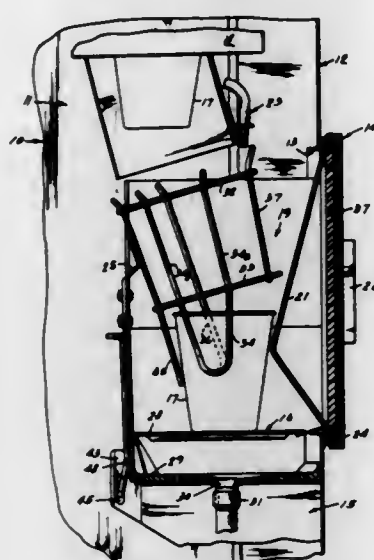
In apparatus for packing fragmentary compressible material, typically tobacco, into containers by delivering the loose fragmentary material into an upright charger disposed above the container and passing a press ram downwardly through the charger to pack the material into the container, a distributor is provided at the top of the charger to assure even distribution of the loose material throughout the cross section of the charger and thus throughout the container. The distributor includes at least one deflector plate which can be moved from a stowed position, in which the press ram is allowed to pass, to a deflecting position in which the plate slants downwardly and inwardly relative to the top of the charger and is effective to deflect incoming loose material across the top portion of the charger. When only one deflector plate is used, the plate is oscillated through a horizontally extending arcuate path at the top of the charger when the plate is in deflecting position. A plurality of plates arranged in a series about the top of the charger can be used, in which case the plates are actuated to deflecting position successively. Presentation of the deflecting plate in its deflecting position successively at a plurality of points spaced about the top of the charger achieves even distribution of the incoming loose material.

3,595,283
BEVERAGE MIXING AND DISPENSING MACHINE
Richard T. Cornelius, Minneapolis, and Irving Snyder, Anoka, both of, Minn., assignors to The Cornelius Company, Anoka, Minn.
Filed May 15, 1968, Ser. No. 732,489
Int. Cl. B65b 3/04; B67d 5/56
U.S. Cl. 141-174

17 Claims

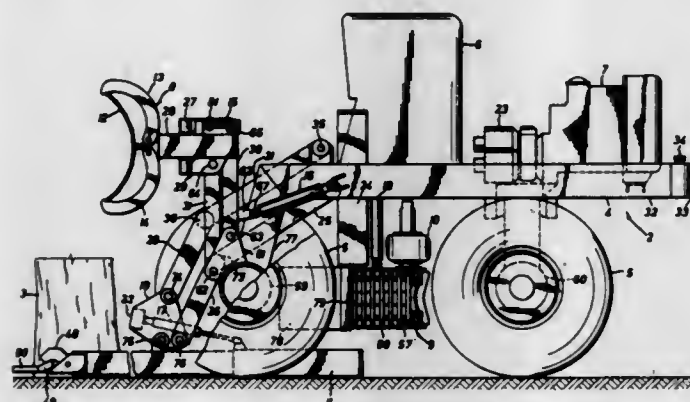
A method and apparatus for mixing and dispensing a beverage including the step of and means for discharging a liquid beverage ingredient through a downwardly sloping outlet into a cup to produce swirling therein, the step of and means for directing a second beverage ingredient downwardly onto the swirling first beverage ingredient beginning after a substantial amount of the first beverage ingredient has been dispensed and caused to swirl, cup-guide means for directing a cup to a predetermined position to

receive such beverage ingredients, such guide-means including a movable portion secured to a movable access door on and draftsmen. Said sharpener includes a cutting assembly, wherein the cutting blades of the assembly are adjustable to



the dispensing machine cabinet, and there being cup-supporting means adjacent to such movable door within the cabinet.

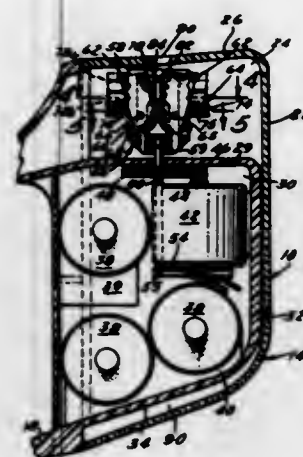
3,595,284
TREE HARVESTING METHOD AND APPARATUS
Adrian L. Landers, Many, La., assignor to A.D.C.O. Mfg. Co., Inc., Many, La.
Filed Oct. 21, 1968, Ser. No. 769,174
Int. Cl. A01g 23/02
U.S. Cl. 144-2 Z 21 Claims



An improved self-propelled, four-wheel tree harvester is disclosed having an improved delimber assembly mounted on its forward end, and having a gripping feedworks suspended beneath its chassis and between its wheels for pulling a felled tree through the delimber assembly. The harvester operates to shear off a standing tree at ground level in one shearing stroke. After the tree falls, the harvester straddles the trunk, grips the trunk with the feedworks and positions its delimiters about the trunk. Thereafter, the feedworks draws the felled tree through the delimber in one substantially continuous cycle of travel.

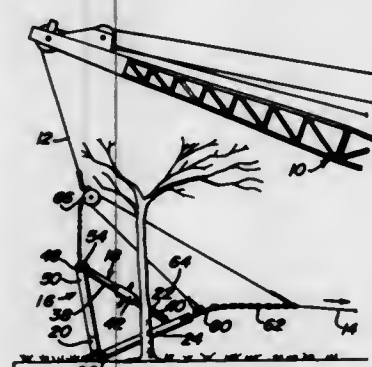
3,595,285
MOTORIZED DRAWING LEAD SHARPENER
Raymond R. Ruben, 14600 Killion St., Van Nuys, Calif.
Filed May 8, 1969, Ser. No. 822,965
Int. Cl. B431 23/02
U.S. Cl. 144-28.5 8 Claims

A motorized drawing lead sharpener used in conjunction with mechanical type lead pencils, such as used by engineers



provide the necessary tapered point for a particular form of drafting. Said assembly is rotatably driven by a motor.

3,595,286
TREE CUTTING BLADE FOR DRAG LINES
Harold Phil Coffey, R.F.D. #4, Hickman, Ky.
Filed June 24, 1969, Ser. No. 835,922
Int. Cl. A01g 23/02
U.S. Cl. 144-34 R 14 Claims

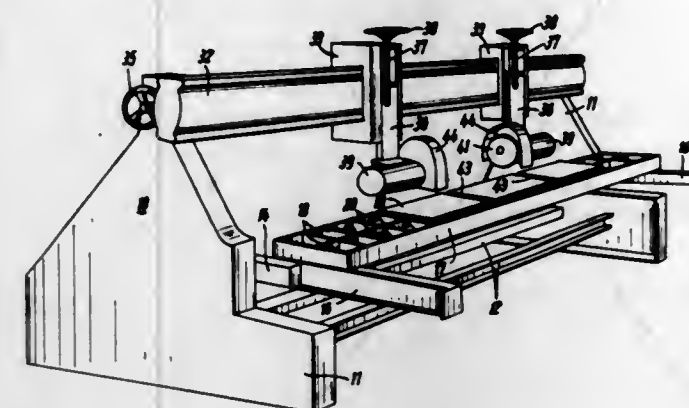


An upright frame including front and rear ends and adapted at its forward end for securement to a drag line and at an upper portion of its rear end for attachment to a hoist cable. The frame includes a horizontal forwardly inclined cutter blade projecting outwardly from one side of a lower portion of the frame adjacent the rear end thereof as well as an upper horizontally outwardly projecting abutment arm spaced above the cutter blade for abutting a tree trunk portion disposed above the area of the tree trunk against which the cutter blade is advanced.

3,595,287
METHOD AND MACHINE FOR MANUFACTURING A BODY OR FRAME AND A MACHINE FOR MAKING MITRE CUTS ON PANEL-LIKE WORKPIECES
Hermann Indermark, Ahmser Strasse 6, 4901 Werl-Aspe, Lippe, Germany
Filed Nov. 4, 1968, Ser. No. 772,968
Int. Cl. B271 5/02
U.S. Cl. 144-136 7 Claims

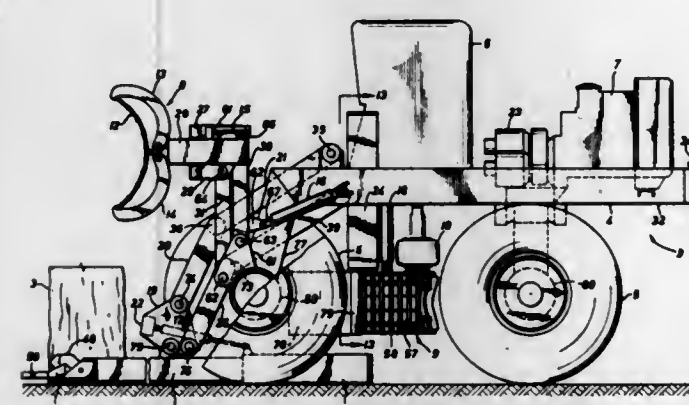
A method and machine for manufacturing a body for an article of furniture comprising the steps of coating one side of a panel with a finishing layer, cutting a plurality of mitre grooves on the other side, said grooves extending nearly

through said panel, applying an adhesive to the cut surfaces of said grooves, bending said panel along the lines of said



grooves to bring said cut surfaces together, and allowing said adhesive to set with the panel parts in their bent-up positions.

3,595,288
TREE HARVESTING METHOD AND APPARATUS
Adrian L. Landers, and Commodore B. Byrd, both of Many, La., assignors to ADCO Mfg. Co., Inc., Many, La.
Filed Oct. 21, 1968, Ser. No. 769,338
Int. Cl. A01g 23/02
U.S. Cl. 144-309 19 Claims

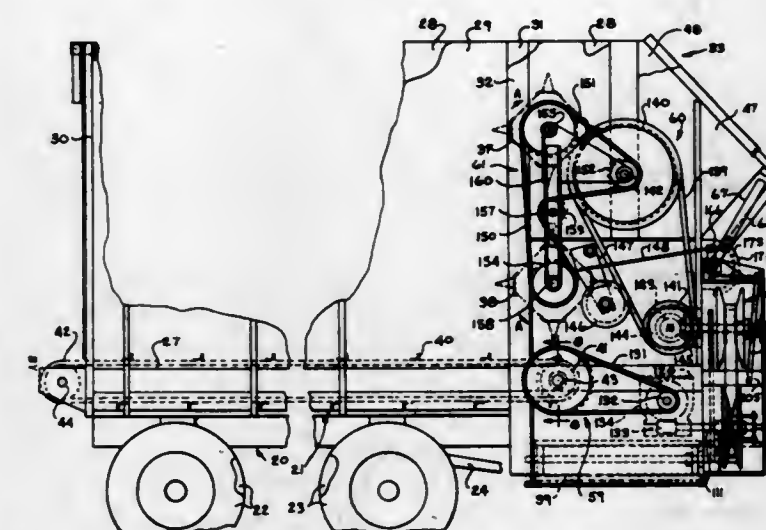


An improved self-propelled, four-wheel tree harvester is disclosed having a shear knife assembly and delimber arms mounted on its forward end, and having a gripping feedworks suspended beneath its chassis and between its wheels. The harvester operates to shear off a standing tree at ground level in one shearing stroke. After the tree falls, the harvester straddles the trunk, grips the trunk with the feedworks, and positions its delimiters about the trunk. Thereafter, the feedworks draws the felled tree through the delimber in one substantially continuous cycle of travel. The shear knife is further arranged to be rotated to a vertical and downward cutting position to cut off the top or small end of the delimited tree.

3,595,289
DRIVES AND DRIVE CONTROLS FOR CONVEYORS AND BEATERS ON FORAGE WAGONS
James G. Greiner, Leola, Pa., assignor to Sperry Rand Corporation, New Holland, Pa.
Filed Aug. 25, 1969, Ser. No. 852,842
Int. Cl. B60p 1/38; A01d 55/18
U.S. Cl. 146-119 16 Claims

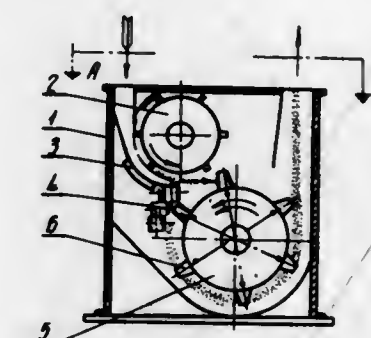
The forage wagon has a main conveyor along the bottom that discharges cut crops either rearwardly through an end gate or forwardly onto a cross conveyor at the front for delivery of the cut crops to the left side of the wagon. Two input power takeoff shafts are mounted on the front of the wagon and are coupled by meshing spur gears for opposite rotation of the shafts. The power takeoff shaft is attached to one or the other depending on the desired direction of rota-

tion of the main conveyor. The main conveyor is driven by the input shafts through a right connecting chain and sprocket drive, a belt and pulley variable speed drive, a worm box and a main chain and sprocket drive. The cross conveyor is driven by the input shafts through a separate left front chain and sprocket drive. The unloading beaters are driven from the right connecting chain and sprocket drive through a



decoupling belt and pulley drive which permits a gradual application of driving torque or decoupling of the beaters when desired. The beaters have thin radial stamped projections with narrow leading edges to slice through the discharging crop material. Decoupling means are provided to disconnect the cross conveyor when the main conveyor discharges to the rear.

3,595,290
APPARATUS FOR COMMUNUTING GRAIN
Toni Golubinov Tassev, Sofia, Bulgaria, assignor to DSP Bu-let, Sofia, Bulgaria
Filed June 9, 1969, Ser. No. 831,468
Claims priority, application Bulgaria, June 11, 1968, 10114
Int. Cl. B02b 3/08; B02c 13/09
U.S. Cl. 146-123 2 Claims

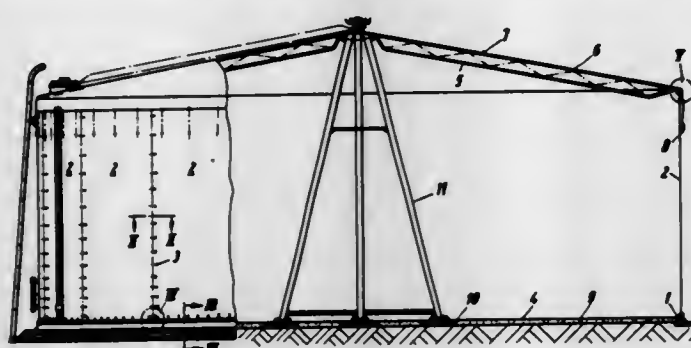


An apparatus for comminuting grain in which a feed rotor entrains the grain along its underside and propels the grain at high velocity against blades rotated in the opposite direction on a comminuter rotor which cooperates with fixed teeth attached to the housing walls.

3,595,291
RESILIENT SECTIONAL STORAGE TANK
Heinrich Grunhoff, Unna-Königsborn; Werner Schulz, Kaarst, and Josef Reisdorf, Fröndenberg-Langschede, all of Germany, assignors to Thyssen Industrie GmbH, Düsseldorf, Germany
Filed Nov. 12, 1969, Ser. No. 875,951
Claims priority, application Germany, Nov. 11, 1968
P 18 08 878.3
Int. Cl. A45c 100; B65d 100, 7/02
U.S. Cl. 150-5 6 Claims

A container, especially storage tank, comprising a bottom ring for placement on the ground and including a plurality of

interconnected bottom ring segments, a canvas placed on said bottom ring and forming the floor of the container, a plurality of wall segments placed side by side around the cir-



cumference of the container on the canvas and a plurality of first clamping screws connecting adjacent wall segments to each other, and a plurality of second clamping screws connecting the wall segments to the bottom ring.

3,595,292

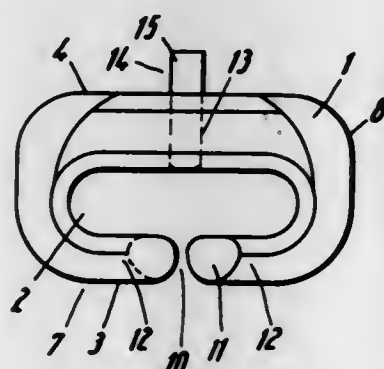
CONNECTING LINK FOR TIRE CHAINS

Anton Muller, Unterkochen, Germany, assignor to Eisen- und Drahtwerk Erlau A.G., Aalen, Wurttemberg, Germany
Filed Mar. 21, 1968, Ser. No. 715,007
Claims priority, application Germany, Mar. 23, 1967, E 33671

Int. Cl. B60c 11/00

U.S. Cl. 152-243

13 Claims



A connecting link for tire chains provided with an opening for receiving at least one other chain link, which includes a closing bolt selectively movable in its longitudinal direction for selectively opening and blocking said opening to permit insertion and withdrawal of another chain link and preventing withdrawal of such inserted chain link.

3,595,293

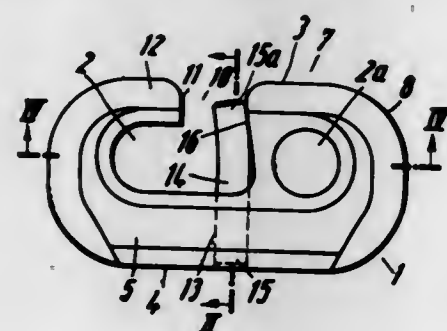
CONNECTING LINK FOR TIRE CHAIN

Anton Muller, Unterkochen, Germany, assignor to Eisen- und Drahtwerk Erlau A.G., Aalen, Wurttemberg, Germany
Filed May 16, 1969, Ser. No. 825,263
Claims priority, application Germany, Mar. 31, 1968, P 17 55 623.9

Int. Cl. B60c 27/04

U.S. Cl. 152-243

14 Claims



A web-shaped longitudinal connecting link for tire chains with a circumferentially closed transverse first passage and

with a second transverse passage communicating with the outside through an opening while a pin supported by the link is selectively movable in said opening to thereby reduce the free inner cross section of the opening so as to prevent a link suspended in the second passage from leaving the same.

3,595,294

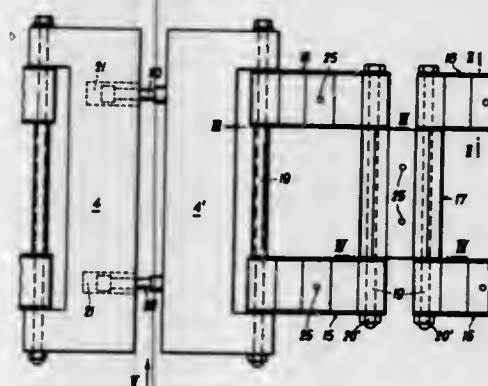
NONSKID DEVICE FOR VEHICLE TIRES

Albert Strelli, Rebengasse 19, Graz, Steiermark, Austria
Filed May 26, 1969, Ser. No. 827,618
Claims priority, application Austria, May 31, 1968, A 5257/68

Int. Cl. B60c 27/20

U.S. Cl. 152-225

5 Claims



The invention provides a nonskid device which extends around the entire periphery of a vehicle wheel and can easily be adapted to vehicle tires having different circumferential dimensions. To this end, nonskid elements of the nonskid device according to the invention are carried by pairs of chain side bars and adjacent ones of said pairs are connected by coupling members.

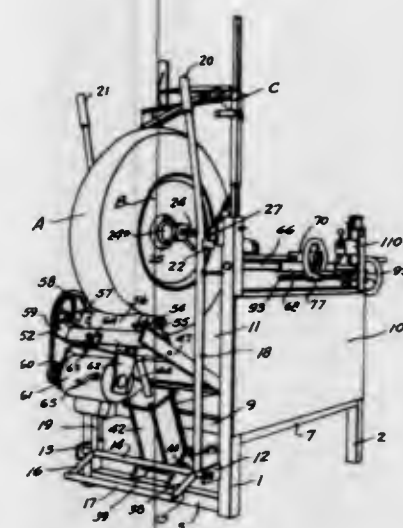
3,595,295

TIRE TREAD TRIMMING AND TRUING APPARATUS

Kenneth D. Curry, P.O. Box 1856, Hattiesburg, Miss.
Filed Apr. 11, 1969, Ser. No. 815,461
Int. Cl. B29h 21/08

U.S. Cl. 157-13

7 Claims



The apparatus is for rounding the tread of tires to give the tread a perfect annular configuration as well as a lateral arc which is the same entirely around the tread of the tire and includes a tire loading and unloading means, a tire-rotating and tread-flexing means for both flexing the tire before trimming and rotating the tire during trimming and guided means for trimming the tire tread to the desired configuration.

3,595,296

APPARATUS FOR FLASH EVAPORATING, FILMING AND EXTRUDING VISCOELASTIC MATERIAL

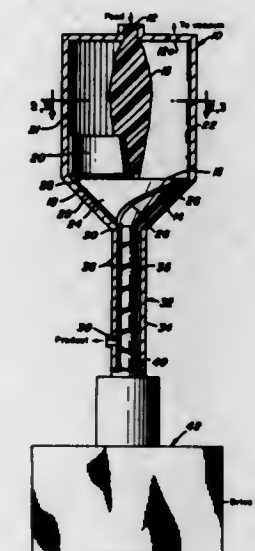
James R. Fisher, Piscataway, N.J., assignor to Union Carbide Corporation, New York, N.Y.

Filed May 12, 1969, Ser. No. 823,928

Int. Cl. B01d 1/28, 1/22

U.S. Cl. 159-2

6 Claims



Apparatus for evacuating viscoelastic fluids from a cylindrical vessel comprising rotating said fluid at the base of said vessel while, concurrently, directing said fluid toward and through an annular exit space around the peripheral internal walls of said vessel and exerting a downward force on said fluid contact said base of said vessel. A specific form of the invention may be employed for the devolatilization of polymeric materials.

3,595,297

APPARATUS FOR THICKENING OR CONCENTRATING HIGHLY FLUID SOLUTIONS

Leo Berg, Alstadt near Cologne, Germany, assignor to Knapsack Aktiengesellschaft, Knapsack near Cologne, Germany

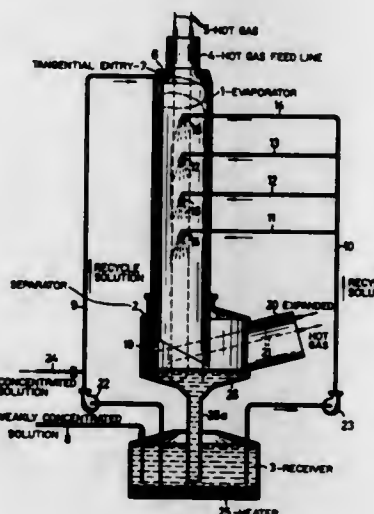
Filed Nov. 5, 1968, Ser. No. 773,583

Claims priority, application Germany, Dec. 20, 1967, P 16 19 711.8

Int. Cl. B01d 1/16, 1/22

U.S. Cl. 159-4 R

2 Claims



hot concentrated solutions, for example salt solutions, are thickened or concentrated in an apparatus comprising a tubular evaporator, a hot gas feedline, which is arranged to project into the evaporator, and a separator, which is arranged downstream of and connected to the evaporator, wherein the separator is arranged so as to continuously com-

3,595,298

CENTRIFUGAL FLASH TANK

Joseph T. Enders, Berkeley, Ill., assignor to Struthers Wells Corporation

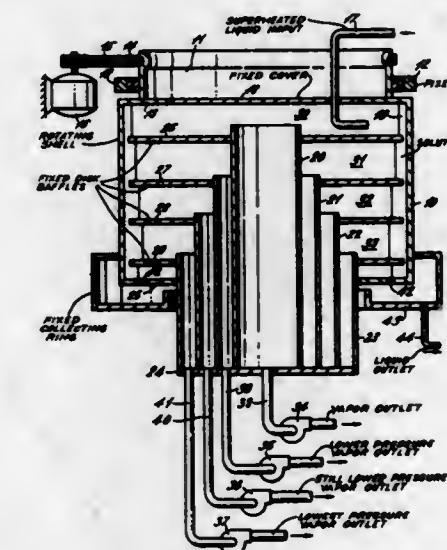
Filed Aug. 5, 1969, Ser. No. 847,646

Claims priority, application Great Britain, Aug. 5, 1968, 37254/68

Int. Cl. B01d 1/22

U.S. Cl. 159-6 R

5 Claims



A flash tank for a superheated liquid has a rotated cylindrical shell divided into longitudinal compartments by transverse stationary partitions which extend into liquid introduced into the shell, the compartments being successively evacuated to a greater extent to successively flash the liquid to a vapor as it flows from one compartment to another under centrifugal force.

3,595,299

APPARATUS FOR THE EVAPORATION OF LOW-TEMPERATURE LIQUEFIED GASES

Josef Weishaupt, Pullach; Hans Waldman, Wolfratshausen, and Thomas Haring, Icking, all of Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany

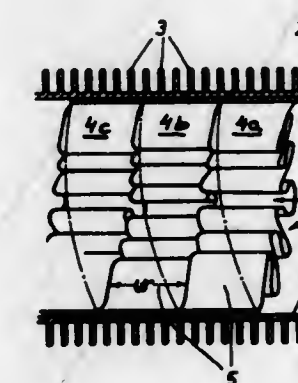
Filed July 28, 1969, Ser. No. 845,399

Claims priority, application Germany, July 29, 1968, Sept. 9, 1968, P 17 51 779.2; P 17 76 041.7

Int. Cl. B01d 1/100; F28f 1/00; F28d 7/10

U.S. Cl. 159-28 D

13 Claims



An apparatus for the evaporation of low-temperature liquefied gases which comprises a tube bundle immersed in a water bath which may be heated by steam. The tubes of the

bundle each contain a plurality of turbulence-inducing baffles which are soldered or welded to the inner surface of the tube and are of plane undulating, zigzag or coiled configuration. Successive baffles may be angularly offset about the axis of the tube from one another.

3,595,300

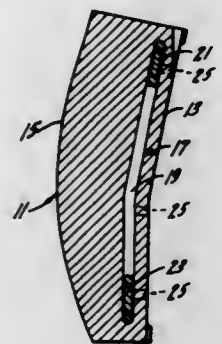
METHOD OF CASTING WEARING PART HAVING RETAINING STRUCTURE

Edwin S. Long, New Berlin, Wis., assignor to Nordberg Manufacturing Company, Milwaukee, Wis.
Filed Aug. 21, 1969, Ser. No. 852,036

Int. Cl. B22d 19/02

U.S. Cl. 164—75

3 Claims



A method of casting a wearing part having a body of a hard and relatively brittle wear-resistant material and a retaining structure located within the body by coating the retaining structure with a separating material before pouring the molten material of the wearing part around the retaining structure.

3,595,301

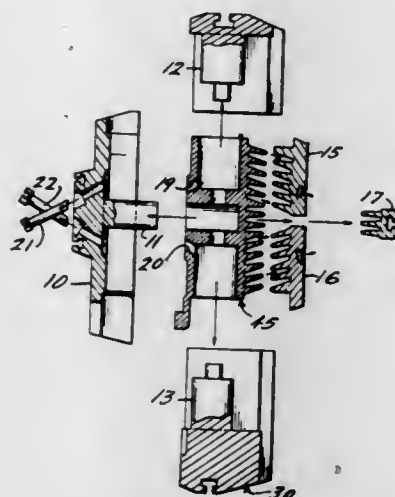
METHOD OF MAKING INTRICATE DIE CASTINGS

Alfred F. Bauer, Toledo, Ohio, assignor to National Lead Company, New York, N.Y.
Filed Dec. 26, 1968, Ser. No. 787,118

Int. Cl. B22d 27/10, 33/04

U.S. Cl. 164—113

4 Claims



A method of making intricate die castings that have undercuts and intersecting surfaces such that removal of a casting from a conventional diecasting machine would be extremely difficult. In accordance with the invention, a plurality of separable die elements are brought together outside the diecasting machine to form a complete die cavity. The assembled die is inserted into a conventional diecasting machine, the shot made, and the die, with the casting therein removed as a unit. The die parts are disassembled from the casting outside the machine. Each or all of the die parts may be lubricated and brought to a predetermined temperature prior to reassembly.

COOLING STRUCTURE FOR CONTINUOUS-CASTING MOLD

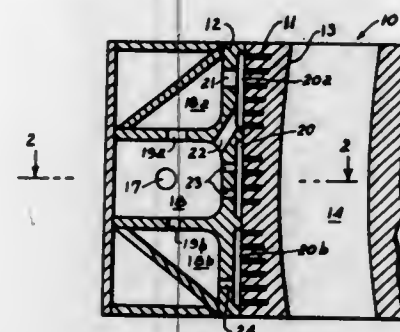
Paul Mallener, Dusseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany
Filed May 13, 1968, Ser. No. 728,732

Claims priority, application Germany, May 11, 1967, P 15 58 312.7

Int. Cl. B22d 11/00

U.S. Cl. 164—283

9 Claims



In an open-ended continuous-casting mold in which molten metal poured in the top of the open-ended mold cavity is cooled by the mold and withdrawn from the bottom as a partially solidified strand, and in which the mold cavity is defined by the face surfaces of mold plates attached to backing plates, structure for cooling the mold comprises ducts for cooling fluid integral with the mold plates. The ducts are formed at the interface between the backing plates and the mold plates, the cross-sectional dimensions of the ducts, their arrangement, and the thicknesses through the walls of the mold plates from the ducts to the face surfaces of the mold plates being such that fluid flowing through the ducts abstracts more heat in a given time from the upper portions of the mold cavity than from its lower portions. In molds for casting slabs having elongated, generally rectangular cross sections the thickness of the mold plate walls, between the ducts and the face surfaces of the mold plates, are less at their central portions than at their side edge portions, so that the cooling fluid will abstract more heat from the central portions of the elongated sides of the mold cavity than from the end portions of said sides.

3,595,303

APPARATUS FOR CASTING MOLTEN SUBSTANCES

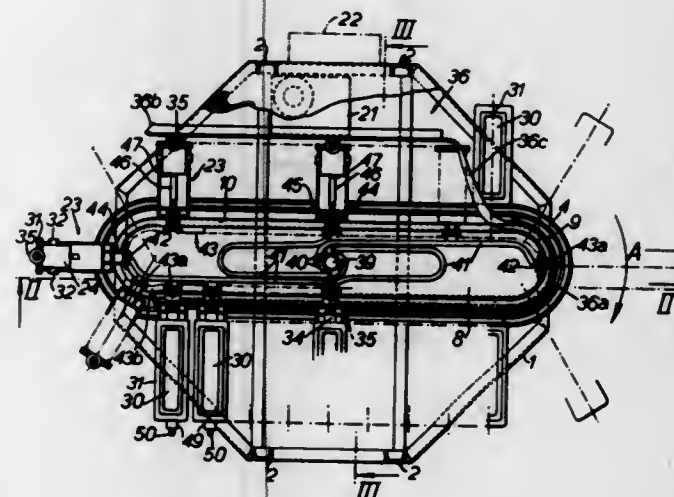
Eric J. Ponting, 167 Tamworth Road, Sutton Coldfield, Warwickshire, England
Filed Nov. 14, 1968, Ser. No. 775,755

Claims priority, application Great Britain, Nov. 16, 1967, 52,209/67

Int. Cl. B22d 5/02

U.S. Cl. 164—326

10 Claims



In apparatus for casting molten substances, a battery of molds is carried upon and around the exterior of a horizontal

endless conveyor, each mold is so pivoted within a carriage connected to at least one endless chain incorporated in the conveyor, that it tends to tilt from the horizontal to the vertical, and means are provided whereby, when the apparatus is being operated, coolant liquid is sprayed continuously on to the external surface of the molds and, as each carriage is conveyed from a pouring station where a quantity of molten substance is charged into the mold pivoted therein, the mold is held in the horizontal until the substance is at least partially solidified, whereupon the mold is permitted to turn to the vertical to strip the cooled substance therefrom, and is returned to the horizontal before the carriage is returned to the pouring station.

3,595,304

ORGANIC FLUIDS FOR HEAT PIPES

Kenneth L. McHugh, Kirkwood, Mo., assignor to Monsanto Company, Saint Louis, Mo.

Filed Sept. 15, 1967, Ser. No. 667,970

Int. Cl. F28d 15/00

U.S. Cl. 165—1

2 Claims



Certain aromatic and aliphatic organic compounds are disclosed as working fluids for heat pipes, thus affording improved operation in the temperature range from about -40°C . to about 500°C . These fluids have critical temperatures in excess of 300°C ., kinematic viscosities less than 500 centistokes at 0°C ., and the numerical product of surface tension and latent heat of vaporization is greater than 2500 dyne-calories per gram-centimeter.

3,595,305

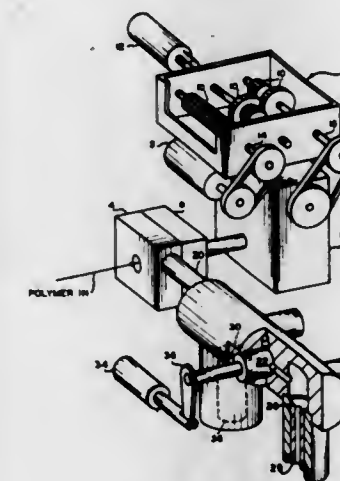
MELT RHEOMETER

Richard O. Welty, and Floyd H. McGinnis, Tulsa, both of, Okla., assignors to Phillips Petroleum Company
Filed Jan. 19, 1970, Ser. No. 3,790

Int. Cl. F24h 3/00

U.S. Cl. 165—47

5 Claims



An improved melt rheometer having a power transmission, a plurality of orifice elements, and an improved heater block

3,595,306

TEMPERATURE CONTROL DEVICES

Robert Lewis Bickerdike, Clays Farm, East Worthing, Alton Hampshire; John Gwynne Davies, 38 Church Hill Crescent Hawley Lane Estate, Farnborough; William Norman Mair, Flyingdales, Upper Old Park Lane, Farnham, Surrey, and Allen Benjamin Osborn, 26 Napoleon Ave., Farnborough, all of, England

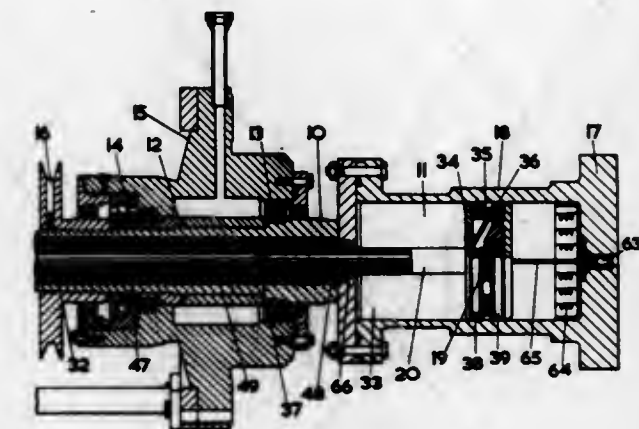
Filed July 24, 1969, Ser. No. 844,534

Claims priority, application Great Britain, July 26, 1968, 35,729/68

Int. Cl. F24h 3/00

U.S. Cl. 165—47

7 Claims



A temperature control device for a body comprises a member which includes a tube integral with or in efficient thermal contact with the body, a piston within the tube and means whereby its position therein may be controlled, and means for introducing heat exchange medium into the tube on the side of the piston remote from the body and means for removing it therefrom. Advantageously the heat exchange medium passes through the piston during its circulation and is brought into intimate contact with the wall of the tube. The device described is particularly applicable to bodies the temperature of which has to be controlled during rotation.

3,595,307

STORAGE TANK HEATING ARRANGEMENT

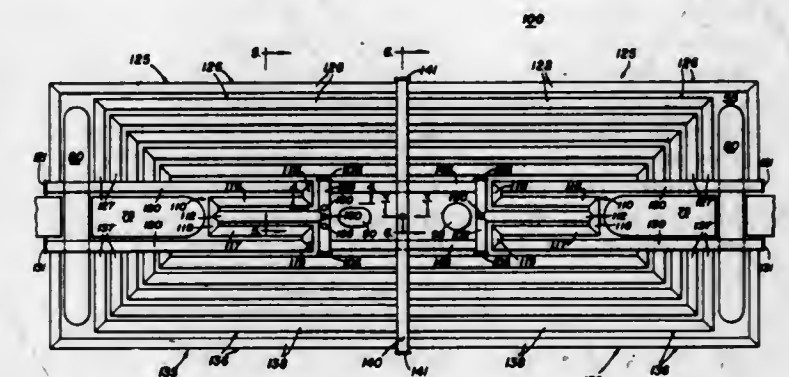
Erling Mowatt-Larsen, Warren, Ohio, and William A. Taylor, Sharpville, Pa., assignors to General American Transportation Corporation, Chicago, Ill.

Filed Sept. 17, 1969, Ser. No. 858,794

Int. Cl. F24h 7/02

U.S. Cl. 165—47

20 Claims

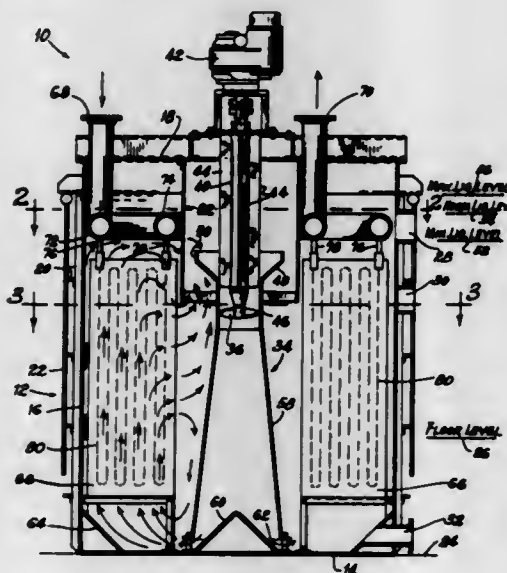


A cylindrical tank car has on the underside thereof a centrally disposed lading outlet and a heating arrangement which comprises an input manifold assembly extending longitudinally the length of the tank bottom and including a central rectangular input section circumscribing the lading outlet, two intermediate sinuous coil sections respectively communicating with opposite ends of the rectangular section, and

two end manifold sections, a circumferentially extending output manifold midway between the tank ends cooperating with the input manifold assembly to divide the tank bottom into four areas, each area having a group of heating coils communicating with the adjacent input manifold section and with the output manifold; heating fluid is supplied to the rectangular input section and withdrawn from the output manifold.

3,595,308
APPARATUS FOR COOLING LIQUIDS
Lewis H. Durbin, P.O. Box 1148, Birmingham, Ala.
Filed Aug. 1, 1969, Ser. No. 846,748
Int. Cl. F28f 13/06
U.S. Cl. 165-107

6 Claims



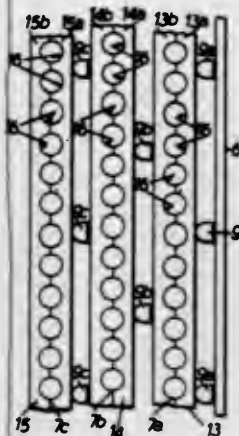
The cooling apparatus is especially advantageous for cooling hot viscous liquids such as hot phosphoric acid. The liquid is contained in a generally cylindrical tank having an axial down draft tube with a pumping propeller therein. The liquid passes over a circular weir at the upper end of the tube and is pumped downwardly by the propeller. At the lower end of the tube, the liquid is deflected outwardly in all radial directions by a generally conical deflector. The liquid is then deflected upwardly by a frustoconical or parabolic deflector. A large number of cooling coils or plates are positioned in radial longitudinal planes in the tank so that the liquid passes upwardly through the spaces between the coils. Cooling water or the like is circulated through the coils between ring-shaped header pipes disposed above the coils. A cylindrical baffle projects downwardly between the weir and the cooling coils so that the liquid must pass under the baffle to get to the weir. The shaft for the propeller passes downwardly through a tube having longitudinal radial vanes which suppress whirling of the liquid above the propeller.

3,595,309
HEAT EXCHANGER WITH HELICALLY COILED TUBES
Ronald J. Hawkins, Morden, Surrey, England, assignor to Babcock & Wilcox, Limited, London, England
Filed July 30, 1969, Ser. No. 846,095
Claims priority, application Great Britain, July 31, 1968, 36565/68
Int. Cl. F28d 7/02; F28f 9/00
U.S. Cl. 165-162

7 Claims

A heat exchanger in which a plurality of helically coiled heat exchanger tubes are arranged in concentric relation to one another and the radial spacing between each pair of adjacent tube coils is established by radially projecting spacers

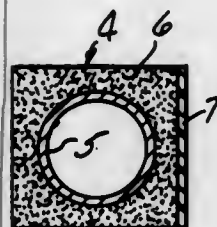
connected to interconvolution spacers associated with one tube coil of the pair, and disposed for abutting engagement



with interconvolution spacers associated with the other tube coil of the pair and/or such other tube coil itself.

3,595,310
MODULAR UNITS AND USE THEREOF IN HEAT EXCHANGERS
Frederick A. Burne, Hamden, Conn., and Emery I. Valyi, Riverdale, N.Y., assignors to Olin Corporation
Continuation-in-part of application Ser. No. 723,339, Dec. 18, 1967, now Patent No. 3,493,042, dated Feb. 3, 1970, which is a Division of Ser. No. 629,954, Apr. 11, 1967, Pat. No. 3,415,316.
Filed Nov. 12, 1969, Ser. No. 875,661
Int. Cl. F28f 1/22
U.S. Cl. 165-181

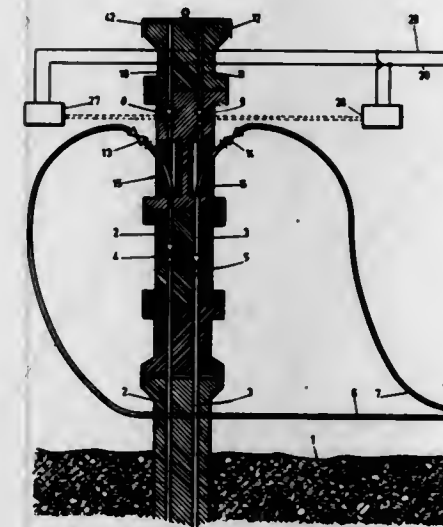
7 Claims



A modular heat exchange unit comprising at least one impervious tube conductively bonded to a layer of porous material. The layer of porous material has an outer surface which is contoured so as to cooperatively engage at least one other such modular unit when they are assembled in a heat exchanger. The modular unit is provided with at least one resilient sealing member attached to the surface of said layer of porous material. The sealing member resiliently engages the abutting surfaces of adjacent units so as to substantially reduce bypass of the heat exchange fluid in an assembled heat exchanger. The modular units may contain more than one impervious tube, and the tubes may extend beyond the layer of porous material. In other embodiments, the layer of porous material may be shaped to fit adjacent a tubular wall, the impervious tubes may extend to at least one surface of the unit, the sealing members may be hollow or the unit may have at least one fin.

3,595,311
CONNECTING UNIT FOR THE COMPLETION EQUIPMENT OF A PRODUCING UNDERWATER WELL
Jacques Harboun, Jouars Ponchartrain, and Andre Castela, Mesnil le Roi, both of, France, assignors to Institut Francais du Pétrole Des Carburants Et Lubrifiants
Continuation-in-part of application Ser. No. 698,605, Jan. 17, 1968, now abandoned. This application Apr. 14, 1969, Ser. No. 815,685
Claims priority, application France, Jan. 19, 1967, 91850
Int. Cl. E21b 33/035
U.S. Cl. 166-5

8 Claims

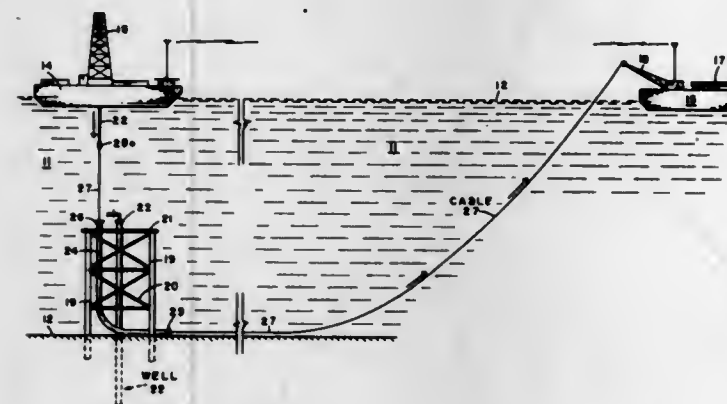


A connecting unit located between each production tubing and the associated head valve and wing flow line, this unit being provided with a housing whereinto open through separate apertures the tubing, the head valve and the flow line and which contains a rotatable element.

This element is provided with a first duct adapted to connect the tubing with the flow line in a first position of the rotatable element and a second duct adapted to connect the tubing with the head valve in a second position of the rotatable element.

3,595,312
METHOD AND APPARATUS FOR INSTALLING OFFSHORE FLOW LINES
Jamie F. Matthews, Jr., Houston, Tex., assignor to Esso Production Research Company
Continuation-in-part of application Ser. No. 797,749, Feb. 10, 1969, now abandoned. This application Sept. 18, 1969, Ser. No. 859,055
Int. Cl. E21b 43/01; F16I 1/00
U.S. Cl. 166-5

37 Claims



Offshore flow lines are installed on an offshore structure in a body of water by pulling (and/or pushing) a flow line downwardly from water surface through a curved tubular member until one end of the flow line is available to water

surface at a horizontally spaced-apart point from said structure. The flow line may be arranged in the curved tubular member when the offshore structure is built and the flow line pulled and/or pushed through it when the structure is located in a vertical position in a body of water.

3,595,313
TUBE CUTTING TOOL
Claude W. Gray, c/o O.K. Fishing & Rental Inc., P.O. Box 10131, Houma, La.
Filed May 12, 1970, Ser. No. 36,578
Int. Cl. E21b 29/00
U.S. Cl. 166-55.6

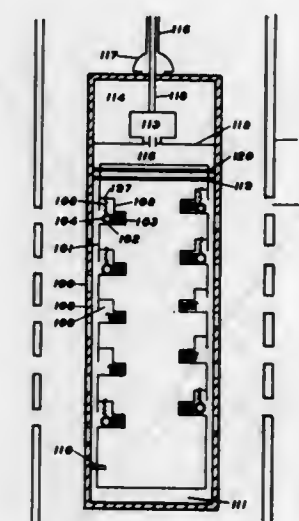
10 Claims



A cutting tool is lowered into a well bore over a string of tubes to cut the tubing at any desired depth by rotation of the tool body. Spring blades anchored to the tool body at their lower ends, project through openings into the body and mount cutting tips at the upper ends engageable with the tubing.

3,595,314
APPARATUS FOR SELECTIVELY PLUGGING PORTIONS OF A PERFORATED ZONE
Charles Robert Garner, Tulsa, Okla., assignor to Cities Service Oil Company
Filed June 2, 1970, Ser. No. 42,785
Int. Cl. E21b 33/13
U.S. Cl. 166-192

10 Claims



Wellbore apparatus having perforation ball sealers attached thereto and properly spaced along the length of the tool is positioned in a perforated wellbore liner. The wellbore apparatus is positioned so that ball sealers are adjacent to the

perforations through which fluid is not desired. When fluid is pumped down the wellbore, the ball sealers are forced to enter the desired portion of the perforated wellbore liner. The apparatus provides a means for selectively plugging an interval of a perforated wellbore liner while allowing fluid to flow in other zones of the wellbore.

3,595,315 GAS LIFT VALVE

Thomas R. Alley, 4002 Fulton, Houston, Tex.
Filed Jan. 19, 1970, Ser. No. 3,993
Int. Cl. E21b 33/00; F04f 1/08
U.S. Cl. 166—224

17 Claims



A gas injection valve having a thin-wall, annular valve cage with the operative valve components formed in the valve wall. In the concentric form of the valve, the central flow passage of the valve is coaxial with the central flow passage of a conventional tubing string and has approximately the same internal diameter as the tubing in the string. The external diameter of the valve corresponds substantially to that of a conventional connecting coupler employed in a tubing string to contribute to the thin-walled valve construction which permits unrestricted well operations conducted internally or externally of the valve. Gas flow through an injection passage extending between the central flow passage and the external valve surface is controlled by a resilient tubular control sleeve which selectively engages an annular valve seat. A pressurized fluid contained in a hydraulic linkage chamber extending behind the control sleeve biases the sleeve into engagement with the seat. The hydraulic fluid pressure is regulated by the combined forces of a coil spring and pressure induced forces acting on an axially movable tubular piston forming part of the hydraulic chamber. The force exerted by the spring may be adjusted by altering its compression with opening of the valve being dependent upon the combined effects of internal and external valve pressures, and the force exerted by the spring. A check valve in the flow passage prevents reverse flow through the valve wall.

Production of well fluids may be effected either through the associated production tubing or, by appropriate modification, the production tubing may be employed to supply lift gas for production through another conduit such as the well casing.

The tool may be modified for side mounting externally of a tubing string.

ERRATUM

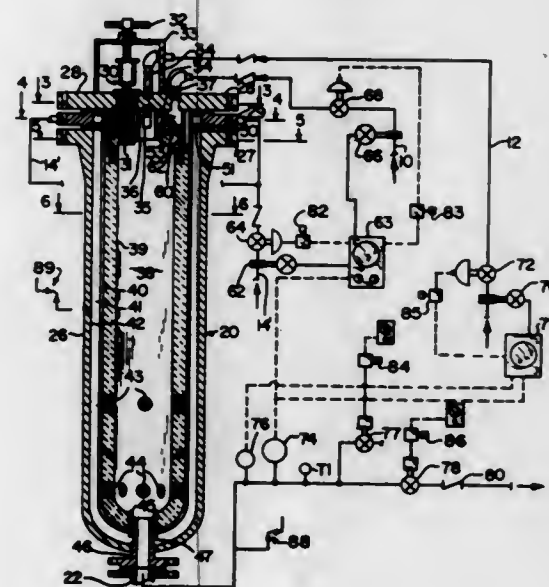
For Class 166—292 see:
Patent No. 3,595,642

3,595,316 AGGREGATE PROCESS FOR PETROLEUM PRODUCTION

Walter A. Myrick, III, 653 Evergreen, Borger, Tex.
Filed May 19, 1969, Ser. No. 825,671
Int. Cl. E21b 43/24

U.S. Cl. 166—303

10 Claims



Water, hydrocarbons, and air are reacted together within a catalytic chamber to provide high temperatures, high-pressure products of reaction having increased percentage composition of hydrogen and carbon dioxide therein. A catalyst in the form of an alkali metal oxide or an alkaline earth metal oxide is carried to the reaction zone in the water stream, thereby providing the additional function of treating the water. The high temperature oxygen free gases are injected into a reservoir and contact the oil bearing formation thereof to increase the production of crude therefrom.

3,595,317 INHIBITING EXPLOSIONS IN COAL MINES AND THE LIKE

Samuel M. Bell, Windsor Road, Pittsburgh, Pa.
Filed Feb. 19, 1970, Ser. No. 12,847
Int. Cl. A62c 3/00

U.S. Cl. 169—2 R

7 Claims

This application discloses inhibiting of explosions in coal mines and the like by broadcasting an inert material in the mine in the form of finely divided shells of bivalves.

3,595,318 ACCELERATOR FOR FIRE EXTINGUISHER SYSTEM

Philip H. Merdinyan, East Greenwich, R.I., assignor to Grinnell Corporation, Providence, R.I.
Filed Aug. 1, 1969, Ser. No. 846,814
Int. Cl. A62c 35/00

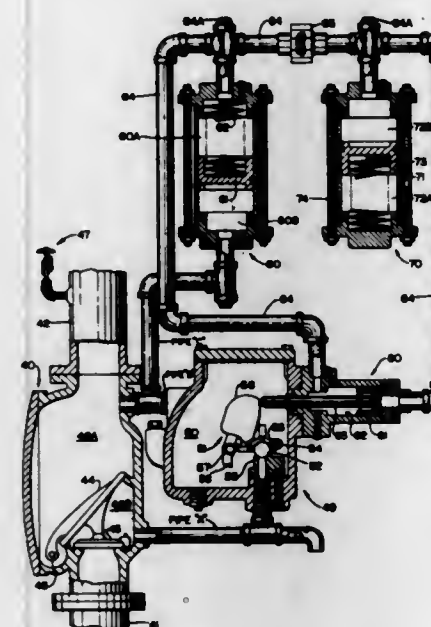
U.S. Cl. 169—17

13 Claims

A dry pipe valve accelerator device for a sprinkler system wherein a portion of the accelerator system sensitive to the opening of one or more of the sprinkler valves is isolated from the water supply. In particular, the air pressure in the sprinkler system is continuously monitored by a differential

pressure chamber such that a recognition of lowering of air pressure in the piping causes the actuation of a differential

the axis of the ball being displaced from the axis of the bolt contained within the bolt casing so that when the bolt is



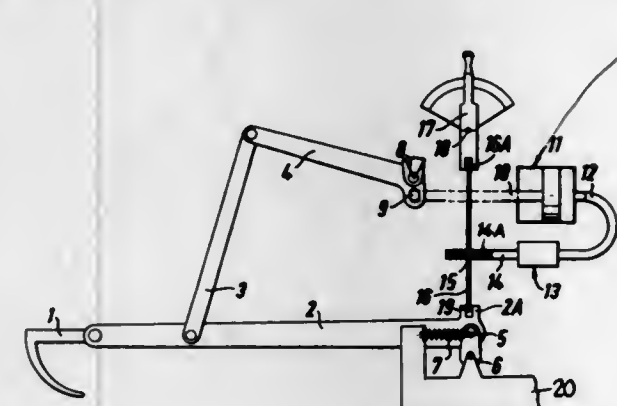
pressure responsive valve actuator which in turn permits the rapid opening of the control valve of the sprinkler system.

3,595,319 IMPLEMENT CARRYING LINKAGE MEANS

Frederick John Adams, Campton, Beds, England, assignor to Cam Gears (Luton) Limited, Luton, Bedfordshire, England
Filed Aug. 14, 1968, Ser. No. 752,577
Int. Cl. A01b 63/112, 63/114

U.S. Cl. 172—9

7 Claims



A three-point linkage for an implement-carrying tractor has one link horizontally moveable against resilience, and has a linkage whereby manual control is exercised differentially to drag load, upon the valve which controls the draft-controlling ram.

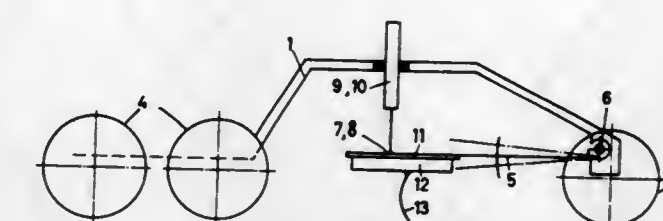
3,595,320 LEVELING APPARATUS

Werner Mittelstadt, Klissing, near Augsburg, Germany, assignor to Eisenwerk Gebr. Frisch KG, Augsburg, Germany
Filed May 9, 1969, Ser. No. 823,358
Claims priority, application Germany, May 14, 1968, P 17 59 556.1

Int. Cl. L02f 3/12; A01b 35/22
U.S. Cl. 172—781

4 Claims

A leveling apparatus for a motor driven vehicle having its blade arranged on a rotating plane disposed beneath a triangularly shaped pivot seat wherein its front end is extended in a ball joint on the chassis of the vehicle and wherein the opposite ends are suspended via ball joints and pivotably arranged on hoists which are freely supported in all directions and mounted on the vehicle chassis so that coupled to the front end of the pivot seat is a bolt casing which receives a bolt containing a ball at its end for the ball joint suspension,



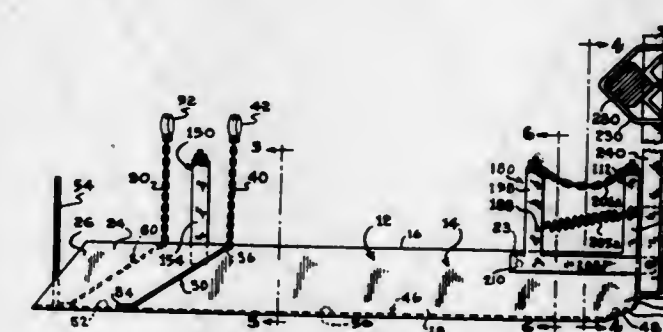
pivoted, the height of the vehicle chassis can be adjusted accordingly.

3,595,321 CULTIVATOR FENDER

Milton G. Dickey, Pine Bluff, Ark., assignor to Farmers Tractor and Equipment Company, Pine Bluff, Ark.
Continuation of application Ser. No. 511,118, Dec. 2, 1965, now abandoned. This application Jan. 16, 1970, Ser. No. 3,438

Int. Cl. A01b 17/00
U.S. Cl. 172—513

13 Claims



A cultivator fender for being dragged along the ground by a cultivator vehicle to shield a row of crops from having earth, cultivated alongside the row by cultivators carried by the vehicle, thrown onto the row. The fender includes a pair of generally vertical elongate shields extending parallel to one another and spaced apart for being dragged along the ground by the vehicle on opposite sides of the row, suspension means adapted for connection to the cultivator, and a link interconnecting each shield and the suspension means. Articulating pivotal connections are provided between the forward end of each link and the suspension means and between the rearward end of each link and its shield to permit the swinging of the links relative to the suspension means and to permit swinging angular movement of the shields relative to the links in response to changing ground contours as the fender is dragged along the ground.

3,595,322 A WALKING PLATFORM FOR DRILLING EQUIPMENT WITH MEANS FOR OSCILLATING THE DRILL TUBE

Otto Reimann, 18 Kaiserstrasse, 29 Oldenburg, Germany
Filed June 11, 1969, Ser. No. 832,194
Claims priority, application Germany, June 11, 1968, P 17 55 712.9

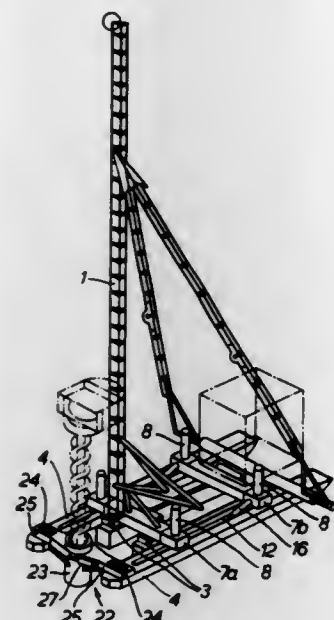
Int. Cl. E21b 3/02

U.S. Cl. 173—122

7 Claims

A walking platform for drilling equipment provided with a swivel arrangement adapted to adjustably hold a drill tube whereby the drill tube can be oscillated during a drilling operation. The platform has support feet linked by a cross-beam guide carrying a slidable crossbeam. The crossbeam is linked to each of two longitudinally displaceable walking feet by a piston cylinder arrangement for lifting the same. A drive means (mounted in gimballike manner) couples the crossbeam to each walking foot to displace (reciprocate) the same. The swivel arrangement is articulately connected to the forward end of each walking foot, and has an adjustable

aperture provided with a tensioning cylinder gripping the drill tube. Each walking foot comprises a trough-shaped



member carrying a rail along which a linkage to each piston cylinder arrangement is displaceably connected through a stirrup and rollers.

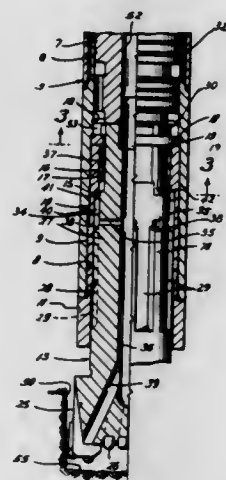
3,595,323

EXHAUST MEANS FOR PERCUSSION TOOL MOTORS
Marvin E. Schindler, and Vernon G. Stewart, both of Houston, Tex., assignors to Misson Manufacturing Company, Houston, Tex.

Continuation-in-part of application Ser. No. 752,990, Aug. 15, 1968, now abandoned. This application June 23, 1969, Ser. No. 835,594
Int. Cl. E21b 1/06

U.S. Cl. 173-66

14 Claims



In one type of percussion drilling tool, the motor has an anvil which is slidable in the forward end of the motor casing between a normal working position and an abnormal advanced position when the tool is hanging off bottom and the working fluid is caused to bypass the piston and "blow" continuously through the anvil. In order to prevent "tapping" of the hammer piston at such time, due to leakage of the working fluid into the forward working chamber, this chamber is vented by means of recesses and passages in the anvil and its mounting chuck and/or the casing which are interconnected when the tool is "blowing," and which are disconnected in the normal operating position of the anvil. Special configurations of parts provide in part the interconnecting recesses and passages.

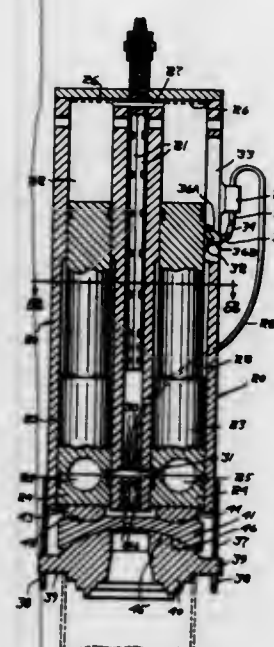
3,595,324
PILE DRIVERS INCLUDING MULTIPLE HAMMERS WITH COMMON ANVILS

Charles L. Guild, 90 Water St., East Providence, R.I., and Willard B. Goodman, 5 Larkspur Drive, Bellville, Ill.

Filed Sept. 11, 1968, Ser. No. 759,172
Int. Cl. E02d 7/00

U.S. Cl. 173-101

27 Claims



Piledrivers, each including a plurality of hammers and common anvil means with aligning pads between the hammers and the anvil means and with means for phasing the operation of the hammers, with means for compensating for the effects of unphased hammer operations, and combinations thereof.

3,595,325

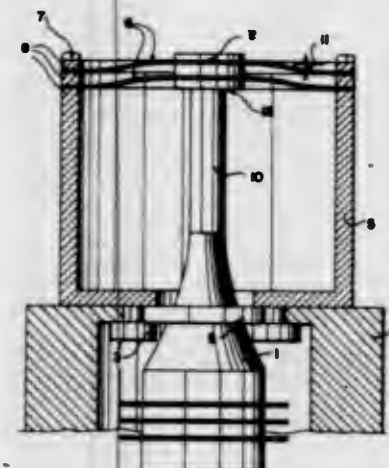
INTERMEDIARY IMPACT DEVICE

Charles C. Libby, and William J. White, both of Columbus, Ohio, assignors to The Ohio State University, Columbus, Ohio

Filed Apr. 28, 1969, Ser. No. 819,886
Int. Cl. H01v 7/00

U.S. Cl. 173-117

9 Claims



This invention is an apparatus for transferring vibratory-mechanical energy from an electromechanical transducer to a work surface by providing an intermediary impacting means which alternately contacts the work surface and the transducer. The intermediary impacting means is restrained for collinear movement by a flexible restraining means having a rigid support which is fixed to the nodal region of the electromechanical transducer.

3,595,326

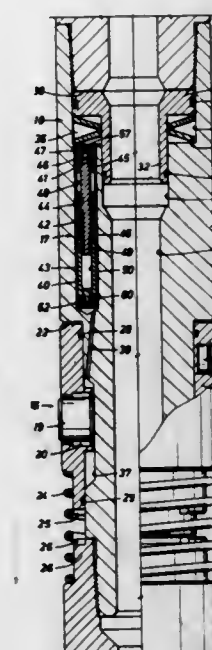
DIRECTIONAL DRILLING APPARATUS

Jackson R. Claycomb, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Feb. 3, 1970, Ser. No. 8,217
Int. Cl. E21b 7/08

U.S. Cl. 175-73

13 Claims



As a preferred embodiment of the invention disclosed herein, a new and improved tool carrying a drill bit on its lower end is dependently coupled from a drill string and lowered into a borehole which is to be excavated along a selected axis. One or more pressure-responsive wall-engaging members are operatively arranged on the tool in such a manner that, when correctly oriented and actuated, the drill bit will be diverted in a desired lateral direction. Pressure-actuated control means are arranged on the tool for selectively extending the wall-engaging members in response to deliberate changes in the circulating pressure.

3,595,327

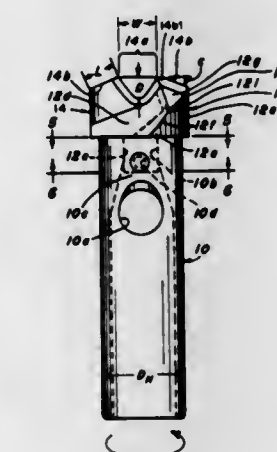
ROTARY DRILL BIT AND HOLDER

Theodore R. Self, Lynch, Ky., assignor to United States Steel Corporation

Filed Aug. 11, 1969, Ser. No. 848,988
Int. Cl. E21b 9/36

U.S. Cl. 175-410

12 Claims



A combination for drilling a hole in a rock strata is disclosed and has a hollow drill bit holder provided with an exhaust port, a shank receiving opening in one end, and a material receiving surface adjacent the one end. A drill bit has a bit body provided with an insert slot extending across the bit body and having a shank in the shank receiving opening so that the drill bit holder and the drill bit rotate as a unit in one direction. A drilling insert is secured in the insert slot

and has a peeling cutter for peeling off substantially large peelings of rock strata, and an outer cutter extending from the peeling cutter to the periphery of the drilling insert for grinding off substantially fine dust from the rock strata. The bit body has a troughing surface sloping away from the peeling cutter and the outer cutter to the material receiving surface. The troughing surface is operable to rapidly guide the peelings and the dust from the peeling cutter and the outer cutter to the material receiving surface and across the material receiving surface to the exhaust port to provide rapid and complete removal of the peelings and the dust. Connecting means are provided for connecting the drill bit holder to the shank, and drive means are used for rotating the drill bit holder and the drill bit to cut the hole in the rock strata.

This combination, as disclosed, is functional to provide improved penetration rates and extended bit life by providing more rapid and complete removal of the peelings and the dust, a reduction in the amount of thrust on the drill bit holder required to drill the hole in the rock strata, and a reduction in the operating temperature of the drill bit.

3,595,328

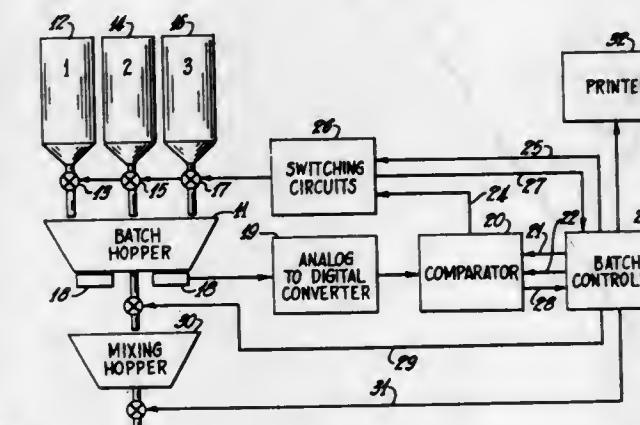
AUTOMATIC BATCH WEIGHING SYSTEM

Paul D. Griem, Jr., Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation

Filed Sept. 8, 1969, Ser. No. 855,951
Int. Cl. G01g 19/22

U.S. Cl. 177-1

10 Claims



An automatic batch weighing system for compounding a series of batches containing predetermined measured quantities of various constituents. The constituents for each batch are successively fed into a batch receiving hopper. The compounded constituents are thereafter mixed in a mixing hopper and delivered to a selected utilizing means. The feeding of each constituent is adjusted by estimating the weight of an unpredictable dribble and by compensating for any deviation in the most recent batch compounded for the selected utilizing means, to average out errors in the series of batches.

3,595,329

WEIGHING APPARATUS WITH OSCILLATION-COMPARISON ELECTRICAL TRANSDUCER

Ronald Withnell, Wading River, N.Y., and Leon Lachman, Millburn, N.J.

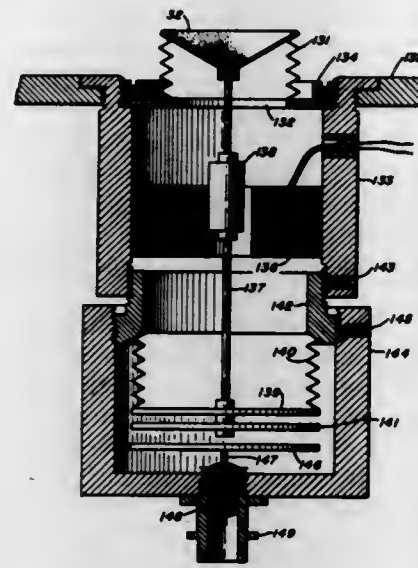
Filed Sept. 30, 1968, Ser. No. 766,018
Int. Cl. G01g 3/16, 7/00

U.S. Cl. 177-210

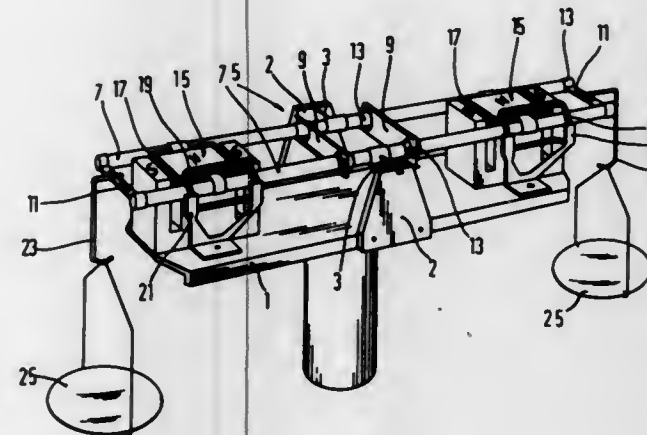
4 Claims

An arrangement for determining the weight of an object relative to a predetermined reference weight. A compliant system is vibrated along a predetermined axis substantially at the mechanical resonance frequency, said system having means for supporting the object. The system oscillation amplitude is proportional to the inertia of the system and is independent of gravity. The oscillation amplitude of the system is converted into an electrical signal which is compared with

a reference signal representative of the reference weight and an error signal is utilized to provide a measurement and/or

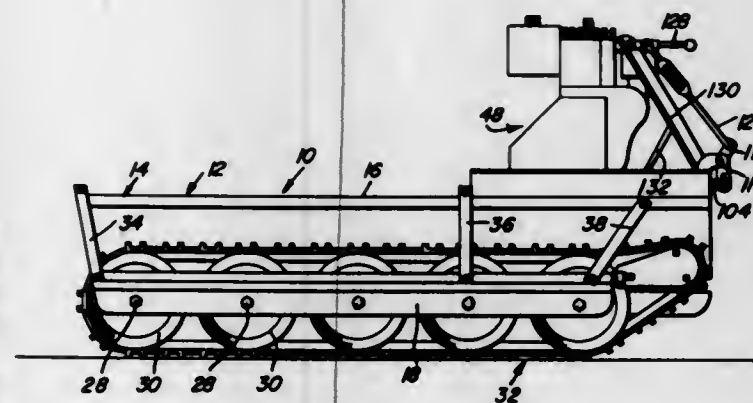


Inductive indicating and magnetic compensating means for indicating said load and for an automatic compensation of said pivotal deflection comprise a pair of rotary moving coils secured to said balance beam on opposite sides of said balance beam axis. A pair of stationary permanent magnets, which are carried by said support and each of which is associated with one of said rotary moving coils, and a pair of identical, stationary, framelike field coils carried by said sup-



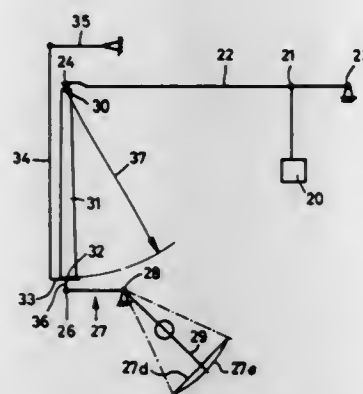
port and adapted to be fed with alternating current. The field coils are each disposed beside and slightly spaced from one of the rotary moving coils associated therewith. Said field coils are symmetrically disposed with respect to said balance beam axis and symmetrically disposed with respect to a reference plane which in said no-load position of said balance beam extends through said balance beam axis and parallel to said balance beam. Said field coils extends transversely to said reference plane.

3,595,332
CRAWLER-TYPE VEHICLE
Grant H. Sanstrom, P.O. Box 2515, Yakima, Wash.
Filed Oct. 9, 1968, Ser. No. 766,078
Int. Cl. B62d 11/02, 11/08
U.S. Cl. 180-6.7 7 Claims



A drive system including a first rotary drive shaft, a pair of driven rotary half shafts and a pair of rotary jackshafts. The shafts generally parallel each other and the jackshafts are supported for independent swinging movement about the half shafts toward and away from the drive shaft. Longitudinally spaced portions of the drive shaft are drivingly connected to the jackshafts through drive belts trained about pulleys on the drive and jackshafts. The jackshafts are drivingly connected to the half shafts through drive chains trained about sprocket wheels on the jack and half shafts and brake means are operatively associated with the jackshafts for braking the latter when they are moved toward the shafts, which movement of the jackshafts simultaneously untensions the belts drivingly connecting the shaft to the jackshafts.

3,595,330
MULTIPLE LEVER PENDULUM BALANCE
Ernst Kuhnle, Balingen, Wurttemberg, Germany, assignor to Bizerba-Werke Wilhelm Kraut Kg, Balingen, Wurt, Germany
Filed Jan. 2, 1969, Ser. No. 788,447
Claims priority, application Germany, Jan. 8, 1968, P 15 74 530.9
Int. Cl. G01g 1/02
U.S. Cl. 177-224 8 Claims

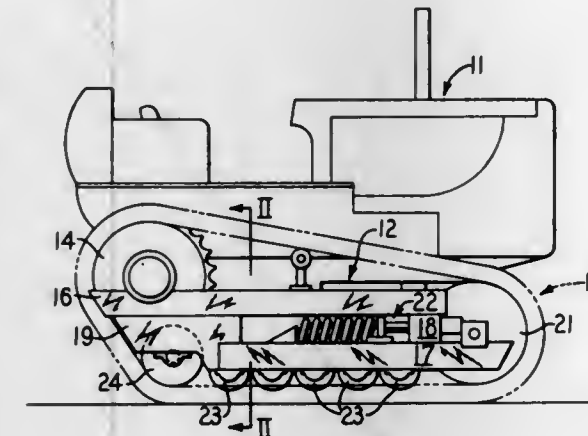


A multiple lever balance having a main lever supported on a main knife edge, a load input knife edge supported on the main lever, a lever having a load to be weighed applied thereto, a horizontally disposed weighing plate connected with the load input knife edge, and a force member connected with the weighing lever and in rolling contact with the weighing plate to assure that horizontal forces are applied vertically to the load input knife edge.

3,595,331
ELECTRONIC BALANCE
Theodor Reinhard Gast, Berlin, and Horst Hertel, Gottlingen-Weende, both of, Germany, assignors to Sartorius Werke G.m.b.H. (und vormals Gottinger Prarisionswaagenfabrik G.m.b.H.)
Filed Dec. 4, 1968, Ser. No. 781,115
Claims priority, application Germany, Dec. 20, 1967, P 15 49 280.5
Int. Cl. G01g 3/14
U.S. Cl. 177-210 7 Claims

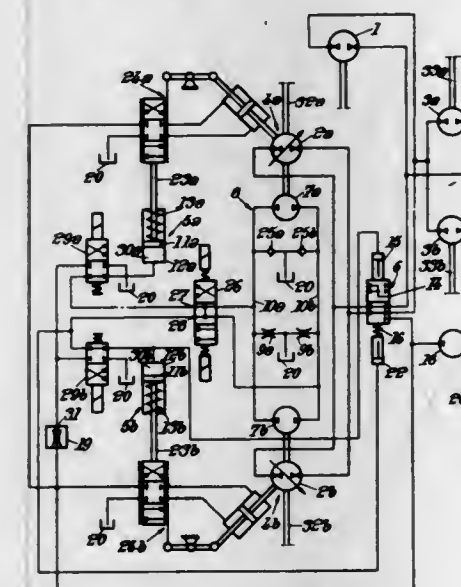
A balance beam adapted to carry a load is mounted on a balance beam support for pivotal deflection on a balance beam axis from a no-load position in response to said load.

3,595,333
HIGH CLEARANCE TRACTOR
Gail G. Barbee, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Sept. 24, 1969, Ser. No. 860,494
Int. Cl. B62d 55/08
U.S. Cl. 180-9.62 2 Claims



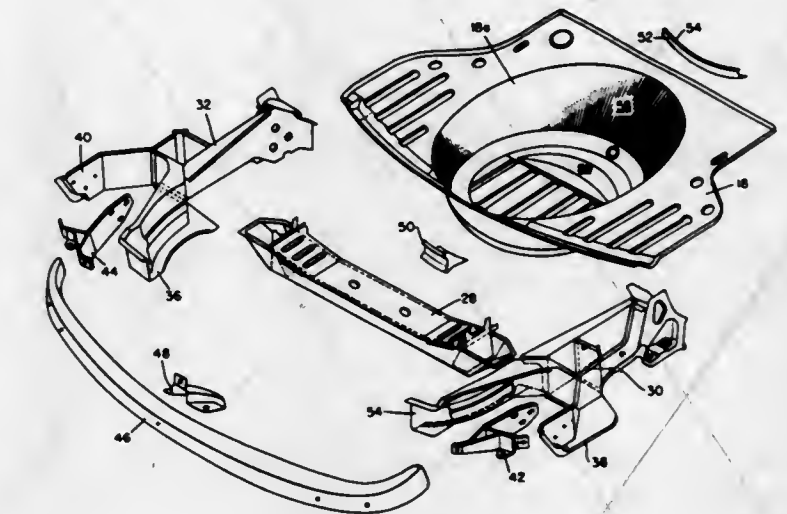
A high clearance track-type tractor wherein the undercarriage on each side of the tractor includes an upper frame member supporting a drive sprocket in a relatively conventional position relative to the tractor body. A lower track roller frame member is rigidly secured to the upper frame member and supports an idler sprocket, a plurality of track rollers, with an additional track roller being supported generally beneath the drive sprocket to form a triangular path for the endless track.

3,595,334
HYDROSTATIC TRANSMISSION CONTROLS
Olivier Issac, Lyon, France, assignor to Societe Industrielle Generale De Mecanique appliquee S.I.G.M.A., Paris, France
Filed Sept. 17, 1969, Ser. No. 858,654
Claims priority, application France, Sept. 20, 1968, 167,082
Int. Cl. B60k 17/10
U.S. Cl. 180-66 R 11 Claims



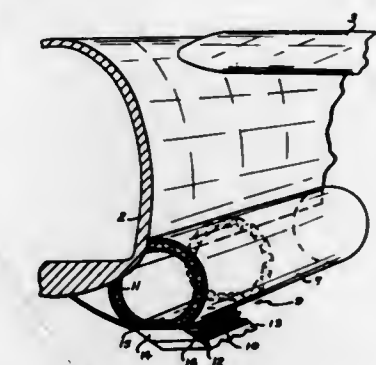
A hydrostatic transmission of the kind useful in automotive vehicles is provided with dual speed-range control, such as is especially useful for heavy-duty vehicles used at low speed of travel on a working site but so that travel at relatively high speed is possible between such sites, and with smooth transition between speed ranges. Also provided is an antislip control to counteract automatically any overspeeding of the drive means for either traction wheel on a common axle.

3,595,335
FRONT END VEHICLE BODY STRUCTURE
Henry W. Wessells, III, Paoli, and Walter S. Eggert, Jr., Huntingdon Valley, both of, Pa., assignors to The Budd Company, Philadelphia, Pa.
Filed Sept. 25, 1969, Ser. No. 861,096
Int. Cl. B60r 19/00
U.S. Cl. 180-91 4 Claims



A safety body structure for the front end of a rear engine mounted vehicle having a pickup device for moving a spare tire from a horizontal stored position to a vertical buffer position during a frontal collision of the vehicle and providing a body structure for progressive yielding during collision.

3,595,336
HIGH ENERGY AIR CUSHION VEHICLE SKID BRAKE
David J. Perez, 1302 Knollwood Drive, Dayton, Ohio
Filed Sept. 19, 1969, Ser. No. 859,467
Int. Cl. B60v 1/16
U.S. Cl. 180-128 6 Claims

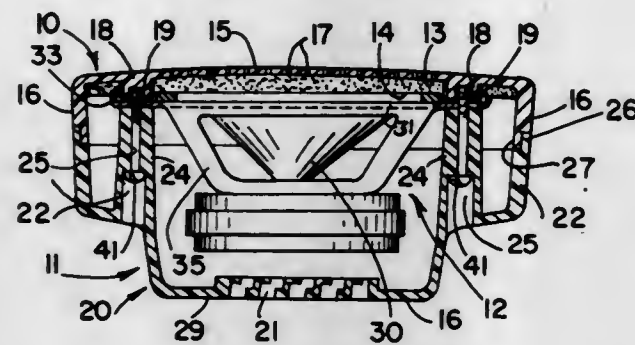


A high energy air cushion skid brake for decelerating gas cushion vehicle utilizing an air trunk (bag) design comprising means for rigidizing the air trunk structure to provide high contact skid pressure and including an expansible bellows mounted on the bottom side of the air trunk structure with friction skid brake members carried on the lower side of the bellows for ground contact with means for inflating and expanding the bellows for surface contact and including an air pervious heat shield fixed between the bellows and the skid brake member which dissipates the skid brake friction heat away from the rigidized air trunk structure when the skid brake member contacts with the ground.

3,595,337
SPEAKER ASSEMBLY
Bart C. Furey, Wheaton, and Robert A. Paul, Hanover Park, both of, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Mar. 16, 1970, Ser. No. 19,643
Int. Cl. H04r 1/28; G10k 13/00
U.S. Cl. 181-31 B 10 Claims

A loudspeaker assembly including a loudspeaker supported within a housing wherein the mounting rim of the loud-

speaker is sandwiched between mounting posts in the front and rear housing members which align and hold the speaker



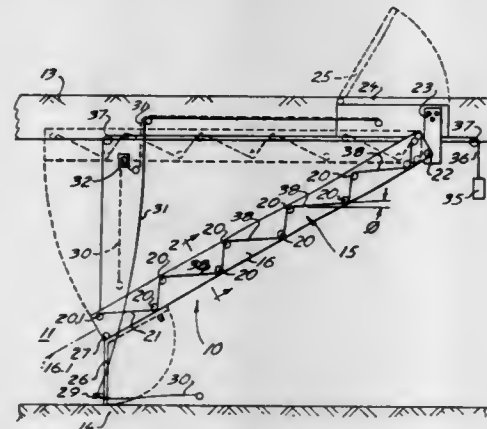
housing together. The loudspeaker rim has a lip which engages certain mounting posts preventing movement of the loudspeaker.

3,595,338 FIRE ESCAPE

Frederick Booth, 1429 Hamilton St., New Westminster, British Columbia, Canada
Filed June 18, 1970, Ser. No. 47,418
Int. Cl. E06c 7/08, 9/06

U.S. Cl. 182-49

5 Claims



A fire escape having a sheet of smooth flexible material woven between staggered rows of transverse braces so as to present a flight of stairs, and means for supporting the flight of stairs in an inclined position wherein treads of steps slope outwards and downwards to facilitate an escape to descend the fire escape in a sitting position.

3,595,339

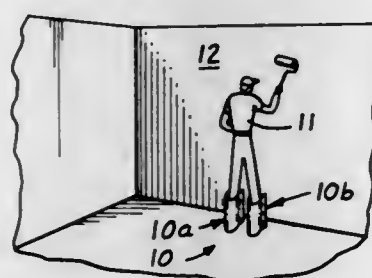
PAIR OF STILT BOOTS

Wesley D. Ballard, c/o S. M. Tucker, 1011 North 15th St., and John H. Staley, 4512 Timbercrest Lane, both of Waco, Tex.

Filed Feb. 24, 1970, Ser. No. 13,602
Int. Cl. A43b 7/16, 3/10; F04g 1/00

U.S. Cl. 182-230

10 Claims



The invention discloses a pair of stilt boots, incrementally vertically adjustable, whereby the operator, by foot movement, can selectively release the spring urged latched foot

plates attached to his respective left and right feet, to raise or lower them by selective weight shift and foot pressure control. Each boot mainly comprises a boot housing or latch lug positioner or support providing vertically spaced apart latch means under which a step plate, to which a foot of the operator is attached, may be latched in increments of vertical adjustment.

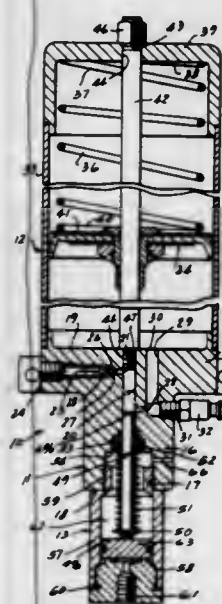
3,595,340

LUBRICATION PUMP

Ronald F. Obergefell, Richmond Heights, and Edward E. Kish, Cleveland Heights, both of Ohio, assignors to Houdaille Industries, Inc., Buffalo, N.Y.
Filed June 30, 1969, Ser. No. 837,763
Int. Cl. F16n 13/04

U.S. Cl. 184-27

2 Claims



A lubricant pump assembly comprising a pump body and a lubricant reservoir mounted on the body. The pump body is of cast one-piece construction and is arranged to interchangeably accommodate adapters enabling the pump assembly to be operated either manually, pneumatically, hydraulically or by virtue of a motor drive.

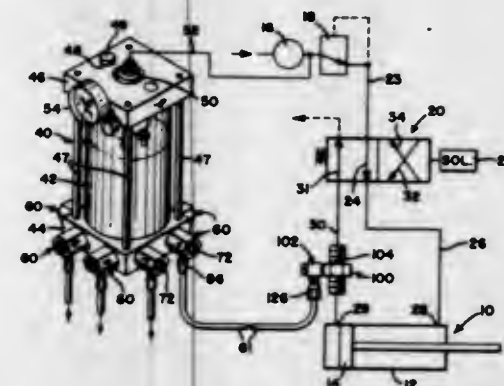
3,595,341

LOW PRESSURE PNEUMATIC MOTOR LUBRICATING SYSTEM

Edgar C. Oglesbee, 1819 Harvard Blvd., Dayton, Ohio
Filed June 25, 1969, Ser. No. 836,408
Int. Cl. F16n 7/34

U.S. Cl. 184-55 A

11 Claims



An automatic low pressure lubricating system with a reservoir and an automatic air pressure regulator for supplying a low air pressure to the oil therein and one or more flow control regulator valves to permit the flow of a small quantity of

oil to a specially constructed fitting in the air line to an air operated motor, such as a piston motor for lubricating the motor. The fitting has a one-way valve, and a hydraulic dam, and permits injection of oil only during the exhaust portion of the cycle. The dam traps the oil and prevents its loss during the exhaust cycle and permits the oil to be picked up on the next succeeding pressure cycle.

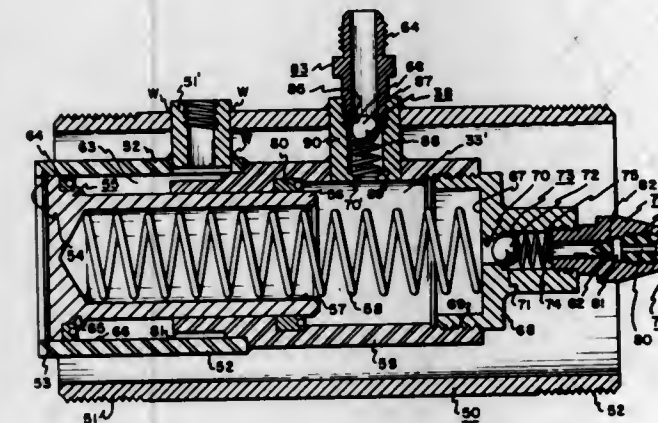
3,595,342

OILER SYSTEM AND DEVICE

Paul C. O'Leary, 2668 Stanford Lane, Salt Lake City, Utah
Filed Sept. 16, 1969, Ser. No. 866,786
Int. Cl. F16n 7/34

U.S. Cl. 184-56 A

5 Claims



The subject comprises an oiler system and device usable with a compressed air supply for providing lubricant-entraining compressed air to an air tool. The same avoids pressuring the oil tank or reservoir of the system and, instead, provides a compressed-air actuated, piston-type pump for sucking in oil from a reservoir into a variable-volume lubricant chamber during periods of absence of applied air pressure and then, during periods of applied air pressure forcing lubricant from the chamber into an oil injector, having a variable, presettable outlet orifice, which is disposed in the compressed air stream leading to the connected air tool. Check valve means is incorporated such that the pressured oil or lubricant is not returned to the reservoir or tank connected to the device during pressure strokes of the piston.

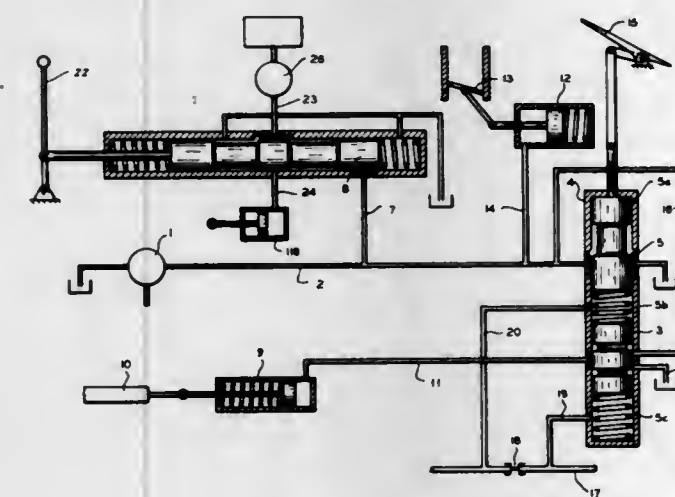
3,595,343

CONTROL SYSTEM FOR LIFT TRUCKS

William A. Williamson, Niles, Mich., assignor to Clark Equipment Company
Filed Jan. 15, 1969, Ser. No. 791,354
Int. Cl. B66b 9/20

U.S. Cl. 187-9

8 Claims



The system employs hydrostatic drive for a lift truck in combination with hydraulic system elements which control

3,595,344

DEVICES FOR SHIPBOARD FASTENING OF ROLLING MATERIAL

Jacob Woestenburg, Landrestraat 49, The Hague, Netherlands

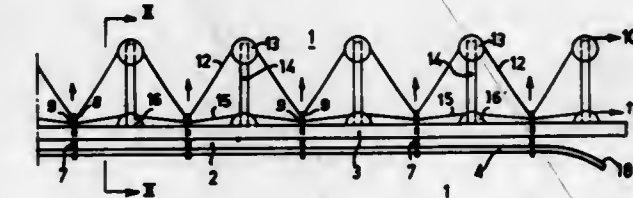
Filed June 10, 1969, Ser. No. 831,946

Claims priority, application Netherlands, June 14, 1968, 6808372

Int. Cl. B60t 3/00

U.S. Cl. 188-32

6 Claims



A wheel receiving and clamping track includes a fixed rail and a juxtaposed clamping rail which is movable laterally toward and away from the fixed rail. Elongated actuating members are slidable transversely of the track and engage the clamping rail at longitudinally spaced points. Two sets of pulleys are mounted at fixed points on the side of the fixed rail opposite from the clamping rail and two actuating cables pass over the respective sets of pulleys and through eyes in the actuating members so that when one of the cables is tightened the actuating members draw the clamping rail toward the fixed rail while tightening of the other cable releases the clamping rail.

3,595,345

BRAKE ASSEMBLY MECHANISM

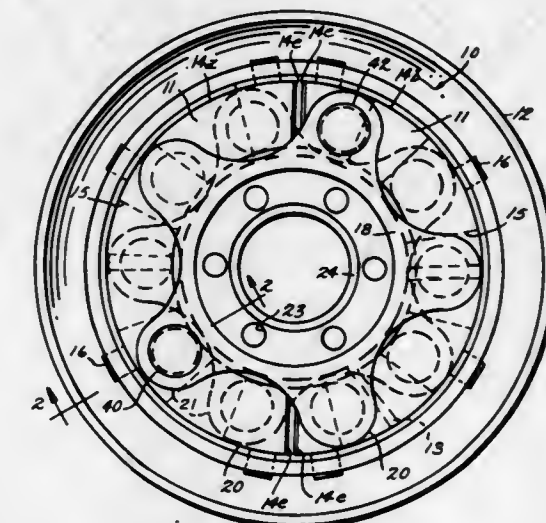
Howard W. Wachenheim, 2525 Ward St., Apt. G-8, Smyrna, Ga.

Filed June 18, 1969, Ser. No. 834,409

Int. Cl. F16d 55/02

U.S. Cl. 188-72.4

4 Claims



A disc-type brake assembly is described in which the braking disc is an annular member having stopping surfaces facing laterally of the wheel. The disc is a hollow cast member having a plurality of radial passageways extending from the radially inner edge to the radially outer edge of the disc for cooling purposes, and the disc is divided circumferentially

into two semicircular sections with the ends of the sections being spaced sufficiently to allow thermal expansion of the sections. The disc sections are fixedly attached to the wheel either by screws extending radially from the wheel into the radially outer edge of the disc or by projections integral with the disc and extending radially outwardly therefrom to engage with the wheel. In the latter form of attachment tension spring clips are used to join the disc sections at the ends thereof. An annular housing is provided which supports the radially inner edge of the disc member and has a plurality of cylinders extending radially outwardly therefrom on each side of the disc member so that the inner ends of the cylinders in effect form sidewalls for the housing partially enclosing the lateral surfaces of the disc. Each cylinder has an open end therein adjacent the braking disc and a closed end remote therefrom. A piston is provided in each cylinder which is operated hydraulically to travel axially of the cylinder toward the disc exerting a lateral force thereon for braking purposes. In addition to the cylinders being integral with the housing a conduit is formed integrally within the housing and cylinders continuously connecting each of the cylinders communicating the fluid thereto for the exertion of hydraulic pressure on the pistons. The cylinders are arranged circumferentially so that, while opposed pairs of cylinders are formed from cylinders on opposite sides of the disc, the cylinders in each pair are circumferentially spaced one from the other so that ready access may be had to the interior of each of the cylinders.

3,595,346

SLACK ADJUSTING MECHANISM FOR COMBINED FLUID PRESSURE AND HAND-OPERATED BRAKE APPARATUS

Walter B. Kirk, Monroeville, and Andrew G. Haydu, Pittsburgh, both of, Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed May 26, 1969, Ser. No. 827,725
Int. Cl. F16d 65/54

U.S. Cl. 188—200

11 Claims



A slack adjuster for maintaining slack or lost motion to a prescribed minimum in the hand-operated portion of a combined fluid pressure and hand-operated brake apparatus for a railway vehicle, said slack adjuster, which includes a rack and pawl ratchet mechanism, is so arranged in the brake rigging as to be automatically and incrementally adjustable to one of several successive positions, by operation of the fluid pressure portion of the brake apparatus in effecting a brake, application next subsequent to each time wear of the brake shoes and other elements of the brake rigging has accumulated a predetermined amount, whereby the length of the slack adjuster is incrementally extended to take up excessive slack in the rigging upon occurrence of each of such adjustments, said ratchet mechanism acting to permit extension of the slack adjuster but prevent retraction thereof. The slack adjuster includes manually operable means for resetting the rack of the ratchet mechanism to its retracted position for shortening the length of said slack adjuster when new brake shoes are installed or other causes for excessive slack have been eliminated.

3,595,347

DOUBLE-ACTING SLACK ADJUSTERS

Henry R. Billeter, Deerfield, Ill., assignor to Sloan Valve Company, Chicago, Ill.

Filed May 12, 1969, Ser. No. 832,544

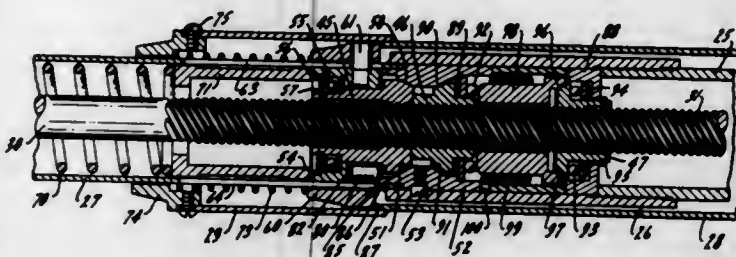
Int. Cl. F16d 65/66

U.S. Cl. 188—202

15 Claims

This slack adjuster employs a threaded rod telescoped within a tubular housing in which there are three spin nuts on the rod adapted to be rotated to either take up slack or let it

out. The spin nuts have clutch surfaces engageable with cooperating clutch surfaces in the housing to control the ac-



tion of the spin nuts. A pin and ratchet on one of the spin nuts prevents it spinning in one direction and a torsion spring prevents spinning of another nut in another direction.

3,595,348

RAILWAY CAR TRUCK BRAKE APPARATUS

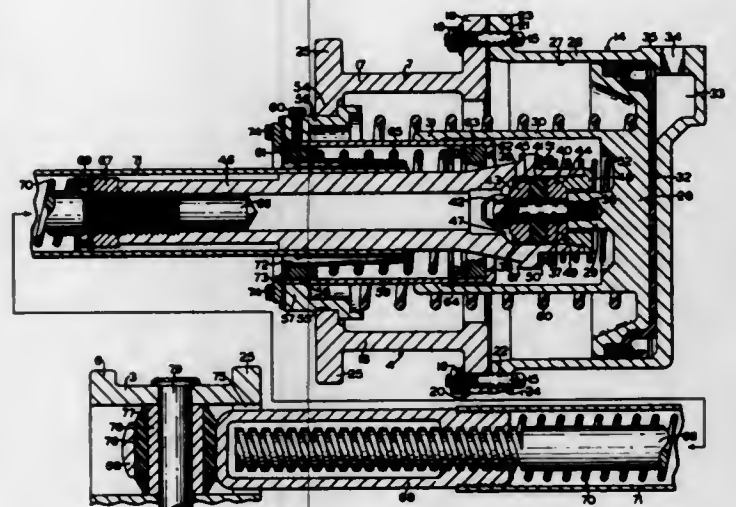
Allen W. Kyllonen, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Nov. 24, 1969, Ser. No. 879,231

Int. Cl. F16d 65/66

U.S. Cl. 188—203

10 Claims



A railway car truck brake apparatus of the type in which two parallel-extending brakeshoe-carrying brake beams are operated to apply and release the brakeshoes to and from the car wheel treads by means of one or more brake cylinder devices secured to the brake beams, each cylinder device being provided with a piston having a piston rod that is operatively connected to the other brake beam and that embodies therein a double acting slack adjuster mechanism that is operable upon the travel of the piston and corresponding piston rod with respect to a fixed part of the brake cylinder device exceeding a chosen value incident to effecting a brake application to either increase or take up slack accordingly as the brakeshoe has or has not moved into contact with the tread surface of the corresponding wheel.

3,595,349

REGULATED HYDRO-PNEUMATIC STRUT

Johannes Orthell, Anrath, Germany, assignor to Langen & Company, Dusseldorf, Germany

Filed Apr. 22, 1969, Ser. No. 818,345

Claims priority, application Germany, May 17, 1968, P 17 50 610.4

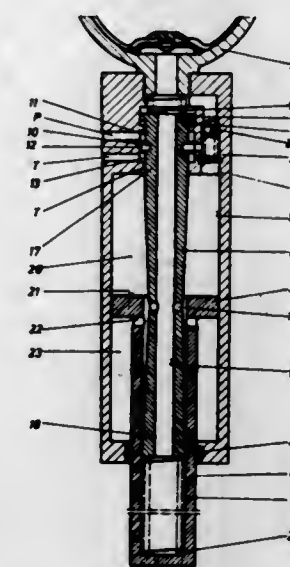
Int. Cl. F16f 9/24

U.S. Cl. 188—289

4 Claims

A level regulated hydropneumatic strut or like component in which a piston-cylinder assembly and a hydroreservoir or accumulator connected to the piston space is so constructed and arranged that the flow paths between the piston space,

the annular space or the space surrounding the piston rod and the reservoir are throttled increasingly, viewed from the transmitting its rotary movement to the wire reel and the engagement of this connecting element with the wire reel is



3,595,350

SNUBBER DEVICE AND BEARING STRUCTURE THEREFOR

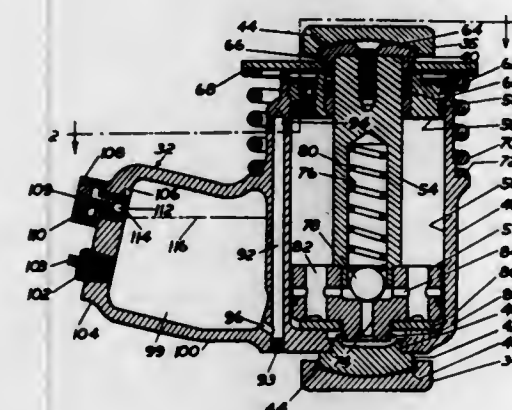
Donald Wiebe, Sewickley, Pa., assignor to A. Stucki Company, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 709,142, Feb. 28, 1968, now abandoned. This application Aug. 22, 1969, Ser. No. 857,274

Int. Cl. F16f 9/32

U.S. Cl. 188—321

9 Claims



A hydraulic snubber device for railroad car trucks to be interposed between a bolster end and side frame member. This device provides for mounting in compression only between center seeking concave-convex pairs of mating bearing portions to prevent edge contacts with high unit bearing stresses as found in prior art flat bearing surfaces.

3,595,351

MANUAL CONTROL MEANS FOR OPERATING A SPEED CHANGE GEAR AND A BRAKE FOR A BICYCLE

Takuo Ishida, c/o Shimang Industrial Company Ltd., No 77 3-cho, Oimatsu-cho, Sakai, Japan

Filed Aug. 13, 1969, Ser. No. 849,736

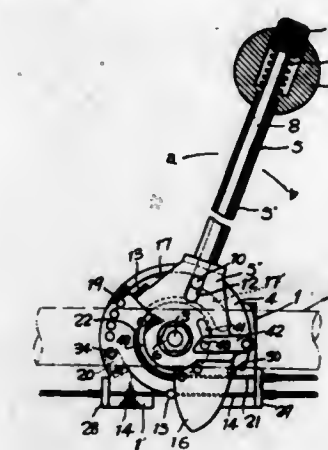
Claims priority, application Japan, Mar. 13, 1969, 44/19056

Int. Cl. F16h 57/10

U.S. Cl. 192—4

5 Claims

A manual control means for operating a speed change gear and a brake for a bicycle, including a bicycle frame on which are fixed a mounting plate rotatably supporting a wire reel and the base of a hand lever which a main hand lever body is secured. The wire reel positioned on a shaft projecting from the mounting plate and holding one end of a wire connected to a gear shifter hand lever includes a connecting element for



3,595,352

CLUTCH AND BRAKE WITH PRESSURE OPERATED SEQUENCING VALVE

Eugenio Todeschini, Via Sirotti, Italy, assignor to Massey-Ferguson Services, N.V. Curacao, Netherlands

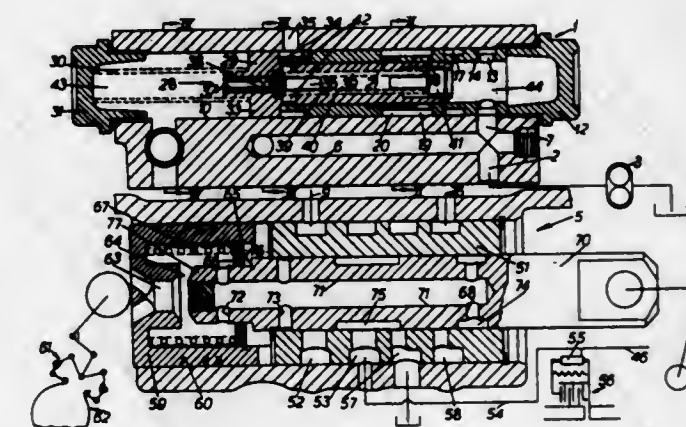
Filed May 12, 1969, Ser. No. 823,664

Claims priority, application Italy, May 24, 1968, 16893A/68

Int. Cl. F16d 67/04

U.S. Cl. 192—13 R

5 Claims



Each track of a crawler vehicle is provided with a hydraulically operated drive clutch and brake. A control valve and a pilot operated sequencing relief valve are provided to operate each clutch and brake set. These valves operate to fully disengage the clutches before the brakes are applied and to fully release the brakes before the clutches are reengaged to minimize wear on the clutches and brakes. The relief valve is movable between clutch and brake operating positions and is responsive to completion of these operations to control the supply of hydraulic fluid to the control valve.

3,595,353

COUPLINGS WITH STATIONARY SPRING AND FLUID MOTOR

Jene A. Beneke, Dallas, Tex., assignor to Verson Manufacturing Company, Dallas, Tex.

Filed June 11, 1969, Ser. No. 832,175

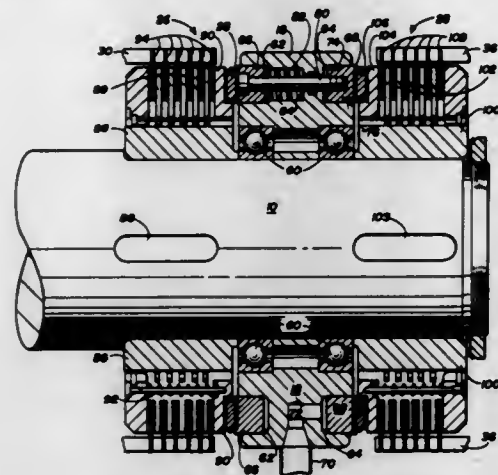
Int. Cl. F16d 67/04

U.S. Cl. 192—18 A

4 Claims

A shaft is rotatably journaled through a stationary annular housing. Two sets of friction clutch plates are disposed on opposite sides of the stationary annular housing and are rotatable with the shaft when disengaged. A pair of annular pistons are slidable within circular chambers defined on opposite sides of the stationary housing, with fluid pressure being selectively applied to the annular pistons such that one

of the pistons compresses and engages one set of the friction clutch plates. A number of rigid connecting members con-

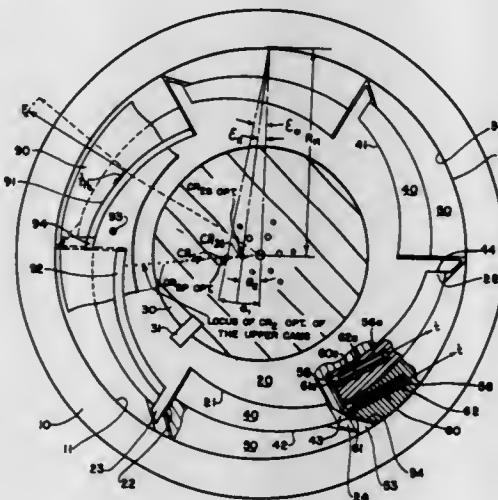


nect the two annular pistons such that only one set of the friction clutch plates are engaged at a time.

3,595,354
ONE-WAY CLUTCH COMPRISING WEDGING MEANS
Jean F.G.M.L. Charpentier, 254 N Highland, Akron, Ohio
Filed June 26, 1969, Ser. No. 836,862
Int. Cl. F16d 41/07

U.S. Cl. 192-45.1

19 Claims



The invention relates to an overrunning clutch with extremely high response characteristics and very little backlash. Essentially, careful consideration of excentricity in wedges associated between a driving member and a driven member in combination with friction factor between the driving, driven, and wedge or cam surfaces achieves a highly efficient clutch. Preferably, a primary wedge or cam is associated with the secondary wedge or cam, with both cams urged into an actuating position causing a driving relationship between the driven member and the driving member. This driving relationship is overcome upon a reverse movement of the driving member or an overriding of the driven member, all occasioned because of the excentric characteristics defining the wedges or cams in association with excentric surfaces on the driven member cooperating with radial steps of lips so that the cams always rotate or remain in the same relative relationship to the driven member.

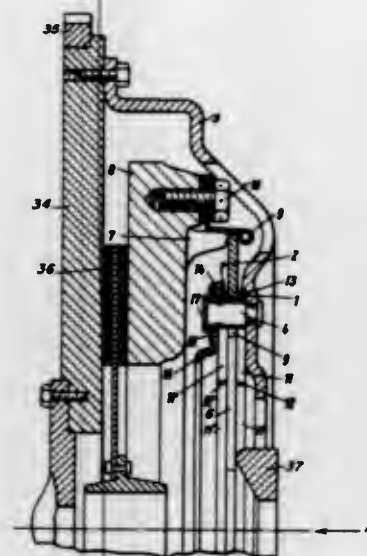
3,595,355
SEATING ASSEMBLY FOR PLATE SPRINGS, ESPECIALLY IN CLUTCHES
Paul Maucher, Neuweiler, and Klaus Steeg, Eisental, both of Germany, assignors to Luk Lamellen-und Kupplungsbau GmbH, Buhl (Baden), Germany
Filed July 2, 1969, Ser. No. 838,610
Claims priority, application Germany, July 6, 1969, P 17 75 115.4
Int. Cl. F16d 13/71

U.S. Cl. 192-70.27

16 Claims

Seating assembly for plate spring includes a pair of annular rolloff seats disposed in substantially parallel planes respec-

tively on opposite sides of a plate spring, at least one of the seats being in the form of a wire ring, a cover member overlying one of the annular seats, fastening pins connecting the cover member and the plate spring sandwiched between the

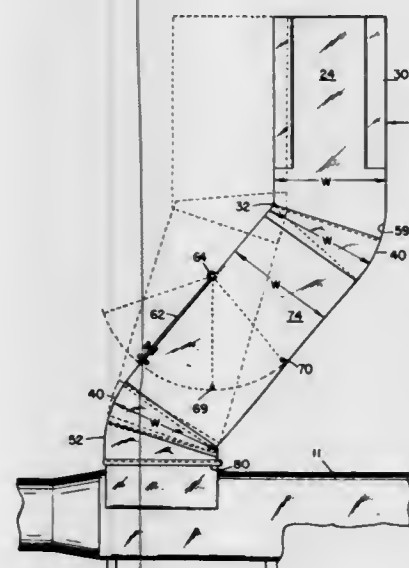


annular seats into a unitary structure, the wire ring having ends spaced from and facing one another, and bearing means having a contour surface corresponding at least partly to the contour surface of the wire ring and being received at least partly in the bearing means.

3,595,356
ADJUSTABLE CHUTE AND ACCESS DOOR
Daniel Q. Boje, Fairfield, and Sol Kestin, Bronx, both of N.Y., assignors to Compactor Corporation
Filed May 5, 1969, Ser. No. 821,741
Int. Cl. B65g 11/00

U.S. Cl. 193-15

10 Claims



An adjustable chute assembly and access door therefor, comprising at least a pair of interconnected chute components, interconnected in such a manner that the widthwise dimensions of said chute assembly will always be constant said access door provided in one of said chute components to afford access into the interior of said chute assembly.

3,595,357
NONOBSTRUCTING ESCAPE SLIDE
Clarence S. Melander, Neptune, N.J., assignor to The Garrett Corporation, Los Angeles, Calif.
Filed July 25, 1969, Ser. No. 845,014
Int. Cl. B65g 11/10

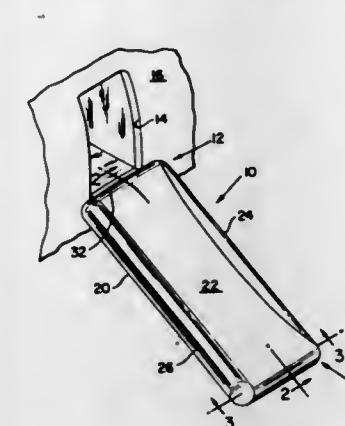
U.S. Cl. 193-25B

6 Claims

An escape slide has an inflatable fabric frame assembly supporting a slide surface defined by a taut fabric membrane.

The lower end of the assembly supports the membrane in spaced relation over at least the middle portion of the lower member which joins and spaces apart the inflatable side

stripping member adapted to engage and hold the type carrier in the channel on movement of the release means to its



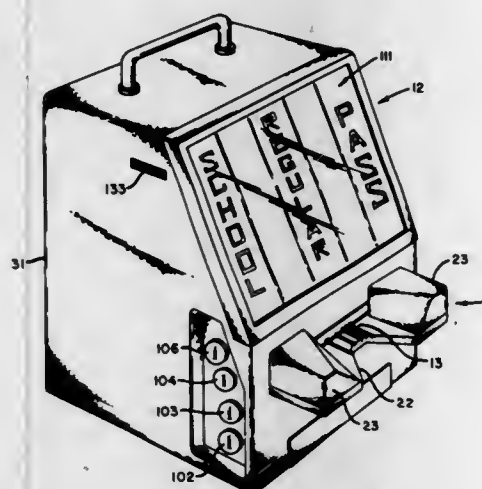
beam members of the assembly, so that the membrane may be depressed by masses sliding thereon without interference or "bump" by the lower joining member.

3,595,358
TICKET COLLECTION METHOD AND APPARATUS
David W. Chase, 774 Clarinda Ave., Daly City, Calif.
Filed Mar. 7, 1969, Ser. No. 805,278
Int. Cl. G07f 1/06

U.S. Cl. 194-4 R

5 Claims

U.S. Cl. 197-64



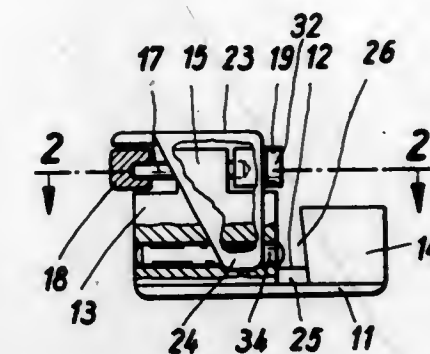
A method and system of fare collection employing novel semirigid card having preformed longitudinal deformities mating with ridges and/or grooves in a multiple keyway or slot for insertion therein. Card engagement with switching means in the keyway actuates a cutter to remove a predetermined portion of the card for each insertion as a fare collection. Mechanical gates cooperating with the keyway are operable to establish which cards of different configuration may be inserted.

3,595,359
DEVICE FOR CHANGING THE TYPE CARRIERS OF TYPE LEVERS
Olaf Meisner, 1 Berlin, 38 Krottnauerstr. 21, and Reinhart Rodrian, 1 Berlin, 37 Albertinenstr. 22, both of Germany
Filed July 19, 1968, Ser. No. 746,189
Claims priority, application Germany, July 21, 1967, P 16 11 476.4
Int. Cl. B41j 1/04

U.S. Cl. 197-36

12 Claims

A device for removing, housing, and reassembling a type carrier from a type lever in which said type carrier is retained by resilient retaining means housing said type carrier on removal of said type carrier from said type lever comprising a body in which is formed a channel for receiving the type carrier, release means on said body movable from a first nonoperative position to a second position to engage and move the retaining means from its retaining position and a

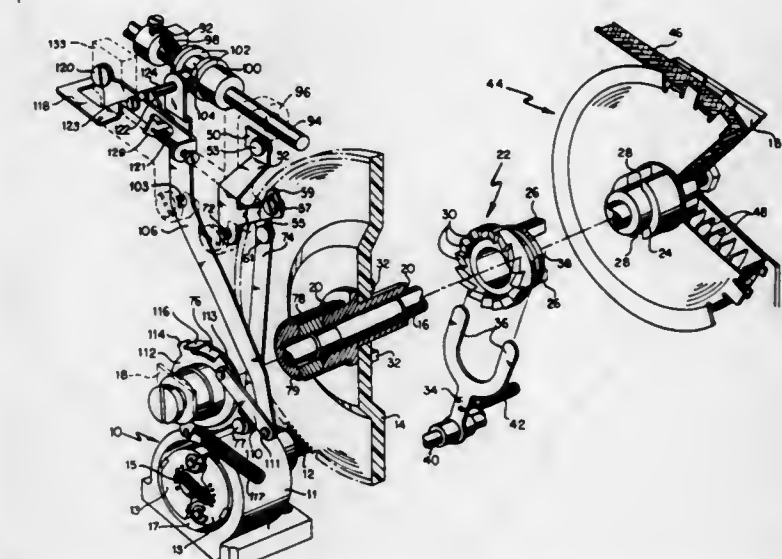


second position and movement of the device away from the type lever.

3,595,360
CARRIAGE DECELERATOR FOR TABULATION AND CARRIAGE RETURN OPERATION
Hans W. Mueller, Cortland, N.Y., assignor to SCM Corporation
Continuation of application Ser. No. 618,689, Feb. 27, 1967, now abandoned. This application Nov. 17, 1969, Ser. No. 877,329
Int. Cl. B41j 19/02

U.S. Cl. 197-64

5 Claims



An apparatus for decelerating a typewriter carriage at the end of a tabulation or carriage return operation. A one-way spring clutch is operable to drive a centrifugal governor when conditioned by either a tabulation linkage or a carriage return linkage.

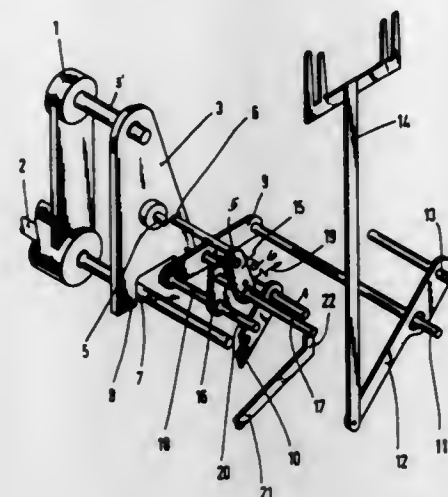
3,595,361
RIBBON FORK ACTUATING MECHANISM FOR TYPEWRITERS AND THE LIKE
Rudolf Rekwitz, Munich, and Peter Kulzer, Munich-Solln, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany
Filed Mar. 18, 1968, Ser. No. 713,808
Claims priority, application Germany, Apr. 25, 1967, S 109523
Int. Cl. B41j 33/56, 35/10

U.S. Cl. 197-157

5 Claims

An apparatus for typewriters and the like, particularly power-driven apparatus for effecting a positive lifting and lowering of the ribbon fork thereof between a rest position and either one of two operating positions, in which a drive lever is operatively coupled to the ribbon fork actuating arm through a pair of intermediate levers, and control of the operating connection is effected by rigidly connecting the drive lever with one of the intermediate levers, whereby they

act as one, or rigidly connecting the intermediate levers whereby they act as a single lever, the selection being deter-



mined by the positioning of a control member which correspondingly actuates the means for effecting such rigid connections.

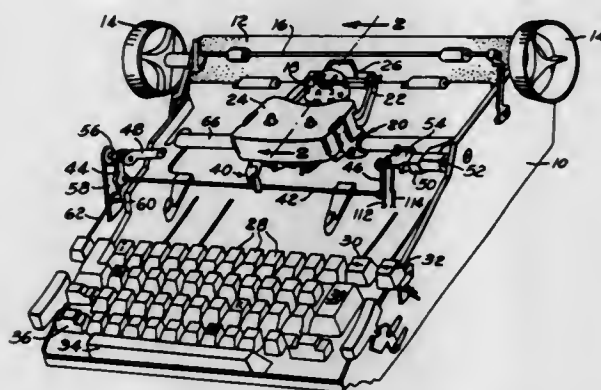
3,595,362 TYPEWRITER BACKSPACE AND RIBBON-FIELD CONTROL

William H. Wolowitz, 6905 Persimmon Tree Road, Bethesda, Md.

Filed Oct. 21, 1969, Ser. No. 867,992
Int. Cl. B41j 33/56

U.S. Cl. 197-157

4 Claims



A typewriter of the single-element ("golf-ball") printing element-type, with laterally fixed paper support and a movable carrier for the single-element printing element, including means disposed at a fixed location on or near the keyboard for conveniently adjusting the vertical throw of the ribbon vibrator on the carrier, regardless of carrier movement, to select the color or kind of printing impression. The control means is interconnected with a pair of carrier back-spacing keys to facilitate automatic ribbon-field changes when a two-field ribbon of the error-correcting type is employed.

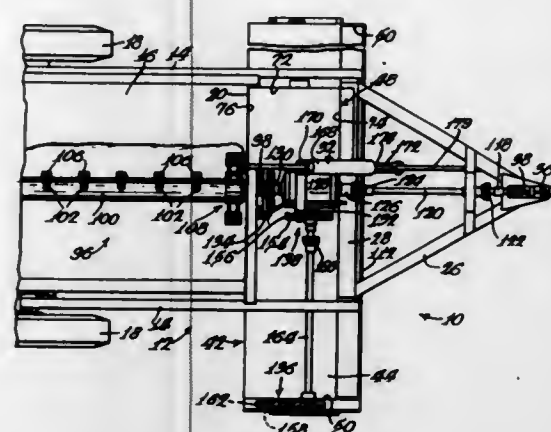
**3,595,363
REFUSE GATHERING MACHINE**
Herbert O. Vinyard, Route 2, Box 75A, Hammond, La.
Continuation of application Ser. No. 838,990, July 3, 1969, now Patent No. 3,348,652. This application Apr. 23, 1970, Ser. No. 31,192
Int. Cl. B65g 65/06

U.S. Cl. 198-7

11 Claims

A refuse gathering machine having an open bottom, horizontal housing and an upwardly extending discharge chute communicating with the interior of the housing, driven means in the housing to move refuse into the area below the chute, a rotor in the housing to throw refuse into the chute, and one or more thrower rotors in the chute for discharging

refuse from the housing through the chute to an adjacent receptacle. An improved chute structure facilitates the



discharge of refuse to the receptacle by causing more efficient transfer of refuse from each rotor to the rotor above it.

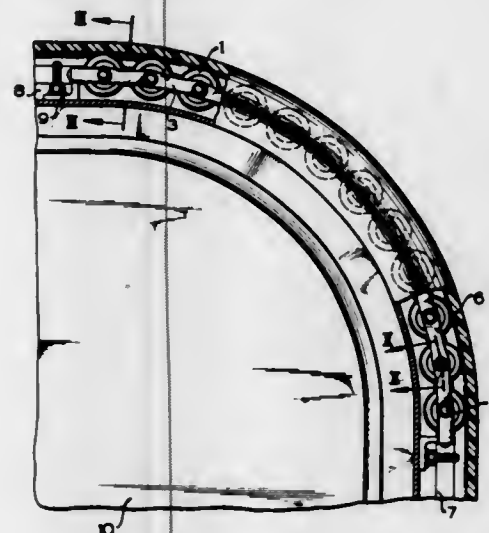
3,595,364 REVERSING MEANS FOR HANDRAIL STRUCTURE OF ESCALATORS

Klaus Schoneweiss, Hattlingen, Germany, assignor to Orenstein & Koppel Aktiengesellschaft, Charlottenburg, Germany

Filed Jan. 27, 1969, Ser. No. 794,277
Int. Cl. B66b 9/12

U.S. Cl. 198-16

5 Claims



For use in connection with an escalator having a handrail, a guiding structure which includes a plurality of rollers arranged one behind the other, fishplate means detachably interconnected in the manner of a chain and detachably supporting said rollers, said rollers defining the reversing path for an escalator handrail and being adapted to support and frictionally engage the same, and supporting means for detachably supporting and guiding said rollers.

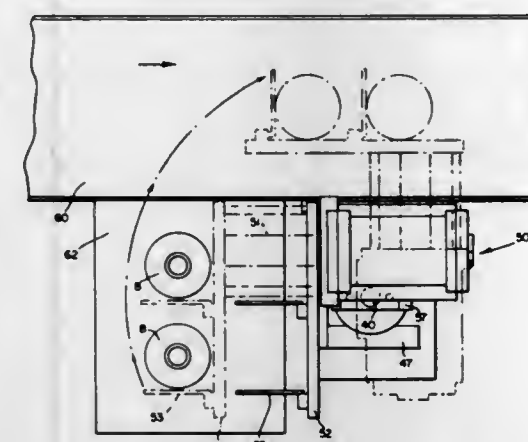
**3,595,365
GEAR DRIVE FOR 90 DEGREE PUSH-OUT FOR GLASSWARE FORMING APPARATUS**
Alphonse W. Faure, Philadelphia, Pa., assignor to C. S. S. Machine & Tool Co., Inc., Philadelphia, Pa.
Filed Mar. 18, 1970, Ser. No. 20,547
Int. Cl. B65g 47/00

U.S. Cl. 198-24

11 Claims

For glassware forming apparatus, a gear drive is provided for connecting the main horizontal drive shaft, which rotates continuously in one direction, to a vertical output shaft to oscillate the output shaft, on which the fluid motor for the 90° pushout is mounted, through an angle of approximately 90° for oscillating the 90° pushout fluid motor assembly

through a corresponding 90° arc to sweep glassware articles from a dead plate through an arcuate path on to a continuously moving conveyor. The gear drive for oscillating the vertical shaft through 90°, also controls the delivery of air pressure to the fluid motor, through one air line or the other, in

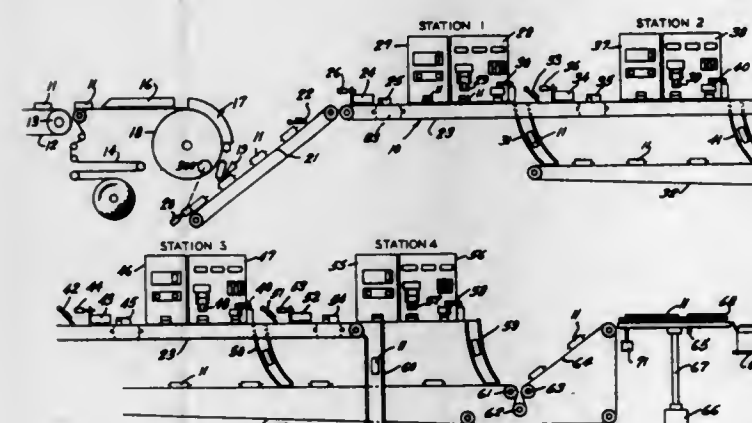


timed relation with the oscillating movement of the vertical shaft. Adjustment means are provided which permit adjusting the angle of the oscillating movement of the vertical shaft to slightly more or less than 90°, as desired, as well as for adjusting the orientation of the angle of oscillatory movement, without stopping the machinery.

**3,595,366
CONVEYER STRUCTURE FOR PACKAGING MACHINES**
James G. Johanski, Green Bay, Wis., assignor to Safeway Stores Incorporated, Oakland, Calif.
Division of Ser. No. 690,526, Dec. 14, 1967, Pat. No. 3,540,971.
This application May 13, 1969, Ser. No. 841,659
Int. Cl. B65g 47/82

U.S. Cl. 198-24

4 Claims



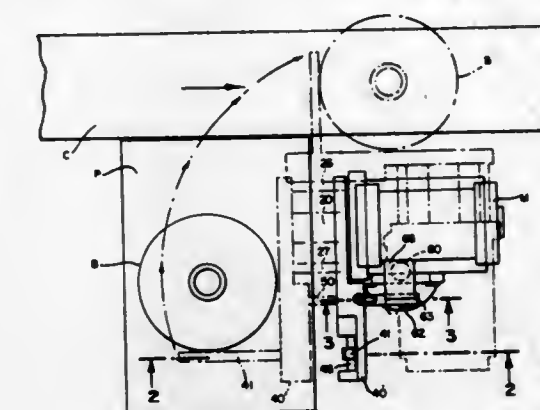
Apparatus for the continuous wrapping, weighing and labeling of articles employs an article transporting system for feeding the output of a wrapping station to weighing and labeling stations. The transporting system comprises a pair of horizontal conveyors at different levels with an inclined conveyor therebetween having an ejector to impart a force to propel an article up the inclined conveyor before the next succeeding article reaches the inclined conveyor.

**3,595,367
PUSH PLATE ASSEMBLY FOR LARGE DIAMETER GLASSWARE**
Alphonse W. Faure, Philadelphia, Pa., assignor to C.S.S. Machine & Tool Co., Inc., Philadelphia, Pa.
Filed Aug. 14, 1969, Ser. No. 850,014
Int. Cl. B65g 47/24

U.S. Cl. 198-24

1 Claim

To accommodate for large diameter bottles, the push plate of a 90° pushout in glass forming apparatus is provided with a

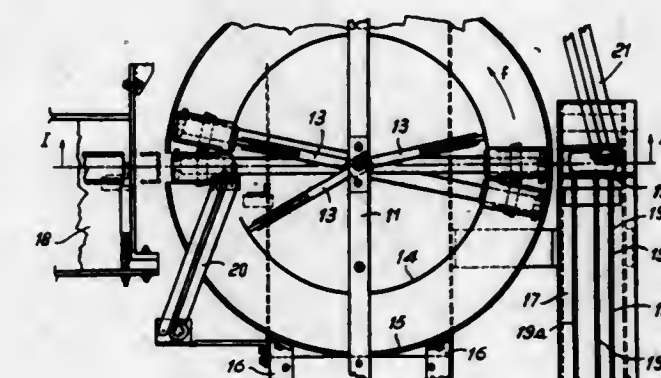


horizontal or push position to a vertical or clearance position during the retraction stroke of the piston.

**3,595,368
DEVICE FOR TRANSFERRING ARTICLES FROM A DELIVERING MEANS TO A RECEIVING MEANS MOVING AT A DIFFERENT SPEED**
Dante Mantovani, Via Sigonio 7, Bologna, Italy
Filed Sept. 5, 1969, Ser. No. 855,634
Claims priority, application Italy, Feb. 18, 1969, 1537 A/69
Int. Cl. B65g 47/82

U.S. Cl. 198-25

7 Claims



Device for transferring articles, in particular nonaccumulable articles, from a delivery conveyor belt to a receiving conveyor belt parallel therewith, which comprises a rotatable article transferring disc arranged between said conveyors and carrying a plurality of containers near its periphery, pushers operated in coordination with the movement of said conveyor belts to push the articles from the delivery belt into a container or from a container onto the receiving belt and stop means for holding said containers during the action of said pushers.

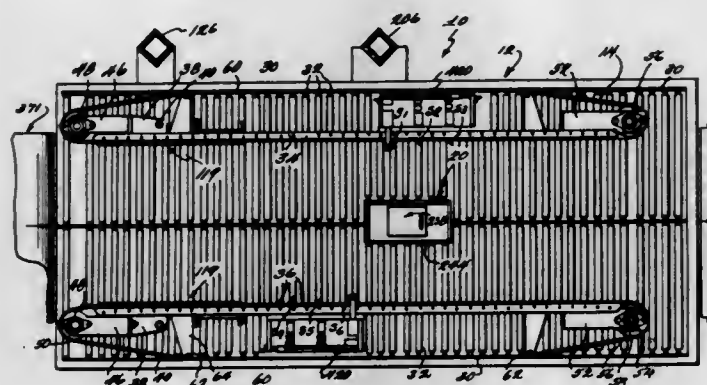
**3,595,369
CARTON ALIGNING MECHANISM FOR CONVEYOR**
Henri A. Boulay, West Warwick, and Joseph Silva, Cranston, both of, R.I., assignors to Bostitch Division of Textron, Inc., East Greenwich, R.I.
Division of Ser. No. 600,163, Dec. 8, 1966, Pat. No. 3,502,256.
This application Nov. 20, 1969, Ser. No. 877,545
Int. Cl. B65g 47/22

U.S. Cl. 198-29

2 Claims

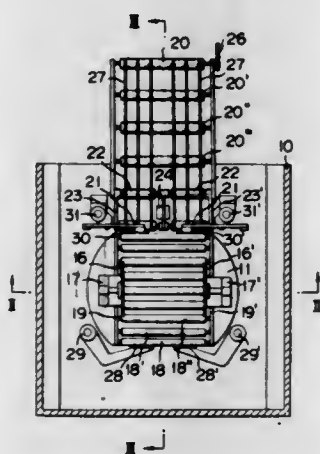
The specification discloses an apparatus for closing and stapling cartons of varying sizes of the type having a pair of end flaps and a pair of side flaps, which when opened are disposed in a coplanar relationship with respect to the sidewalls of the carton, the dimensions of the flaps measured in the direction of the outward extent thereof being generally equal to one-half the width of the carton. The apparatus includes means for automatically feeding successive open-

topped cartons of varying size through the apparatus, during which a flap closing mechanism is operable to close the open top flaps and a staple driving means is operable to drive staples into the closed top flaps to secure them in a closed relation. The staple driving means cooperates with the conveying means for moving successive cartons through the apparatus and with a carton width sensing means to automatically position the carton in stopped relation with respect to the staple



driving means in a plurality of different positions at which staples are driven, the arrangement being operable to automatically drive staples into the side flaps and the underlying end flaps only of each successive carton at positions spaced longitudinally in accordance with the width of the carton, the staples associated with each end flap being spaced apart a distance not exceeding a predetermined distance and at least one of which is within approximately 1 inch from the adjacent end of the carton.

3,595,370
APPARATUS FOR STACKING AND TRANSFERRING BUNDLES OF PRINTED SHEETS IN SUPER-HIGH-SPEED ROLLING PRESS
Yuji Fujishiro, 6 of No. 3 Fakazawa 1-Chome Setagaya-ku, Tokyo, Japan
Filed July 3, 1969, Ser. No. 838,986
Int. Cl. B65g 47/24, 47/34
U.S. Cl. 198—33 AB 3 Claims



Apparatus for stacking and transferring bundles of printed sheets in super-high-speed rolling press where a predetermined number of bundles is accumulated upon a turntable, said bundles being arranged in opposite direction to each other, to form a definite stack and then said stack is transferred out of the apparatus automatically and continuously by combination with a partly circular formed turntable having straight edges at the front and rear side thereof, front guide means provided adjacent to said straight edge at the front edge being able to swing automatically around its vertical axis to make passage for said turntables and to push the stack to transfer out, rear guide means provided adjacent to said straight edge at the rear edge acting to guide the

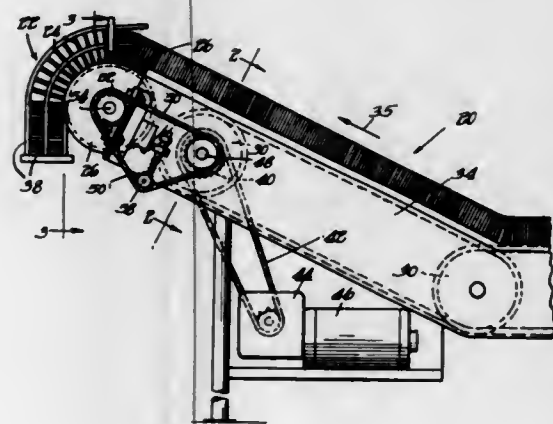
dropping bundles and being capable of swinging automatically around their vertical axis to allow passage of the turntable and also being able to be raised up when the stack is to be transferred, and relay means which are made to swing down out of the passage of the turntable as it rotates.

3,595,371
MATERIAL RECLAIMER
Fred T. Smith, Aurora, Ill., assignor to Barber Greene Company, Aurora, Ill.
Filed Apr. 3, 1968, Ser. No. 718,466
Int. Cl. B65g 65/28
U.S. Cl. 198—36 5 Claims



A self-propelled reclaimer for moving material from a stockpile. The reclaimer has a sloper for removing material from the face of the pile and a bucket wheel for removing material from in front and to the side of the reclaimer and a common conveyor receiving both streams of material. The sloper is carried by a tiltable boom which carries means for directing material which avoids the conveyor to a second means carried by the reclaimer which directs the material to the bucket wheel. The sloper is angled so that the top thereof leads the conveyor. The conveyor extends to the face of the stockpile and has a projecting edge associated therewith to seal into the stockpile. The second means also contours the slope of the stockpile below the sloper.

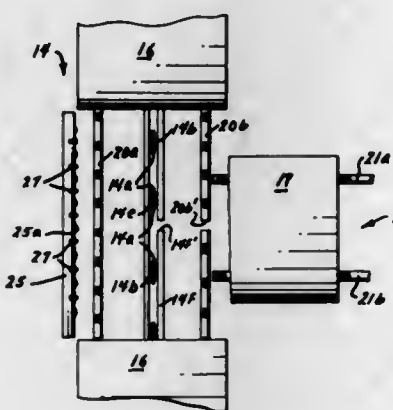
3,595,372
CONVEYOR ASSEMBLY
Wallace W. Mojden, Palos Heights, Ill., assignor to Fleetwood Systems, Inc., Lyons, Ill.
Filed Jan. 6, 1969, Ser. No. 789,254
Int. Cl. B65g 43/08
U.S. Cl. 198—37 1 Claim



Conveyor or transfer apparatus for supplying container ends or similar objects to the operating station of a machine. The conveyor apparatus includes an end roller which is

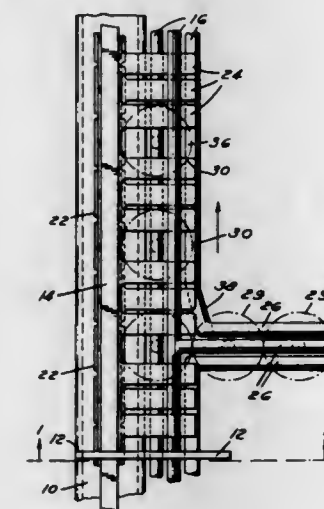
operable to transfer said objects from a conveyor track to a gravity chute, and drive means for said end roller. In order to regulate the supply of objects to said chute, there is provided overload disabling means associated with said drive means and responsive to drag placed on said end roller by an accumulation of objects in said gravity chute, said disabling means being operable to energize and deenergize said drive for the conveyor and thereby effect said regulation of the supply of objects to the gravity chute.

3,595,373
CONVEYOR TRANSFER STRUCTURE
Samuel C. Warren, Vanderburgh County, Ind., assignor to George Koch Sons Inc., Evansville, Ind.
Filed Apr. 9, 1969, Ser. No. 814,613
Int. Cl. B65g 47/00
U.S. Cl. 198—45 4 Claims



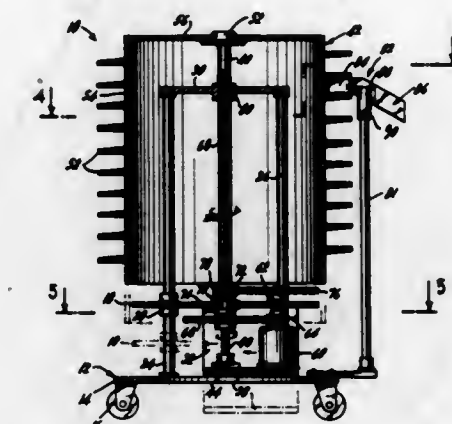
A conveyor transfer structure characterized by the use of magnetic means for controlling conveyor pallet movement at the intersection of two conveyor lines.

3,595,374
COLLECTING AND ELEVATING CONVEYOR
Homer G. Whitfield, Northville, Mich., assignor to Condeco Automation, Inc.
Filed Feb. 14, 1969, Ser. No. 799,202
Int. Cl. B65g 19/00
U.S. Cl. 198—50 17 Claims



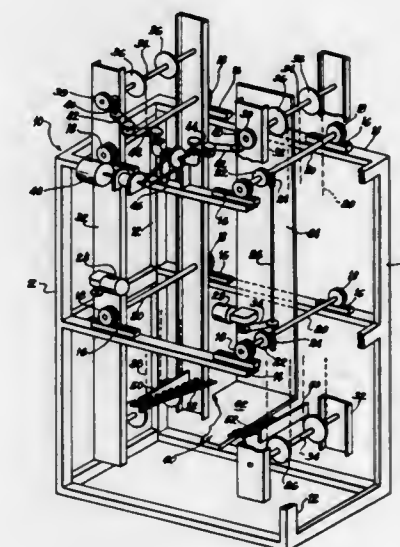
The invention pertains to improvements in conveyors for carrying parts such as automobile valves. The invention eliminates the need for any special entrance or feeding apparatus to the conveyor. The conveyor configuration itself and the configuration of the parts provide for the proper acceptance of the parts into the conveyor. The invention also provides for a torque limiting drive incorporated with the conveyor such that in the event of a jam the conveyor automatically oscillates back and forth until the jammed part is released.

3,595,375
MANUAL BATCH LOADER
Harold B. Kaufman, Jr., New York, and Leonard G. Fischer, College Point, both of N.Y., assignors to DCA Food Industries, Inc., New York, N.Y.
Filed Oct. 30, 1969, Ser. No. 872,541
Int. Cl. B65g 29/00
U.S. Cl. 198—65 9 Claims



A manually loaded and automatically operable feeder for delivering units or products in succession to in-line continuous processing equipment which feeder includes a loading drum having a spiral shelf which receives thereon a manually loaded batch of units or products. The loading drum is rotated about its axis and displaced therealong to bring successive portions of its shelf past a predetermined unloading location at which the units or products are unloaded in succession.

3,595,376
VERTICAL LIFT
Roger R. Tonelli, Chicago, Ill., assignor to Radio Steel & Mfg. Co., Chicago, Ill.
Filed Jan. 27, 1969, Ser. No. 794,259
Int. Cl. B65g 15/14
U.S. Cl. 198—163 8 Claims



A vertical lift construction for moving articles from one level to another comprising a frame with endless conveyors located on opposite sides of the frame. Each of the conveyors carries a plurality of article supporting elements with the elements moving in the same direction on the inwardly facing side of the conveyors. Articles are adapted to be located on the respective article supporting elements so that the ends only of the articles are supported with the main body of the articles being suspended in unsupported fashion between the article supporting elements. The frames for supporting the conveyors are relatively movable by motorized means so that the span between article supporting elements can be readily changed for handling articles of different sizes.

3,595,377

CIRCULATING BALL CONVEYOR

Lyle E. McCoy, Norristown, and William L. Kuechler, Jenkintown, both of, Pa., assignors to Proctor & Schwartz, Inc., Philadelphia, Pa.

Filed Oct. 10, 1969, Ser. No. 865,320

Int. Cl. B65g 15/00

U.S. Cl. 198—181

16 Claims



A conveyor comprising at least one articulated member such as a chain having a substantially continuous groove in at least one of the faces thereof formed by groove portions in corresponding faces of the elements comprising the articulated member, at least one track member having a groove in opposition to said substantially continuous groove and defining therewith a race containing a plurality of balls, the dimensions of the race and balls being so related that the balls are stably contained within the race, the race being non-linear at least in part. The relationship of articulated member and track member permits proper circulation of the balls within the race without locking and permits movement of substantial loads in an articulating manner over greater distances while under a substantially reduced power requirement.

3,595,378

TUBULAR BELT CONVEYOR

Kiyomi Kamisaka, Tokyo, Japan, assignor to Unitika Ltd., Hyogo, Japan and Mach Industries Co., Ltd., Tokyo, Japan

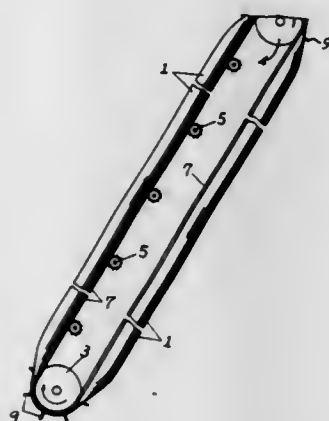
Filed Mar. 24, 1969, Ser. No. 809,850

Claims priority, application Japan, Mar. 25, 1968, 43-18977

Int. Cl. B65g 37/00

U.S. Cl. 198—184

5 Claims



A pipe-shaped tubular belt conveyor. The conveyor is a rubber pipe having a seam extending along the entire length thereof. The outer surface of the pipe on the side opposite the seam side has a band mounted thereon which has a large number of cogs therein engaging with driving or supporting sprockets. The rubber pipe is an endless pipe and runs around supporting rolls at both ends. It is flattened as it runs around the supporting rolls.

3,595,379
APPARATUS AND METHOD FOR CONVEYING AND
ELEVATING SUBSTANCES

David R. Campbell, 4163 South 2200 W., Salt Lake City, Utah

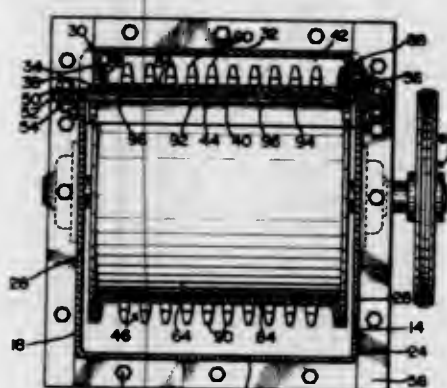
Continuation-in-part of application Ser. No. 596,003, Nov. 21, 1966, which is a continuation of application Ser. No. 374,778, June 12, 1964, now abandoned. This application

Mar. 18, 1968, Ser. No. 713,746

Int. Cl. B65g 15/42

U.S. Cl. 198—198

10 Claims



A conveying arrangement wherein an endless belt has a working run that travels in an inclined chute having a top wall and a substantially parallel bottom wall attached thereto by sidewalls with the bottom wall being discontinuous and interrupted by cutout portions, the belt having a bearing face slidably disposed on the bottom wall and closing off the cutout portions so as to complement the top and sidewalls in achieving a conduit effect in which the working run travels. The belt has a working face provided on its opposite sides with upstanding endless flanges and, intermediate the side flanges, with a pattern of spaced and staggered projecting nubs that extend substantially to the undersurface of the top wall for moving substances through the chute with the belt being driven through the chute at a linear speed greater than the fall back speed of a conveyed substance on the working face of the belt.

3,595,380

SPROCKET DRIVE, BELT RETAINER AND GUIDE
MECHANISM FOR ARTICULATED LINK CONVEYOR
BELTS

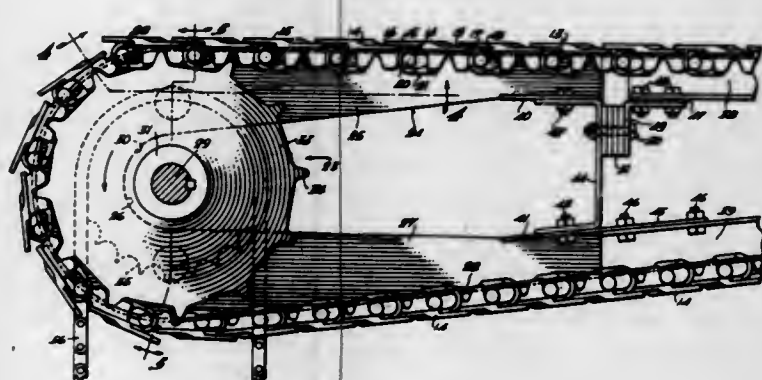
Eldon S. Miller, 6645 S. W. 129th Terrace, Miami, Fla.

Filed Sept. 11, 1969, Ser. No. 864,929

Int. Cl. B65g 17/06, 15/62

U.S. Cl. 198—202

7 Claims



A sprocket drive, belt retainer and guide mechanism for articulated link conveyor belts, the individual links of which are provided along their undersides with slide passageways of substantially T-shaped cross-sectional configuration and a pair of laterally spaced recesses for the reception of sprocket teeth, one on each side of said passageways, is described. A U-shaped guide member having an outer peripheral T-shaped track received in the belt link slide passageways guides the belt around the bight of the guide member, in which is trans-

versely arranged a drive shaft carrying a pair of spaced sprocket wheels engaged in the sprocket teeth recesses of the belt links for moving the belt along the track in retaining relation with respect thereto.

3,595,381

MATERIAL UNLOADING DRUM

Erza Cordell Lundahl, Providence, Utah, assignor to Hesston Corporation, Inc., Hesston, Kans.

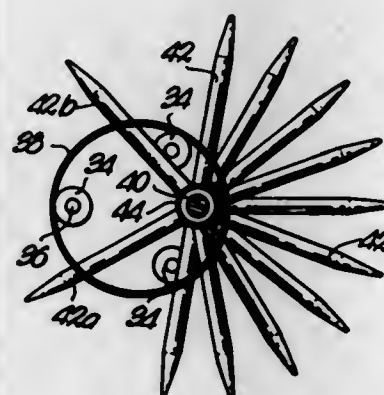
Division of Ser. No. 603,881, Dec. 22, 1966. This application

May 5, 1969, Ser. No. 851,509

Int. Cl. B65g 29/00, 3/44

U.S. Cl. 198—211

4 Claims



A rotor for a material unloader has a drum that rotates during its reciprocation along a material discharge outlet. A shaft extending through the drum is rotated by a prime mover exteriorly of the drum and a spiral row of fingers on the shaft extend through slots in the drum to rotate the latter and strip the material from the fingers.

3,595,382

DISPLAY CONTAINER

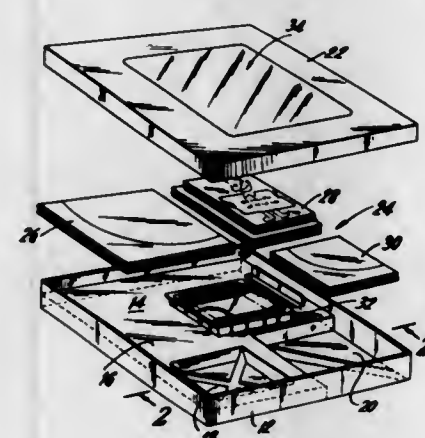
Heinz P. Hofer, Upper Grandview, N.Y., assignor to Swissmart, Inc., New York, N.Y.

Filed June 25, 1969, Ser. No. 836,308

Int. Cl. H65d 25/14, 5/58

U.S. Cl. 206—45.31

4 Claims



A display container comprises a bottom box portion having a tray insert thereon defining a first main level for accommodating a plurality of display elements such as napkins, or letter correspondence cards, etc. and a plurality of additional levels for accommodating utensils or other device which may be contained in separate additional container elements of a size accommodated at the respective levels. The container base is closed by a cover having a transparent window therein which is large enough to permit viewing of all of the elements in the container arranged at the various levels.

3,595,383

MAILING DEVICE

Thomas E. Boylan, Fairfield, Conn., assignor to Norcross, Inc., New York, N.Y.

Filed Apr. 17, 1969, Ser. No. 817,070

Int. Cl. B65d 73/00

U.S. Cl. 206—62

5 Claims



An elongated sheet is divided into four panels by three score lines with the two intermediate panels containing openings, so that when these panels are folded about their common score line, the openings are in face to face alignment. An article is mounted on one of the intermediate panels so that it is visible through the openings. The two end panels are foldable about their corresponding fold lines to cover the openings and are fastened for mailing. These intermediate panels have indicia and designs thereon for mailing.

3,595,384

PACKAGE CONSTRUCTION

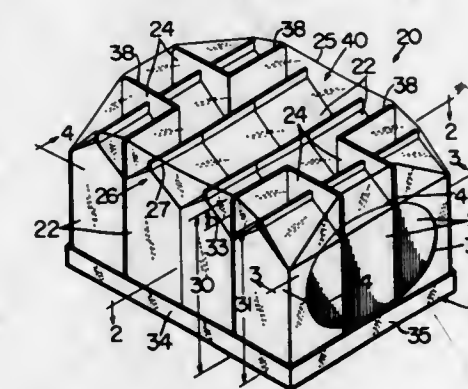
Henry O. Sargent, Grottoes, Va., and Thomas C. Gresge, Bloomfield Hills, Mich., assignors to Reynolds Metals Company, Richmond, Va.

Filed Oct. 30, 1968, Ser. No. 771,920

Int. Cl. B05d 71/00

U.S. Cl. 206—65 S

8 Claims



A package construction having a plurality of articles supported on a support therefor and being provided with at least one columnar member supported on the support and having a portion which extends above the articles. An overwrap is shrunk around the support, articles, and columnar member to provide a high strength unitary package.

3,595,385

METHOD AND APPARATUS FOR CONTROLLING
LEVELS IN AN ION EXCHANGE RESIN SEPARATOR

Joseph H. Duff, Basking Ridge, N.J., assignor to Union Tank Car Company, Chicago, Ill.

Filed June 2, 1969, Ser. No. 829,527

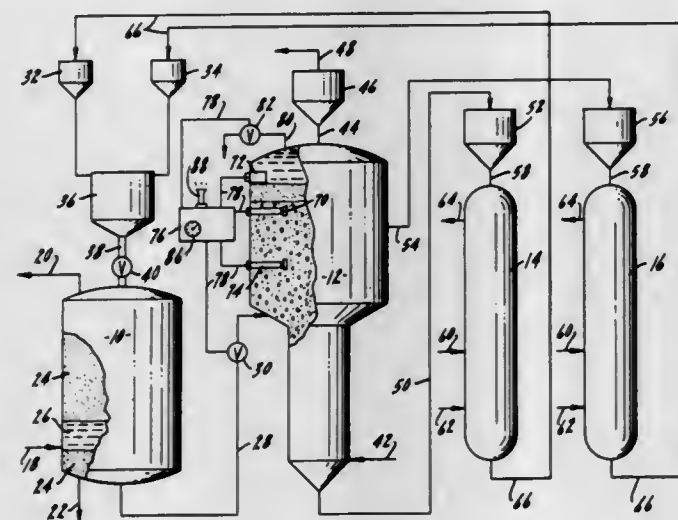
Int. Cl. B03b 13/00

U.S. Cl. 209—1

20 Claims

An improved method and apparatus are provided for controlling both the resin level and the quantity of fines above

the resin in an anion-cation exchange resin separation column. In carrying out the method, the presence of fines is sensed at a given level within the resin separation zone, and resin is delivered to the zone when its level falls below this given level. The presence of fines within the separation zone is also sensed at a second level above this given level. If fines are present, an alarm may be sounded, fines may be removed from the separation zone, or both the alarm and fines removal functions may be performed.



The apparatus comprises an ion exchange resin separation column having a bead resin level sensor in an upper portion and a fines level sensor above the bead resin level sensor. Valve means are controlled responsive to a signal from the bead resin level sensor in order to maintain the proper bead resin level with the column. The apparatus may alternatively employ alarm means, fines removal means, or a combination thereof, operating responsive to a signal from the fines level sensor.

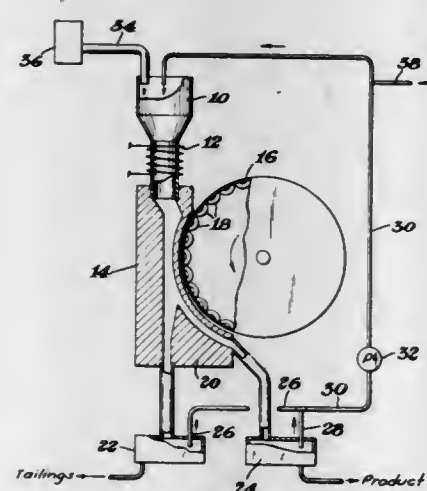
3,595,386 PROCESS FOR BENEFICIATION OF NONMAGNETIC MATERIAL

Joseph R. Hradel, 6482 South Mission Road, Mount Pleasant, Mich.

Filed Jan. 27, 1969, Ser. No. 794,103
Int. Cl. B03c 1/00

U.S. Cl. 209-8

6 Claims



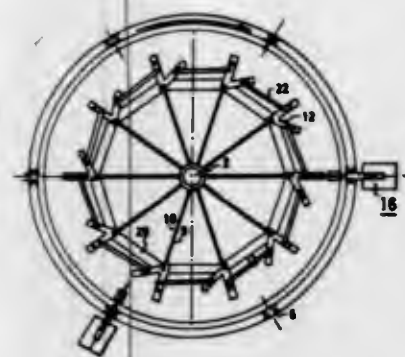
A novel process for beneficiating nonmagnetic ores and other source materials, particularly lean iron ores, wherein paramagnetic material in such ores is given a temporary positive magnetic susceptibility, passed within the field of a moving permanent magnet system before the material decays to its natural state, and the so activated paramagnetic substance separated by deflection toward the magnet system and recovered from nondeflected diamagnetic material in admixture therewith.

3,595,387 SORTING MACHINE

Jacob H. Mosterd, Stationweg 117, Barneveld, Netherlands
Filed Mar. 21, 1969, Ser. No. 809,338
Claims priority, application Netherlands, Mar. 22, 1968, 6804154
Int. Cl. B07c 3/06

U.S. Cl. 209-74 R

6 Claims



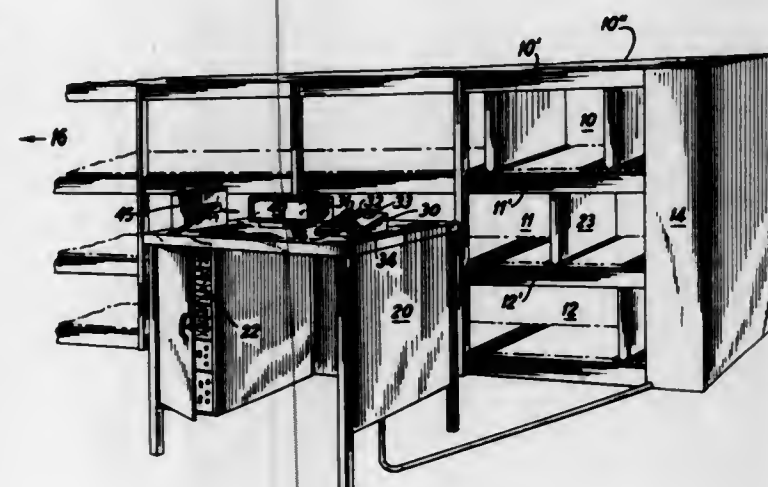
A weight-sorting machine is described with guides, which support stop members for engaging discharge control means of moving weighing devices, which guides are adjustable into at least two predetermined positions, in one of which the stop members can engage the discharge control means and not so in the other position. Preferably the guides of different discharge stations are coupled for simultaneously adjusting the guides of the stations.

3,595,388 RANDOM ACCESS STORE FOR CARDS, FILE FOLDERS, AND THE LIKE

John Castaldi, Brooklyn, N.Y., assignor to Supreme Equipment & Systems Corporation
Division of Ser. No. 680,642, Nov. 6, 1967, Pat. No. 3,519,832, which is a continuation-in-part of application Ser. No. 430,330, Feb. 4, 1965, now abandoned.
This application Nov. 25, 1969, Ser. No. 877,571
Int. Cl. B07c 3/16

U.S. Cl. 209-111.8

19 Claims



A random access store for cards, file folders and the like, in which the folders are stacked face to face. The folders are optically edge-coated and sensed simultaneously by a plurality of moving carriages, driven by a single cable, which continuously compares the sensed code to the command code and ejects the desired folder. The optical reader senses rectilinearly (along the same line as the light source) and the coded signal is automatically negated from mispositioned folders. Folder alignment regardless of packing density is provided by magnetic clutching in cooperation with an array of folder guiding slots. Manual entry of the file folders into the store is random and may take place simultaneously with the automatic withdrawal. Towards this end, a feed through access is provided which automatically gates and raises the

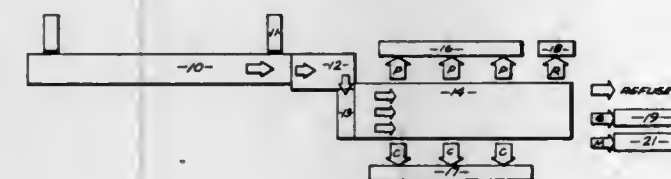
magnetic clutches to permit ejection of the desired folder. Further refinements described include ejected folder collection; automatic input; a memory adjunct; and remote signalling.

3,595,389 RECLAMATION METHOD AND APPARATUS

George W. Morgan, 2640 East Norm Place, and Douglas S. Whitney, 2616 East Norm Place, both of Anaheim, Calif.
Filed Mar. 5, 1970, Ser. No. 16,685
Int. Cl. B07c 7/04

U.S. Cl. 209-125

17 Claims



Apparatus and method for economically separating reusable paper, cardboard, rags, metal, glass and the like from mixed household refuse is described. A separation station, preferably at a refuse transfer point, has a plurality of feed conveyors for moving mixed refuse past a plurality of work stations where valuable components of the mixed refuse are removed. These components are placed in receiving hoppers which communicate by chutes with a matrix of conveyor belts below the floor level of the work stations. Each work station has a plurality of such hoppers, each for receiving a particular component such as, for one example, cardboard, and the several cardboard hoppers feed onto "cardboard" conveyors for continuously moving the cardboard to a baling station or the like. Separate conveyors carry other components, such as metal, glass, paper or the like to separate processing stations. Some of the conveyors, preferably those handling large volume, run transverse to the feed conveyors and in opposite directions for carrying the bulkiest products to separate locations. Other conveyors at different elevations from the transverse conveyors run parallel to the feed conveyors for moving other products. Thus, each feed belt has a plurality of work stations, and each work station has a plurality of product-receiving hoppers. Each product-receiving conveyor serves a plurality of product-receiving hoppers of the same kind. Thus a large volume of refuse can be sorted rapidly and economically with most of the material handling being done automatically.

3,595,390 ORE FLOTATION PROCESS WITH POLY(ETHYLENE-PROPYLENE)GLYCOL FROTHERS

Robert Ben Booth, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.
Filed June 18, 1968, Ser. No. 737,811
Int. Cl. B03d 1/02

U.S. Cl. 209-166

2 Claims

A process for collecting mineral values from an ore which comprises mixing ground ore with water to form an ore pulp, aerating said pulp in the presence of an effective amount of frother selected from the group consisting of poly(ethylene-propylene) glycols and lower alkyl monoethers of poly(ethylene-propylene) glycols having an average molecular weight in the range of about 150 to about 2,500, each of said frothers being prepared from ethylene oxide and propylene oxide, each of said oxides being employed in amounts of between 5 and 95 mole percent based upon the amount of alkylene oxide reacted and recovering mineral values from the resulting froth.

3,595,391 MAGNETIC SEPARATOR

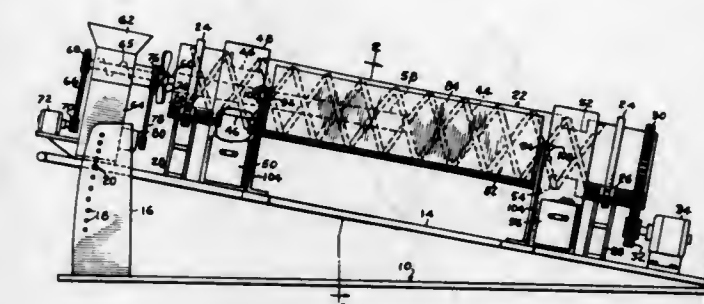
Byron C. Schmid, 2101 16th St. N.W., Washington, D.C.
Filed Feb. 24, 1969, Ser. No. 801,482
Int. Cl. B03c 1/14

U.S. Cl. 209-225

10 Claims

A rotating drum, slightly inclined from the horizontal, is provided adjacent opposite ends with discharge openings,

and the interior of the drum is provided with spiral ribs which tend to feed material toward the higher end of the drum to be discharged through the opening adjacent such end of the drum. Magnetic means is arranged externally of the drum and longitudinally thereof to cause pieces of magnetic



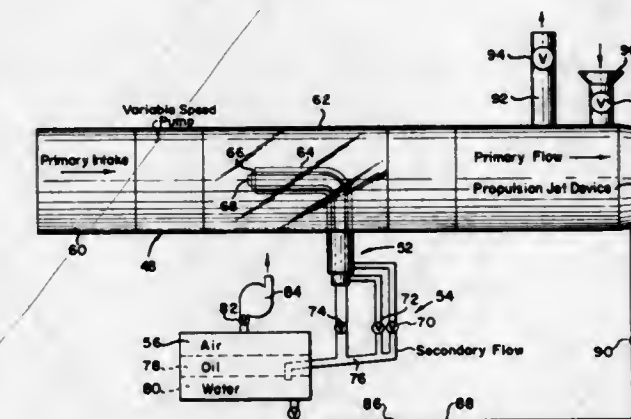
material in the mixture to adhere to the side of the drum to be carried upwardly and then released to drop to the bottom of the drum, such material dropping vertically rather than perpendicularly to the axis of the drum so that it gradually works its way toward the lower end of the drum to be discharged through the lower discharge opening.

3,595,392 METHOD OF AND APPARATUS FOR SEPARATING FLUIDS HAVING DIFFERENT DENSITIES

Arthur L. Markel, Miami, Fla., assignor to Reynolds Submarine Services Corporation, Miami, Fla.
Filed June 13, 1969, Ser. No. 833,105
Int. Cl. E02b 15/04; B01d 17/00

U.S. Cl. 210-73

30 Claims



A method of and apparatus for separating fluids having different densities utilizing an axial flow pump which achieves vortex separation without emulsification of the fluids. A Pitot tube positioned downstream from the axial flow pump separates substantially all of a lighter density fluid from the discharge of the axial flow pump and delivers the fluid to a settling tank where gravity separation of the different density fluids is achieved very rapidly because of the absence of emulsification. A heavier density fluid which bypasses the Pitot tube is used to provide propulsion for a collecting unit. The fluids to be separated are contained by means of a floating boom attached to the collecting unit. The latter is provided with a weir or floating skimmer means which facilitates the delivery of the fluids to be separated to the axial flow pump.

3,595,393 WASTE WATER TREATMENT SYSTEM

Matthew A. Messa, Cedarbrook Hills Apts. Bldg. 1, Apt. #604, Wyncote, Pa., and David Brown, Lansdale, Pa., assignors to Matthew A. Messa, Wyncote, Pa., by said David Brown

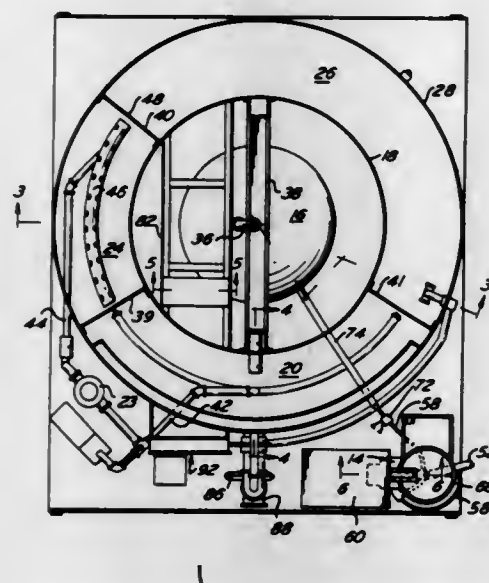
Filed Sept. 19, 1968, Ser. No. 760,867
Int. Cl. B01d 21/01, 23/14

U.S. Cl. 210-103

13 Claims

A waste water treatment system is disclosed wherein water to be treated is processed to remove turbidity, solids, organics, surfactants, colloidal suspensions, detergents, etc. An

upflow clarifier is partially surrounded by a filter chamber, an adsorption chamber, and a storage chamber. The water to be treated is mixed with a dry coagulant which forms a floc



blanket in the upflow clarifier. Detection means are provided to limit the upper limit of the floc blanket and partially withdraw the contents of the clarifier when the floc blanket rises above a predetermined level.

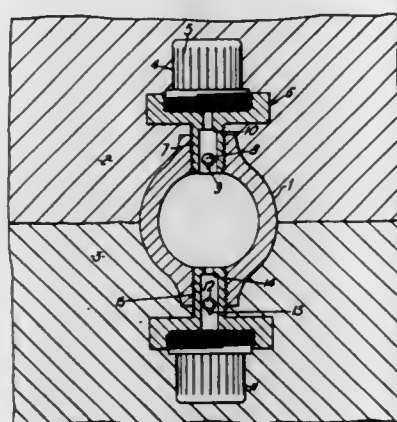
3,595,394 WATER-DEMINERALIZING APPARATUS WITH A CENTRAL REGENERANT COLLECTING AND DISTRIBUTING DEVICE

Frank Charles Blight, Sunbury-on-Thames, Middlesex, England, assignor to The Permutit Company Limited, London, England

Filed Feb. 28, 1969, Ser. No. 803,379
Claims priority, application Great Britain, Feb. 29, 1968, 9907/68

Int. Cl. B01d 23/10, 23/24
U.S. Cl. 210-134

4 Claims



In the regeneration of a mixed bed of cation and anion resins which are separated into layers, these being individually regenerated, the effluent regenerant of the anion layer is collected at points above the interface between the layers and the regenerant of the cation layer is introduced at points below the interface. A central device for collecting and distributing regenerant has inlets on the upper side and outlets on the under side, and all the inlets and outlets are controlled by nonreturn valves.

3,595,395 AUTOMATIC CHLORINATORS FOR SWIMMING POOLS

Walter C. Lorenzen, Hacienda Heights, Calif., assignor to Anzen Products, Arcadia, Calif.

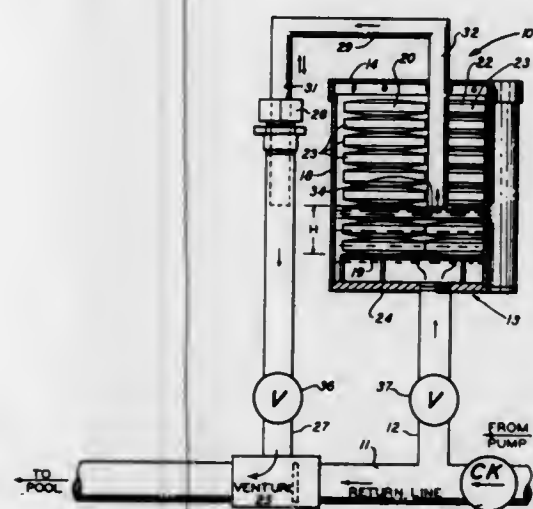
Filed Oct. 18, 1968, Ser. No. 768,729

Int. Cl. B01d 33/38
U.S. Cl. 210-169

6 Claims

A pellet magazine in which solid water-soluble chlorine pellets are stacked is connected by a secondary line to the

return line of a conventional pool water recirculation system downstream of the recirculation pump. The water flows upwardly into the pellet magazine to wet some of the pellets. A venturi unit farther downstream of the return line creates suction to draw chlorine solution from the wetted pellets through one leg of a U-shaped suction tube having another



leg suspended in the pellet magazine. The tube leg is vertically movable within the magazine. Its inlet end can thus be at any desired level to control the amount of water in contact with the pellets. Treated liquid flow is from the downstream portion of the return line into the pellet magazine and thence through the suction tube and the venturi back into the return line to be mixed for presentation to the pool.

3,595,396 ARRANGEMENT FOR WATER TREATMENT

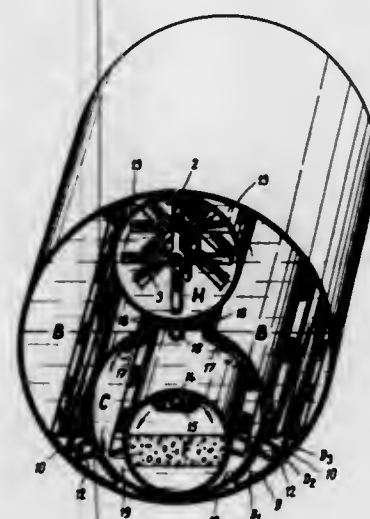
Svatopluk Mackrle, No. 5 Pavlikova, Brno, and Vladimir Mackrle, No. 8 Na Micance, Praha 6, both of, Czechoslovakia

Filed Oct. 29, 1969, Ser. No. 872,283
Claims priority, application Switzerland, Nov. 8, 1968, 16724/68

Int. Cl. B01d 21/08

U.S. Cl. 210-203

9 Claims



Arrangement for water treatment using for removal of impurities coagulation agents with subsequent separation of the thus created floccular suspension by means of a perfectly fluidized sludge blanket. The arrangement comprises a sludge blanket compartment, a sludge concentrator compartment and possibly also a homogenizer and filter compartment, most of which compartments arranged within cylindrical vessels placed horizontally, with the bottom part of the sludge blanket compartment determined by the mantles of at least two adjacent cylindrical vessels. The arrangement is particularly designed for larger size water treatment plants.

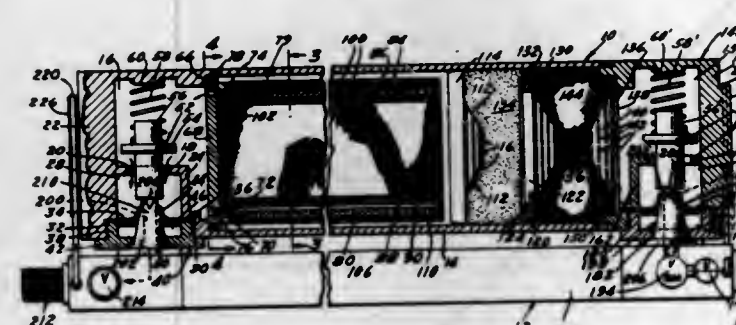
3,595,397 FILTER APPARATUS

Ralph L. Abos, Whittier, Calif., assignor to Anti-Pollution Devices, Inc., Industry, Calif.

Filed May 23, 1969, Ser. No. 827,340

Int. Cl. B01d 27/02, 27/08
U.S. Cl. 210-232

8 Claims



A disposable water-filtering apparatus having a pressure regulator and shutoff valve, and self-sealing disconnect means.

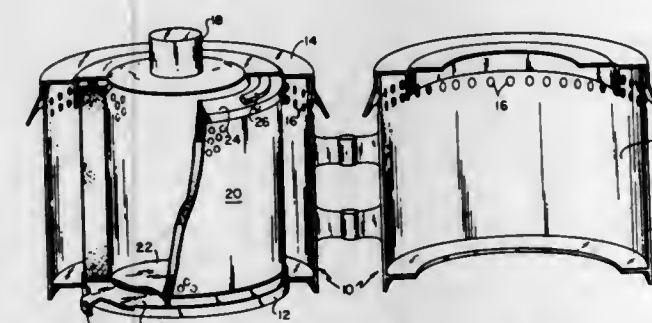
3,595,398 FILTER ASSEMBLY HAVING A REPLACEABLE FILTER ELEMENT

Donald J. Cook, Barrington, R.I., assignor to Fram Corporation, East Providence, R.I.

Filed Nov. 5, 1969, Ser. No. 874,124

Int. Cl. B01d 27/08
U.S. Cl. 210-232

9 Claims



Filter assembly in which filter element is installed through opening in side of housing, and a seal between an end of the filter element and the adjacent housing wall prevents fluid from bypassing the filter element.

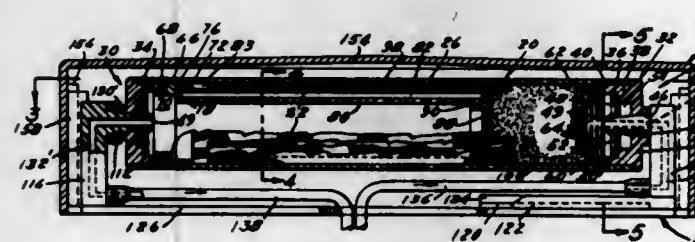
3,595,399 FILTER

Ralph L. Abos, Whittier, and Carl A. Stuewe, Hacienda Heights, both of, Calif., assignors to Anti-Pollution Devices, Inc., City of Industry, Calif.

Continuation of application Ser. No. 805,690, Mar. 10, 1969, now abandoned. This application Nov. 25, 1969, Ser. No. 873,724

Int. Cl. B01d 27/02
U.S. Cl. 210-266

16 Claims



A throwaway, low-pressure, water-filtering apparatus adapted to be easily and quickly installed and removed and/or replaced.

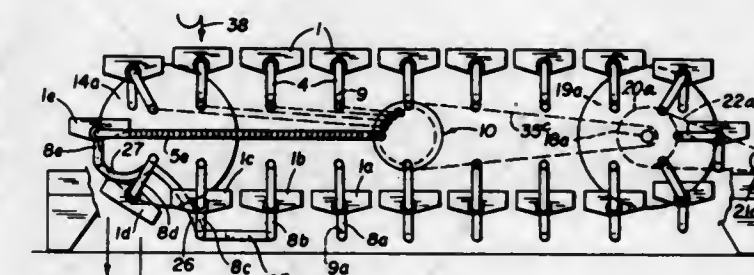
3,595,400 CONVEYOR-TYPE FILTER

C. Lynn Peterson, Salt Lake City, Utah, assignor to Peterson Filters & Engineering Company, Salt Lake City, Utah

Continuation of application Ser. No. 480,969, Aug. 19, 1965, now abandoned. This application July 8, 1969, Ser. No. 845,644

Int. Cl. B01d 35/08, 33/32
U.S. Cl. 210-327

16 Claims



A vacuum filter including a pair of laterally spaced endless conveyors rotating about at least two common axes and carrying containers in articulated, closely spaced arrangement. Each container is boxlike member having upright sides, closed bottom, and an open top with drainage outlet in bottom and with bottom pivotally connected to conveyors. Extensible conduits have swivel connection with container outlets and filter media in each container covers its outlet. Plate valve rotating conjointly with conveyors has swivel connection with each conduit and provides filtration pressure to the media through a portion of each cycle and cake removal pressure through another portion.

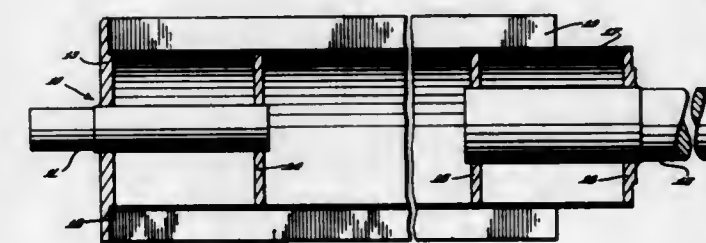
3,595,401 POLYDISC FILTER CENTERSHAFT AND METHOD OF FABRICATING

Alexander D. Cormack, and Philip G. Bump, both of Pittsfield, Mass., assignors to Beloit Corporation, Beloit, Wis.

Filed Sept. 22, 1969, Ser. No. 859,727

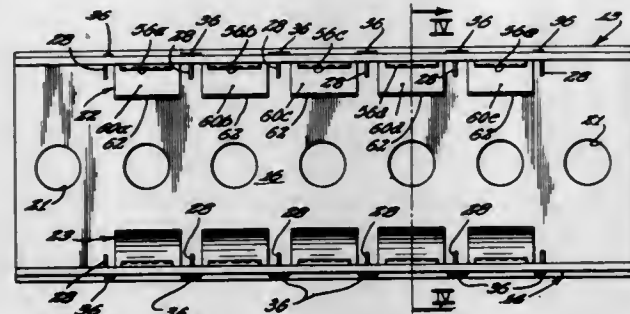
Int. Cl. B01d 33/38, 33/36
U.S. Cl. 210-331

10 Claims



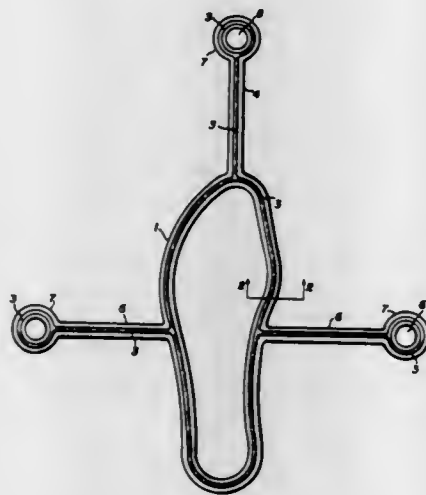
A polydisc filter centershaft is fabricated by first welding a plurality of spaced-apart bars around a conventional center pipe shaft weldment. The outside diameter across these bars is machined to give dimensionally stable reference point. A pair of stainless steel plates are then formed into the skin of the centershaft by cutting rectangular holes therein and rolling each of the plates to form one-half of the outside of the centershaft as elements of semicircular cross section. Troughs for carrying the filtered liquid are rectangular holes. One end of these troughs are blocked off and the opposite, or discharge, ends are to be fit into openings cut in a semicircular plate which is formed to fit the center pipe shaft. The two skin assemblies are slid over the pipe shaft and are plug welded to the bars. The two axial seams on the skin are then welded to form a continuous outer surface of the shaft. The filter sectors are located by sets of tabs or projections which fit into the rectangular holes and are clamped to the shaft by rods with a gasket sealing the sector to the shaft.

3,595,402
MODULAR TERMINAL BLOCK MOUNTING RACK
 Charles W. Smaczny, Chicago, Ill., assignor to The Pyle-National Company, Chicago, Ill.
 Filed Apr. 16, 1969, Ser. No. 816,715
 Int. Cl. A47f 7/00
 U.S. Cl. 211-26 11 Claims



A modular mounting rack for mounting a plurality of electrical terminal blocks comprising a U-shaped channel member having a bottom wall and a pair of vertical sidewalls and a pair of mounting brackets disposed respectively adjacent and carried on said sidewalls, said mounting brackets being constructed and arranged to provide a plurality of modules each capable of receiving an individual terminal block in releasable snap-in relation. A handtool is provided to release the terminal blocks from the mounting rack.

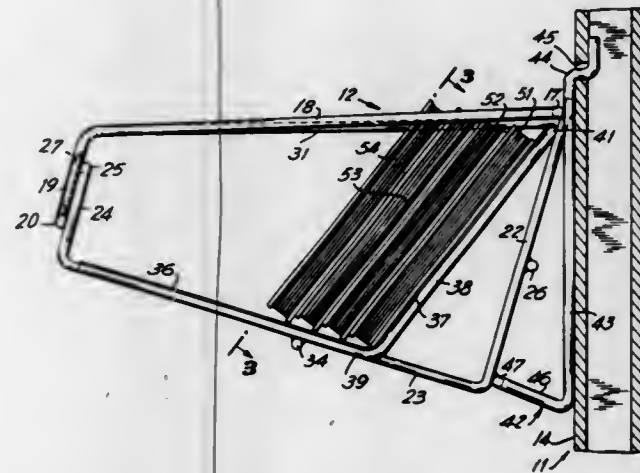
3,595,403
APPARATUS FOR SUSPENDING WET FOOTWEAR
 Robert J. Lane, 4710 Longwood Ave., Parma, Ohio
 Filed Feb. 10, 1969, Ser. No. 797,854
 Int. Cl. A47f 7/08
 U.S. Cl. 211-38 7 Claims



Apparatus for suspending wet footwear from a support, such as a clothesline, curtain rod, wall peg, or other projection including a flexible loop which may be formed of a plastic material, such as polyethylene, polyvinyl chloride, or Teflon, or it may be formed of wire. If the loop is formed of a plastic material, a plurality of spaced straps or hangers are formed with their inner ends integral with the loop and each is provided with an aperture at its outer end. The loop is shaped to surround an inverted footwear piece and suspend it therein and the hangers which pass over the toe piece of the footwear are connected together by an S-shaped hook, one portion of which may be passed over a suitable support, such as a clothesline, curtain rod, or other projection. When the loop is formed of wire which surrounds the foot piece, the hangers are formed of pieces of wire, each having a hook at its inner end and at its outer end. The inner portions of the hangers pass over the inverted toe end portion of the foot piece and the hooks on the outer portions of the wire hangers are arranged to pass over the support to hold the loop and the shoe or boot pieces in a suspended state. To prevent movement of the wire strips upon the loop, the loop is

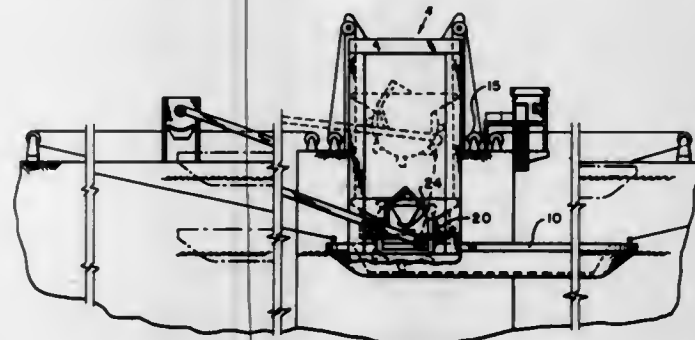
crimped at the opposite sides of the hooks on the inner wire pieces or hangers.

3,595,404
SHELF
 Arthur Goldstein, Scarsdale, N.Y., and Theodore Sobel, South Orange, N.J., assignors to Butler Industries, Inc., Newark, N.J.
 Filed Jan. 15, 1969, Ser. No. 791,279
 Int. Cl. A47f 5/08, 7/00
 U.S. Cl. 211-49 5 Claims



A shelf for articles of uniform height and each having a thickness in which the shelf is so arranged that the articles will lie back against the back of the shelf but will lie in a position in which an overlying article does not completely overlap the article which it overlies in order that visual observation permits immediate examination of every article on the shelf. The shelf base and back are tilted rearwardly with the back extending at an obtuse angle with respect to the base.

3,595,405
BARGE-UNLOADING SYSTEM
 Jack P. Van Kleunen, 250 South Franklin Turnpike, Ramsey, N.J.
 Division of Ser. No. 672,949, Sept. 5, 1967, Pat. No. 3,497,054
 Filed July 16, 1969, Ser. No. 871,065
 Int. Cl. B65g 63/00
 U.S. Cl. 214-14 2 Claims

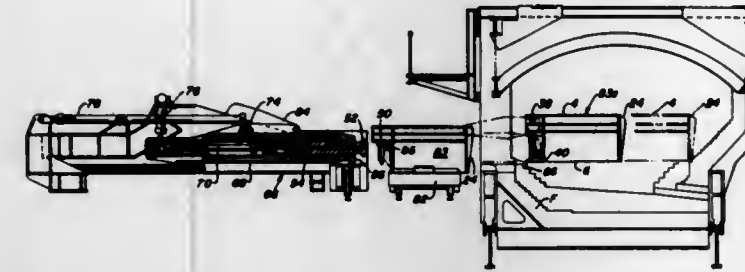


A barge-unloading apparatus having means for picking up material and depositing it on a conveyor in combination with a scraper device movable to feed material to the pickup means when positioned adjacent thereto and also movable into inaccessible places for drawing material into said wheel.

3,595,406
MATERIAL-CHARGING BOX FOR OPEN-HEARTH FURNACES AND THE LIKE
 Frank Kennedy, Johnstown, Pa., assignor to United States Steel Corporation
 Filed Apr. 14, 1969, Ser. No. 815,885
 Int. Cl. F23k 3/00
 U.S. Cl. 214-29 3 Claims

The box of the invention is composed of an upper frame portion having two forwardly extending arms formed with

longitudinal slideways therealong and a pusher plate depending from one end of the frame between the forwardly extending arms; and a lower open-top trough portion having open ends, sidewalls and a bottom adapted to contain material to be charged. The trough is formed with guides along its sidewalls which cooperate with the slideways of the frame to effect sliding relative movement of the frame and trough portions. The pusher plate of the frame is adapted to fit between



the sidewalls of the trough for sliding movement along the length of the trough when the trough and frame are moved relative to each other. The frame is provided with a pocket at its rear end for accommodating the head of a charging peel whereby the box is manipulated. The upper rear end of the trough portion is provided with a crossbar engageable by detachable hooks for controlling movement of the trough relative to the frame.

3,595,407
TRANSLOADING INSTALLATION FOR AIR FREIGHT CONTAINERS
 Helmut Muller-Kuhn, Mulheim Ruhr; Klaus Walkhoff, Essen; and Uwe Lichtenford, Essen-Werden, all of, Germany, assignors to Fried Krupp Gesellschaft Mit Beschränkter, Haftung Essen, Germany
 Filed Jan. 8, 1969, Ser. No. 789,869
 Claims priority, application Germany, Jan. 8, 1968, P 15 56 598.7
 Int. Cl. B65g 67/00
 U.S. Cl. 214-38 BA 16 Claims

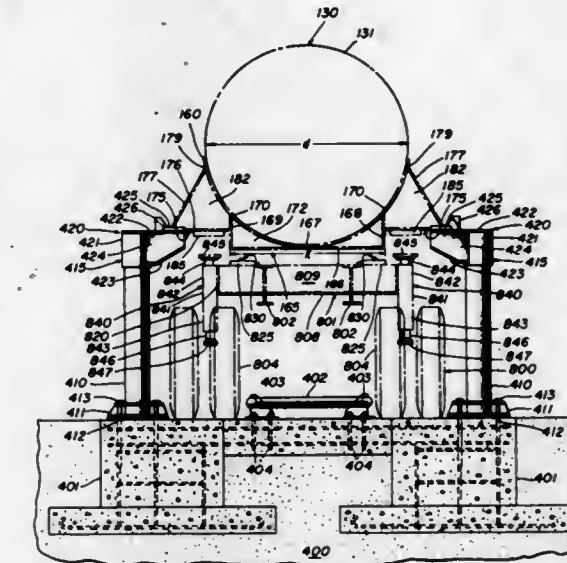


A crane apparatus and movable pallet means are provided for transfer of airfreight containers through upper and lower intermediate storage and sorting places adjoining a stopped aircraft. A bridge platform is adjustably supported to serve for equalization of height differences with respect to the aircraft and intermediate tracks equipped for shifting the containers longitudinally and transversely of symmetrical roller-equipped halves of intermediate storage and sorting places complementary to rows of containers parallel to the longitudinal axis of the aircraft. Pallet means are transported on underside track air cushions to the intermediate storage and sorting place. A U-shaped crane carriage and holding device are provided including gripping means with an open-bottom carrier frame. Rollers are provided to facilitate on-off movement of containers and including the air cushion on an underside of at least one topside roller-equipped track.

3,595,408
SYSTEMS FOR STORING AND TRANSPORTING LADINGS
 Ira C. Eddy, Mansfield, La., and William A. Taylor, Sharpville, Pa., assignors to General American Transportation Corporation, Chicago, Ill.
 Filed Apr. 21, 1969, Ser. No. 817,907
 Int. Cl. B65g 67/02
 U.S. Cl. 214-38 CC 18 Claims

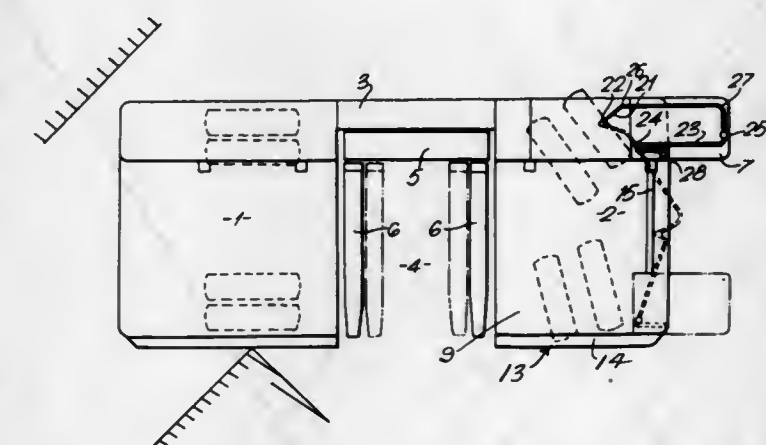
There is disclosed herein systems for storing and for transporting tanks for containing ladings, and the components

thereof, including a tank having a first bolster disposed adjacent to one end thereof and a second bolster disposed adjacent to the other end thereof, a stationary support station including a first pair of spaced-apart support posts disposed on opposite sides of a longitudinal axis and a second pair of spaced-apart support posts disposed on opposite sides of the longitudinal axis and spaced from the first pair of support posts, the first and second support posts carrying first and second support structures being shiftable between receiving positions and supporting positions, the tank bolsters and the support posts and the support structures being arranged so that the tank bolsters can be positioned upon the support structures



when the support structures are in the supporting positions thereof, a road vehicle including a frame provided with road wheels and having a first body bolster disposed adjacent to one end thereof and a second body bolster disposed adjacent to the other end thereof, the tank bolsters and the body bolsters being arranged so that the tank bolsters can be positioned respectively on the body bolsters, the support posts in each pair of support posts being spaced-apart a distance to receive the road vehicle therebetween with the tank mounted thereon when the support structures are in the receiving positions thereof, and lifting means on the frame for causing relative vertical movement between the tank and the support structures.

3,595,409
SIDE LOADER VEHICLES
 George Neville Bowman-Shaw, Toddington, England, assignor to Lancer Boss Limited, Leighton Buzzard, Bedfordshire, England
 Filed Apr. 25, 1969, Ser. No. 819,249
 Claims priority, application Great Britain, May 9, 1968, Dec. 11, 1968, 22079/68; 58968/68
 Int. Cl. B60p 1/46
 U.S. Cl. 214-75 R 11 Claims



A side loader vehicle comprising front and rear body portions respectively supported on front and rear road wheels

and interconnected by a backbone along one side of the vehicle, a recess in the opposite side of the vehicle extending substantially to the backbone, a fork mast load-lifting assembly mounted for power-operated movement in the recess transversely of the vehicle, guide means for a driver's cab extending across one end of the vehicle, a driver's cab mounted to move with respect to the guide means transversely of the vehicle, and power-operated means drivingly coupled to the cab to move the cab along the guide means.

3,595,410

TRACTOR-MOUNTED POWER ASSIST MEANS FOR ELEVATING FRONT-END WEIGHTS

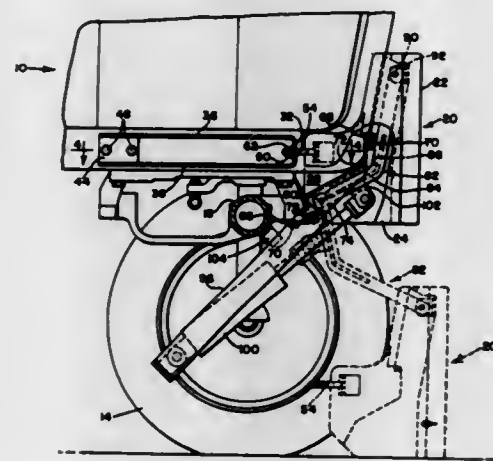
Norman Frederick Lemmon, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Aug. 18, 1969, Ser. No. 850,736

Int. Cl. B60r 11/00; B66c 23/72

U.S. Cl. 214-77

16 Claims



A hydraulic cylinder support bracket is pivotally suspended from underneath the central forward end of a tractor. A lever arm is pivotally interconnected between a front-end weight resting on the ground and the underside of the tractor forwardly of the hydraulic cylinder support bracket. Extension of the hydraulic cylinder elevates the front-end weight to a position for connection to the front of the tractor.

3,595,411

ROLLER ATTACHMENTS TO HYDRAULIC BACKHOE

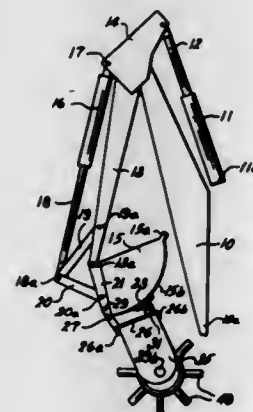
Eugene O. Ables, 620 Edgewood Drive, Topeka, Kans.

Filed June 23, 1969, Ser. No. 835,642

Int. Cl. A01b 29/04; E02f 3/00

U.S. Cl. 214-145

3 Claims



Roller means removably attachable to the back side of the digging bucket of hydraulic backhoes operable, when the

open face of the bucket is facing at least to some degree upwardly, to roll and compact earth; the effective rolling width of the roller means being substantially equal to the width of the digging bucket; a sheep's foot roller useable as such roller means with cleaning plates provided in association therewith; alternate roller means provided of substantially continuous available rolling surface to handle silt-rolling operations.

3,595,412

METHOD OF CONTROLLING A MATERIAL STORAGE & RETRIEVAL MEANS IN A WAREHOUSE SYSTEM

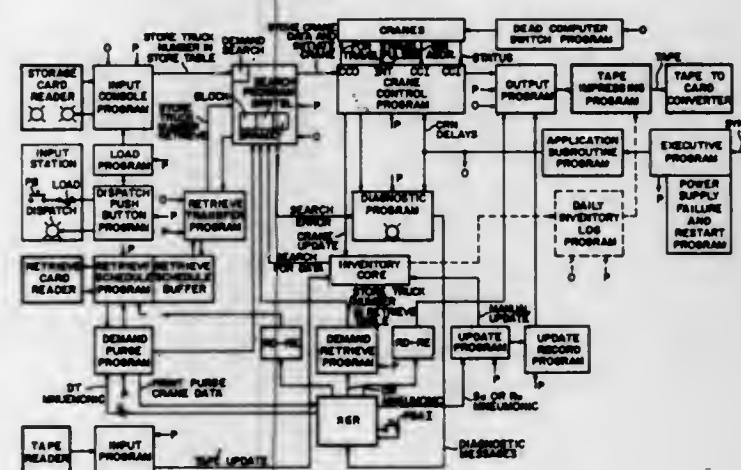
Raymond L. Billingsley, Detroit, Mich.; Ralph L. Howard, Pittsburgh, and Donald H. Noreen, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 19, 1968, Ser. No. 706,289

Int. Cl. B65g 1/06

U.S. Cl. 214-152

14 Claims



An automatic large-scale warehousing system including a warehouse with a large number (8,100) of bins (B) arrayed in aisles AS for storing enough products (17,000) to service a complex of manufacturing plants (26 automobile assembly plants). A crane CR is associated with each aisle and is actuable to store or retrieve the material in the different bins B. A Computer (FIG. 6) is associated with this system of bins and part of the memory core (Inventory Core) of the computer carries an inventory of the storage; that is, an identification of each bin and the material stored in this bin. The core of the Computer is also programmed so that in response to selective commands on punchcards, the cranes are automatically actuated either to store material in open bins, identified in the Computer as open, or to retrieve material from the bins where they are stored. The Inventory Core of the Computer is automatically changed to record each storage and each retrieval. The Inventory Core of the Computer has facilities for storing the condition of each bin (8,100) and can store data identifying the bin position of any of the (17,000) products. The complete warehousing is carried out by the cooperation of the Computer and the bin system and not by operation of wired logic associated with different sets of bins.

3,595,413

MACHINE FOR UNLOADING TRAYS OF ARTICLES

James George Edward Hillman, London, England, assignor to Molins Machine Company Limited, London, England

Filed Feb. 5, 1968, Ser. No. 702,981

Claims priority, application Great Britain, Feb. 6, 1967, 5607/67

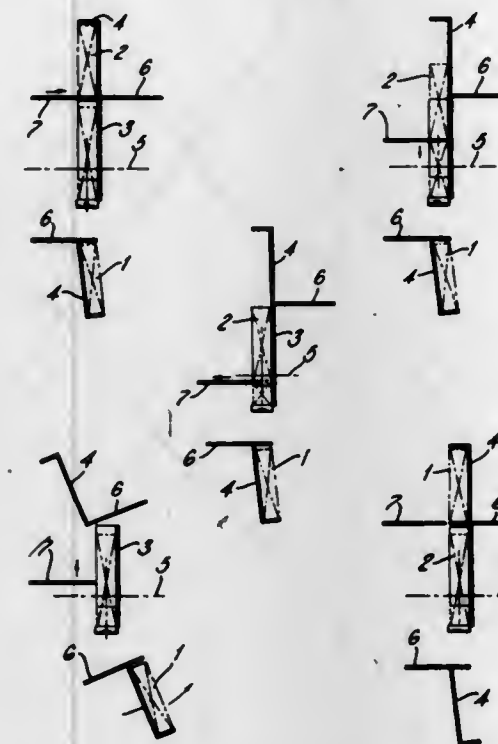
Int. Cl. B65b 69/00

U.S. Cl. 214-302

36 Claims

A machine for unloading trays of cigarettes having two carriers for trays which move intermittently along a circular

path in a vertical plane from a lower tray-receiving position to invert the trays over a hopper into which the cigarettes are



emptied from each tray in turn and from the bottom of which they are removed on a conveyor in a continuous stream.

3,595,414

BOX DUMPER

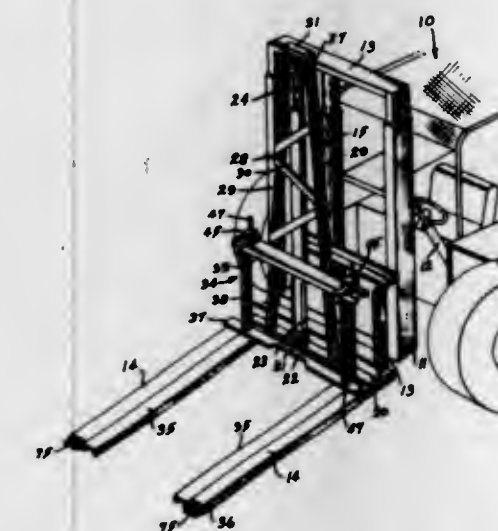
George S. Brown, and Joe E. Hill, both of P.O. Box 709, Leesburg, Fla.

Filed Jan. 12, 1970, Ser. No. 2,288

Int. Cl. B65g 7/00, 65/00

U.S. Cl. 214-313

6 Claims



Apparatus mountable on a forklift-type vehicle and adapted to be moved into engagement with an open top box, automatically clamped thereto so that the box can be rotated more than 90° to completely discharge the contents of the box, and then automatically released to remove the box from the apparatus.

3,595,415

ELEVATOR WITH A PIVOTED SUPPORT DECK

William E. Herd, Vancouver, Wash., assignor to Columbia Machine, Inc., Vancouver, Wash.

Filed Aug. 4, 1969, Ser. No. 847,246

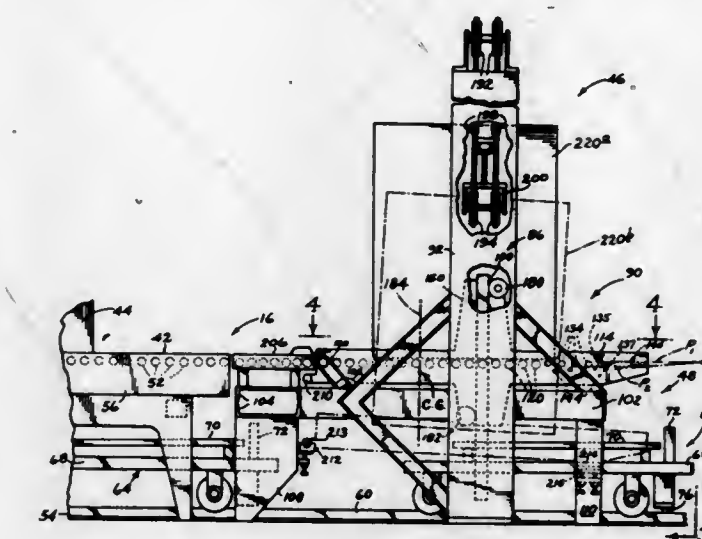
Int. Cl. B65g 47/00

U.S. Cl. 214-711

20 Claims

Article transfer apparatus including a tiltable elevator for transferring an article from one elevation to transport

mechanism at a lower elevation. The elevator is mounted for vertical movement on a pair of spaced upright posts that straddle a portion of the transport mechanism. Gravity acting on the elevator tends to hold it in an attitude with its support



deck substantially horizontal. Pivot structure causes the elevator to tilt to another attitude with its support deck inclined upon lowering of the elevator toward the lower elevation mentioned. The elevator's support deck is at least partially defined by power-driven rolls.

3,595,416

FORK ATTACHMENT

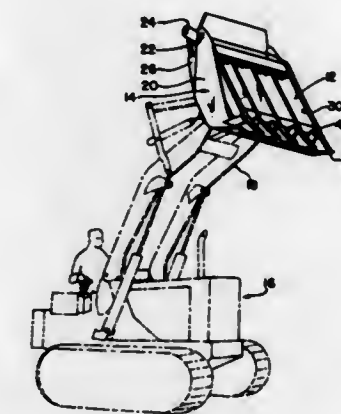
Floyd E. Perrotti, 20906 120th Ave. S.E., Kent, Wash.

Filed June 3, 1969, Ser. No. 829,888

Int. Cl. E02f 3/28

U.S. Cl. 214-767

5 Claims



A conventional loader vehicle having forward push arms with a bucket secured at their terminal ends is provided with a replaceable fork-type rake attachment including a rake member having a plurality of tines extending downwardly below the bucket. The rake attachment is pivotally mounted on the bucket and includes power means for manipulating the rake member toward and away from the bucket. A pair of rearwardly directed log-supporting arms is secured to the rake member to hold an object when the rake member is pivoted toward the bucket. A plurality of forwardly directed teeth are provided on the rake member to serve as gripping members to prevent it from sliding up the object to be moved when the vehicle is being used to push over small trees and the like.

3,595,417

SAFETY CLOSURE

Arthur Albert Musher, deceased, 805 E. Franklin Ave., Silver Spring, Md. (by Selma V. Musher, executrix)

Filed May 13, 1969, Ser. No. 824,128

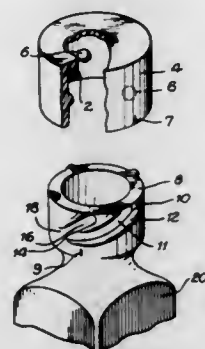
Int. Cl. A61j 1/00; B65d 55/02

U.S. Cl. 215-9

1 Claim

A closure and plug for a container is provided with elements interengaging with other elements on the mouth of the

container, to secure it against opening by young children. In one modification, the closure is provided with a combination safety plug and measuring device; the measuring device is



provided with a more versatile structure, and a means of accurately varying the measured quantity, the closure is also improved.

3,595,418

CLOSURES FOR CONTAINERS

Edmund Philip Adcock, Harpenden; Jeffrey Herbert Sutcliffe, Norwich, Norfolk, and Colin Charles Woodward, Maidenhead, all of, England, assignors to U.G. Closures and Plastics Limited, Norfolk, England

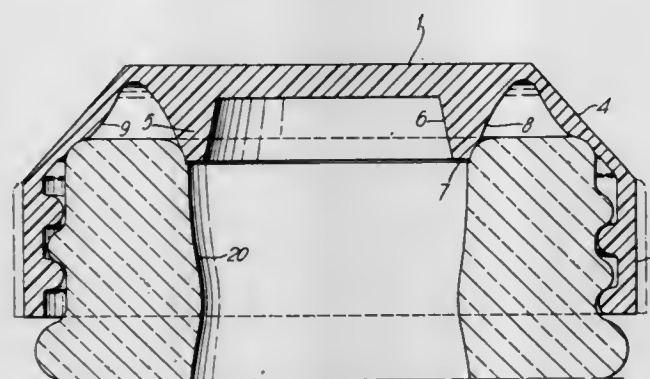
Filed Apr. 25, 1969, Ser. No. 819,381

Claims priority, application Great Britain, Apr. 26, 1968, 19956/68

Int. Cl. B65d 41/04

U.S. Cl. 215—40

5 Claims



A closure for the neck of a container, which closure is moulded as a unitary structure from a resilient material and comprises a top portion, a screw-threaded annular skirt portion and a downwardly depending annulus provided on the underside of the top portion, wherein a sloping portion, having an inside surface which is at least partially convex in shape, joins the top portion to the skirt portion, and the downwardly depending annulus has a concave external face.

3,595,419

CLOSURE AND SEAL

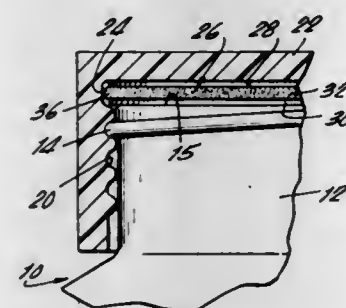
Joseph Dukess, 931 Greason Point, Mamaroneck, N.Y.

Filed Sept. 3, 1969, Ser. No. 855,155

Int. Cl. B65d 53/04

U.S. Cl. 215—40

2 Claims



A cap and liner therefor, the cap having a groove at the top thereof for rotatably receiving the liner. The liner is

formed of a sandwich and so arranged that a compressible intermediate layer can be squeezed beyond the normal periphery of the liner to engage the cap and make a better seal.

3,595,420

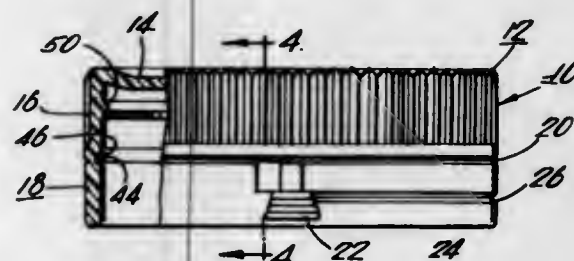
TAMPERPROOF CLOSURE

Brian L. Miskin, London, England, assignor to Johnsen & Jorgensen (Plastics) Ltd., London, England
Continuation-in-part of application Ser. No. 729,091, May 14, 1968, now abandoned. This application Oct. 31, 1969, Ser. No. 873,052

Claims priority, application Great Britain, Oct. 17, 1967, Mar. 27, 1968, June 4, 1969, 47251/67; 14760/68; 28286/69
Int. Cl. B65d 41/20, 43/02

U.S. Cl. 215—42

20 Claims



A container and closure assembly of the type in which the closure is formed of a cap portion and a tear band component and the closure cooperates with the container preventing the removal of the closure from the container until the tear band component has been detached, wherein the improvement comprises: the container having at least one circumferential projection extending from the outer surface of the container adjacent its open end, the line of junction of the tear band component and of the cap portion of the closure being weakened and substantially coinciding with the apex of said circumferential projection when the closure is in place on the container, whereby when said tear band component is torn away along said weakened line of junction, the cap portion can be removed from the container and can subsequently be pressed back on the container without interference from said projection.

3,595,421

POUR SPOUT ADAPTER

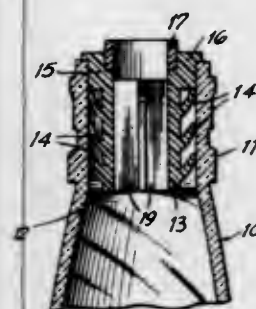
Jose Sanchis, 1087 Grove St., Irvington, N.J.

Filed Apr. 14, 1969, Ser. No. 815,937

Int. Cl. B65d 47/06

U.S. Cl. 215—79

1 Claim



An adapter for openings of bottles and other containers has a cylindrical body provided with flexible outer ribs engaging the inner surface of a bottle opening. The interior of the cylindrical body has at least one passage for the flow of the liquid out of the bottle and at least one other passage for the return flow of air into the bottle.

3,595,422

FUEL TANK

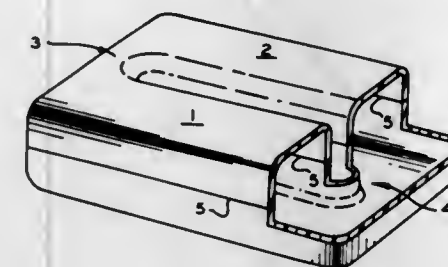
Van D. Durrett, Jr., Bartlesville, Okla., and Warren A. Roberts, Kansas City, Mo., assignors to Phillips Petroleum Company

Filed July 28, 1969, Ser. No. 845,290

Int. Cl. B65d 11/22, 25/04

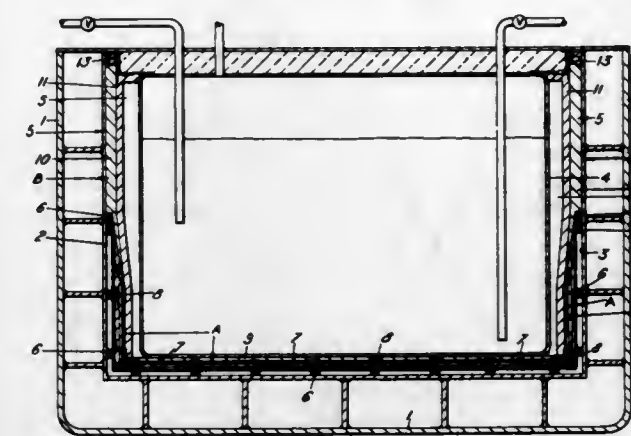
U.S. Cl. 220—5 A

4 Claims



A plastic fuel tank, preferably for use in motor vehicles, is constructed so as to resist impact loading failure by forming said tank from a plurality of containers and adapting said tank to distribute the energy of impact loading relatively equally throughout the container by adapting the tank to communicate fluid between the containers, and constructing the containers into a substantially rigid unit so as to respond to impact loading as a unit.

and supported by thermal insulation characterized in that less lightly stressed parts of the insulation comprise rigid foamed-



3,595,425

VENTED COMPARTMENTED FOOD TRAY

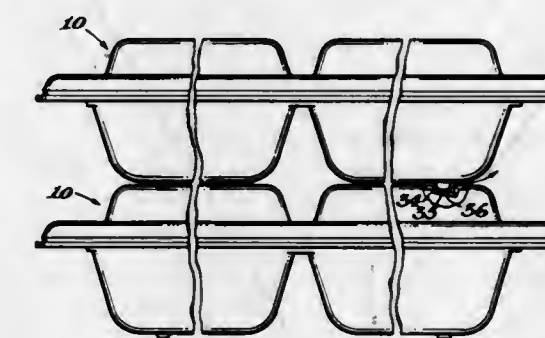
Clara V. Eicholtz, Midland, and Bertrand N. Trombley, Bloomfield Hills, both of, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Aug. 5, 1969, Ser. No. 847,569

Int. Cl. B65d 1/24, 21/02, 51/16

U.S. Cl. 220—20

11 Claims



A compartmented food tray used to transport hot foods to a serving area remote from the cooking area. The tray includes a lid which mates with a plate to segregate the tray into spill-over free compartments. Each compartment has a complementary stacking feature in its lid and plate sections which permits nesting of trays in a stack. Each stacking feature in the lid includes a vent disposed to permit escape of excess steam and moisture even when the trays are nested.

3,595,426

DOUBLE-DOOR LOCK ASSEMBLY

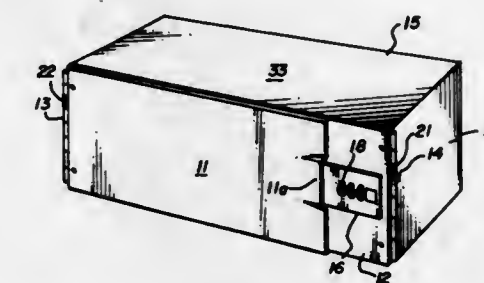
Bob P. Conrad, 4823 Eaton, Denver, Colo.

Filed June 23, 1969, Ser. No. 835,405

Int. Cl. B65d 43/16, 51/10, 51/18

U.S. Cl. 220—35

8 Claims



A double-door lock assembly for closing article support structures has two cooperative doors hingedly supported at

3,595,424

CONTAINERS FOR LIQUEFIED GASES

Robert Glover Jackson, Hornchurch, Essex, England, assignor to Conch International Methane Limited, Nassau, Bahamas

Filed Feb. 24, 1969, Ser. No. 801,495

Int. Cl. B65d 25/00

U.S. Cl. 220—15

5 Claims

An insulated container such as used in marine tankers for cryogenic liquids comprising an inner metal tank surrounded

opposite ends with the free end of one door overlapping the free end of the other door in the closed position. A lock holds the lapping ends together and the biasing arrangement automatically swings the doors open when the lock is released.

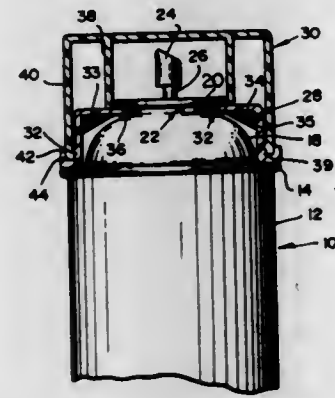
3,595,427

SAFETY AEROSOL COVER CAP

Israel J. Markowitz, 579 E. 42nd St., Brooklyn, N.Y.
Continuation-in-part of application Ser. No. 680,937, Nov. 6, 1967, now Patent No. 3,462,045. This application Aug. 18, 1969, Ser. No. 850,897
Int. Cl. B65d 41/08, 45/30

U.S. Cl. 220-39

5 Claims



A safety aerosol cover cap of two-piece construction with threadable means securing same together so that rotation of either or both of the cap elements will not disengage the cover cap from the aerosol container, and method of assembling same as an integral unit to said container.

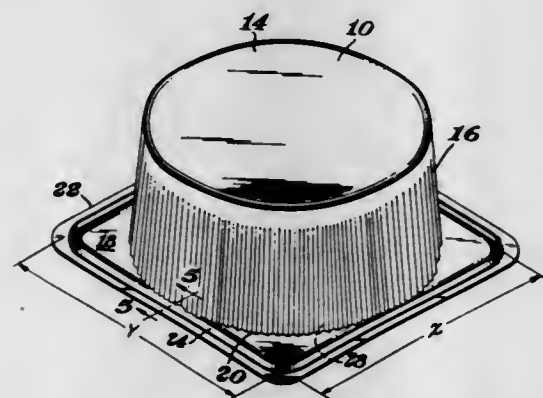
3,595,428

INTERCHANGEABLE CONTAINER PARTS

Lewis S. Mounts, Midland, and Ruben A. Tigner, Bay City, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.
Filed Mar. 17, 1969, Ser. No. 807,844
Int. Cl. B65d 41/00

U.S. Cl. 220-42 R

20 Claims



A plurality of container parts including tubs of circular, rectangular, oval, and like various configurations is disclosed. Such tubs are made to fit interchangeably with a single lid design by employing a mating element, as for example, a marginally disposed tongue, of a design and size common to the various tubs so included in such container parts.

3,595,429

SELF-CLOSING VENT ASSEMBLY FOR A SEALED CONTAINER

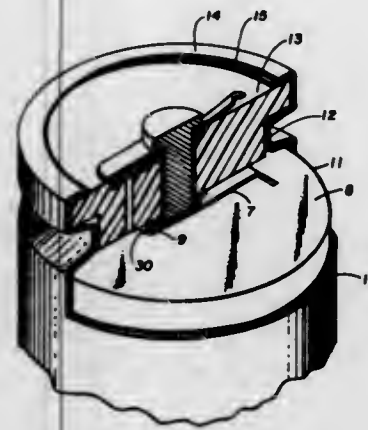
Nuri Kohen, Jackson Heights, N.Y., assignor to Yardney International Corp., New York, N.Y.
Filed Dec. 20, 1968, Ser. No. 785,496
Int. Cl. B65d 51/16

U.S. Cl. 220-44 R

14 Claims

A battery casing fitted at its top with a central terminal has a cantilever spring traversed by that terminal and clamped

between the head thereof and an underlying O-ring to exert pressure upon a resilient plug member projecting from a recess alongside the terminal, this plug member overlying the



exit end of a vent hole passing through the casing top. Rotation of the spring from its normal position allows removal of the plug member for the introduction of fresh electrolyte into the battery via the vent hole.

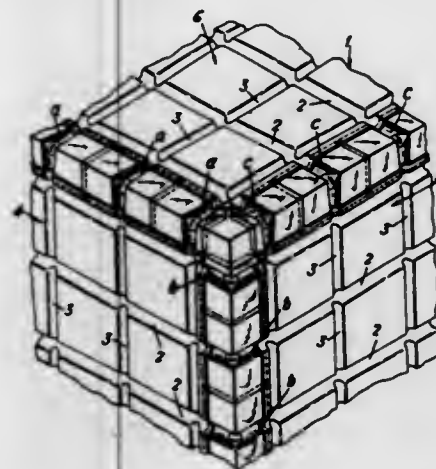
3,595,430

CONTAINERS FOR LIQUEFIED GASES HAVING CORRUGATED WALL STRUCTURE

Gilbert Jean Louis Massac, Meudon, France, assignor to Conch Ocean Limited, Nassau, Bahamas
Filed Mar. 24, 1969, Ser. No. 809,742
Claims priority, application France, Mar. 26, 1968, 145,527
Int. Cl. B65d 7/42

U.S. Cl. 220-72

9 Claims



Integrated or membrane tanks for cryogenic fluids such as liquid methane are often provided with parallel sets of crossed corrugations in the thin metal lining of the tank to provide excess metal for accommodating thermal expansion and contraction, which corrugations must be around a corner where two walls meet. A folded formation is provided at the corner to prevent excess thermal strains. In this disclosure the formation at the corner is made larger in cross section than some of the corrugations into which it merges, and the corrugations increase in cross section as they approach and merge into the formations, thus enabling the corner formation to be of large size and reducing the stresses at the formation. A new and effective formation configuration is also disclosed.

3,595,431

DRIPLESS PAINT CONTAINER

Francis L. Bird, Benton, Wis., assignor to Robert Hanis, Benton, Wis., a part interest
Filed Sept. 12, 1969, Ser. No. 857,493
Int. Cl. B44d 3/12; B65d 41/18

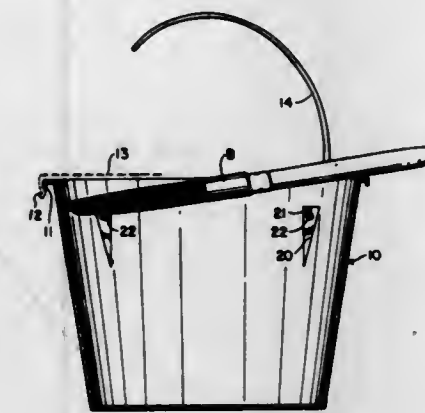
U.S. Cl. 220-90

3 Claims

The one-piece molded plastic paint container has four bosses molded integral with the inside thereof, two on each

side, provided with grooves in the top thereof to receive two snap-in wire rods in diametrically opposed parallel relation to serve as wipers for the brushes enabling drainage of excess paint therefrom without any spillage. These rods also serve as shelves on which to rest the brush or brushes when not in

contents readily accessible. All components of the case, including cover, panel, and hinges, are molded as an assembled



use, as when working off a ladder. A snap-on lid is provided for protection of each container, and a handle has upwardly directed hook ends that engage in holes provided therefor in downwardly extending portions on the rim of the container at diametrically opposed points thereof.

3,595,432

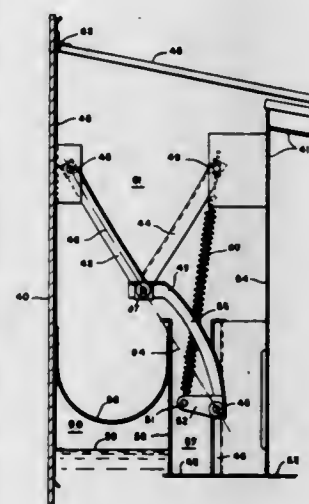
FLOATING ROOF FOR A TANK

Martinus Van der Heijden, Voorburg; Teunis H. De Bruijn, Hague, and Johannes De Wit, Hague, all of, Netherlands, assignors to Shell Oil Company, New York, N.Y.
Filed May 6, 1969, Ser. No. 822,230
Claims priority, application Germany, May 9, 1968, P 17 59 513.0

U.S. Cl. 220-26 S

Int. Cl. B65d 87/18

13 Claims



There is disclosed a floating roof comprising a mechanism for forcing a guiding shoe against the inner surface of a tank wall, a gutter at the lower part of the peripheral wall of the floating roof, and a flexible sealing strip connected to the peripheral wall of the gutter and to the guiding shoe.

3,595,433

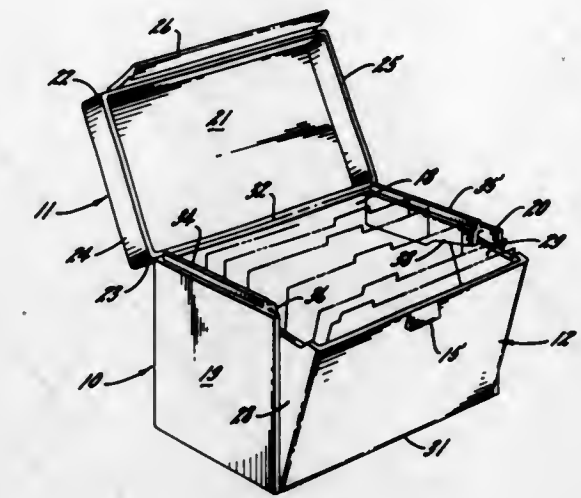
CARD FILES WITH A DROP FRONT

Charles E. Jones, Lincolnwood, and Joseph H. Gruenhut, Chicago, both of Ill., assignors to G. J. Aigner Company, Chicago, Ill.
Filed Apr. 25, 1969, Ser. No. 819,312
Int. Cl. B65d 51/04, 43/16

U.S. Cl. 220-31 S

8 Claims

A filing case is formed as a unitary resilient, or flexible, plastic structure. A forward-swinging or dropfront panel is released when the filing case is opened, thereby making the



structure from one mass of resilient plastic material. The cover and front panel are each formed in an open position so as to bias these elements in that position.

ERRATUM

For Class 221-77 see:
Patent No. 3,594,872

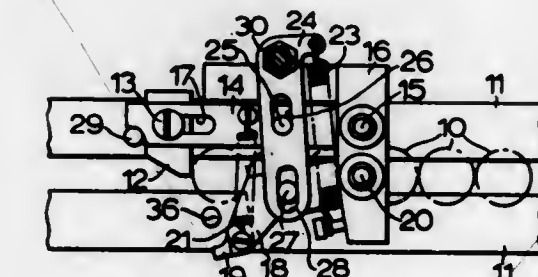
3,595,434

ESCAPEMENT MECHANISMS FOR ARTICLES TO BE DISCHARGED FROM A MAGAZINE ALONG A CHUTE
George Paul Barker, Woodthorpe, England, assignor to Charles Churchill Limited, Nottingham, England
Filed June 24, 1969, Ser. No. 836,100

Claims priority, application Great Britain, June 26, 1968, 30,355/68
Int. Cl. B65h 3/30

U.S. Cl. 221-301

5 Claims



An escapement mechanism for discharging articles in succession from a chute and comprising a finger for arresting the leading article and a biased restraining member which moves into position between the leading article and the next article and accelerates discharge of the leading article upon movement of the finger to an inoperative position.

3,595,435

CUP DISPENSER

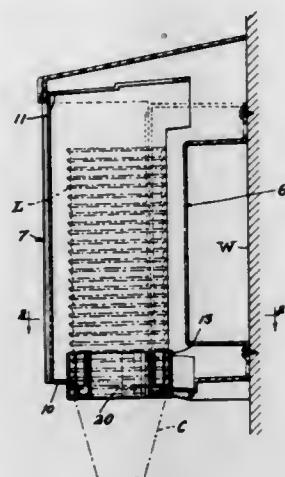
Andrew Stuard Graham, Jr., Wyncote, Pa., assignor to Fleck Industries, Inc., Willow Grove, Pa.
Filed Oct. 29, 1968, Ser. No. 771,486
Int. Cl. A47f 1/04

U.S. Cl. 221-310

1 Claim

A dispensing mechanism providing for sequential dispensing of individual cups from a stack of serially nested

cups and including a dispensing device providing for delivery of the cup to be dispensed while restraining the next cup to mixer are controlled, means are provided to inject pulses of a gas at regular intervals into the carbon black flow control



be dispensed and thereby preventing undesired simultaneous delivery or dispensing of a plurality of cups.

3,595,436

GENERATOR OF SIMULATED SMOKE SIGNALS FOR GUNNERY TARGET PRACTICE

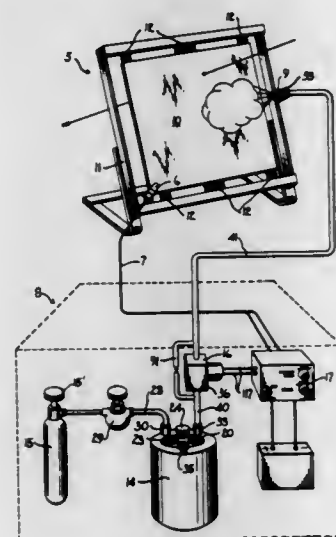
John Alex Ingvar Ohlund, Huskvarna; Karl Ragnar Andersson, deceased, late of Huskvarna, and Ruth Ingrid Kerstin Andersson, executrix, Vaxjo, all of, Sweden, assignors to Saab Aktiebolag, Linkoping, Sweden, by said Ohlund

Continuation of application Ser. No. 548,807, May 9, 1966, now abandoned, which is a division of application Ser. No. 238,348, Nov. 19, 1962, now Patent No. 3,272,510. This application Jan. 17, 1969, Ser. No. 792,173

Int. Cl. B67d 5/54

U.S. Cl. 222-4

5 Claims



A container with powder therein has its interior continuously communicated with a pressure gas source. An outlet from the container is controlled by a valve having a remotely controllable actuator that is isolated from its valve element, to prevent the actuator from being fouled by powder.

3,595,437

PARTICULATE MATERIAL FEEDING WITH POWER-SENSING MEANS

Allen C. Howard, Orange, Tex., assignor to Phillips Petroleum Company

Division of Ser. No. 527,898, Feb. 16, 1966, which is a division of application Ser. No. 297,604, July 25, 1963, now Patent No. 3,249,263.

Filed Nov. 10, 1969, Ser. No. 875,092

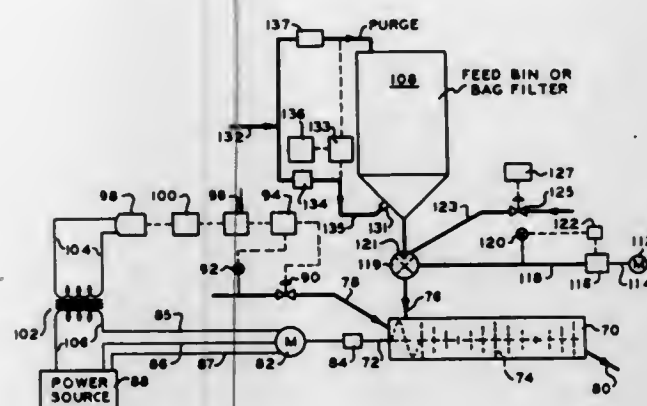
Int. Cl. B67d 5/08

U.S. Cl. 222-61

3 Claims

In apparatus for carbon black wet pelleting wherein the flow of black and aqueous liquid to a rotatable pelletizer-

mixer are controlled, means are provided to inject pulses of a gas at regular intervals into the carbon black flow control



3,595,438

AUTOMATIC DETERGENT DISPENSER SYSTEM

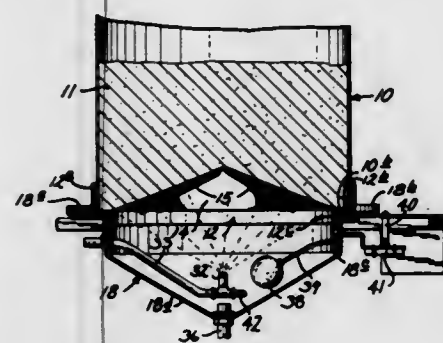
Leo R. Daley, Bloomington, and Carl A. Miller, St. Paul, both of, Minn., assignors to Economics Laboratory Inc., St. Paul, Minn.

Filed Jan. 6, 1969, Ser. No. 789,150

Int. Cl. B67d 5/08

U.S. Cl. 222-67

14 Claims



A system is shown for converting the powdered detergent in a large shipping container to a concentrated detergent solution and for keeping a predetermined amount of the solution available for use. A conical screen is mounted across and extends into an open end of the container. The detergent-filled container is inverted over an open receptacle with the screen holding the detergent in the container. A single water spray nozzle is mounted in the receptacle to spray water on the downwardly facing concave surface of the screen to dissolve a portion of the detergent carried thereby, which passes through the screen and collects in the receptacle.

3,595,439

COMBINATION MIXING CAPSULE AND DISPENSER

Glenn A. Newby, New Richmond, Wis., and Larry S. McGart, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sept. 9, 1969, Ser. No. 856,262

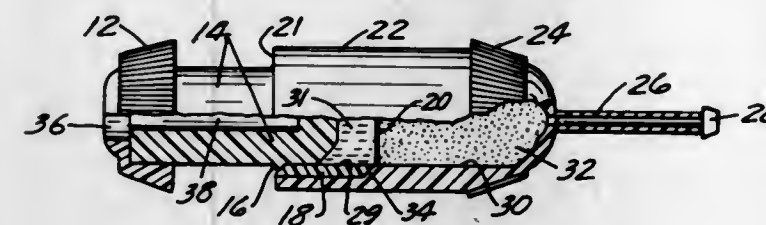
Int. Cl. B65d 1/04, 8/00

U.S. Cl. 222-80

5 Claims

A combination mixing capsule and dispenser capable of separately holding complementary materials, such as dental restorative materials until they are to be mixed and used and further serving as a dispensing device when used with suitable implements. The capsule has at least two compartments separated by an impermeable rupturable seal with each com-

partment containing one of the ingredients which are thereafter to be mixed and further has means to insure an in an upright position. The spout of the container preferably is made with an integral cap portion connected to a spout



adequate mixing chamber and means to permit complete expulsion of the mixed ingredients directly from the capsule.

3,595,440

DUAL-DISPENSING VALVE WITH MEANS TO PREVENT THROTTLING ACTION

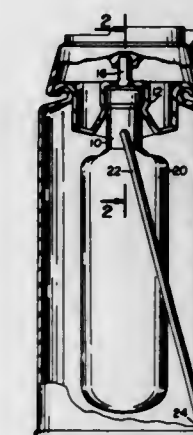
Samuel B. Prussin, Los Angeles, and Jimmie L. Mason, Hacienda Heights, both of, Calif., assignors to Dart Industries Inc., Los Angeles, Calif.

Filed May 2, 1969, Ser. No. 821,416

Int. Cl. B65d 35/28

U.S. Cl. 222-95

8 Claims



A dual-dispensing aerosol valve for use in dispensing products, such as hot foam shave lather, and oxidation hair dye, or the like; said valve being adapted to operate in upright position by means of an axial reciprocal valve member slidably mounted in a housing and operable with respect to a flexible valve element contained in said housing; said housing having passages at opposite sides of said flexible valve element which are controlled by an annular seat and a poppet valve portion of said valve member opposed thereto and engageable with an opposite side of said flexible valve element from said seat; said poppet valve member having means adapted to prevent throttling action of the valve with relation to fluids dispensed at opposite sides of said flexible valve element.

3,595,441

SINGLE-USE CONTAINER WITH DISPENSING SPOUT

Robert M. Grosjean, 4625 Merry Lane, Toledo, Ohio

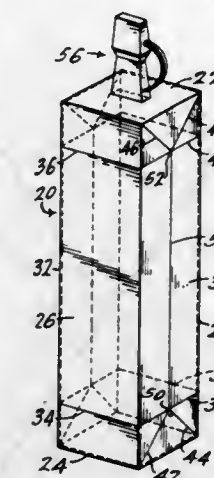
Filed Sept. 3, 1968, Ser. No. 756,876

Int. Cl. B65d 35/08, 47/10;

U.S. Cl. 222-107

11 Claims

A single-use or one-way dispensing container is made of one piece of plastic material. The container is designed to be completely collapsed to facilitate dispensing of the contents and yet even in its partially or wholly collapsed state, the bottom remains flat so as to support the container continuously



3,595,442

LIQUID DISPENSER-CONTAINER

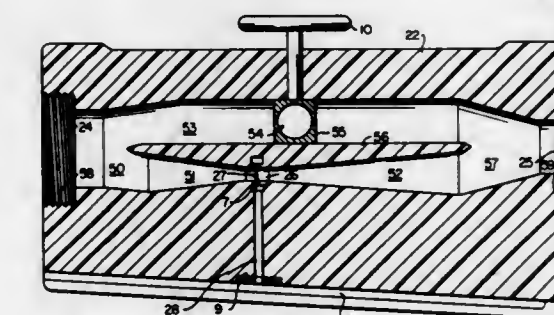
Sanford S. Shapiro, 7009 Rival Road, Canoga Park, Calif.

Filed Dec. 18, 1969, Ser. No. 886,241

Int. Cl. B67d 5/56

U.S. Cl. 222-133

15 Claims



The dispenser has an inlet and an outlet with a venturi connecting the inlet and outlet, the venturi having a converging portion, a reduced portion and a diverging portion. An annular chamber surrounds the reduced portion having ports extending therethrough. A duct in the dispenser leads from the chamber and opens through the bottom of the dispenser, which bottom has parallel guides formed in its edges. A removable liquid chemical container having a top adapter plate is slidably inserted in the guides, and the container has a suction tube therein adapted to register with the duct; also a vent duct in said adapter opens to the atmosphere and communicates with the interior of the container. A main pipe connects a liquid pressure source with the dispenser inlet. A valved bypass is provided around the venturi for controlling the degree of suction within the annular chamber around the reduced portion thereof, thereby controlling the amount of liquid chemical drawn into the liquid passing to the outlet of the dispenser.

3,595,443

MOISTURE GENERATION

Rexford W. Jones, Columbus, Ohio, assignor to A. E. Staley

Manufacturing Company, Decatur, Ill.

Filed Nov. 19, 1969, Ser. No. 878,006

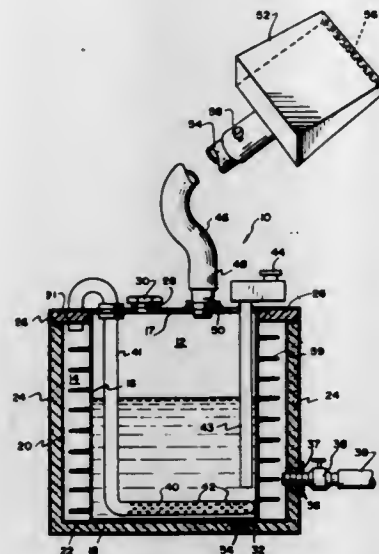
Int. Cl. B67d 5/62

U.S. Cl. 222-146

10 Claims

A moisture generator including a water chamber, an air-receiving chamber surrounding the water chamber and a sparger situated at the bottom of the water chamber and

communicating with the air-receiving chamber. A pressure regulator is provided for controlling the flow of compressed air into the water chamber. A heater is positioned in the



water chamber for heating the water and includes a thermostat control for regulating the temperature of the water. A nozzle is provided for applying or directing warm moist air from the water chamber onto a surface to be treated.

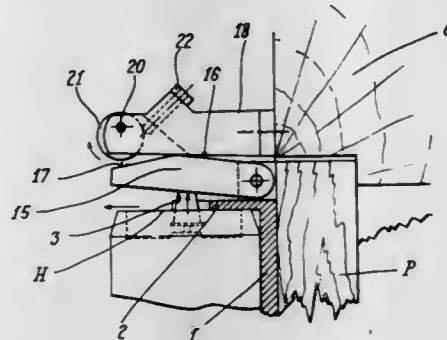
3,595,444 SUPPORT FOR W.C. AND THE LIKE DEODORIZING BOMBS

Francois Jean Chimer, 19 avenue de la Bornala, and Georges Richer, 83, boulevard de la Madeleine, both of Nice, Aples-Maritimes, France

Filed Nov. 17, 1969, Ser. No. 877,123
Int. Cl. B62d 5/06

U.S. Cl. 222-180

7 Claims



A support for securing a deodorizing bomb on the door of W.C. or the like premises and adapted to operate the bomb only upon closing of the door. To this end a projection secured to the door over the bomb is provided along its upper surface with two longitudinal slopes of opposite directions rising towards a common raised area. An operative part pivotally carried by an arm rigid with the door frame is adapted to run over said slopes in succession. Said part rocks freely during the opening of the door without depressing the projection engaged by it whereas the closing of the door urges the projection in the opposite direction against an abutment so that it cannot rock upwardly and constrains the projection to sink and operate the pusher knob on the bomb thereby to produce a spray of the deodorant contained in the bomb.

3,595,445 FLUID-DISPENSING VALVE

Wesley E. Buford, Covina, and Charles G. Buford, Azusa, both of, Calif., assignors to Rayford Industries, Inc., Covina, Calif.

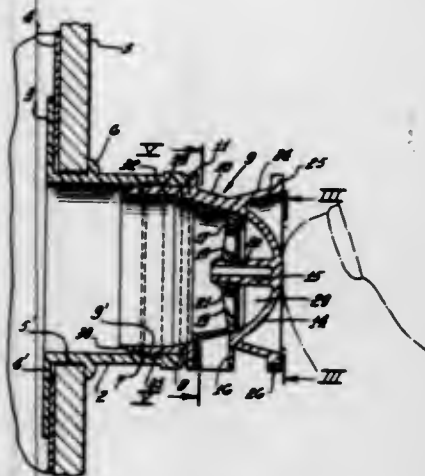
Filed Jan. 27, 1969, Ser. No. 794,164
Int. Cl. B67d 3/00; F16k 31/00

U.S. Cl. 222-213

2 Claims

A self-closing, two part fluid-dispensing valve comprising an integral molded generally cup-shaped valve body member

providing a valve chamber with an outlet opening. The wall of the valve body member includes a resilient portion which carries a connector means extending into the chamber for supporting a valve member having a valve skirt with surfaces sealingly engaging surfaces on the valve body member. The valve member includes a ported transverse wall which per-



mits fluid communication between the main valve chamber and a valve chamber portion lying between the valve member and the resilient wall portion; the valve skirt being normally biased into closing relationship with respect to the outlet opening and the biasing force of the resilient wall portion being augmented by the fluid pressure head acting upon the internal surface of the resilient wall portion.

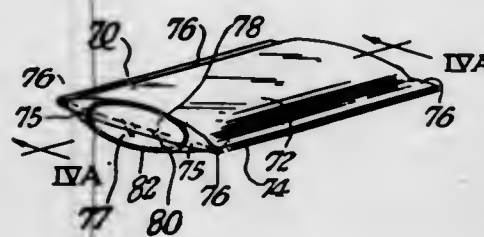
3,595,446 QUICK-OPEN CONTAINER STRUCTURE

Harold Richard Hellstrom, 5245 Center Ave., Pittsburgh, Pa. Continuation-in-part of application Ser. No. 782,669, Dec. 10, 1968, now abandoned. This application Apr. 1, 1969, Ser. No. 812,234

Int. Cl. B67d 37/00

U.S. Cl. 222-213

23 Claims



I disclose a quick-opening container structure comprising a generally cup-shaped body section having an opening therein, frangible cover means substantially coextending with said opening and joined to said body section about the periphery of said opening, means for forming a frangible line of weakening at said cover means, and a stiffening ring joined to one of said cover means and said body section and disposed about said periphery whereby the application of deformational forces longitudinally of said line of weakening causes said ring to induce an opening at said weakening means.

3,595,447 MULTIPLE OUTLET LIQUID METERING DEVICE

William J. Carroll, West Lafayette, Ind., and Frank S. Mizusawa, Garden Grove, Calif., assignors to Great Lakes Chemical Corporation, West Lafayette, Ind.

Filed Nov. 25, 1969, Ser. No. 879,792

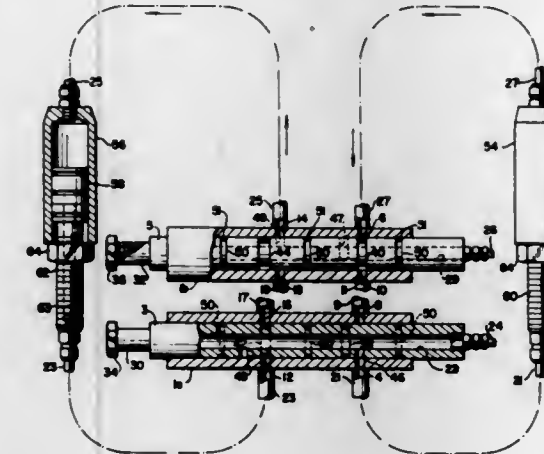
Int. Cl. G01f 1/06

U.S. Cl. 222-250

7 Claims

A device for dispensing metered amounts of fluid under pressure from a single supply line to multiple distribution outlets having a pair of flow-directing cylinders with driven

pistons connected by pipes to a pair of metering cylinders with free pistons so that when the driven pistons are at one end of their travel, fluid flows from the single supply line through the center of one of the driven pistons, through a pair of holes in the wall of the piston and the cylinder and into one end of each of the metering cylinders, thereby driving the free piston and the fluid in front of it toward the other



end of its travel, the exiting fluid flowing through a pair of holes in the cylinder wall of the other flow-directing cylinder, around a pair of radial recesses in the outer wall of the driven piston therein and out another pair of oppositely positioned holes in the cylinder wall to a pair of distribution outlets; this action being reversed when the driven pistons are at the other end of their travel.

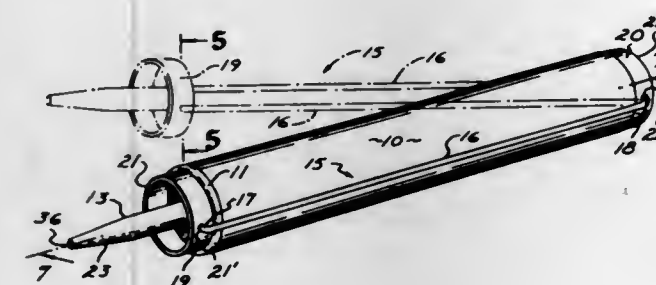
3,595,448 SEALANT DISPENSERS

Ewell Lee Carlton, 11850 Edgewater Drive, Lakewood, Ohio

Filed Aug. 18, 1967, Ser. No. 661,611

Int. Cl. G01f 1/106

8 Claims



The disclosure herein relates to a sealant container adapted for use as a sealant holding and dispensing device, the same including attachment means for fluid pressure charging and spout discharge means and support means.

3,595,449 DISPENSING CONTAINER WITH FOLLOWER DISCHARGE ASSISTANT

Paul W. Stump, North Olmsted, Ohio; Charles D. W. Thornton, Stamford, Conn., and Roland C. Gardner, Bay Village, Ohio, assignors to Clevepak Corporation, Cleveland, Ohio

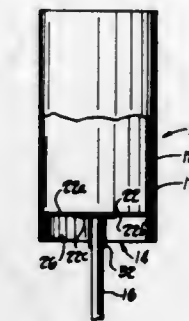
Filed Oct. 13, 1969, Ser. No. 865,915

Int. Cl. B67d 5/42

U.S. Cl. 222-386

8 Claims

A plastic piston and tubular container for dispensing semisolids, such as ice cream and the like. The piston has a flat, flexible, obturating wall; a depending peripheral skirt or



tight seal; and a central tubular hub, corrugated to provide radial flexibility, for connecting either a rodlike or tubular push device to the piston.

3,595,450 SHIRT PRESSER BAG WITH REPLACEABLE SIDES AND YOKE

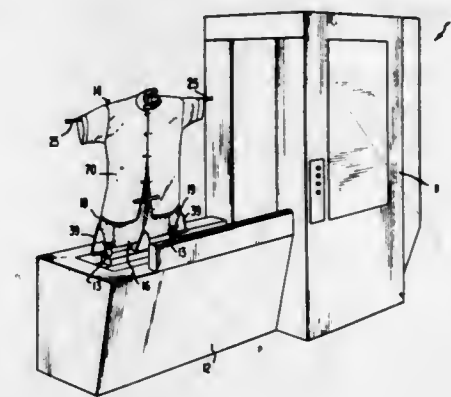
George Schlemmon, Atlanta, and Ernest George Shivers, Jr., Decatur, both of, Ga., assignors to Southern Mills, Inc., Atlanta, Ga.

Filed Aug. 26, 1969, Ser. No. 853,045

Int. Cl. D06c 15/00; A41h 5/00, 5/02

U.S. Cl. 223-57

7 Claims



A shirt presser bag with inflatable side bags and yoke which are replaceable. The assembly comprises a noninflatable body bag for placement over a pressing platen, an inflatable yoke removably attached to the top edge of the body bag, and inflatable side bags juxtaposed the side edges of the body bag. The yoke defines an inflatable pocket closed at its ends and open at its center, and an elastic stay extends from end to end in the pocket and maintains the pocket in an opened condition. A substantially rigid stay is connected to each side bag and is connectable to a side edge of the body bag to hold the side bags in abutment with the edges of the body bag.

3,595,451 READILY ADJUSTABLE GUNSLING

Howard O. Branby, Minneapolis, Minn., assignor to Trail Guide Products Corporation, Wayzata, Minn.

Filed Oct. 20, 1969, Ser. No. 867,676

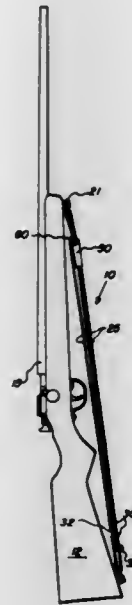
Int. Cl. F41b 3/00

U.S. Cl. 224-1 A

10 Claims

An improved readily adjustable gunsling utilizing a strip of tubular, woven, synthetic material which may be adjusted to

any gun swivel and connects at one extremity to a slide member and through a buckle with keeper to the slide



member to provide an arrangement which may be tightened and loosened and locked in any position.

3,595,452

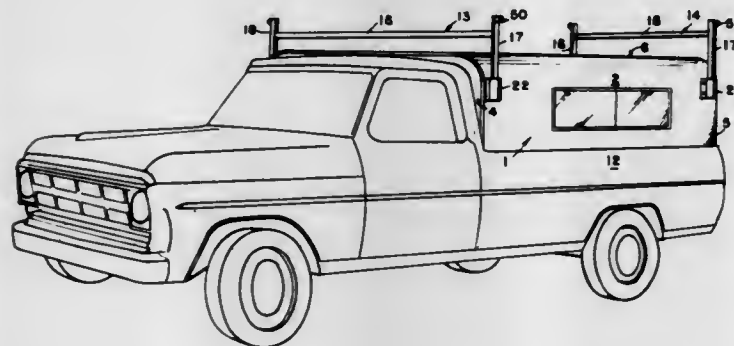
LOAD-CARRYING RACK FOR TRUCK BODIES AND THE LIKE

Bernard M. Anderson, 135 E. Clay St., Monmouth, Oreg.
Filed July 14, 1969, Ser. No. 841,386

Int. Cl. B60r 9/04

U.S. Cl. 224-42.1 F

1 Claim



A load carrier in the form of a rack assembly comprising horizontal frame members and means for adjustably securing the frame members to the top of truck bodies such as pickup canopies, pickup campers and similar auxiliary vehicle bodies. The adjustable securing means enables the horizontal frame members to be fixedly secured in various elevated positions relative to the body top and also elongated or retracted for accommodating loads of various widths.

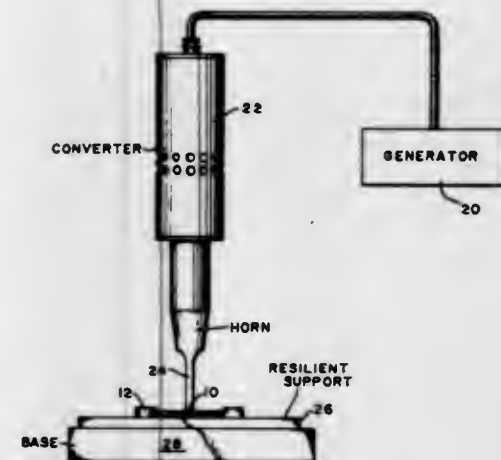
METHOD OF SEPARATING PARTS USING HIGH FREQUENCY ENERGY

Jeffrey R. Sherry, Danbury, Conn., assignor to Branson Instruments, Inc., Stamford, Conn.
Continuation-in-part of application Ser. No. 865,382, Oct. 10, 1969, now abandoned. This application Oct. 31, 1969, Ser. No. 872,916

Int. Cl. B26f 3/00

U.S. Cl. 225-1

4 Claims



Molded parts connected to a runner are separated from the runner by applying energy in the sonic or ultrasonic frequency range to a portion of the runner or the parts.

3,595,454

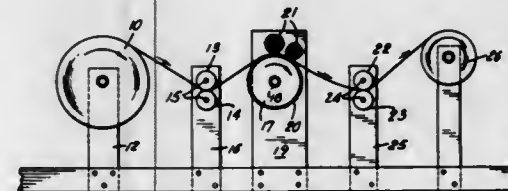
METHOD AND APPARATUS FOR MANUFACTURING SPLIT FIBER WEBS FOR ORIENTED PLASTIC FILMS

Frank Kalwaltes, Somerville, N.J., assignor to Johnson & Johnson
Division of Ser. No. 710,564, Apr. 5, 1968, Pat. No. 3,547,329
Filed Feb. 4, 1970, Ser. No. 12,509

Int. Cl. B26f 1/24, 3/02

U.S. Cl. 225-3

3 Claims



A method for forming split fiber webs from oriented plastic films comprising penetrating the oriented film on a group of sharp implements and, while penetrated, applying a plurality of forces in various directions to the film at least some of these forces being in the plane of the film whereby the film is fibrillated to form a web of interconnected fibers.

3,595,455

METHOD AND APPARATUS FOR SHEARING METAL PLATE MATERIAL

Clifford Pace, Chester, Pa., assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Filed Apr. 17, 1969, Ser. No. 817,024

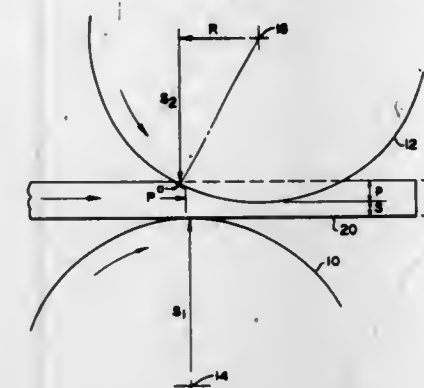
Int. Cl. B26f 3/00; B23d 19/04

U.S. Cl. 225-3

8 Claims

A method and apparatus for shearing heavy metal plate by the use of cooperating rotary cutting discs which have diame-

ters which differ by a predetermined ratio or by the use of



cutting discs of substantially equal diameters but driven at different velocities.

3,595,456

DEVICE FOR FACILITATING THE DISPENSING OF HEAT-SEVERABLE FILM

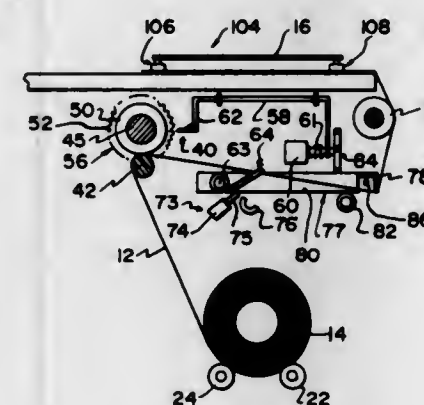
Ben J. Rosenthal, Skokie, Ill., assignor to Rosenthal Manufacturing Company Inc., Chicago, Ill.

Filed Aug. 4, 1969, Ser. No. 847,049

Int. Cl. B26f 3/12

U.S. Cl. 225-11

9 Claims



Heat-severable film-dispensing apparatus which is located underneath a surface on which items are wrapped in the film and which includes rollers for supporting a replaceable film supply roll and a switching mechanism coupled with the film to cause a film-severing wire to be heated when the film is laid out across the wrapping surface. The apparatus also includes a brake for preventing the feed-off of film and a control device for raising a wire guard which are operated in response to the actuation of a switch bar so that the film can be severed by the heated wire.

3,595,457

MAGNETIC TAPE RECORDER FOR AND CONTINUOUS TAPE FEED AND CASSETTE THEREFOR

Nils Gustaf Erik Stemme, Goteborg, Sweden, assignor to Facit AB, Atvidaberg, Sweden

Filed Sept. 11, 1968, Ser. No. 759,107

Claims priority, application Sweden, Sept. 13, 1967,

12,640/1967

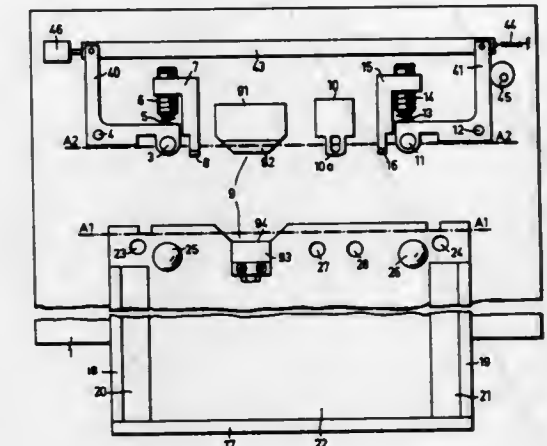
Int. Cl. B65h 17/08

U.S. Cl. 226-50

2 Claims

A data tape recorder, preferably a magnetic tape recorder, for alternative incremental or continuous feeding of the tape is provided with a holder or fitting for an exchangeable cassette containing the tape. The recorder comprises two complex units. A first one of the two units includes the holder for the cassette, two powered drive rollers for cooperation with the tape, and one of the two operative parts of an electromagnetically controlled tape brake. The second unit in-

cludes the second operative part of the brake and a pressure roller for cooperation with every drive roller. The two units can be displaced relative to each other between a position in which a cassette can be inserted into or removed from the holder, and an operative position in which the operative pressure roller constantly presses the tape against the associated drive roller. The two drive rollers are continuously rotating



unidirectionally irrespective of whether the tape is moved incrementally or continuously. Said parts of the tape brake are positioned on either side of the tape. The brake is controllable between a tape-blocking position and a tape feed position. Incremental or continuous feed of the tape is obtained by releasing the brake intermittently or for relatively long periods, respectively.

3,595,458

WIRE-GRIPPER

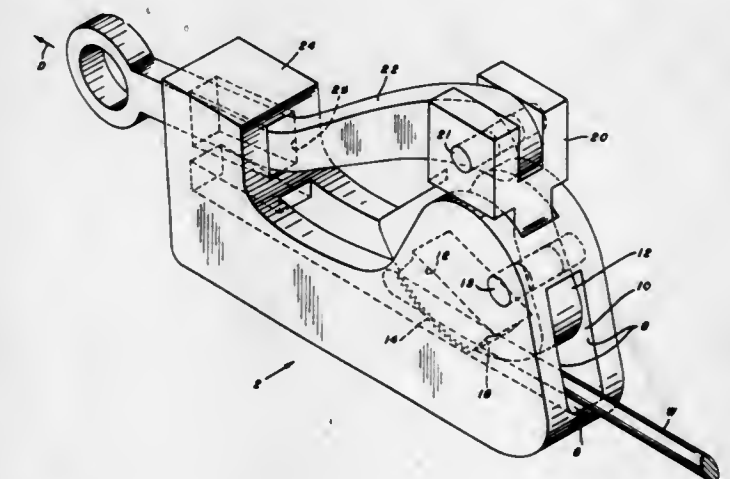
Stefan Prigl, Schuyler, and Donald J. Nojaim, Utica, both of, N.Y., assignors to Special Metals Corporation, New Hartford, N.Y.

Filed June 2, 1969, Ser. No. 829,586

Int. Cl. B65h 17/36

U.S. Cl. 226-164

5 Claims



Apparatus for gripping an article such as a rod, wire or the like for drawing the article including a housing with a longitudinal slot extended upwardly by sidewalls defining a cavity in which a gripping member is pivotally mounted. The gripping member has an arm extending beyond the housing forming a part of a linkage with a second arm which extends through a slot in the rear of the housing adapted to slidably receive the second arm. The drawing force is applied to the second arm, which rotates the gripping member into contact with the article to be drawn.

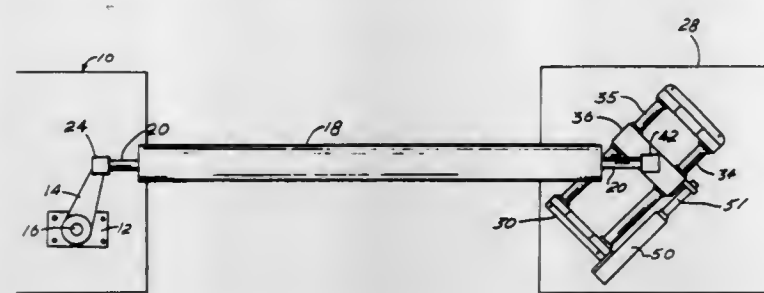
3,595,459

GUIDER FOR STRAIGHTENING TRAVELING WEBS

Paul V. Colombo, P.O. Box 1128, Taunton, Mass.
Filed Nov. 4, 1969, Ser. No. 873,818
Int. Cl. B65h 23/26

U.S. Cl. 226-199

8 Claims



A guider for traveling webs of cloth has one or more web rollers to which a pivot arm is connected which arm moves in an arc, and connected at the opposite side are sliding means which, when actuated, causes the web roller or rollers to move laterally, in either one of two opposite directions, as needed to straighten a traveling web.

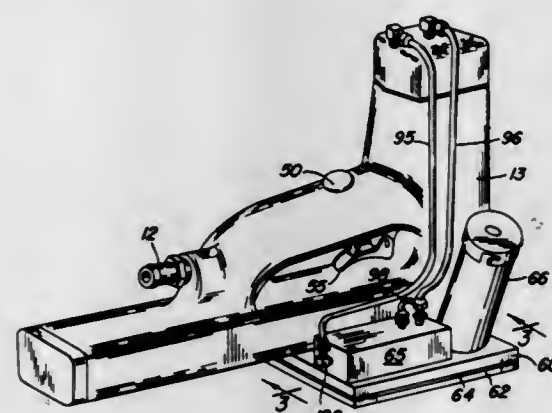
3,595,460

WASHER FEEDER FOR NAIL DRIVER

Roy S. Pitkin, 2735 N.E. 18th Ave., Portland, Oreg.
Filed Oct. 16, 1968, Ser. No. 768,046
Int. Cl. B27l 7/02

U.S. Cl. 227-48

11 Claims



An automatic mechanism for feeding washers to a nail driver so that each nail will be driven through a washer, through the work and anchored.

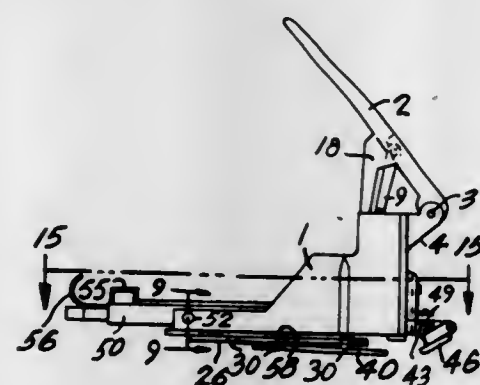
3,595,461

STAPLING MACHINE WITH AUTOMATIC ADVANCE

Gerard Boucher, 6555 20th Avenue, Apartment 1, Rosemont, Quebec, Canada
Filed Aug. 19, 1968, Ser. No. 766,351
Int. Cl. B25c 5/02

U.S. Cl. 227-108

15 Claims



A stapling machine with automatic advance designed especially for making carpet joints.

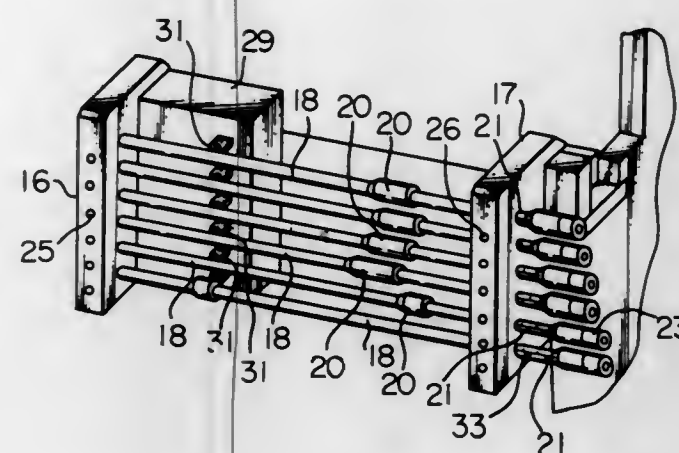
3,595,462

DEVICE FOR REGULATING THE OPERATIONS OF THE FRICTION WELDER

Seizo Hirayama, Kariya-shi, Japan, assignor to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya-shi, Aichi-Ken, Japan
Filed Aug. 5, 1968, Ser. No. 750,073
Claims priority, application Japan, Aug. 5, 1967, 50391/67
Int. Cl. B23k 27/00

U.S. Cl. 228-2

4 Claims



A regulating device for regulating the operations of a friction welder is mounted on a slide table which is slidably mounted on the base of the welder. A plurality of regulating members are mounted on the regulating device in a parallel condition, and a plurality of limit switches are disposed in a limit switch box secured to the base of the friction welder. Each regulating member comprises a shaft supported by a pair of brackets secured to the slide table, a dog slidably mounted on the feed shaft, means for providing axial movement of the feed shaft, and means for reading the relation between the set position of the feed shaft and the dog to a feeler of one of the limit switches for precisely actuating the friction welder.

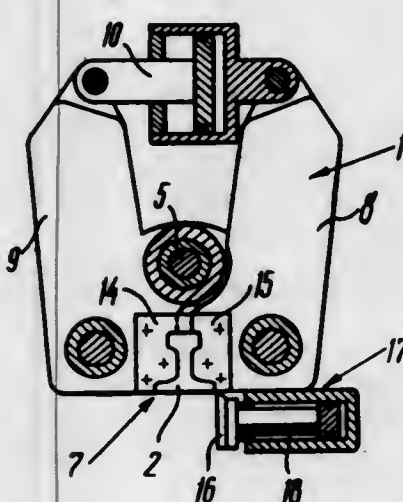
3,595,463

TRANSPORTABLE MACHINE FOR BUTT-WELDING OF RAILS

Sergel Ivanovich Fadeev; Viktor Epifanovich Gora, and Arkady Khasin-Dubrovsky, all of Alexeevich of Moscow, U.S.S.R., assignors to Spetsialnoe Proektno-Tekhnologicheskoe-Konstruktorskoe Bjuro Glavnogo Upravleniya Puti I Sooruzheny MPS SSSR, Moscow, U.S.S.R.
Filed Aug. 12, 1968, Ser. No. 751,811
Int. Cl. B23k 19/00

U.S. Cl. 228-44

8 Claims



A transportable machine for the butt-welding of rails under field conditions. The machine is provided with a stationary pincer clamp for fixing a first rail to be welded, a movable

pincer clamp for fixing another rail to be welded to the first rail, a common axle on which the pincer clamps are mounted, a drive for displacing the movable pincer clamp, a hydraulic cylinder for turning the clamping jaws of the stationary pincer clamp, a hydraulic cylinder for turning the clamping jaws of the movable pincer clamp, at least two profile cutters rigidly secured to the clamping jaws of the movable pincer clamp and having a form contoured to the head and side portions of the rail in cross section, at least one lower cutter mounted on one of the pincer clamps and adapted to reciprocate transversely in relation to the longitudinal axis of the rail, the lower cutter having a cutting edge which coincides with the plane of the rail foot.

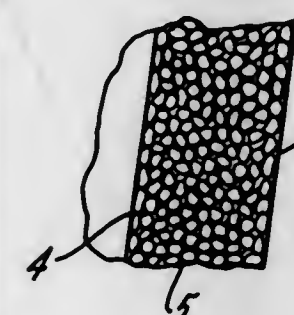
3,595,464

INSULATED VENDING CUP

James M. Harrison, Fort Worth, Tex., assignor to Crown Molding Co., Dallas, Tex.
Filed May 28, 1969, Ser. No. 864,235
Int. Cl. B65d 1/00, 25/14

U.S. Cl. 229-1.5 B

3 Claims



A one-time use, throwaway, inexpensive, thin wall cup primarily intended for use in vending machines preferably of the coin-controlled type, and specially constructed so that static electricity will not remain or accumulate thereon.

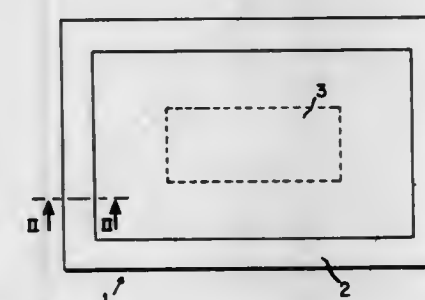
3,595,465

AUTOCLAVABLE PACKAGE

Vincent L. Vaillancourt, Livingston, N.J., assignor to C. R. Bard, Inc., Murray Hill, N.J.
Filed Sept. 19, 1969, Ser. No. 859,592
Int. Cl. B65d 33/16; A61b 19/02

U.S. Cl. 229-3.5

6 Claims



A sealed package for surgical devices such as catheters, intravenous devices, instruments and the like, formed by heat sealing marginally an upper laminated web of plastic materials selected for their autoclavability and a lower web of paper having controlled porosity to permit steam and/or gas sterilization.

3,595,466

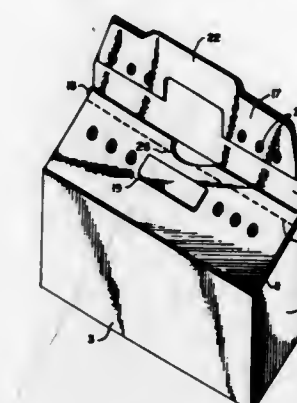
RECLOSABLE CARTON

Charles W. Rosenberg, Jr., North Tonawanda, N.Y., assignor to F. N. Burt Company, Inc., Buffalo, N.Y.
Filed July 17, 1969, Ser. No. 842,610
Int. Cl. B65d 5/66

U.S. Cl. 229-44 R

6 Claims

A recloseable carton produced from a paperboard blank is disclosed wherein the cover means includes inner and outer



panels which are overlapped and initially releasably glued together. After being opened the carton may be reclosed by overlapping the two panels in reverse order, the then outer panel being retained in closed position by end flaps on the panel inserted between the ends of the then inner panel and the end panels of the carton. When initially glued together

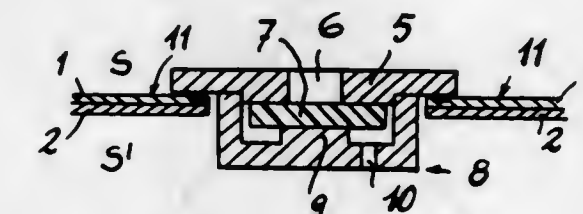
3,595,467

FLEXIBLE SEALED CONTAINER PROVIDED WITH A ONE-WAY SAFETY VALVE

Luigi Goglio, Via Solari 10, Milan, Italy
Filed Jan. 15, 1969, Ser. No. 791,304
Claims priority, application Italy, Jan. 23, 1968, 11893 A/68
Int. Cl. B65d 31/14

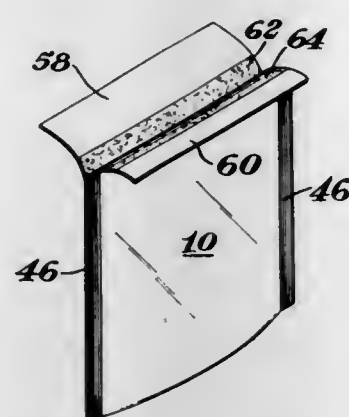
U.S. Cl. 229-62.5

9 Claims



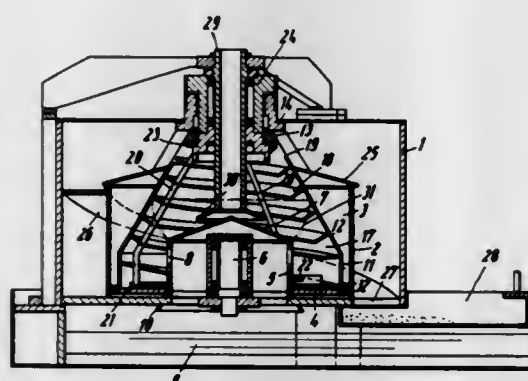
A container of flexible sheet material capable of being sealed and provided with a one-way valve. The sheet material of the container has a portion formed with an opening passing therethrough. The one-way valve has at this opening of the sheet material a base member formed with a valve opening which registers with the sheet material opening, this base member being fixed in a fluidtight manner to the sheet material of the container. The valve opening is covered by a flexible resilient element of the one-way valve, in the form of a disc having a periphery situated beyond the valve opening and engaging that surface of the base member which is directed away from the interior of the container. Fixed to this latter surface of the base member is a hollow member defining with the base member a chamber in which the disc is located, and this hollow member has an interior projection holding the disc against the base member with the periphery of the disc extending beyond the projection of the hollow member. This hollow member is itself formed with a discharge opening communicating with the interior space of the chamber at a part thereof which is situated beside the projection in communication with the periphery of the disc. Thus, as long as the atmospheric pressure is greater than the interior pressure of the container the disc will be held against the base member closing the valve opening. However, when the interior pressure in the container exceeds atmospheric pressure the disc will yield to permit a fluid such as a gas at an undesirably high pressure to escape out of the interior of the container into the chamber of the hollow member and out through the discharge opening thereof to the outer atmosphere.

3,595,468
OPENING DEVICE
 John P Repko, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
 Filed June 6, 1969, Ser. No. 831,019
 Int. Cl. B65d 5/70, 33/22
 U.S. Cl. 229—66



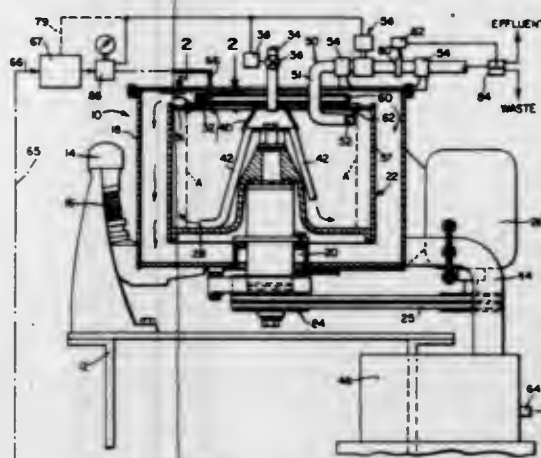
An improved opening device is disclosed comprising a strip of material, preferably fibrous material such as paper, secured flatwise between opposite face portions of an item such as a film pouch. The face portions terminate in edges, i.e., the top edges of the pouch, which can be grasped as tabs to open the item by separating the face portions at the region of the strip. Separation can be at the interface of the strip and either face portion, or the strip can delaminate into layers associated with the face portions, respectively. Such an opening device, even if formed of paper, is useable in certain "boil-in-the-bag"-type packages.

3,595,469
CENTRIFUGE
 Theodor Stoferle, Ludwigsburg-Pflugfelden, Germany, assignor to Karl Hüller Gesellschaft mit beschränkter Haftung, Ludwigsburg, Germany
 Filed Nov. 4, 1968, Ser. No. 773,174
 Claims priority, application Germany, Nov. 4, 1967, P 16 32 296.6
 Int. Cl. B04b 1/00, 3/00
 U.S. Cl. 233—7



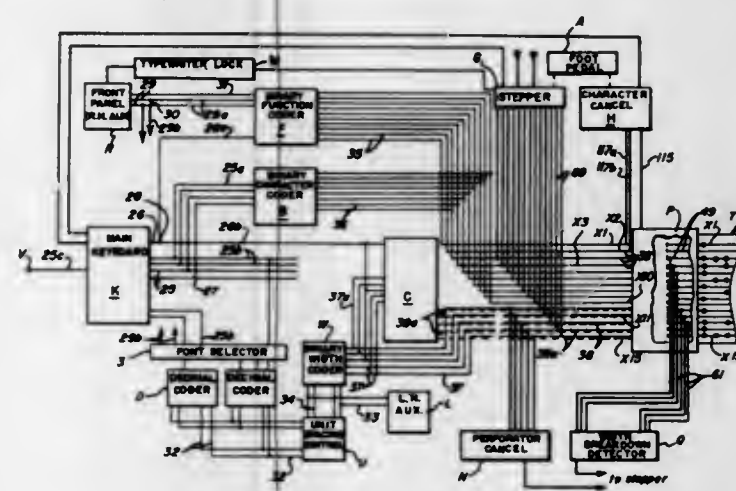
A centrifuge, especially for separating chips from cooling fluids and lubricants, which includes rotatable substantially vertical drum means having a bottom and also having inlet opening means for admitting the mixture containing the media to be separated from each other in said drum and also having first and second outlet means for respectively discharging the lighter and heavier separated medium, said first outlet means for the lighter separated medium being located above and in spaced relationship to said bottom of said drum.

3,595,470
CONTROL APPARATUS FOR CENTRIFUGE
 Leonard Shapiro, Upper Darby, Pa., assignor to Pennwalt Corporation
 Filed Oct. 28, 1968, Ser. No. 771,156
 Int. Cl. B04b 11/00
 U.S. Cl. 233—19



Control apparatus actuates a skimmer for removing accumulated heavy-phase material on the peripheral wall of a centrifuge bowl by supplying pressurized control liquid to an inwardly facing annular pocket. The latter is mounted for rotation with the centrifuge bowl and provided with a drain passageway leading outwardly and having an outer outlet which is obstructed by accumulated heavy phase material, whereby back pressure in the supply line for the control liquid initiates operation of the control.

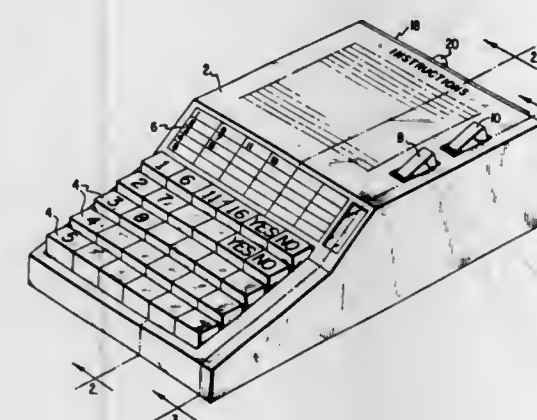
3,595,471
CONTROL CIRCUITS FOR THE TAPE PERFORATORS OF A PHOTOCOMPOSING APPARATUS
 Morton Jack Holiday, 9180 Ogden St., Thornton, Colo.
 Filed Sept. 20, 1968, Ser. No. 761,218
 Int. Cl. B41b 25/10
 U.S. Cl. 234—4



The normal operation of the perforator of a multichannel tape perforator apparatus which code punches a tape from information supplied by a main typewriter keyboard and auxiliary control keyboard is modified by supplemental circuits. A first supplemental circuit includes a two-branch lead extending from a potential source, with one branch to perforator actuators of channels which codes characters and the other branch to perforator actuators of channels which codes spacing information. When both groups of perforators function simultaneously, current flow through the branch lead is balanced. Should the spacing information perforators malfunction, an unbalanced current flow through the branch lead actuates mechanisms to stop the apparatus. A second supplemental circuit includes a holding lead which locks in

switches of pulsing leads on channels perforating a given code. Repeated pulses at those channels effect a repetition of the perforation of the given code each time the pulse occurs, and the number of pulses and repeat perforations may be regulated manually with a counter means. A third supplemental circuit is adapted to ground selected channels of the perforator leads to prevent their operation, but to permit continued operation of other channels therein. A fourth supplemental circuit bypasses the power source supplying the perforator leads, and this bypass extends to the perforator leads which code space information to energize such leads without operation of the perforator solenoids therein, to permit operation of the apparatus without operation of the perforators. Finally, an improved connector for interconnecting corresponding branches of multiple networks includes a plurality of plug and socket members, with a network branch at each member.

3,595,472
MACHINE FOR COUNTING AND RECORDING VOTES
 Stanley N. Darling, and Reyl Darling, both of 1248 Craigflower Road, Victoria, B.C., Canada
 Filed Sept. 26, 1968, Ser. No. 762,762
 Int. Cl. G07c 13/00
 U.S. Cl. 235—50 A

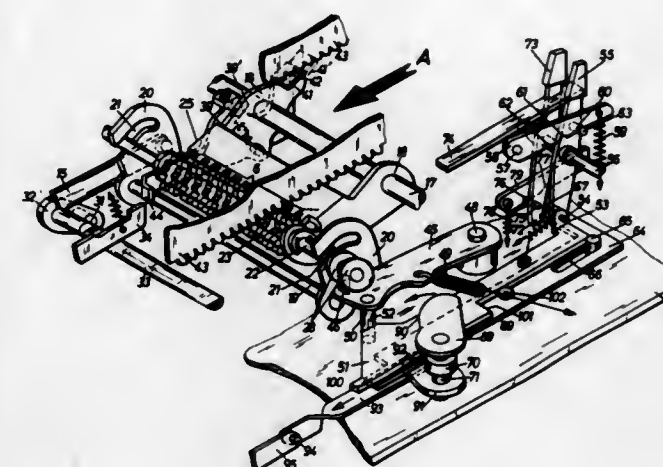


A voting apparatus for locally and remotely recording the results of voting. The vote is recorded locally by a machine having a plurality of selector tabs for operation by the voter, and a counting and recording device connected to each tab by a mechanical linkage. All the local machines are connected to a remote tabulation center. The center comprises a number of counters equal to the number of tabs with the tabs of each machine indicating the same voting proposition connected to the same counter. A switching mechanism in each counter consecutively connects the vote recorded by the tabs with the counting and recording register in the counter. A plurality of voters operating to record their vote at the same instant of time will have their votes recorded as separate votes because of the consecutive connection rather than having them recorded as a single vote.

3,595,473
CALCULATING MACHINE WITH A DEVICE FOR ROUNDING OFF AN AMOUNT AND FOR CANCELLING DECIMAL POSITIONS
 Otto Haberkorn, Gerstetten, Germany, assignor to Walther-Bueromaschinen GmbH, Gerstetten Wuerth, Germany
 Filed Feb. 19, 1970, Ser. No. 12,203
 Int. Cl. G06c 23/00
 U.S. Cl. 235—63 DE

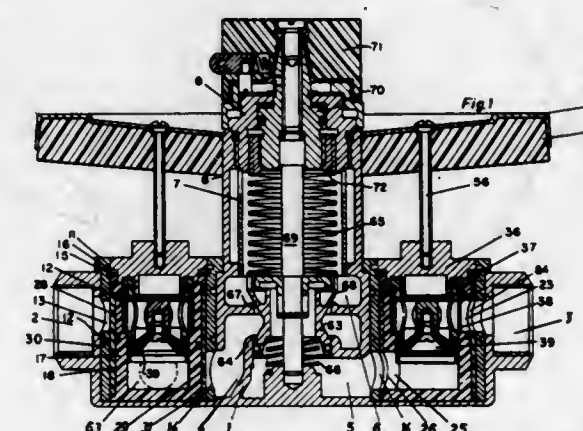
A calculating machine having a 10-digit keyboard is provided with a register for temporarily storing values and is selectively engageable with the actuating mechanism to receive values therefrom. A function lever is operatively connected to the register through a linkage which laterally dis-

places the register in response to positioning of the function lever to cancel decimal positions. The frame of the register is



also provided with a lever which is engageable with the actuating mechanism for rounding off the decimal value before the cancelled positions.

3,595,474
HOT AND COLD WATER MIXING VALVES
 Jurgen Humpert, Hemer-Fronsberg, Germany, assignor to Friedrich Grohe Armaturenfabrik, Hemer, Germany
 Filed Sept. 26, 1969, Ser. No. 861,278
 Claims priority, application Germany, Sept. 27, 1968, P 17 75 814.4
 Int. Cl. G05d 23/00
 U.S. Cl. 236—12

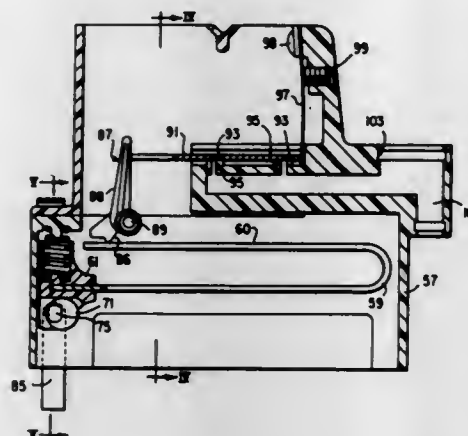


A mixing valve for controlling the flow of hot and cold fluids with temperature controlled through thermostatic means. The fluid lines connecting to the valve contain within the valve connections, sleeve members having passages displaced from each other. These passages are fully closeable and fully openable through 90° of rotation of the sleeve member. The sleeve member is, furthermore, provided with a check valve and filter, and a hollow insert member on the check valve is operatively coupled to the sleeve member. When the hollow insert member is rotated, the sleeve member is rotated therewith, so that the hollow insert member is fully removable and insertable from and into the sleeve member when the latter is in fully closed position.

3,595,475
BLEED-TYPE THERMOSTAT
 Daniel H. Morton, North Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.
 Filed Aug. 1, 1969, Ser. No. 846,662
 Int. Cl. G05d 23/02
 U.S. Cl. 236—93

A ceiling air terminal serving as part of an air-conditioning system for a building adapted to discharge conditioned air into an area to be treated. The terminal is provided with a

bleed-type thermostat employing a perforated bimetallic element movable in response to temperature variations in the air passing through the perforations from the area served by



the air terminal to regulate the quantity of air bled from the thermostat and thereby control the quantity of conditioned air discharged from the terminal.

3,595,476

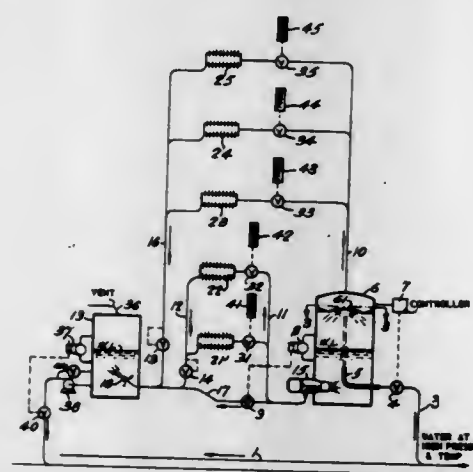
HTW HEATING SYSTEMS

Milton Eaton, 363 Ninth Street, Shawinigan, Quebec, Canada
Filed July 18, 1969, Ser. No. 843,134

Claims priority, application Canada, July 19, 1968, 025,670
Int. Cl. F24d 3/04

U.S. Cl. 237-8

7 Claims



A system is provided for obtaining steam directly from an HTW heating system for heating the upper levels of high buildings. The system comprises a source of high-temperature water, means for separating said water into a steam portion and a hot water portion, means for heating spaces of the upper levels of the said building with said steam portion and means for heating spaces of the lower levels with said hot water portion, means for controlling the temperature of said heated spaces and means for returning the said water to said system.

3,595,477

FOG DISPERSING METHOD AND COMPOSITIONS

Goesta Wollin, Snedens Landing, Palisades, N.Y., and David B. Ericson, 625 S. Broadway, Nyack, both of, N.Y.

Filed Apr. 21, 1969, Ser. No. 818,069

Int. Cl. A01g 15/00; E01h 13/00

U.S. Cl. 239-2

11 Claims

This disclosure is directed to novel compositions and to their use to disperse fogs or to produce rain. These compositions are fluid mixtures formed without, or with minor amounts of, water.

Examples of compositions of this invention include:

- 1) urea, ammonium nitrate and water;
- 2) acetamide, ammonium nitrate and water;
- 3) acetamide, urea and water; and
- 4) acetamide, urea and ammonium nitrate.

3,595,478
SPLASH-INHIBITING FOUNTAIN UNIT

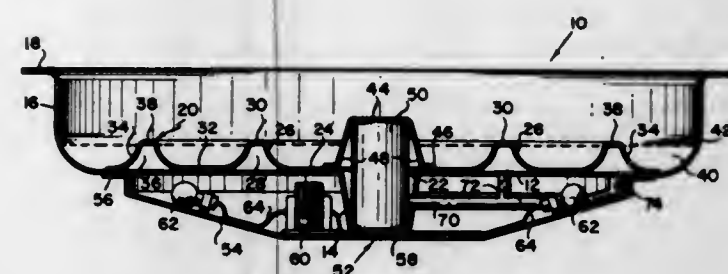
Don W. Power, R.R.1, Rushville, Ind.

Continuation-in-part of application Ser. No. 681,981, Nov. 13, 1967. This application Sept. 8, 1969, Ser. No. 857,299

Int. Cl. F21p 7/00

U.S. Cl. 239-20

13 Claims



A fountain has a translucent molded plastic basin with a unitary conduit piece integral therewith to provide upstanding fluid conduits for the bottom of the basin. The conduits have directional, fluid passageways therethrough which provide a nozzle for the fountain jets of fluid.

Fluid drains between the conduits to a central pump mounted in a central depressed receiving chamber integral with the basin. A fluid supply system carries fluid from the pump to the conduits; these conduits have flow-restricting washers of different size to regulate fluid flow to various conduits.

In multiple tiered basin fountains directional jets are disposed at the bottom of the upper basins and direct the jet streams so that they fall on a splash-inhibiting member such as a smooth inclined splash board.

3,595,479

FLUIDICALLY CONTROLLED DISPLAY FOUNTAIN

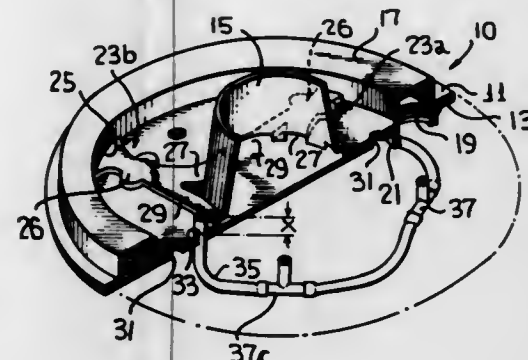
Peter A. Freeman, Baltimore, Md., assignor to Bowles Fluidics Corporation, Silver Spring, Md.

Filed Oct. 1, 1969, Ser. No. 862,668

Int. Cl. B05b 17/08

U.S. Cl. 239-23

12 Claims



A method and apparatus are disclosed for providing a sequentially varying flow pattern for a display fountain. A generally cylindrical chamber, having an upwardly directed open end, receives fluid from a plurality of fluidic diverter elements which are circumferentially spaced about the chamber periphery. One outlet from each diverter directs liquid radially into the chamber and the other diverter outlet directs liquid tangentially into the chamber. Tangential inflow to the chamber causes the liquid to issue from the open chamber end as an integral sheet which follows a generally parabolic trajectory in flowing toward a pool below the apparatus. The sheet continues to spin while falling, forming a bubble of size determined by the number of diverters which feed fluid tangentially into the chamber. By sequentially switching the diverters, the bubble can be made to grow and/or diminish in rhythmic sequential steps.

3,595,480

OXYGEN-FUEL-BLOWING MULTIHOLE NOZZLE

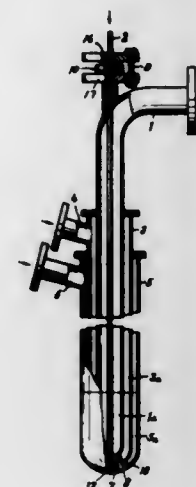
Kazuo Kunioka, and Takeshi Tada, both of Yokohama-shi, Kanagawa-ken, Japan, assignors to Nippon Kokan Kabushiki Kaisha

Filed Nov. 29, 1968, Ser. No. 780,001

Int. Cl. B05b 15/00

U.S. Cl. 239-132.3

3 Claims



A multinozzle lance in which a central fuel pipe is surrounded by an outer pipe through which an oxygen containing gas is fed under pressure. A plurality of angularly displaced nozzles extend downwardly and outwardly inclined from the lower end of the outer pipe and the lower end of the central pipe communicates with the nozzle through fuel passages having axes extending transverse to the respective nozzle axis. Each of the nozzles has intermediate its ends a throat portion and flares outwardly to opposite sides of the throat portion, and each of the fuel passages communicates with the respective nozzle downstream of the throat portion thereof.

3,595,481

FOGGER ATTACHMENT FOR INTERNAL COMBUSTION ENGINES

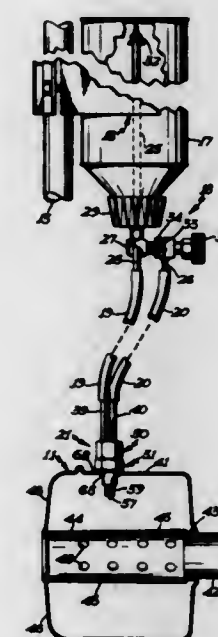
Paul A. Emblom, Eden Prairie, Minn., assignor to Judd Ringer Corporation, Eden Prairie, Minn.

Filed June 17, 1969, Ser. No. 834,096

Int. Cl. B05b 1/24

U.S. Cl. 239-129

6 Claims



A fogging attachment for an internal combustion engine in which a container of vaporizable insecticide solution may be coupled through two conduits to the muffler of the engine by a fitting which has a cylindrical stem adapted to extend

through a cylindrical opening in the wall of the muffler and to be secured to the muffler by a deformable sleeve which is deformed to engage the inner wall of the sleeve, said stem having a cylindrical opening divided by a divider plate into two semicylindrical openings, each of which communicates with one of the two conduits.

3,595,482

SPRAY DEVICES

John Alexander Jefferson-Loveday, Rugby, England, assignor to The English Electric Company Limited, London, England

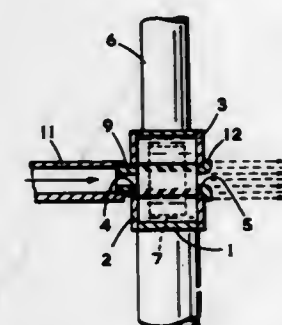
Filed Feb. 18, 1969, Ser. No. 800,174

Claims priority, application Great Britain, Feb. 19, 1968, 7989/68

Int. Cl. B05b 7/10

U.S. Cl. 239-403

6 Claims



A spray nozzle is in the form of a chamber 1 having end walls 2 and 3 each with an aperture 4, 5 respectively. The fluid to be sprayed is drawn from a feed tube 6 and is circulated within the chamber 1 by a deflector plate 8. A pressurized fluid, e.g. compressed air, is fed via a pipe 11 through the aperture 4 and through the center of the chamber 1. This pressurized fluid carries with it droplets of the fluid to be sprayed which emerge at a high velocity from the nozzle 12 carried by the aperture 5.

A plurality of spray nozzles may be connected in cascade to provide a spray system.

Because of the high-velocity spray produced, the device may conveniently be used to cool the inner surface of a housing using a deflector plate 14.

3,595,483

ANNULAR CONDUIT AEROSOL ACTUATOR

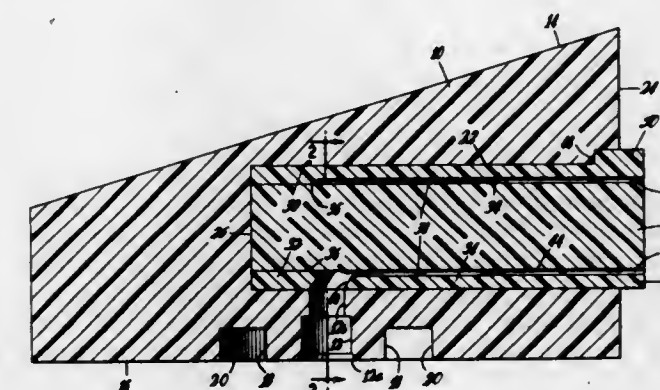
Ernest Gehres, Mount Kisco; Gilbert S. Jordan, Monroe, and Norman Usen, West Haverstraw, all of, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Dec. 11, 1968, Ser. No. 783,028

Int. Cl. B05b 1/34

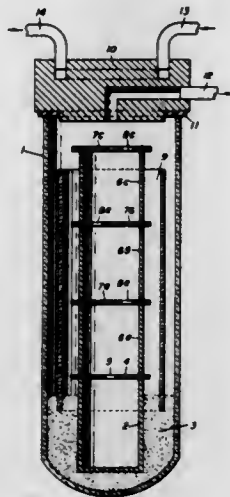
U.S. Cl. 239-469

8 Claims



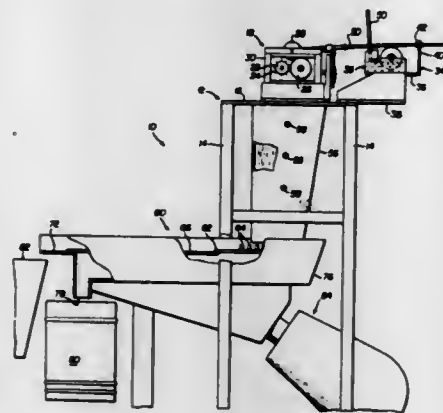
An aerosol actuator assembly especially adapted for utilization with dry powder aerosols comprising an annular dispensing conduit formed by insert means placed within an opening in the actuator button. Aerosol formulation flow is directed in such a manner that it is dispensed through the annular conduit in a spiral path.

3,595,484
RECLAMATION OF REFRACTORY CARBIDES FROM CARBIDE MATERIALS
 Paul G. Barnard; Aaron G. Starliper, and Heine Kenworthy, all of Rolla, Mo.
 Filed Feb. 28, 1969, Ser. No. 803,323
 Int. Cl. B02c 19/12
 U.S. Cl. 241-3



Refractory carbides, particularly tungsten carbide, are reclaimed from cemented carbides by treating the cemented carbide with molten zinc and subsequently distilling the zinc from the mass. The zinc forms an alloy with the cementing agent, usually cobalt, thereby dissolving the carbide-cementing agent bond and permitting recovery of a mixture of the carbide and the cementing agent in a form that can be reused in preparation of cemented carbides.

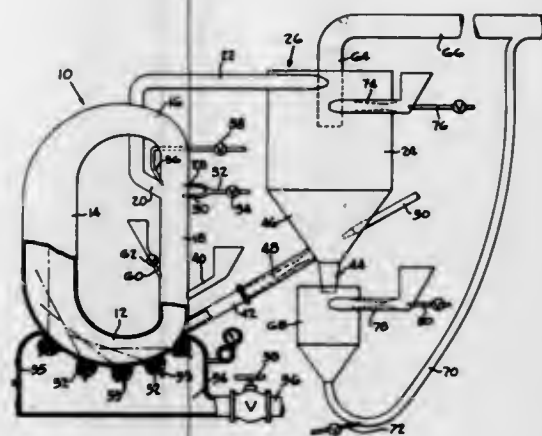
3,595,485
METHOD OF AND APPARATUS FOR PRODUCING CHOPPED FIBROUS STRANDS
 Sidney G. Dunbar, and Leo A. Oswald, both of Huntingdon, Pa., assignors to Owens-Corning Fiberglass Corporation
 Filed Jan. 15, 1969, Ser. No. 791,287
 Int. Cl. B02c 13/13, 18/06
 U.S. Cl. 241-4



Production of chopped strands of fibers such as glass fibers is improved by removal of static charge and size classification. In one apparatus embodiment of the invention, size classification of chopped strands is accomplished by a vibrating screen through which chopped strands of desired size pass while oversize material such as clumps of fuzz, long fibers or other oversize material is screened out. In this embodiment, static removal is accomplished in stages by a charge dissipating structure, a liquid applicator and an ionized airstream. Method subject matter of the invention includes a step of screening chopped strands supplied from a cutter to pass chopped strands of desired sizes while screening out oversize material such as clumps of fuzz. Static is removed by contacting continuous fiber strands which are fed to a cutter with electrically conductive structure at a reference potential, and also by applying liquid to the con-

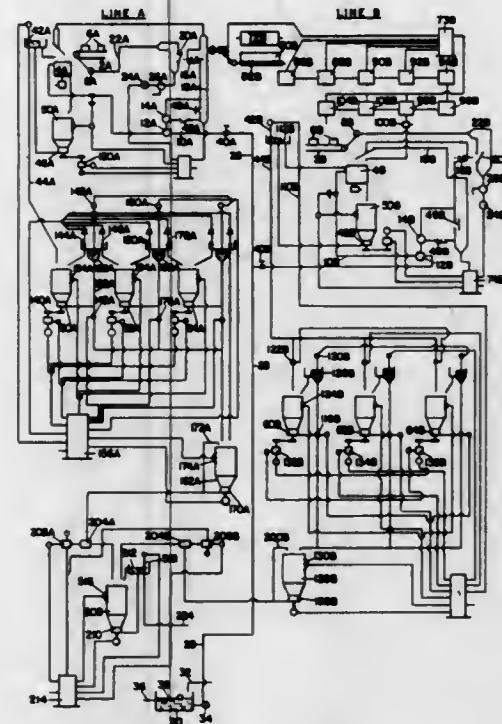
tinuous strands. After chopping of the strands, they may be further exposed to ionized flowing air to assist in reducing static charge.

3,595,486
TREATMENT OF GRANULAR SOLIDS BY FLUID ENERGY MILLS
 Nicholas N. Stephanoff, Haverford, Pa., assignor to Fluid Energy Processing & Equipment Company, Hatfield, Pa.
 Division of Ser. No. 607,974, Jan. 9, 1967, Pat. No. 3,491,953
 Filed Nov. 24, 1969, Ser. No. 879,322
 Int. Cl. B02c 19/06
 U.S. Cl. 241-5



A method of treating solid particles by propelling jets of elastic fluid, such as gas or vapor, in selected lateral directions against a circulating vortex of particles entrained in similar elastic fluid to selectively propel a larger proportion of the particles toward or away from an outlet positioned adjacent the inner peripheral portion of the vortex.

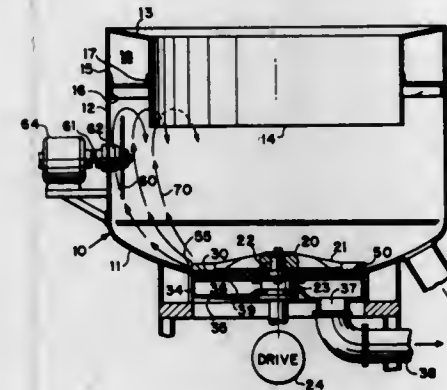
3,595,487
METHOD OF AUTOMATING THE OPERATION OF PAPER STOCK PREPARATION PROCESSING APPARATUS
 Howard Bidwell, 59 Aldrich St., Granby, Mass.
 Continuation-in-part of application Ser. No. 315,589, Oct. 11, 1963, now Patent No. 3,387,794, dated June 11, 1968. This application Apr. 8, 1968, Ser. No. 719,507
 Int. Cl. B02c 21/00, 25/00
 U.S. Cl. 241-21



Methods for automatically controlling the processing of fibrous materials from bulk unrefined form to accepted

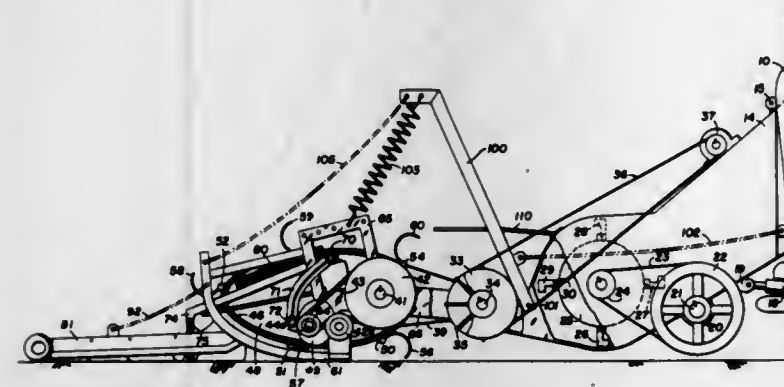
refined furnish stuff condition, and meter proportioning the furnish stuff from refining density with a liquid vehicle to obtain a machine forming density at flow volume rates, in accordance with the machine forming demand rate for the papermaking or allied purpose.

3,595,488
METHOD OF WASTE TREATMENT
 Earl T. Blakley, Cincinnati, Ohio; David E. Chupka, Middletown, Ohio; Donald L. Harbron, Jr., Wisconsin Rapids, Wis.; Paul G. Marsh, Hamilton, Ohio, and Peter Seifert, Middletown, Ohio, assignors to The Black Clawson Company, Hamilton, Ohio
 Filed Sept. 29, 1969, Ser. No. 861,778
 Int. Cl. B02c 13/16, 18/12
 U.S. Cl. 241-21



A method of waste treatment in which materials of widely different physical characteristics such as glass, metal, and fibrous and plastic waste are received in a vessel having a rotor rotatably mounted therein, the rotor being adapted to fracture brittle material, compact malleable material, and otherwise pulverize the frangible waste to a particulate form small enough to be extracted through a perforated plate. The rotor also circulates the material in a slurry form within the vessel in a vortical pattern so that the waste is repeatedly treated until it is ejected from the vessel. A series of spaced attrition bars are mounted outwardly of the rotor to provide an annularly shaped, discontinuous attrition surface, and hammers or flails are pivotally mounted on the rotor to reduce into smaller pieces materials which are flung upon or between the attrition bars by the rotor. Where the waste material contains a high proportion of rags, tubing and other stringy material, a rotating chopper blade is provided to chop this portion of the waste into smaller pieces which are more readily handled by the rotor and flails. Waste materials which are not readily reduced to a pulverized state are segregated from those which are and removed separately.

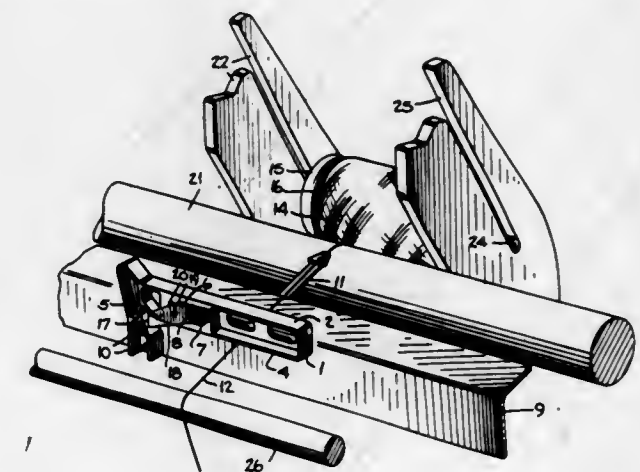
3,595,489
LITTER COLLECTING-PULVERIZING METHOD
 Alvin R. Juno, Phoenix, Ariz., assignor to First National Bank, Quanah, Tex.
 Division of Ser. No. 537,040, Mar. 24, 1966, Pat. No. 3,449,780
 Filed Aug. 13, 1968, Ser. No. 752,248
 Int. Cl. B02c 13/04, 13/286
 U.S. Cl. 241-25



A method for collecting litter scattered over a course by traversing the course with three elements connected in tan-

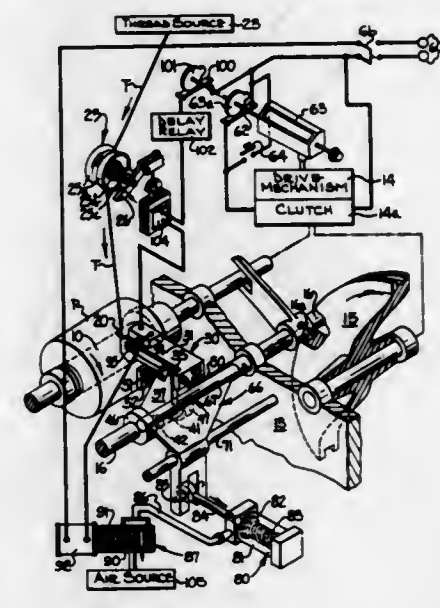
dem. A lead element collects the litter during movement along a traverse by picking up the litter with upwardly moving tines and by transferring the litter to an intermediate element which delivers the litter to the trailing element. The trailing element includes a flair drum which has hammer elements pivotally mounted thereon in order to fragmentize the litter by impact and also to drive the litter into a storage location in response to the impact.

3,595,490
APPARATUS FOR PROVIDING A THREAD RESERVE ON A WINDING BOBBIN OR THE LIKE
 Max Schnetzer, and Helmut Ritter, both of Wattwil, Switzerland, assignors to Heberlein & Co. AG., Wattwil, Canton of St. Gallen, Switzerland
 Filed Jan. 15, 1969, Ser. No. 791,428
 Claims priority, application Switzerland, Feb. 5, 1968, 1679/68
 Int. Cl. B65h 54/34
 U.S. Cl. 242-18 PW



Apparatus for providing a thread reserve on a winding bobbin or the like wherein the advancing thread is shifted from the reserve area on the winding device to the takeup area with a minimum of manual operations when a new winding device is started.

3,595,491
METHOD AND APPARATUS FOR SECURING THE END OR TAIL OF A TEXTILE STRAND TO A WOUND PACKAGE
 Archille O. Bourque, Gastonia, N.C., assignor to American & Efford Thread Mills, Inc., Mt. Holly, N.C.
 Filed Nov. 17, 1969, Ser. No. 877,181
 Int. Cl. B65h 54/02, 55/00
 U.S. Cl. 242-18 R



A textile thread, yarn or other textile strand material is guided to a rotatable carrier through the eye of a traversing

needle or similarly pointed thread guide to form a wound package and, upon completion of the package, the needle is thrust momentarily through outer layers of the thread on the package, carrying the thread in the needle with it, to loop the thread between such outer thread layers. As the needle is retracted and thus withdrawn from the package, the loop of the thread remains tucked between the outer layers of the package. The package is then doffed, the thread is parted between the needle and the package, an empty carrier is positioned on the winder spindle, and winding of a new package is initiated.

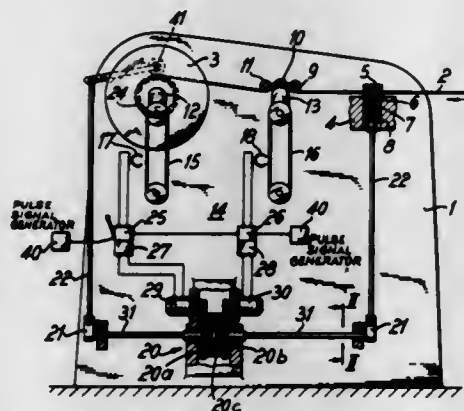
3,595,492

WINDING DEVICE FOR STRAND OR WEB MATERIAL
Stefan Furst, Monchengladbach, Germany, assignor to Walter Reiners, Monchengladbach, Germany
Filed May 5, 1969, Ser. No. 821,783
Claims priority, application Germany, May 8, 1968, P 17 74 229.9

Int. Cl. B65h 25/00, 59/00

U.S. Cl. 242-75.51

10 Claims



Winding device for strand or web material includes means for winding the material into a wound body, means for producing a value proportional to the number of rotations of the wound body, means for producing a value proportional to the length of the material being wound, storage means connected with both of the value producing means for storing, in an initial winding operation, the values of lengths of wound material appertaining to a respective predetermined number of rotations or vice versa, and control means couplable to the storage means for controlling tension of the material or pressure exerted on the windings of the wound body, in a subsequent winding operation.

3,595,493

DEVICE FOR USE WITH YARN CLEARER AUTOMATIC WINDERS

Shin Tsukuma, Itami-shi, and Toshiyuki Adachi, Amagasaki-shi, both of Japan, assignors to Kamitsu Seisakusho Ltd., Itami-shi, Hyogo-Ken, Japan

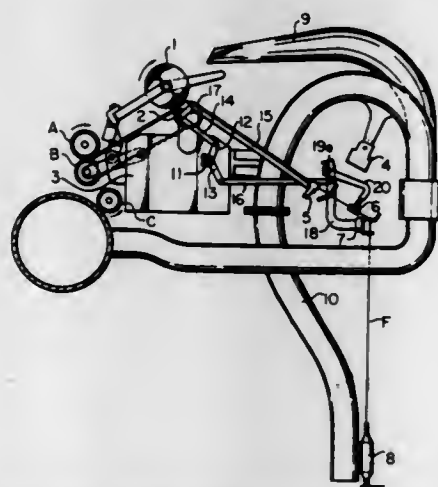
Filed Aug. 7, 1968, Ser. No. 750,887

Claims priority, application Japan, Aug. 19, 1967, 42/53186

Int. Cl. B65h 54/22

U.S. Cl. 242-35.6

6 Claims



An improved yarn clearer device for use with an automatic winder having a plurality of winding units and knotting

devices. A yarn clearer is mounted for movement from a normal working position wherein it clears yarn before same is wound on a package to a position adjacent to the knotting device when the supply yarn breaks or is exhausted. The end of yarn retrieved from the package is led to the knotting device and passes through the displaced yarn clearer after which the yarn clearer is returned to the normal working position without any of the yarn escaping out of the yarn clearer whereby the yarn clearer inspects the yarn just after completion of the yarn piecing operation of the knotting device.

3,595,494

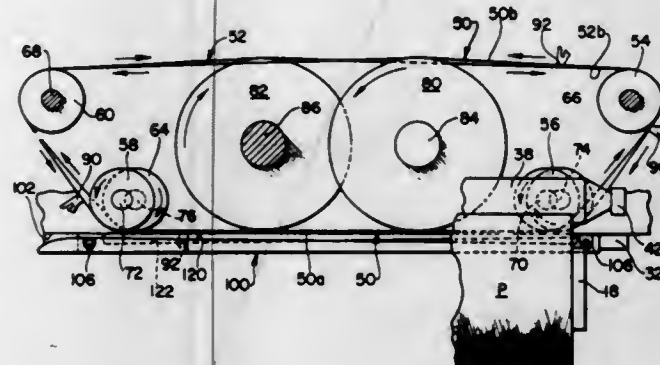
WINDING MACHINE

William V. Goodhue, North Kingstown, R.I., assignor to Leesona Corporation, Warwick, R.I.
Filed May 23, 1969, Ser. No. 827,328

Int. Cl. B65h 54/28

U.S. Cl. 242-43

18 Claims



A winding machine incorporating yarn-traversing mechanism having a pair of oppositely moving belt spans, each provided with yarn-engaging guides or fingers operable in a yarn-traversing zone to move the yarn along a path in a controlled manner to wind a package of yarn, the yarn being transferred at each end of the package from an active finger traversing the yarn in one direction axially of the package to an oppositely moving finger. In the yarn-traversing zone each of the belt spans moves generally parallel to the axis of the package being wound. Means are provided for causing the yarn to slide gradually outwardly along the finger which is traversing it as the yarn progresses axially across the package. Said means is so configured that the yarn is caused to disengage from its finger at a locus corresponding to an end of said package whereupon the yarn is disposed for immediate engagement by an oppositely moving finger which traverses the yarn in the opposite direction. Reciprocation of the yarn axially to and fro of the package is thus achieved.

3,595,495

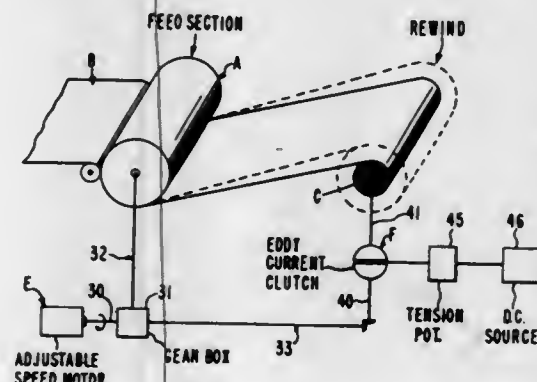
EDDY CURRENT CLUTCH ACTUATED REWINDER
Peter Cloeren, Hayward, Calif., assignor to Guardian Packaging Corporation, Newark, Calif.

Filed Mar. 17, 1969, Ser. No. 807,762

Int. Cl. B65h 51/30, 59/38

U.S. Cl. 242-75.51

1 Claim



A web processing machine is provided with a single-variable speed motor as a source of power. The motor through

connected gearing provides power outputs to a web metering feed section and a web rewind section which respectively feed and wind the continuously advancing web. An eddy current coupling between the metering feed section and rewind section is connected to a voltage source which provides excitation to the eddy current coupling coil. The eddy current coupling provides an adjustable horsepower output which is directly proportional to the speed of the advancing web. The torque output of the eddy current coupling is directly proportional to the difference in speed of the coupling's rotation input and output members. The above arrangement provides uniform web tension at all speeds of the web processing machine.

3,595,496

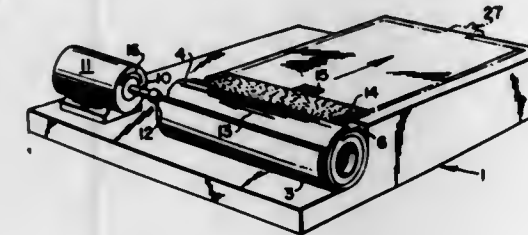
DEVICES FOR THE PACKING AND SAFE TRANSPORT OF FLAT ARTICLES OF FLEXIBLE MATERIAL
Hans J. Nidecker, Unt. Rebasse 18, Basel, Switzerland
Filed Feb. 17, 1969, Ser. No. 799,799

Claims priority, application Switzerland, Feb. 15, 1968, 17,454/68

Int. Cl. B65h 17/02, 75/48

U.S. Cl. 242-67.1 R

8 Claims



A slitted cassette for storing a flexible sheet on a spool rotatably mounted in the cassette. Two protective sheets are secured at one end to the spool and have a handle at the opposite end thereof, and a stop prevents the handle from passing through the cassette slit and makes the handle graspable when the protective sheets are withdrawn into the cassette around the spool. For storage, the flexible sheet is placed between the protective sheets projecting outwardly through the slit and supported on a flat surface, and the protected flexible sheet is then wound up on the spool and thus stored in the cassette while it may be withdrawn therefrom by grasping the handle.

3,595,497

TROTLINE REEL AND MOUNTING AND OPERATING MEANS THEREFOR

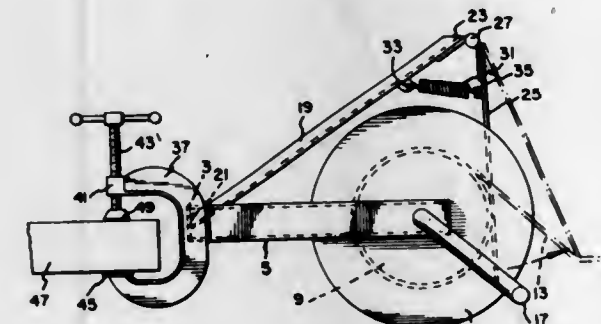
Horace Boatright, Dom Bldg., Temple, Tex.

Filed May 2, 1969, Ser. No. 821,237

Int. Cl. B65h 75/00

U.S. Cl. 242-99

1 Claim



A trotline reel having a U-shaped basic frame, a reel rotatably mounted between the arms of the frame and adjacent the free ends thereof, a rigid bar fixed to the bridge of the frame and extending therefrom toward and spaced above the body of the reel, a brake and a backlash eliminator pivotally mounted on the end of the rigid bar and extending downwardly therefrom toward and in engagement with the reel body and/or the line wound thereon, and biasing means fixed to the rigid bar and the brake and backlash eliminator

in position constantly urging said brake and backlash eliminator toward and into engagement with the reel and/or the line thereon.

3,595,498

TENSION DEVICE FOR A TEXTILE MACHINE

John K. P. Mackie, Belfast, Ireland, assignor to James Mackie & Sons Limited, Ireland

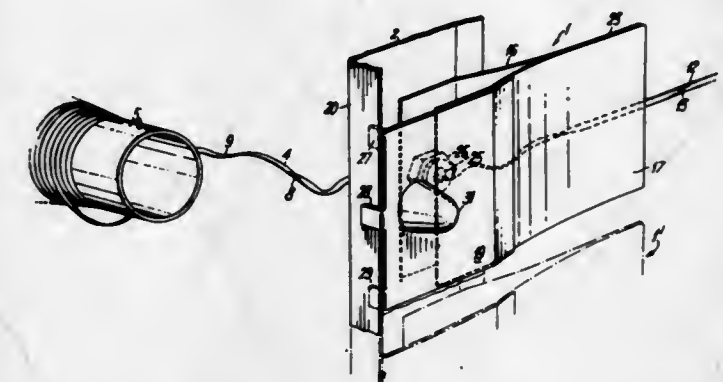
Filed Jan. 15, 1969, Ser. No. 791,386

Claims priority, application Great Britain, Jan. 23, 1968, 3541/68

Int. Cl. B65h 59/22

U.S. Cl. 242-149

6 Claims



A tensioning device for controlling the unwinding of plastic tape from a package comprising a pair of similar spring arms mounted side-by-side in cantilevered fashion at a spacing appreciably less than their lengths, the arms converging from their mountings into pressure contact with one another to define a nip through which the tape may pass.

3,595,499

APPARATUS FOR MOVING TAPE INCREMENTALLY PAST A RECORDING HEAD

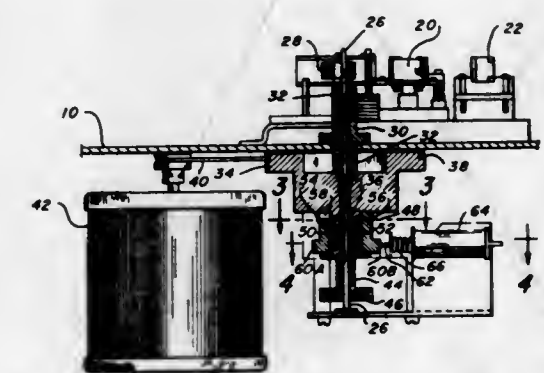
Robert L. Crafts, Tulsa, Okla., assignor to The Telex Corporation, Tulsa, Okla.

Filed Nov. 21, 1969, Ser. No. 878,820

Int. Cl. B11b 15/32; G03b 1/04

U.S. Cl. 242-206

6 Claims



This invention relates to an incremental data recording apparatus for moving tape incrementally past a recording head for recording data on the tape. More particularly, the invention relates to an incremental tape recording apparatus having a rotatable capstan shaft against which tape is pressed, the rotation of the capstan shaft serving to advance the tape, a continuously rotated flywheel supported about the capstan shaft, a drive collar affixed to the capstan shaft and adjacent the flywheel, both the drive collar and flywheel having a reduced diameter shoulder portion coaxial with the capstan shaft and adjacent each other, a coil spring received about the shoulder portions of the drive collar and flywheel, the spring being wound such that the direction of rotation of the flywheel tends to wind the spring tight about the flywheel shoulder and drive collar shoulder to rotate the drive shaft, the spring having a radially extending tang at one end, a tubular ratchet member received about the spring having a

notch therein receiving the tang, the ratchet member having a dog extending from the external surface, and a ratchet release bar normally engaging the ratchet member dog to prevent the rotation of the spring, the ratchet release bar being movable out of contact with the ratched dog whereby the rotation of the flywheel rotates the spring and thereby the drive collar and capstan shaft, the capstan shaft rotating until the ratchet release bar is repositioned to engage the ratchet member dog.

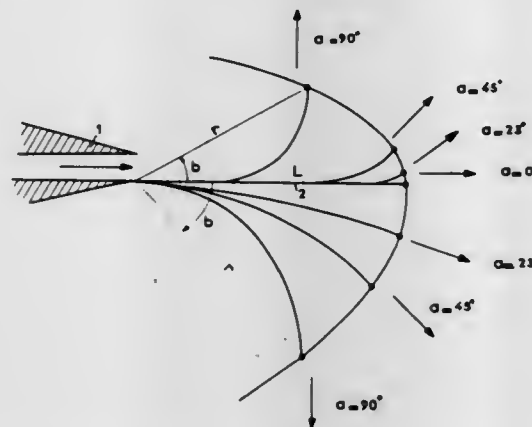
3,595,500

JET FLAP CONTROLLING MEANS

Marcel Kretz, 7, Square de Port-Royal, Paris 13e, France
Division of Ser. No. 645,771, June 13, 1967, Pat. No. 3,481,560
Filed July 25, 1969, Ser. No. 844,964
Claims priority, application France, June 20, 1966, May 12, 1967, 66, 166 and 106,281
Int. Cl. B64c 21/04

U.S. Cl. 244-42

5 Claims



The invention resides basically in jet flap control means in which an aerofoil having a jet slit trailing edge is provided with a flexible deflecting flap arranged along the lower lip of said slit and extending rearwardly therefrom, control means adapted to impart upward and downward flexure of said flap having a sandwiched structure including thin metal sheets with interposed elastomeric material between them.

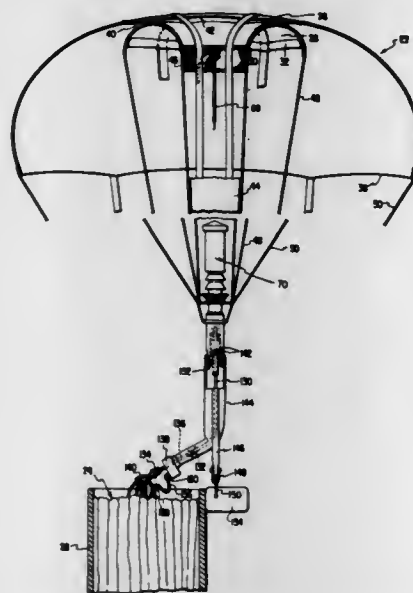
3,595,501

PARACHUTE DEPLOYMENT SYSTEM, INCORPORATING A ROCKET

Fred B. Stencel, Asheville, and Eugene Hensley, Skyland, both of, N.C., assignors to Stencel Aero Engineering Corporation, Arden, N.C.
Continuation-in-part of application Ser. No. 744,134, July 11, 1968, now abandoned. This application Aug. 11, 1969, Ser. No. 848,932
Int. Cl. B64d 17/72

U.S. Cl. 244-142

40 Claims



A parachute deployment system incorporating a rocket which fires in a downstream direction to extract and deploy

the parachute. A pilot parachute means orients the rocket in the downstream direction within the airstream. However, a control means prevents the rocket from igniting until a preselected condition, such as a time lapse, has occurred. When the preselected condition occurs, a release means frees the control means and enables the rocket to ignite, whereupon the rocket will be propelled downstream, thus extracting the parachute from its container and deploying it into the airstream in a downstream direction. Reefing means can be employed to keep the mouth of the parachute canopy reefed until the parachute lines are fully stretched.

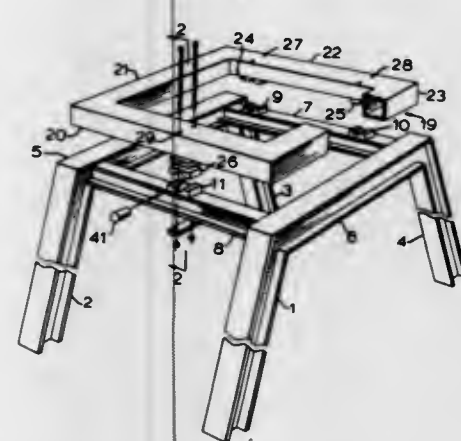
3,595,502

COUPLING ASSEMBLY FOR BEDPLATE AND SUPPORTING STRUCTURE

Leslie C. Galloway, Burlington, Ontario, Canada, assignor to Canadian Westinghouse Company Limited, Hamilton, Ontario, Canada
Filed June 12, 1969, Ser. No. 832,638
Int. Cl. F16m 5/00, 7/00

U.S. Cl. 248-13

6 Claims



This invention relates to a method of coupling and supporting a rigid bedplate and a supporting structure. The bedplate is supported on a roller assembly on a structural member which is able to twist about an axis perpendicular to the axis of the roller in the roller assembly and thus minimize transmission of deforming stresses to the bedplate.

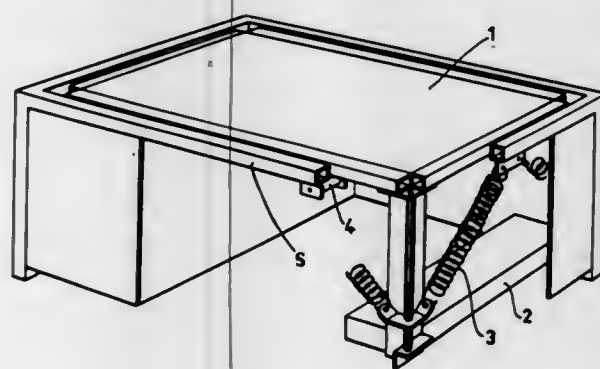
3,595,503

VIBRATION-ISOLATED SYSTEM

Robert Tidblad, deceased, late of Vallingby, Sweden (by Kristina Tidblad, legal representative), assignor to LKB-Produkt AB, Bromma, Sweden
Filed Mar. 21, 1969, Ser. No. 810,087
Claims priority, application Sweden, Mar. 22, 1968, 3813/68
Int. Cl. F18f 15/00

U.S. Cl. 248-21

7 Claims



A system is isolated from disturbances having low amplitude, the isolation consisting of a number of oblique resilient elements and a number of damping elements functionally coupled in parallel with the oblique resilient elements. Both the oblique resilient and the damping elements are connected with an isolating part in an outer frame. The damping elements have no supporting function and act non-linearly. This system is useful for sensitive instruments and tools, as ultramicrotomes.

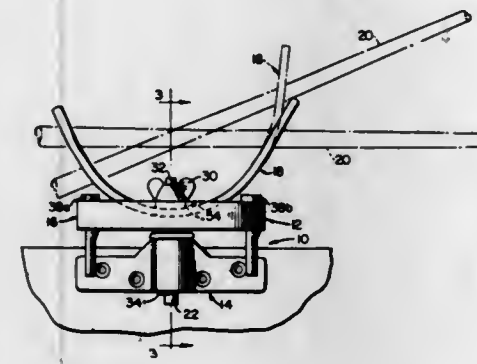
3,595,504

FISHING ROD HOLDER

Howard C. Anderson, Accord, N.Y., and Gerald L. Barrows, 6926 Sy Road, Niagara Falls, N.Y.
Filed Jan. 13, 1969, Ser. No. 790,738
Int. Cl. A01k 97/10

U.S. Cl. 248-42

5 Claims



Fishing rod holders including a base angularly adjustable in a horizontal plane relative to a supporting bracket and a cradle mounted on and vertically adjustable relative to the base.

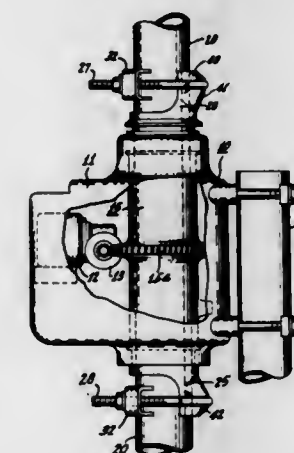
3,595,505

ROTATABLE SHAFT

Neil Worrall Burwell, Moorestown, and Franklin Roosevelt Di Meo, Woodbury, both of, N.J., assignors to RCA Corporation
Filed Mar. 24, 1969, Ser. No. 809,662
Int. Cl. H01q 1/12

U.S. Cl. 248-43

6 Claims



An antenna rotator, hollow, drive shaft including a clamping member by which a round tubular antenna mast is securely held therein is described. The hollow shaft is mounted as part of a rotating device which provides relative rotational movement between the shaft and a housing.

3,595,506

WIRE STRAP CONNECTOR

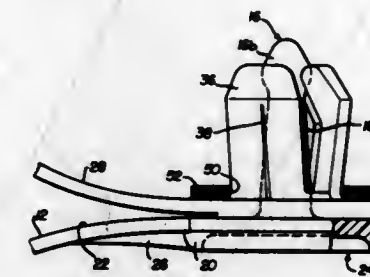
Thomas B. Saunders, St. Clair Shores, Mich., assignor to Robin Products Company, Warren, Mich.
Filed Jan. 17, 1969, Ser. No. 791,959
Int. Cl. F16l 3/14

U.S. Cl. 248-71

12 Claims

A resilient fastener comprising an elongated strap having a hollow anchor member on one end thereof receivable through an aperture in a support with a locking member carried by the opposite end of the strap and receivable in the anchor member to lock the strap to the apertured support. The strap end supporting the locking member has a reduced area thickness surrounded by a reinforced thickness and spaced from the connection between the locking element and

the strap so as to produce a diaphragm action between the locking element and the adjacent end of the strap allowing



for relative movement of the strap on the apertured support while maintaining an integral connection.

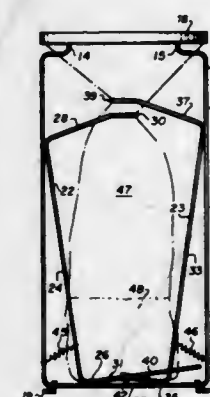
3,595,507

REFUSE BAG HOLDER

Robert A. Kurlander, 277 Hillside Ave., Nutley, N.J.
Filed Apr. 17, 1969, Ser. No. 816,891
Int. Cl. B65b 67/00

U.S. Cl. 248-97

15 Claims



A refuse bag holder comprising means for supporting a flexible, crushable refuse bag with the top edge open and means for cinching the bag beneath the open top thereof to effect a closure, the cinching means normally closing the container and operable to open the container preferably by means of a foot treadle.

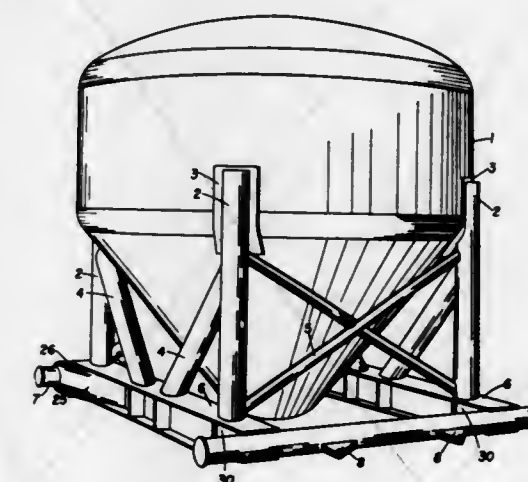
3,595,508

APPARATUS SECURING CONTAINER TO AIRCRAFT AND OTHER VESSEL CARGO COMPARTMENT FLOORS

John E. Knight, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.
Filed May 14, 1970, Ser. No. 37,069
Int. Cl. B61d 17/00

U.S. Cl. 248-146

11 Claims



This invention relates to a tank unit which can be transported by aircraft and more particularly to the structure of

the tank-supporting unit and its fastening devices which are able to withstand forces bearing on the tank unit through normal aircraft operation as well as considerable forces induced thereon through turbulent weather and forced landings.

3,595,509

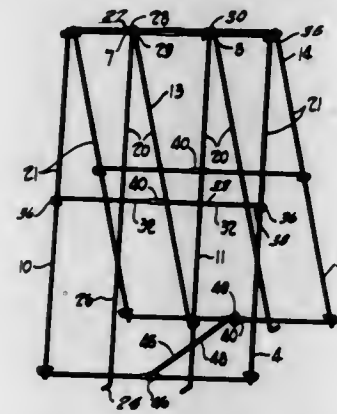
A-FRAME, TIRE-SUPPORTED SIGNBOARD

Harold J. Gilmoure, Shaker Heights, and William B. Comiskey, University Heights, both of, Ohio, assignors to Sales Promotion Products, Inc., Cleveland, Ohio
Filed June 12, 1968, Ser. No. 736,467

Int. Cl. F16m 11/00

U.S. Cl. 248—175

16 Claims



An A-frame signboard which is collapsible and separable for ease of handling, shipping and storage and is secured and held in an upright position, while in use, by coaction with and mounting within a tire, or the like. The signboard is formed of bent and shaped wire, has two essentially similar halves for ease and efficiency of manufacture and includes a plurality of shaped and formed apertures for reception of mounting bolts for holding signs, posters, and the like, thereon.

3,595,510

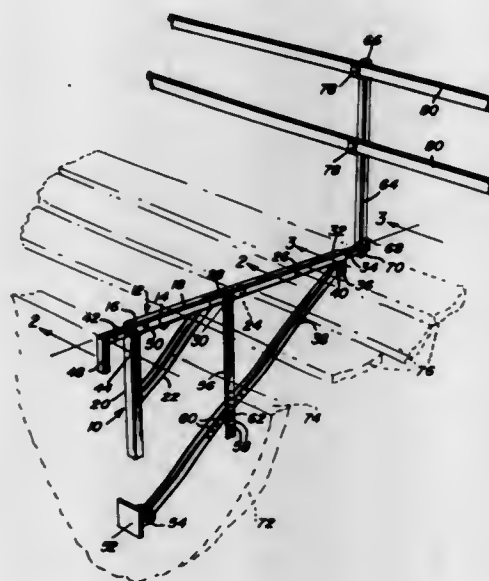
CONVERTIBLE SCAFFOLD

Curtis B. Hutchinson, 710 E. College St., Valdosta, Ga.
Filed Sept. 10, 1969, Ser. No. 856,641

Int. Cl. E04g 5/04, 3/00

U.S. Cl. 248—235

7 Claims



An inverted L-shaped wall-supported scaffold brace member including a first horizontal leg having inner and outer ends and projecting horizontally outwardly from a wall structure at its outer end. The second vertical leg of the brace member depends from the inner end of the first leg downwardly along the outer surface of the wall structure. The first leg defines a tubular receiver, square in cross-sectional shape, open at its inner end and an elongated tension

arm which is also square in cross-sectional shape is slidably received in the receiver in selected angular positions rotated 90° apart about its longitudinal axis. The tension arm includes, on its end projecting outwardly of the inner end of the horizontal leg, a lateral abutment portion for engagement with the inner surface of the wall structure adjacent an opening in the wall structure through which the tension arm extends. Further, the tension arm and receiver include coacting structure whereby the tension arm may be secured in adjusted longitudinally shifted position relative to the receiver.

3,595,511

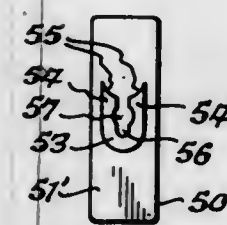
MOUNTING BRACKET

Donald V. Summerville, Jr., Buffalo, N.Y., assignor to Gardco Industries, Inc., Geneva, N.Y.
Continuation-in-part of application Ser. No. 603,240, Dec. 20, 1966, now Patent No. 3,480,243. This application Mar. 25, 1969, Ser. No. 810,124

Int. Cl. A47h 11/10

U.S. Cl. 248—264

6 Claims



A mounting bracket for a window shade roller or a curtain rod including a body member having first and second surfaces with pressure-sensitive adhesive on the first surface and a protuberance extending from the second surface with an aperture therein for receiving either a keylike member or pin extending from the end of a window shade roller. A cutaway may be formed between the protuberance and the body member for receiving a T-shaped head of a curtain rod bracket.

3,595,512

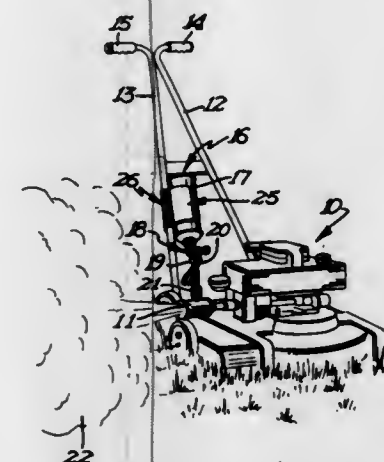
RELEASABLE HOLDER FOR CONTAINER

Paul A. Enblom, Eden Prairie, Minn., assignor to Judd Ringer Corporation, Eden Prairie, Minn.
Filed June 17, 1969, Ser. No. 834,081

Int. Cl. A47k 11/08

U.S. Cl. 248—313

4 Claims



A holder for securing an elongated cylindrical container to a tubular member, the holder consisting of two parts which are clamped about the container, at least one of these two parts being of yieldable material and one of the two parts having yieldable curved gripping walls. The opposed faces of the two clamping members have longitudinal recesses, the walls of which engage the tubular member. The nuts and bolt heads of the fastening members are disposed in slots so as not to project beyond the outside walls of the holder. The

holder is particularly adapted for holding a can of insecticide on the handle bar of a power operated implement.

3,595,513

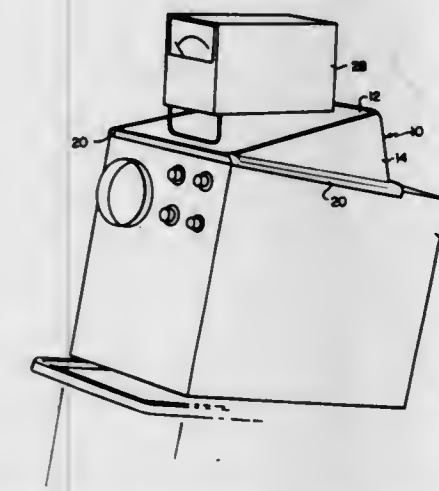
PORTABLE TEST INSTRUMENT LEVELER AND SUPPORT

Robert N. Rehlaender, 149 Cervantes Road, Redwood City, Calif.
Filed Apr. 11, 1969, Ser. No. 815,426

Int. Cl. A47g 23/00

U.S. Cl. 248—346

6 Claims



A portable support having a flat, recessed top surface inclined at an oblique angle from the horizontal is provided with a lower lip for engaging the upper portions of the front and side panels of a first test instrument tilted backward at the same oblique angle. This lip holds the support in place on top of the tilted first test instrument so that the top surface of the support forms a level platform for supporting a second test instrument.

3,595,514

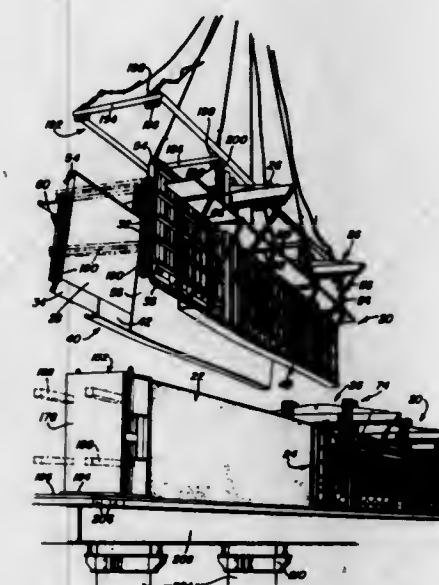
ADJUSTABLE FORM FOR POURED CONCRETE CONSTRUCTION

Jack Sanders, 2100 St. Charles Ave., New Orleans, La.
Filed July 17, 1968, Ser. No. 745,523

Int. Cl. B28b 7/22

U.S. Cl. 249—13

13 Claims



An adjustable preassembled and self-contained form comprising a pair of laterally spaced braced form walls pivotally suspended from a series of overhead crossbeams or outriggers. The form walls are adjustable so as to assume either a parallel forming position or an outwardly swung placing and removal position. End walls are also provided for relative adjustment to vary the effective length of the form.

3,595,515

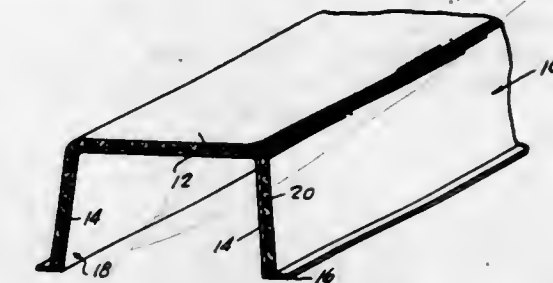
LAMINATED CONCRETE FORM

William B. Rollow, 7509 Cantrell Road, Little Rock, Ark.
Filed Sept. 13, 1968, Ser. No. 759,716

Int. Cl. B29b 7/22, 7/34, 7/36

U.S. Cl. 249—134

4 Claims



A device for use in concrete slab-joint construction comprising a form over which concrete is poured, including a polymer sheet, and a polymer foam layer, which can be disposed over the outside of the sheet, or which layer may be disposed inwardly of the sheet, or which layer may be disposed both inside and outside of the sheet, so that the completed form is a laminated structure.

3,595,516

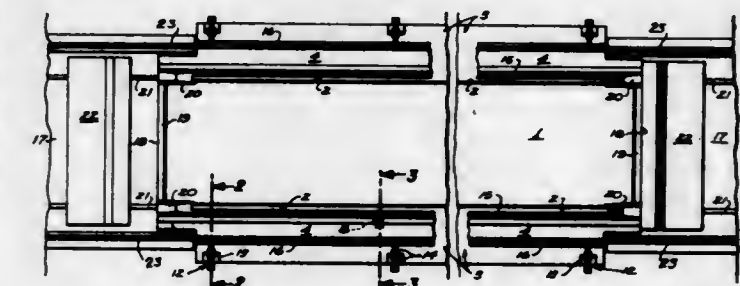
FORM FOR CASTING CONCRETE STRUCTURAL UNITS

Edward K. Rice, 2077 Linda Flora Drive, Los Angeles, Calif.
Filed June 2, 1969, Ser. No. 829,224

Int. Cl. B28b 7/02

U.S. Cl. 249—155

4 Claims



A form for casting structural units of the type involving at least a concrete slab and side beams and may include end beams and corner legs, the form including beam casting forms slidable a limited distance on an underlying surface between a casting position and a clearance position, each beam casting form being itself a concrete structure secured to the underlying structure by steel straps the extremities of which are anchored in the beam casting form and the underlying structure, whereas the central portions are encased in an elastomer to permit limited movement of the beam casting form.

3,595,517

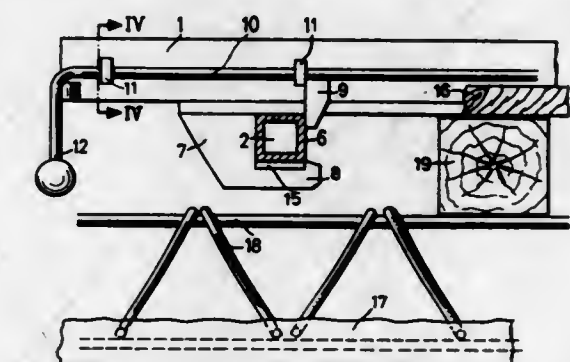
FORM FOR MAKING CONCRETE SLAB

Fritz Grebner, Annabergstr. 70, 65 Mainz (Rhine); Wilhelm Kolsch, Robert Kooh Str. 6, 62 Wiesbaden, and Eckhard Wink, Geisbergstr. 29, 6201 Nordenstadt, all of, Germany
Filed July 3, 1968, Ser. No. 742,296

Int. Cl. B41b 11/60

U.S. Cl. 249—163

3 Claims

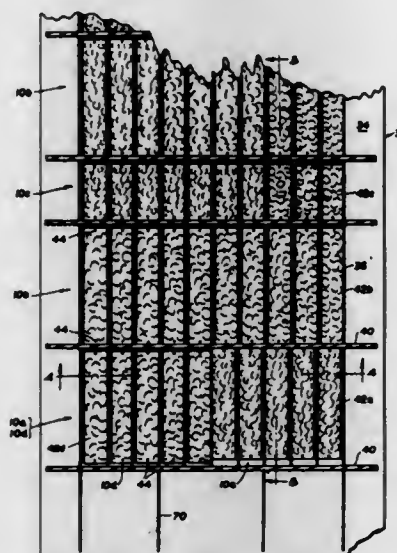


A form for making concrete slabs comprises a closed frame having transverse beams detachably affixed to its un-

derside and a panel positioned on the beams within the frame and constituting the bottom of the form.

3,595,518 MOLD BED FOR MOLDING CEMENTITIOUS PRODUCTS

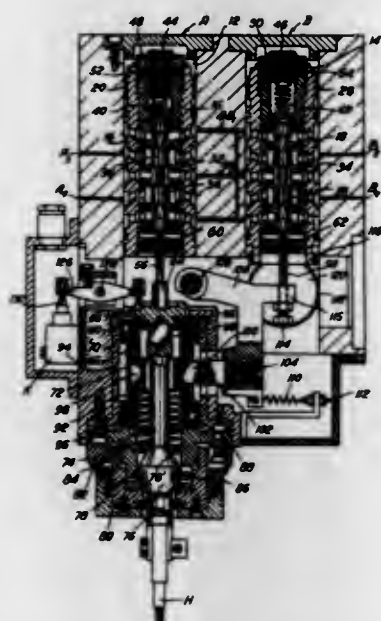
Edmond M. Gaudelli, and Edward E. Shepler, both of 890 Narrows Run Road, Coraopolis, Pa.
Division of Ser. No. 698,987, Jan. 18, 1968, Pat. No. 3,426,122
Filed Sept. 16, 1968, Ser. No. 762,262
Int. Cl. B41b 1/160; B28b 7/06, 7/20
U.S. Cl. 249-163 5 Claims



The present invention relates to a process for molding cement products which are used to make retaining walls. The molded product is made within a mold cavity having a resilient mold piece at the bottom of the mold cavity and which is held at the opposite ends thereof only, so that the mold piece will flex upwardly thereby providing gradual release between the mold piece and the molded article. In this way, the molded piece can be removed while still green and without producing breakage of the article during such removal.

3,595,519 HYDRAULIC TRACER MECHANISM ADAPTED FOR USE WITH MACHINE TOOLS IN GENERAL

Angelo Girola, Busto Arsizio, Varese, Italy, assignor to Duplo-matic Meccanica Applicazioni Oleodinamiche, S.p.A.
Filed Apr. 11, 1969, Ser. No. 815,362
Claims priority, application Italy, Apr. 12, 1968, 15,228 A/68
Int. Cl. B23q 35/16
U.S. Cl. 251-3 5 Claims

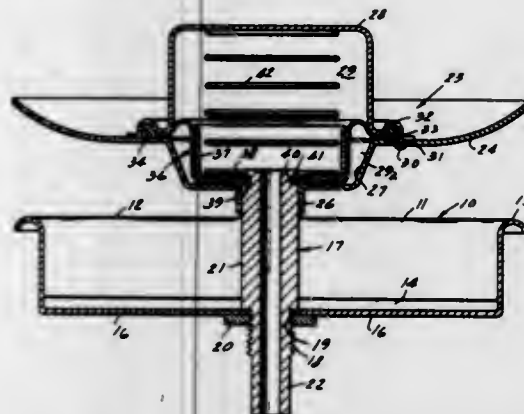


A hydraulic tracer mechanism for milling cutters, wherein two control units, driven by the stylus or tracer point, are so

arranged that the longitudinal axes of said units are parallel to each other and parallel to the stylus or tracer point axis.

3,595,520 CARBURETOR AIR INTAKE ACCELERATION CONTROL

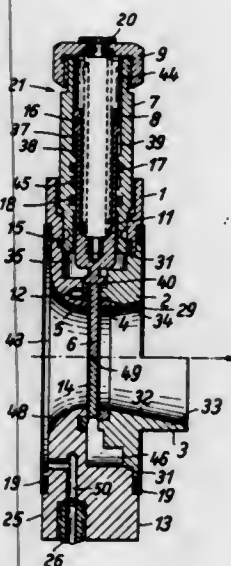
George A. Soberski, Des Plaines, Ill., assignor to Eaton Yale & Towne Inc.
Filed Apr. 1, 1968, Ser. No. 717,737
Int. Cl. F16k 31/365
U.S. Cl. 251-61.2 5 Claims



A pneumatically operated control valve for use in a carburetor air intake acceleration control. The pneumatically operated valve includes a housing having inlet and outlet ports and a hollow stationary shaft secured to the housing and extending toward one of the ports to receive at the end of the shaft a valve member. The valve member is movably secured to the shaft so as to slide on the shaft and overlie the port thereby controlling the flow of fluid through the valve. A pneumatic control chamber is formed within the valve member and in fluid communication with an air supply through the hollow portion of the stationary shaft. The control chamber has a movable wall therein formed by a diaphragm connected between the valve member and the end of the shaft. Applying air pressure to the control chamber of the valve member causes the valve member and the control chamber to be actuated.

3,595,521 GATE VALVE WITH HYDRAULICALLY OPERATED SHUTOFF DEVICE

Werner Lorentz, Hamburg, Germany, assignor to Alfons Haar, Maschinenbau, Hamburg, Germany
Filed July 28, 1969, Ser. No. 845,150
Claims priority, application Germany, Aug. 8, 1968, P 17 75 411.9
Int. Cl. F16k 3/00, 31/12
U.S. Cl. 251-212 12 Claims

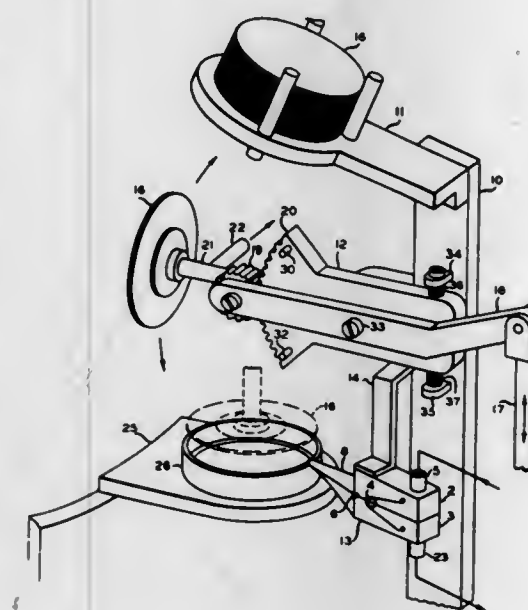


The valve comprises a valve housing with a flow passage and two shutoff members arranged for transverse displacement.

ment to and from another in the flow passage. The shutoff members are actuated each by a hydraulic servomotor mounted at the housing. One servomotor is associated with a delay element by which the closing movement of the respective shutoff member is delayed with respect to the closing movement of the other member. Pressure peaks with rapid valve closing can be avoided by this construction. The valve is suitable for remote and automatic flow control of fluids.

3,595,522 VACUUM BREAKER VALVE

Guy L. Kelly, Kansas City, Kans., assignor to Phillips Petroleum Company
Division of Ser. No. 631,694, Apr. 19, 1967, Pat. No. 3,507,030
Filed Dec. 9, 1969, Ser. No. 870,463
Int. Cl. F16k 1/16
U.S. Cl. 251-303 6 Claims



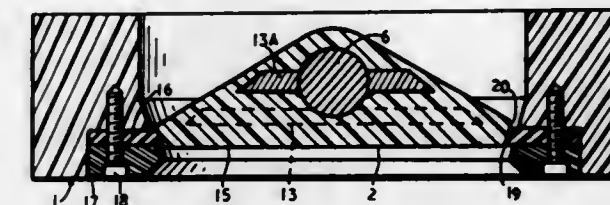
A vacuum breaking valve assembly having two members, each of which has at least one smooth face, the members being juxtapositioned with the smooth face of one member facing, and in closed position, engaging the smooth face of the other member, the said members being hinged or otherwise held together at adjacent ends thereof to permit them to move away from and toward each other, said members being spring biased toward each other, at least one of said members being machined or drilled to provide using them both when in engaged relationship a continuous passage, said valve being adapted to be placed into a suction line and therein to break suction when a face is pivoted or moved away from the other as when an extended portion of one member is acted on by a physical force; in one embodiment in an assembly machine the valve serving to break suction in a paper disc and ring assembly mechanism wherein the paper disc is carried by a suction actuated device to the ring for placement therein upon breaking of suction by said valve as it is acted on by bringing said ring into assembly position of the assembly machine. In a now preferred modification, both members of the valve are machined or drilled to provide a continuous passageway which is broken when the members are separated.

3,595,523 PLASTIC BUTTERFLY VALVE HAVING A REINFORCEMENT BLADE

George A. Felton, New South Wales, Australia, assignor to George Robert Embelton, New South Wales, Australia, a part interest
Filed Apr. 14, 1969, Ser. No. 826,043
Claims priority, application Australia, Apr. 19, 1968, 36,623/68
Int. Cl. F16k 1/226
U.S. Cl. 251-306 16 Claims

A butterfly valve which includes a valve body of plastic material, having two separately positioned openings for connection in a pipeline; and a blade which is also constructed

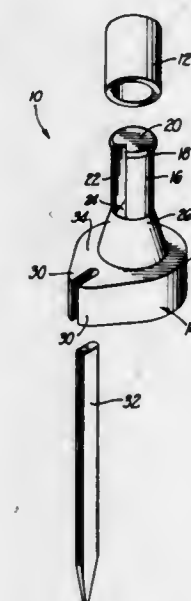
substantially from plastic material. The blade is journaled in the housing so as to be rotatable to a position wherein it



prevents fluid flow between the openings in the housing. The blade is provided with reinforcement means.

3,595,524 SPRAY STRUCTURE

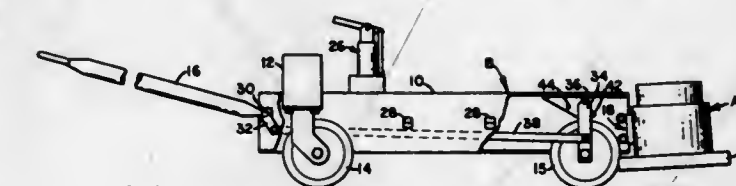
David E. Mominee, Covina, Calif., assignor to Byron Curry, Arcadia, Calif.
Filed Feb. 25, 1970, Ser. No. 13,992
Int. Cl. F16k 31/58
U.S. Cl. 251-342 11 Claims



A two part spray structure or valve intended to be used in watering plants is disclosed. One of the parts of the valve includes a member of uniform cross-sectional configuration having a groove extending along its length from one of its ends. A resilient tube adapted to be connected to a source of water under pressure is located over this end of the member. By regulating the position of the tube upon the member with respect to the groove it is possible to control the flow of water from within the interior of the tube.

3,595,525 PORTABLE AIRCRAFT JACK

Edward E. Yaste, Burlingame, Calif., assignor to Powerflow Engineering and Equipment Company, Inc., Palo Alto, Calif.
Filed July 15, 1968, Ser. No. 744,994
Int. Cl. B60p 1/00; B66f 3/24
U.S. Cl. 254-2 6 Claims



A portable aircraft jack in which a double cylinder hydraulic jack is rigidly mounted at one end of a wheeled trailer

which has a towing handle at the opposite end. The rear trailer wheels are mounted on pivot arms connected to the handle by a linkage so that raising the handle will pivot the wheel arms and cause the rear of the trailer to be lowered thus lowering the jack for placement under a vehicle to be lifted. The jack has inner and outer cylinders, each separately supplied with hydraulic fluid, thus leaving one fully operative should the other cylinder fail.

3,595,526

CONSTRUCTION EQUIPMENT

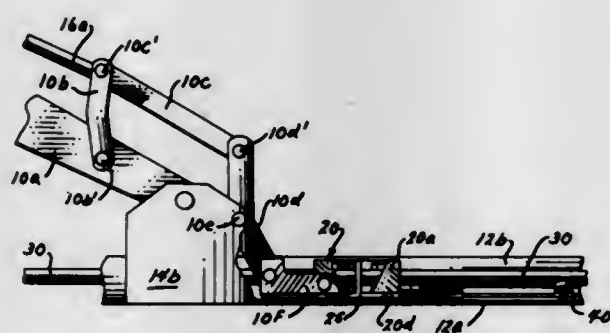
William E. Faver, Evansville, Ind., assignor to Edith Faver, Evansville, Ind.

Filed July 11, 1969, Ser. No. 840,906

Int. Cl. E21b 19/00

U.S. Cl. 254-31

7 Claims



An apparatus, typically used in combination with a conventional backhoe, for moving sections of rod, as, for example, as part of an arrangement for laying underground pipes.

3,595,527

QUICKLY RETRACTABLE AND EXTENSIBLE JACK CONSTRUCTION

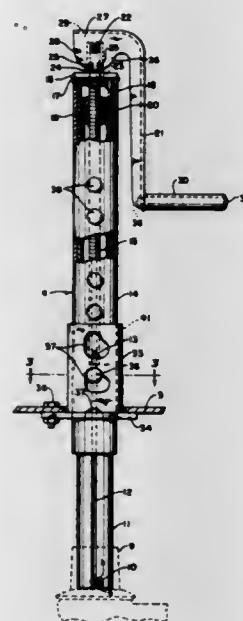
Burdette L. Douglass, Rockford, Ill., assignor to Atwood Vacuum Machine Company, Rockford, Ill.

Filed July 14, 1969, Ser. No. 841,304

Int. Cl. B60s 9/08

U.S. Cl. 254-86

19 Claims



An elongated upright tubular support of square cross section is fastened to the trailer tongue between the trailer body and the outer end of the tongue where the usual socket for a ball and socket coupler is located. An elongated tubular jack body is supported in retracted position on top of said support and is slidable up and down in said support and has a series of radial projections therein which can be passed through a passageway in one corner portion of said support when extending the jack body downwardly to or retracting the same

from operative position, these projections being adapted to be entered for a rough adjustment in L-shaped slots provided in said support and communicating by one leg of the L with said passageway. Then the jackscrew, operable from the upper end of said jack body adjusts the load carrying member that is slidable in the jack body to make the fine adjustment, seating one or two projections in the upper end of the slot or slots.

3,595,528

DEVICE FOR LOWERING PERSONS AND LOADS

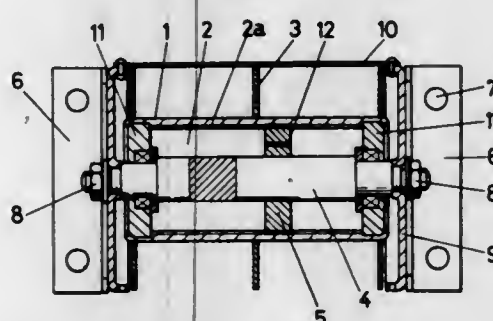
Jalmari Selim Virkki, Tuusula 5, Vantaa, Finland

Filed Feb. 25, 1969, Ser. No. 801,998

Int. Cl. A62b 1/12

U.S. Cl. 254-160

1 Claim



The present invention concerns a device for lowering persons and loads comprising, rotatably journaled in a suitable device body, a rope drum from which a rope is discharged, to which the load to be lowered is fastened, and the rotation of which is hydraulically braked.

3,595,529

PAYOUT ASSEMBLY

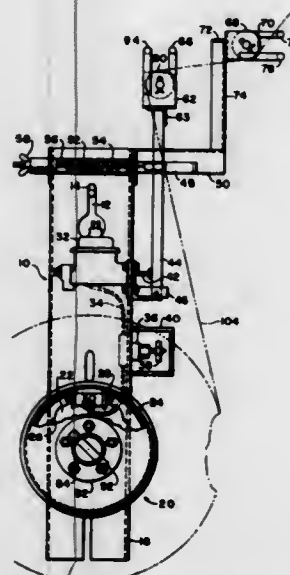
William T. Stull, and Earl A. Story, both of Cincinnati, Ohio, assignors to Alaskang, Inc., Cincinnati, Ohio

Filed Sept. 29, 1969, Ser. No. 861,755

Int. Cl. B66d 1/48

U.S. Cl. 254-173

7 Claims



The disclosure illustrates a payout assembly for a pilot line that is used to initially span the distance between two spaced positions and to pull a heavier line, such as an electrical conductor, between the positions. The payout assembly comprises a hydraulic vehicle-type brake assembly mounted on a channel-shaped base and adapted to receive a reel having a pilot line coiled on it. A master cylinder assembly, connected to the brake assembly through a locking valve, is actuated by a pivotal arm. The arm is biased to a position wherein the brake assembly is actuated to resist rotation of the reel. The

line is trained around a pulley at the free end of the arm so that, only when the line is pulled, the brake assembly is disengaged to permit unreeling of the line. This prevents overrun of the line being pulled from the reel. The pulley and the brake assembly provide rapid and easy installation and removal of the reel.

3,595,530

APPARATUS FOR MIXING SUBSTANCES

Ernst Hubers, Franzstrasse, 429 Bocholt, Germany

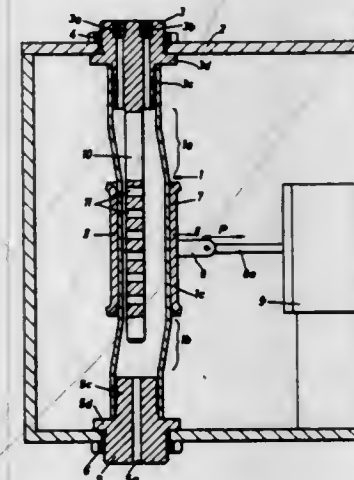
Filed Jan. 19, 1970, Ser. No. 4,017

Claims priority, application Germany, Jan. 17, 1969, P 19 02 200.5

Int. Cl. B01f 11/00

U.S. Cl. 259-2

5 Claims



There is disclosed an apparatus for mixing substances of which at least one is a liquid, in a closed cylindrical vessel in which a rigid body is disposed extending in the axial direction thereof and filling a portion of the internal cross section of the vessel, wherein at least terminal members positioned adjacent terminal closure members of said vessel are composed of a material readily movable out of the axial direction of said vessel, a portion of said vessel disposed between said terminal members being provided with a reciprocating drive acting transverse of the axial direction thereof.

3,595,531

MIXER APPARATUS

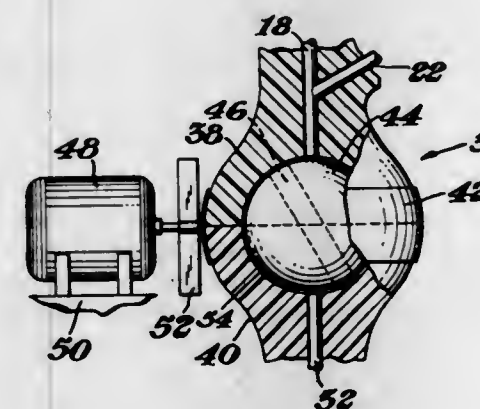
Alan J. Williams, and Charles J. Starnes, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 4, 1969, Ser. No. 873,806

Int. Cl. B01f 7/02, 13/08

U.S. Cl. 259-7

6 Claims



This invention relates to apparatus for use in indicating the presence of substances in a small stream of liquid, and particularly to mixing apparatus for use in connection with chromatographic apparatus utilizing microcolumns.

The apparatus is a spherical chamber having a close-fitting ball therein, a pair of inputs and an output. The ball is non-

reactive with the materials to be mixed and has a magnet embedded therein. The sphere is in two parts to permit easy cleaning and/or replacement of the ball. External magnetic means cause rotation of the ball.

3,595,532

ULTRASONIC CLEANER

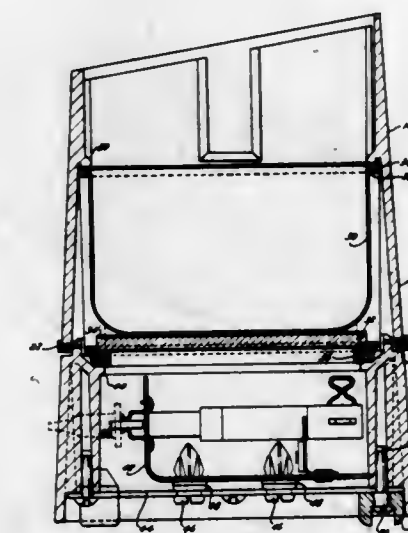
Edward J. Doyle, Hathboro, and Ray H. Enders, Columbia, both of, Pa., assignors to Shick Electric Inc., Lancaster, Pa.

Filed Feb. 12, 1969, Ser. No. 798,707

Int. Cl. B01f 11/02

U.S. Cl. 259-72

4 Claims



An electromechanical device is provided for cleaning small items by agitating a liquid at ultrasonic frequency. The desired ultrasonic vibrations are produced by a piezoelectric crystal operating in its radial mode wherein the crystal and a receptacle for receipt of the item to be cleaned are floatingly mounted between two gaskets in resilient compression.

3,595,533

MIXING AND KNEADING DEVICE

Fritz Sutter, Pratteln, Switzerland, assignor to Buss A.G., Basel, Switzerland

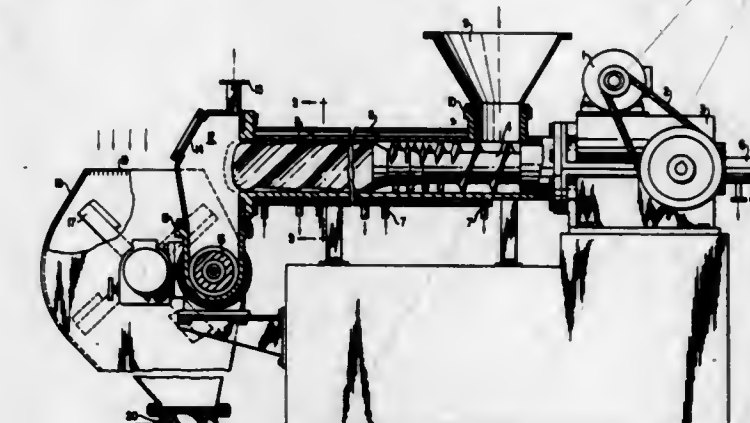
Filed June 7, 1968, Ser. No. 735,295

Claims priority, application Switzerland, June 13, 1967, 8534/67

Int. Cl. B01f 7/08

U.S. Cl. 259-40

3 Claims



A mixing and kneading apparatus adapted for producing homogeneous mixtures of powdered plastic materials, such as polyvinyl chloride, polyolefins and finely divided rubber, with liquid plasticizer comprising an elongated hollow kneading shaft, a horizontal casing with a feeding hopper at one end in which conveying, kneading, mixing, homogenizing and plasticizing take place in sequential zones along the kneading shaft which is simultaneously rotated and oscillated within the casing by motor, gear and drive means to reciprocate the shaft forward and backward for each revolution, and a jacket

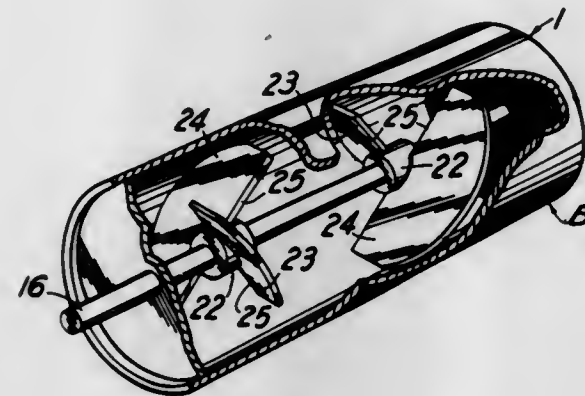
about the casing which is adapted for heating or cooling one or more of the zones. A receiver at the end of the casing remote from the hopper is provided with a rotary cutting device to chop the plasticized stream into granulated particles which are conveyed pneumatically into an outlet pipe.

3,595,534 BLENDING DEVICE

Robert F. Burton, 3141 Wynn Drive, Avondale Estates, Ga.
Division of Ser. No. 666,077, Sept. 7, 1967, Pat. No. 3,444,626
Filed Nov. 6, 1968, Ser. No. 773,791
Int. Cl. B28c 5/24

U.S. Cl. 259-85

4 Claims



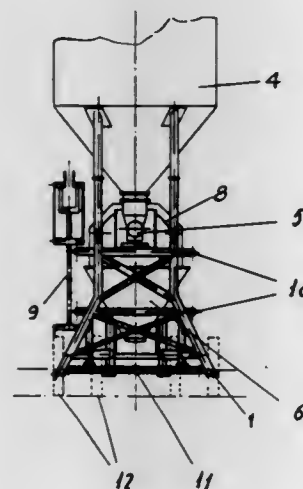
What is disclosed herein is a blending device for blending a particle substance such as soil with a second substance such as a fluid or solid particles. The embodiment of the blending device disclosed is a sealable and rotatable drum having deflecting plates within and rotatable with the drum. The deflecting plates are shaped and positioned to cause cascading of a particle substance dropping downwardly through a fluid after being carried upwardly by rotation of the drum and to provide a blending device well suited to the blending of soil with a fluid such as a soil-conditioning chemical and to other uses.

3,595,535 FRAMES FOR CARRYING AND TRANSPORTING CONCRETE-MAKING SYSTEMS

Luigi Zaccaron, Viale Venezia 369, 33100 Udine, Italy
Continuation-in-part of application Ser. No. 610,968, Jan. 23, 1967, now Patent No. 3,415,498, dated Jan. 23, 1967. This application July 26, 1968, Ser. No. 747,966
Claims priority, application Italy, Nov. 18, 1969, 833,443/69
Int. Cl. B28c 7/04

U.S. Cl. 259-165

3 Claims



An expeditionary cement-mixing plant with the plurality of components needed for mixing the cement forming materials all mounted upon a wheel-supporting platform for transportation to the site of operations and including a swinging inert material or aggregate loader for picking up inert material or

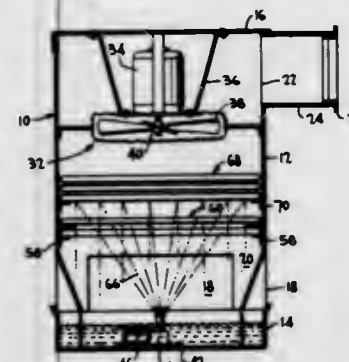
aggregate over adjacent areas with respect to the supported platform. All components including the swingable loader means being so proportioned and arranged on the platform as to be inboard of the platform during transportation to any desired cement mixing and spreading location.

3,595,536 AIR-COOLING DEVICE

Wayne H. Ripley, P.O. Box 2174, San Angelo, Tex.
Filed Aug. 26, 1968, Ser. No. 755,039
Int. Cl. B01d 47/06

U.S. Cl. 261-28

13 Claims



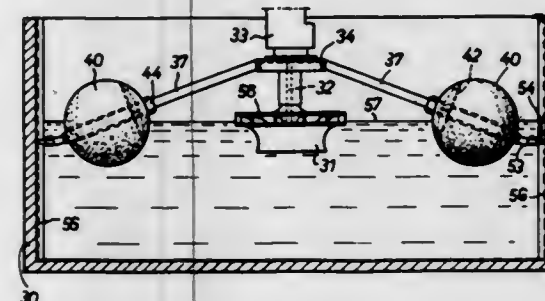
An air cooler incorporating a hollow body through which warm air is caused to flow from an air inlet means over elements impregnated with liquid to an air outlet means. The warm air as it passes over the liquid impregnated elements causes the evaporation of liquid therefrom. The heat that is required to effect the evaporation of the liquid is absorbed from the air passing over such elements and the air is cooled thereby.

3,595,537 APPARATUS FOR SEWAGE TREATMENT

Joseph Richard Kaelin, Villa Seeburg, Buochs, Nidwalden, Switzerland
Filed Nov. 25, 1968, Ser. No. 778,695
Claims priority, application Switzerland, Dec. 4, 1967, 16998/67
Int. Cl. B01f 7/16

U.S. Cl. 261-91

6 Claims



A sewage treatment system comprises a tank containing sewage to be aerated and circulated by an aeration rotor partially immersed in the liquid in the tank. The aeration rotor is suspended from a floating carrier frame including a platform supporting the driving motor for the aerator and a plurality of supporting rods extending in radial planes outwardly and downwardly inclined from said platform. The supporting rods extend with their outer ends through rough spherical floating bodies floating on the liquid to be treated in the tank. The free ends of the supporting rods projecting beyond said floating bodies are guided in vertical guide channels formed on the internal tank wall to hold said carrier frame against rotation in said tank but permitting unrestrained upwards and downward movement of the carrier frame according to the level of the sewage in the tank.

3,595,538 FLOATING AERATION ROTOR

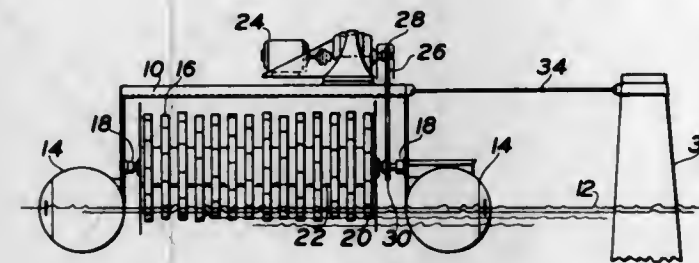
Edward J. Baumann, Beloit, Wis., assignor to Beloit Passavant, Janesville, Wis.

Filed May 21, 1969, Ser. No. 826,601

Int. Cl. B01f 3/04

U.S. Cl. 261-92

3 Claims



A floating aeration rotor for use in a basin and having a pair of bladed rotors rotatably mounted in a frame. The blades are powered so as to propel the front blade about the basin and the rotors are guided over a predetermined path on the water.

3,595,539 THERMAL APPARATUS FOR FIXING THERMOPLASTIC RESINOUS POWDER

Takuhei Kimura, and Shinichi Isigaki, both of Tokyo, Japan, assignors to Iwatsu Electric Co., Ltd., Tokyo, Japan

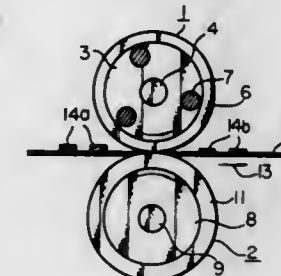
Filed Jan. 12, 1970, Ser. No. 2,074

Claims priority, application Japan, Feb. 21, 1969, 44-12547

Int. Cl. G03g 13/20, 15/20

U.S. Cl. 263-6 E

8 Claims



A thermal apparatus for fixing thermoplastic resinous powder which has an improved heating surface whereon numerous specifically patterned and arranged fine recesses and protuberances are formed. The specific recesses and protuberances are very effective for eliminating accidental transfer of a resinous layer, to be fixed on an article's surface, onto the heating surface. The thermal fixing apparatus is useful for electrophotography, electrostatic printing, powder-painting, powder-photogravure and powder-screen printing.

3,595,540 BALL HEATER-EQUILIBRATOR SYSTEM

John A. Whitcombe, Lakewood, Colo., assignor to The Oil Shale Corporation, New York, N.Y.

Filed Sept. 2, 1969, Ser. No. 870,378

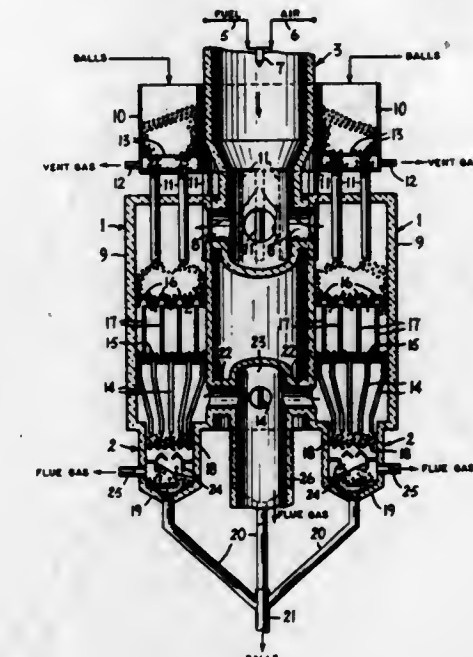
Int. Cl. F28d 15/00

U.S. Cl. 263-19 B

3 Claims

A ball heater and ball temperature equilibrator system wherein the balls to be heated and the hot flue gas heating medium are cocurrently flowed through the ball heater to raise the temperature of the balls to varying higher ball temperatures and wherein the balls having varying higher ball temperatures have their temperature brought to substantial

equilibrium by flowing, preferably cocurrently, the non-uniformly heated balls and flue gas from the ball heater



through the ball temperature equilibration chamber having ball intermixing means therein.

3,595,541 METHOD AND APPARATUS FOR TREATING PARTICULATE SOLIDS IN A FLUIDIZED BED

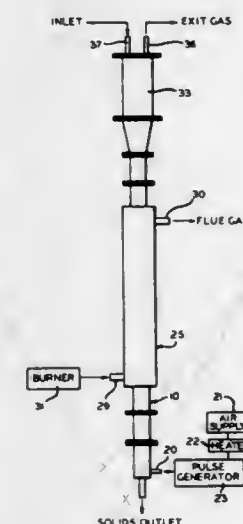
Harold L. Pabich, Des Plaines, and Richard J. Wilson, Rosemont, both of, Ill., assignors to Nalco Chemical Company, Chicago, Ill.

Filed May 20, 1969, Ser. No. 826,206

Int. Cl. F26b 3/08, 17/10; F27b 15/00

U.S. Cl. 263-21 A

19 Claims



Method and apparatus for treating small size particulate solids in a fluidized bed, and the calcining of particulate magnesium carbonate and magnesium hydroxide, or a mixture thereof in a fluidized bed, wherein the apparatus may include an upstanding tubular member of substantially greater length than width defining a bed area or reaction vessel and means for heating the bed by driving heat through the walls of the tubular member, and including means coacting with the incoming fluidizing gas to enhance even fluidization.

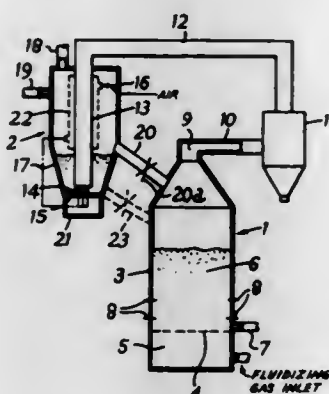
3,595,542

PREHEATER USING DOWNWARDLY FLOWING, DIRECTLY CONTACTING, FLUIDIZING VAPORS FROM CALCINING STAGE OF CALCEROUS MATERIAL
Neville David Ashman, Borough Green, England, assignor to Fawham Developments Limited, Kent, England
Filed Nov. 5, 1968, Ser. No. 773,437

Claims priority, application Great Britain, Nov. 6, 1967, 50350/67
Int. Cl. F27b 15/00

U.S. Cl. 263—21 A

11 Claims



This invention relates to a method and apparatus for fluidizing particulate material with a dust-laden gas and to a method and apparatus for calcining granular material in which dust-laden products of combustion from a calciner are used to fluidize and preheat the granular material subsequently delivered to the calciner.

3,595,543

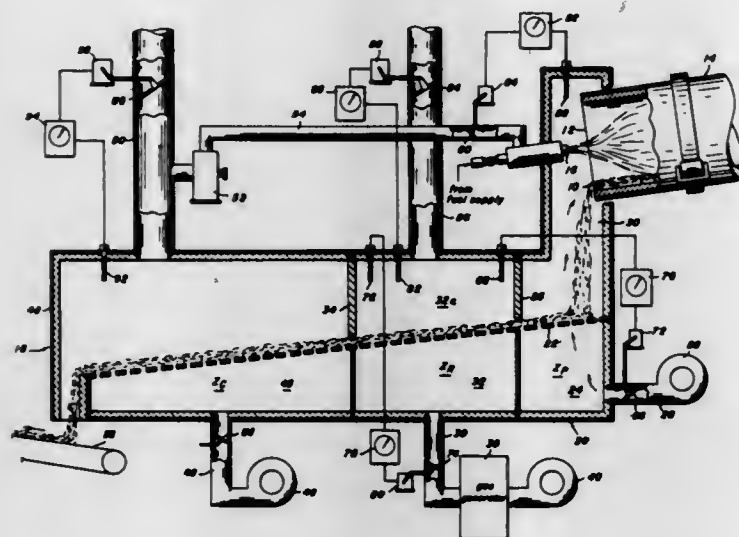
APPARATUS FOR AND METHOD OF TREATING AND COOLING CEMENT CLINKER

Stewart W. Tresouthick, McCandless Township, Allegheny County, Pa., assignor to United States Steel Corporation
Filed Jan. 8, 1970, Ser. No. 1,486

Int. Cl. F27b 7/06

U.S. Cl. 263—32 R

30 Claims



This invention relates to an apparatus for and method of cooling and treating cement clinker discharged from a discharge end of a cement kiln, which kiln has a burner disposed adjacent the discharge end. The apparatus has a grate-type cooling means adapted to receive a bed of the cement clinker from the discharge end at a temperature of about 2,700° to 2,800° F. and to discharge the cement clinker at a temperature of about 350° F. The cooling means has a pressure zone for cooling the cement clinker from a temperature of about 2,500° to a temperature of about 1,850°. A first cooling means is disposed adjacent the pressure zone for directing a pressurized cooling fluid through the cooling means and through the bed to cool the cement

clinker from a temperature of about 2,500° F. to a temperature of about 1,850° F. and also to heat the cooling fluid to a temperature of about 400° to about 500° F. for use as secondary air for the burner. The cooling means also has a reduction and cooling zone adjacent the pressure zone for cooling and treating the cement clinker from a temperature of about 1,850° F. to a temperature of about 1,100° F. Gas generator means in the reduction and cooling zone direct a pressurized reducing fluid through the cooling means and through the bed to cool the cement clinker from a temperature of about 1,850° F. to a temperature of about 1,100° F. and to exit the reducing fluid from the reduction and cooling zone. Additionally, the cooling means has a cooling zone adjacent the reduction and cooling zone for cooling the cement clinker from a temperature of about 1,100° F. to a temperature of about 350° F. A second cooling means adjacent the cooling zone directs a pressurized cooling fluid through the cooling means and through the bed to cool the cement clinker from about 1,100° F. to about 350° F. and to heat the cooling fluid to a temperature of about 230° to 250° F. for use as primary air for the burner.

The method includes the steps of receiving a bed of the cement clinker on a grate-type cooling means from the discharge end at a temperature of about 2,700° to 2,800° F.; cooling the cement clinker in a pressure zone of the cooling means from a temperature of about 2,500° F. to a temperature of about 1,850° F. by directing a pressurized cooling fluid through the cooling means and through the bed to heat the cooling fluid to a temperature of about 400° to about 500° F. for use as secondary air for the burner; cooling the partially cooled cement clinker in a reduction and cooling zone adjacent the pressure zone of the cooling means from a temperature of about 1,850° F. to a temperature of about 1,100° F. by directing a pressurized reducing fluid through the cooling means and through the bed and to exit the reducing fluid from the reduction and cooling zone; and cooling the reduced cement clinker in a cooling zone adjacent the reduction and cooling zone from a temperature of about 1,100° F. to a temperature of about 350° F. by directing a pressurized cooling fluid through the cooling means and through the bed to heat the cooling fluid to a temperature of about 230° to 250° F. for use as primary air for the burner.

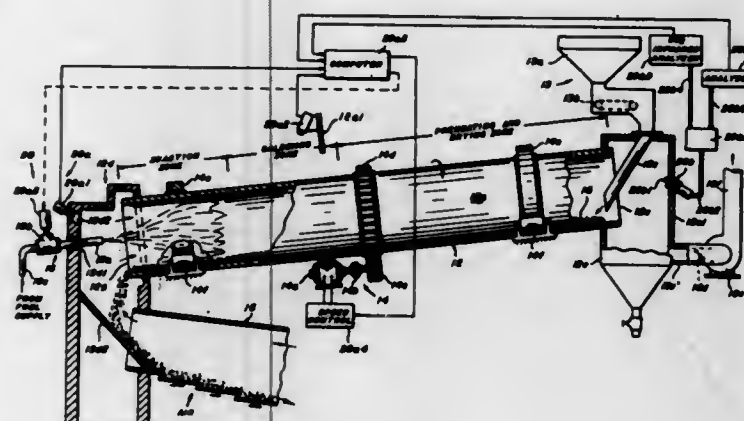
3,595,544

CONTROL SYSTEM FOR CEMENT KILN
George T. Curtis, and Marshal Hunt, Jr., both of Ross Township, Allegheny County, Pa., assignors to United States Steel Corporation
Filed July 15, 1969, Ser. No. 841,919

Int. Cl. F27b 7/00

U.S. Cl. 263—32

7 Claims



This invention relates to the combination of a rotary kiln for sintering raw material into sinter and having drive means connected to the rotary kiln for rotating the rotary kiln, heating means disposed adjacent one end of the rotary kiln for directing a heated fluid through the rotary kiln to sinter the raw material as the raw material passes through the rotary kiln from the other end of the rotary kiln to the one end of the rotary kiln, and control means associated with the rotary kiln for controlling the operation of one of the drive means and the heating means.

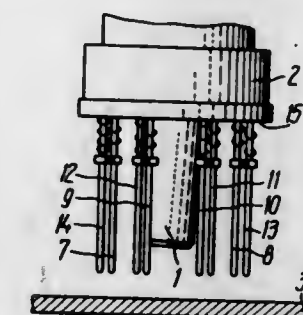
3,595,545

DEVICE FOR STABILIZING DISTANCE BETWEEN TOOL SECURED ON SUPPORT OF MACHINE, FOR EXAMPLE CUTTER OF GAS-CUTTING MACHINE, AND SURFACE OF BLANK

Valentin Mikhailovich Sitnichenko, ulitsa Odesskaya, 58/6, kv. 14; Alexandr Mikhailovich Zamuruev, ulitsa Tereshkovoi, 12, kv. 24, and Andrei Isakovich Kogut, ulitsa Pionerskaya, 20, kv. 12, all of Odessa, U.S.S.R.
Filed Oct. 16, 1969, Ser. No. 866,987
Int. Cl. B23k 7/00, 9/12; G06f 15/46

U.S. Cl. 266—23 M

2 Claims



A device for stabilizing the distance between a tool secured on the support of a machine, for example, the cutter of a gas-cutting machine, and the surface of a blank, in which a detector determining the position of the tool has at least two pairs of indicators following the distance between the blank surface and a mark made on the surface of the tool or support of the machine and corresponding to each indicator, in which case the accuracy of machining the members is considerably increased.

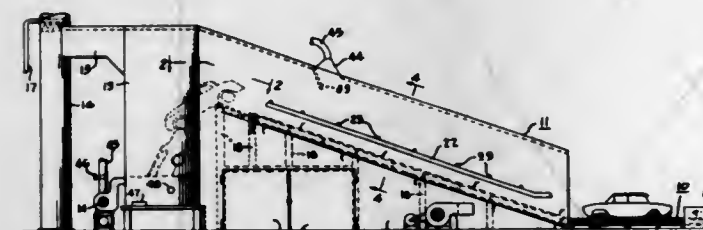
3,595,546

APPARATUS FOR CONVERTING SCRAP AUTOMOBILE BODIES TO HIGH GRADE PIGS

Edward A. Uzdavines, 124 Moore St., Woodbury Heights, N.J.
Division of Ser. No. 540,876, Apr. 7, 1966, Pat. No. 3,484,231
Filed Oct. 30, 1969, Ser. No. 872,689
Int. Cl. C21b 5/00

U.S. Cl. 266—33

5 Claims



The apparatus includes an open bottomed upwardly angled conveyor contained within a thermally insulated housing, a cupola into which the conveyor discharges and high temperature jet burners for heating the interior of the housing. Ignited scrap automobile bodies are placed on the open bottomed conveyor which moves angularly upward through the thermally insulated housing within which all combustibles are consumed and low temperature melting metals melt and drop off by the time that each car reaches the upper end of the housing to be deposited thereafter into the cupola. The cars are melted down in the cupola to high grade steel which is tapped off and pigged. Incomplete combustion products produced in the housing in the form of smoke are drawn off and forced through the cupola bed to complete the combustion and eliminate air pollution.

3,595,547

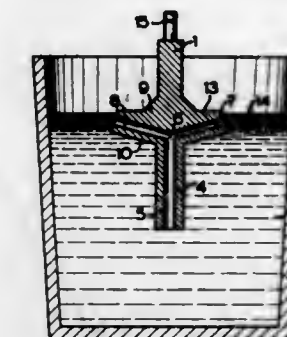
DEVICE FOR PROMOTING METALLURGICAL REACTIONS

Hubert Polomsky, Duisburg-Buchholz, and Gerhard Eichbaum, Duisburg, both of, Germany, assignors to Demag A G, Duisburg, Germany
Filed Feb. 5, 1969, Ser. No. 796,729
Claims priority, application Germany, Feb. 23, 1968, P 15 83 877.4

Int. Cl. C21c 7/00

U.S. Cl. 266—34 A

7 Claims



A device for accelerating the physical and chemical processes in metallurgical metallic melts or similar dense media of elevated temperatures includes a rotatable stirrer which is adapted to dip into the melt. In accordance with the invention, the stirrer includes a central suction pipe and a plurality of radially outwardly extending ejection ducts connected into the suction pipe at the upper end thereof. A feature of the construction is that the ejection ducts are defined in a disclike member which, at least on the side carrying the suction pipe, is formed as a smooth solid body of a refractory material and the suction pipe is connected axially symmetrical thereto. In one embodiment, the underside of the solid body has a polygonal base in order to facilitate the stirring action on the melt. Ejection ducts advantageously terminate at the corners of the polygonal solid body. In some instances, it is also desirable to form the top side with projections or flat edges for entraining the melt and the slag and for aiding in its intermixing.

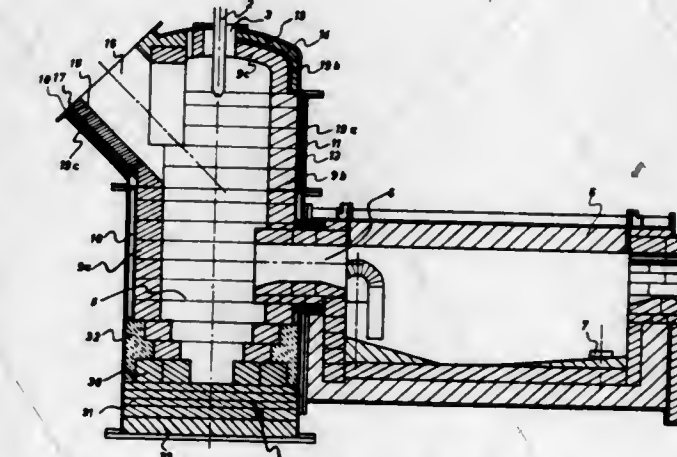
3,595,548

METALLURGICAL REFINING VESSEL
Claude Tsybal, Metz, France, assignor to Institut De Recherches De La Siderurgie Francaise, Germain en Laye, France

Filed Aug. 22, 1969, Ser. No. 852,514
Claims priority, application France, Aug. 23, 1968, 164,094
Int. Cl. C21c 5/42

U.S. Cl. 266—34

10 Claims



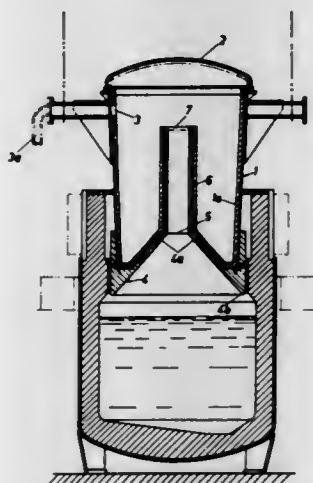
A refining vessel for top blowing of pig iron comprises a main lining consisting of a refractory material and having a

thermal conductivity of 2—6 k.cal./h.m.² C. The upper part of the main lining is surrounded by one or more envelopes of thermally insulating material having a thermal conductivity of less than 2 k.cal./h.m.² C. and the lower part of the main lining (namely, that part which surrounds the molten metal bath) is surrounded by a jacket for circulating water, air or other fluid coolant. The envelope prevents excessive cooling of the normally cooler upper part and the jacket prevents overheating of the normally hotter lower part of the vessel.

3,595,549 SLAG LADLE

Erik Axel Skold, Hallefors, Sweden, assignor to Aktiebolaget Svenska Kullaterfabriken, Goteborg, Sweden
Filed Feb. 10, 1969, Ser. No. 797,871
Claims priority, application Sweden, Feb. 9, 1968, 1707/68
Int. Cl. C21c 7/10
U.S. Cl. 266—37

5 Claims

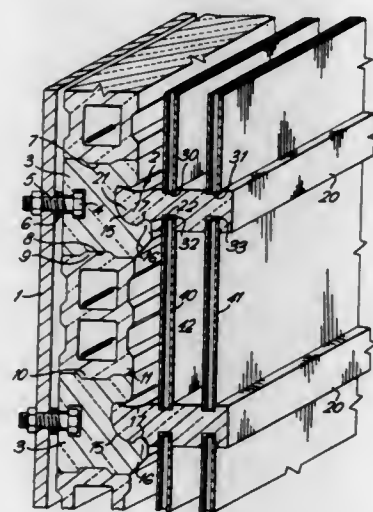


A slag ladle for a metallurgical furnace is formed in such a manner that its lower end essentially covers the area of the furnace at the level where it is expected to cooperate therewith and is provided with a concave bottom and a centrally located inlet to the receptacle, which is kept under vacuum.

3,595,550 FURNACE LININGS

Robert Greer, Whitchurch, Cardiff, Glamorgan, Wales, assignor to Coupe & Tidman Limited, Neston, Wirral, England
Filed Apr. 21, 1969, Ser. No. 817,899
Claims priority, application Great Britain, Apr. 25, 1969, 20,321/68
Int. Cl. C21b 7/06
U.S. Cl. 266—43

16 Claims



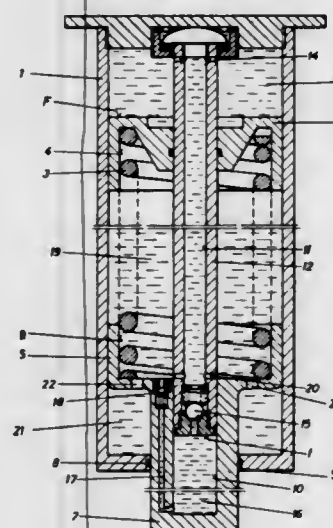
A furnace lining comprises two elongated support members transversely spaced apart and two sets of refractory tiles

spaced apart with respect to the width of the support members so as to provide an airgap, the tiles of each set being releasably mounted between the support members, and extending longitudinally thereof in juxtaposed end-to-end relationship.

3,595,551 RESILIENT SUSPENSION SYSTEM FOR VEHICLES ADAPTED TO BE ARRANGED BETWEEN THE WHEEL SUPPORTING MEANS AND THE VEHICLE BODY FOR BALANCING THE HEIGHT OF THE VEHICLE BODY INDEPENDENTLY OF LOAD VARIATIONS ON THE VEHICLE

Johannes Orthell, Anrath, Germany, assignor to Langen & Co., Dusseldorf, Germany
Filed Apr. 23, 1969, Ser. No. 818,630
Claims priority, application Germany, May 14, 1968, P 17 55 478.8
Int. Cl. F16f 3/07
U.S. Cl. 267—64

4 Claims



A resilient suspension system for vehicles adapted to be arranged between the wheel-supporting means and the vehicle body for balancing or adjusting the height of the vehicle body independently of load variations on the vehicle in which there is provided a cylinder member, a piston member and a piston rod defining member, with said members coacting to provide pressure, storage, and pumping spaces respectively, one of said members being secured to the vehicle body and another of said members being secured to the wheel-supporting means and spring means being biased between the member coacting to provide the pressure space and the member connected with the wheel-supporting means.

3,595,552 PNEUMATIC SPRINGS

Lawrence G. Nicholls, Tyseley, England, assignor to Girling Limited
Filed May 16, 1969, Ser. No. 825,180
Claims priority, application Great Britain, May 21, 1968, 24,216/1968
Int. Cl. B60c 9/36
U.S. Cl. 267—65

5 Claims

A pneumatic spring comprises a cylinder having a pressure seal at its outer end, a piston and a piston rod extending slidably and sealingly through the pressure seal, characterized in that the piston rod (6) has a portion (11) of reduced cross section which can, during manufacture of the spring, be aligned with the pressure seal (4) to define with the seal (4) a passage for the flow of gas into the cylinder (1).

This invention further comprises a method of charging a pneumatic spring including a cylinder, a piston and a piston rod extending slidably through a gastight pressure seal at the outer end of the cylinder, the piston rod having near its outer end a portion of reduced cross section, characterized by the steps of holding the piston rod and cylinder in relative positions in which the said reduced portion of the piston rod is aligned with the pressure seal to create a passage between

the rod and the seal without deflection of the seal, charging gas under pressure through the said passage into the cylinder, then moving the piston rod outwardly to allow the seal to en-

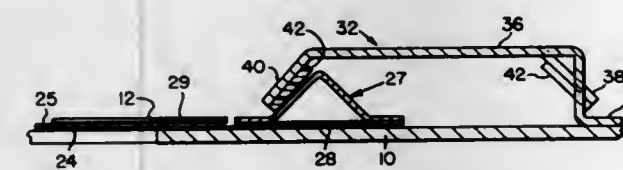
such as posts or split rings. Gripped sheet of paper is punched by aligning registering holes with free ends of binding elements and forcing the latter through the portions of paper sheet exposed by holes in panels. In preferred form



gage and seal against the piston rod and then applying an end fitting to the piston rod to prevent inward movement of the rod sufficient for the reduced portion to be aligned again with the seal.

3,595,553
SHOCK-ABSORBING DETENT
Andrew W. Vincent, 65 Aberdeen St., Rochester, N.Y.
Filed Apr. 16, 1969, Ser. No. 816,535
Int. Cl. E05f 5/06; F16f 7/00; G03b 9/10
U.S. Cl. 267—136

2 Claims



An electromagnetically actuated photographic shutter including an actuator having a relatively uniform output force characteristic, and a shock-absorbing stop consisting of a member having an inclined abutment surface in the path of travel of the body to be stopped. The abutment surface is inclined relative to the direction of travel of the body, and is resiliently movable in a direction generally normal to the direction of travel and fixed against motion in the direction of travel. The abutment surface is preferably covered with a pad of a compressible material having a relatively high coefficient of friction. When the moving body strikes the abutment surface it drives the stop laterally, and energy is dissipated by compression of the compressible material and friction. In the shutter, the blades are mounted on beams that are shaped to engage the stop.

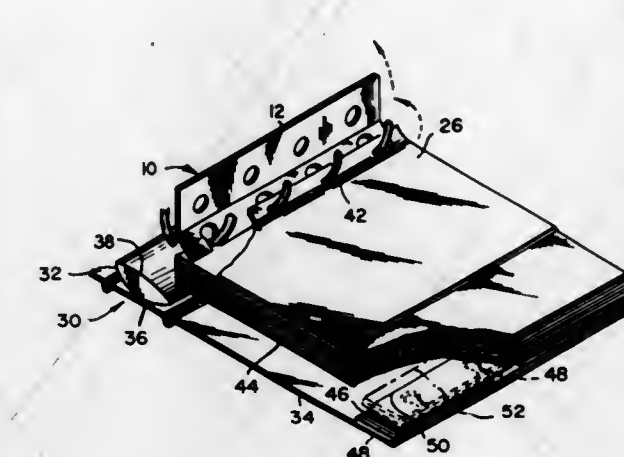
3,595,554 TEMPLATE FOR USE IN IMPALING SHEET MATERIALS ON BINDING ELEMENTS OF LOOSELEAF BINDERS

Marion Donovan, Rock Point Road, Southport, Conn.
Filed Oct. 10, 1969, Ser. No. 865,377
Int. Cl. B25b 3/00

U.S. Cl. 269—2

4 Claims

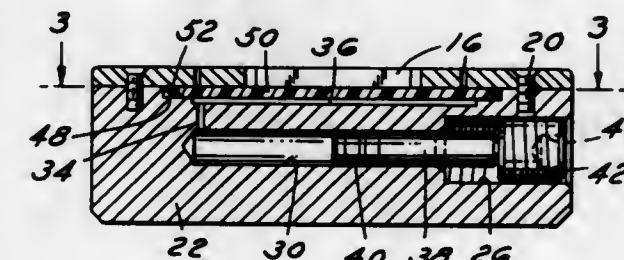
A combined template and holding device for use in punching a plurality of holes adjacent an edge of a sheet of paper to enable such sheet to be secured in a looseleaf binder. Device, made of stiff material such as fiberboard or plastic hinged along a fold line forming upper and lower panels to grip and align edge of sheet of paper, has registering holes in those panels spaced to fit onto binding elements



holes in upper panel completely circumscribe exposed portions and holes in lower panel have slots or passageways extending to edge of panel so that after upper panel is swung off ends of binding elements the device may be slipped off binding elements without disengaging paper sheet.

3,595,555
WORK HOLDER
Gordon N. Cameron, 1322 Hampton, Grosse Pointe Woods, Mich.
Filed May 9, 1969, Ser. No. 823,412
Int. Cl. B23q 3/08; B25b 5/16
U.S. Cl. 269—20

7 Claims



A hydraulically actuated expanding flat holder for workpieces, tools, and the like which includes a holder body member formed to include a pressurized chamber area which has a slotted flat plate thereover and a pressure-responsive pad in the chamber area and next adjacent thereto that will cause and maintain deflection of the slotted area of the plate, out of its normal plane, without loss of the actuating pressure in the holder body chamber area.

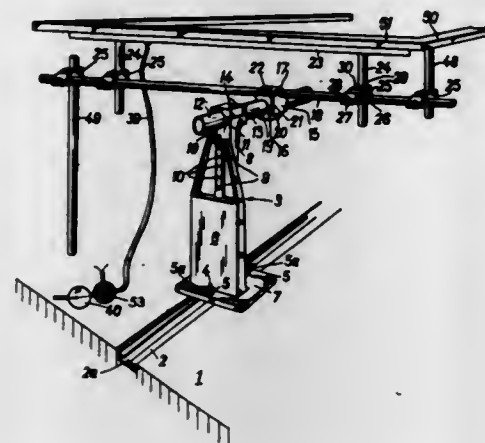
3,595,556
HOLDING DEVICE
Paul Schonauer, Wildenstrasse 15, Zurich, Switzerland
Filed July 25, 1969, Ser. No. 844,866
Int. Cl. B25b 11/00

U.S. Cl. 269—21

4 Claims

This is a device for receiving e.g. window frames in an approximately vertical position, tilting them and maintaining them fixed in a desired horizontal or inclined position for working thereon. The device comprises a pair of vertical supports provided with aligned bearing means in which a horizontal shaft connecting them to each other is clamped for longitudinal and axial adjustment. On the shaft are in turn adjustably clamped two transverse beams each carrying an elongated suction member having in its upper face a recess connected to a suction pump. Each transverse beam further

had adjustably clamped thereon at one end an abutment tube extending beyond the upper surface of the respective suction



member, and at its opposite end a leg by which the transverse beam is rested on the floor when in a horizontal position.

3,595,557

WORKPIECE CLAMP ASSEMBLY

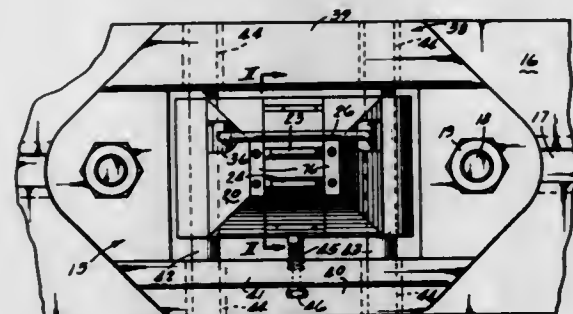
Dennis Daniels, Williamsville, N.Y., assignor to Houdaille Industries, Inc.

Division of Ser. No. 619,348, Feb. 28, 1967, Pat. No. 3,456,536
Filed Jan. 8, 1969, Ser. No. 789,893

Int. Cl. B23q 3/08

U.S. Cl. 269—32

6 Claims



A machine tool has a workpiece-positioning mechanism including a carrier which is reciprocated in one axis to position the workpiece which is held by a clamp assembly. The clamp assembly is mounted on the carrier to be free to move vertically. The clamp assembly includes clamp members which move vertically to engage opposite sides of the workpiece, and which can draw the workpiece against a locating surface on the clamp assembly. The clamp assembly is arranged to be fluidly locked at a selected position along the length of the carrier, and an elongated tray is provided to support a flexible hose for powering the actuator portion and the fluid lock.

3,595,558

POSITIONER FOR OBJECTS

Franklin G. Fisher, and Luther L. Bollinger, Sr., both of Reading, Pa., assignors to Reading Company, Philadelphia, Pa.

Filed Dec. 23, 1968, Ser. No. 786,237

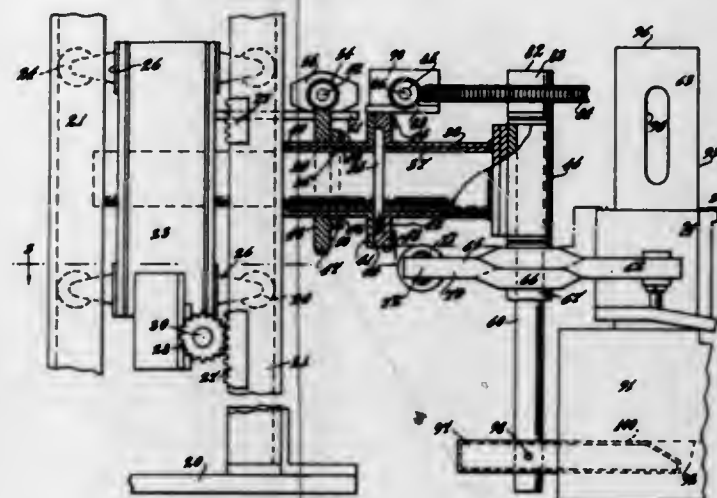
Int. Cl. B23q 1/20, 3/18

U.S. Cl. 269—61

6 Claims

A positioner for objects such as car couplers undergoing repair welding which includes a vertically movable carriage, a longitudinal shaft and bearing supported on the carriage, the longitudinal bearing being adjustable angularly with respect to the carriage, a lateral bearing supported on the longitudinal bearing, a shaft journaled in the lateral bearing, the lateral bearing shaft being angularly adjustable with respect to the lateral bearing, and a clamp for the object

mounted on the lateral bearing shaft. The clamp preferably includes scissors arms and a device to apply clamping pressure on the scissors arms. The scissors arms desirably are



provided with pivoted jaws to engage the object. A safety bar extending from the lateral bearing shaft is desirably placed beneath the object.

3,595,559

ADJUSTABLE HOLDING DEVICE

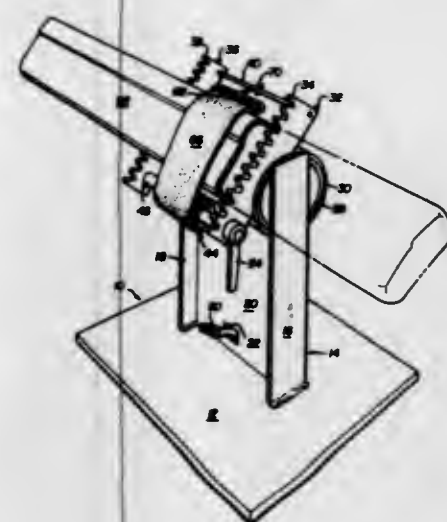
John Francis Gettinger, 1500 N.W. 1st Ave., Fort Lauderdale, Fla.

Filed June 30, 1969, Ser. No. 837,380

Int. Cl. B23g 1/12

U.S. Cl. 269—77

7 Claims



An adjustable holding device for holding automobile bumpers while work is being performed on them. The device includes a support base having a vertical component, and a rotatable cylinder horizontally mounted on the vertical component. At least two engaging elements for engagement with the edges of a bumper are mounted in parallel on the rotatable cylinder. Also included is a holding mechanism mounted on the engaging elements which is used for holding a bumper in position when it is engaged with the engaging elements, and a brake mechanism for holding the rotatable cylinder in a fixed position.

3,595,560

MECHANISM FOR INSERTING A NEWSPAPER SECTION INTO OTHER FOLDED SECTIONS

Warren W. Hannon, and Charles N. Hannon, both of P. O. Box 103, Olathe, Kans.

Filed June 18, 1969, Ser. No. 834,485

Int. Cl. B65h 5/30

U.S. Cl. 270—57

15 Claims

An inserting machine for facilitating the assembly of multiple-section newspapers. The main newspapers, for example,

are successively fed onto a reciprocating tray provided with a side guide against which the fold of the paper rests. Upon delivery of each main paper to the tray, the latter dwells momentarily, during which time a friction wheel is shifted into engagement with the top face of the paper along an arcuate path of movement extending downwardly and toward the side guide. This causes the uppermost leaf or leaves of the paper to be pulled toward the side guide relative to the remaining leaves of the section to, in turn, raise the forward,

driving means associated with the copy and original, the third driving means feeding the original and copy sheet in strict super imposition to the receiving portion of the copy machine.

3,595,562

DEVICE FOR PICKING UP PIECES OF SHEET MATERIAL FROM A STACK OF PIECES

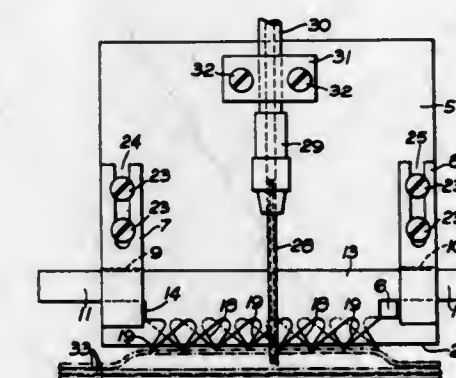
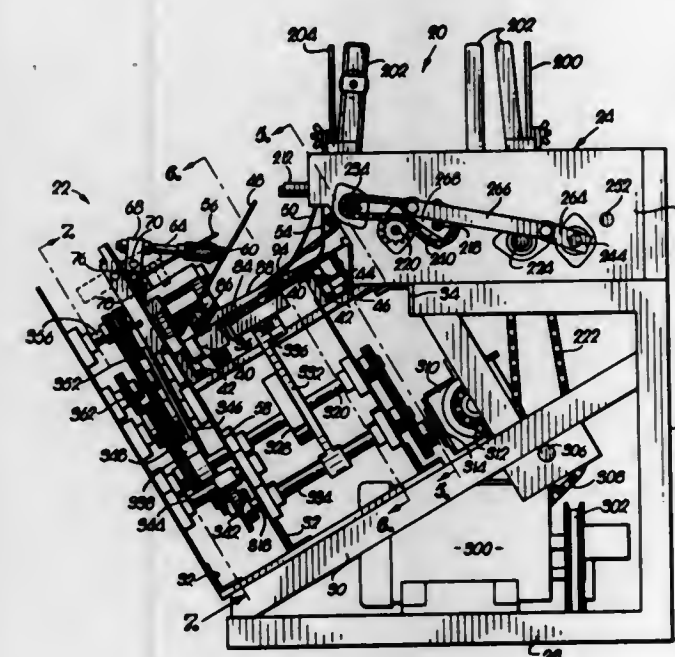
David Oldroyd, Rodridge Hall, Hutton Henry Wingate, Co. Durham, England

Filed May 13, 1969, Ser. No. 824,154

Int. Cl. B65h 3/08

U.S. Cl. 271—26

6 Claims



A device for picking up pieces of sheet material from a stack of such pieces which includes a tubular means for piercing a top piece of the sheet material of the stack and for introducing a gaseous medium between that top piece and the next lower piece, and cooperant gripping means for gripping the top piece and lifting same from the stack.

3,595,563

SHEET-FEEDING APPARATUS

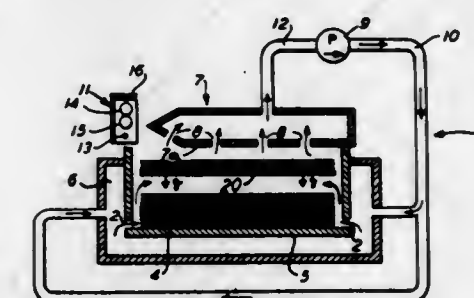
Earl Rostoker, Brooklyn; Walter Engels, New York, and Henry G. Joel, New York, all of N.Y., assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

Filed Sept. 15, 1969, Ser. No. 857,776

Int. Cl. B65h 3/08

U.S. Cl. 271—26

5 Claims

**METHOD OF AND MEANS FOR ENSURING ACCURATE REGISTRY AT HIGH SPEED OF AN ORIGINAL AND A COPY SHEET**

Charles Modeste Leblant, Arque la Bataille, France, assignor to La Cellophane, Societe Anonyme, Paris, France

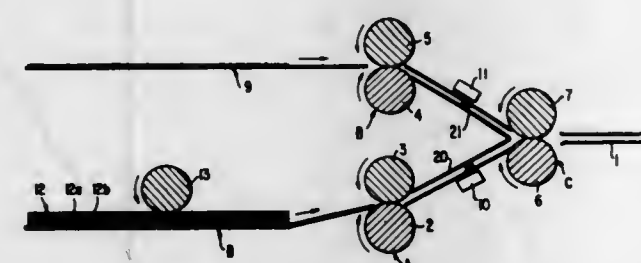
Filed Apr. 15, 1969, Ser. No. 816,317

Claims priority, application France, Apr. 19, 1968, 148595

Int. Cl. B65h 3/44, 5/26

U.S. Cl. 271—9

6 Claims



The present invention includes a method of and means for ensuring the accurate registry of an original and copy sheet upon their introduction into a copying machine. The copy sheet is first fed to a starting position by drive means and at the starting position the copy sheet actuates a microswitch. Actuation of this first microswitch disengages the drive means for the copy sheet and engages drive means for an original sheet. The original sheet is driven to a ready position where its driving force is disengaged upon the actuation of a second microswitch at the ready position. After a short time delay, the second microswitch permits engagement of a third driving means completely separate from the first and second

A sheet-feeding device is disclosed including a suction head adapted to hold a sheet of paper or the like presented thereto, and an adjacent sheet transfer means which periodically removes the sheet than being held by the said head and initiates transfer to a utilization point. Suction for the head is provided by the intake of an air pump. The outlet of the said pump is directed into a blower system which is arranged to move by airflow a portion of a stack of feed sheets to the suction head. The stacked sheets so moved are constrained so that they are moved to the head against gravity or other restoring forces. When the suction head contacts the closest of the moved sheets, that (single) sheet is held at the head for transfer. The held sheet, however, covers the head, thereby disrupting flow through the pump—and in particular stopping flow to the blower system connected to the pump outlet. Accordingly all sheets except the single sheet, are moved away from the head by the aforementioned restoring force, assuring that but a single sheet at a time is present for transfer.

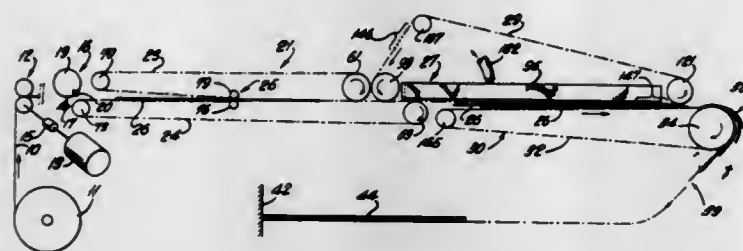
3,595,564

APPARATUS FOR HANDLING SHEETS

Raymond J. De Young, Woodcliff Lake, N.J., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed May 15, 1968, Ser. No. 729,191
Int. Cl. B65h 5/24, 29/12

U.S. Cl. 271-46

21 Claims



Apparatus for successively cutting a plurality of similar sheets from the leading end of a web which is being fed forwardly, the apparatus including means for pulling the sheets forwardly from the cutting station, means for forming the travelling sheets into a shingled stream of sheets with the leading end of each sheet overlying the trailing end of the previously fed sheet, means for turning the thus shingled sheets over while they continue their travel, and means for forwarding the turned over shingled sheets to a stacker which is fed from the bottom of the stack. The apparatus of the invention is so constructed that it can be readily adapted to the handling of sheets of different lengths.

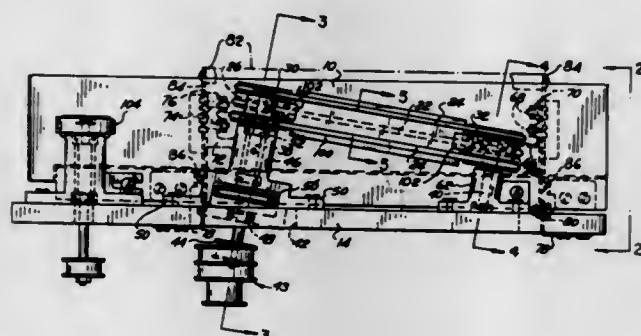
3,595,565

SHEET ITEM TRANSPORT AND ALIGNING MECHANISM

Harry R. Bergland, Novi, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Filed Aug. 21, 1969, Ser. No. 851,818
Int. Cl. B65h 9/16

U.S. Cl. 271-49

15 Claims



This invention is directed to sheet item transport mechanisms and particularly to such mechanisms for successively advancing sheet items, such as documents and the like, at high speeds in a given direction and at the same time laterally shifting the items to an edge guide for transport in precise alignment therewith for later attention in the transport path. More specifically, the transport mechanism of this invention employs endless carriers in the form of belts of rounded or circular cross section which engage opposite sides of a document in offset staggered relation to one another and in overlapping relation to the plane of the document with the result that the document is slightly corrugated longitudinally in the direction of its motion. The endless belts are mounted in parallel relation to one another on pulleys located on the outer sides of sideplates forming the transport path and such that the sections of the belts which engage the document project into the space between the sideplates in alternately staggered overlapping relation to one another. For the purpose of precise alignment of the documents in the transport path, the endless belts are inclined to an edge guide so as to drive the documents theretoward as they are advanced along the transport path. Other features of the invention include a provision for laterally separating the sideplates in order to gain access to the space therebetween and also a

provision for continuously supporting the document engaging sections of the endless belts in the aforesaid staggered overlapping relation throughout the distance separating the pulleys about which the belts are trained.

3,595,566

AUTOMATIC APERTURE CARD TRANSPORT

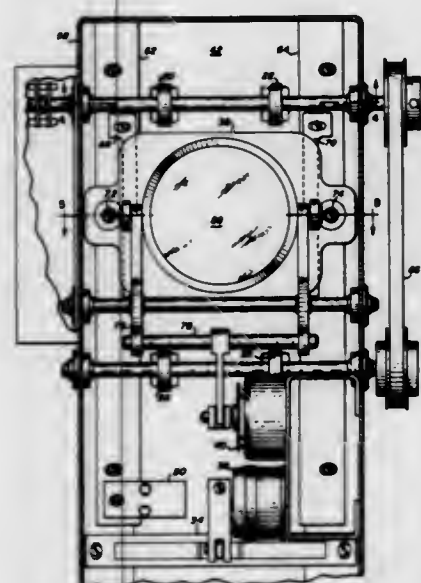
Howard I. Jarmy, San Francisco, and Gary D. Oates, Los Gatos, both of, Calif., assignors to Singer-General Precision Inc., Binghamton, N.Y.

Filed Mar. 21, 1969, Ser. No. 809,352

Int. Cl. B65h 9/06

U.S. Cl. 271-53

8 Claims



The disclosed embodiment of the present invention is an aperture card transport which includes a card guide, a solenoid-actuated platen, a plurality of rollers for conveying the card through the guide, and a solenoid-actuated card stop. A pair of light sources and photosensitive diodes are positioned to sense the leading edge of the card. Logic circuitry responsive to the diodes controls the rollers, platen solenoid, and card stop solenoid to control the movement of the card through the guide.

3,595,567

SHEET DETECTION CONTROL FOR SHEET-HANDLING APPARATUS, PARTICULARLY A PRINTING PRESS

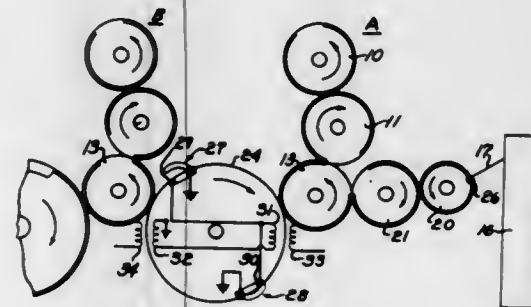
William H. Lee, Chicago, Ill., and Alan W. Richards, Lyndhurst, Ohio, assignors to Harris-Intertype Corporation, Cleveland, Ohio

Filed Jan. 17, 1969, Ser. No. 792,093

Int. Cl. B65h 7/04

U.S. Cl. 271-57

13 Claims



Control for sensing the absence of a sheet on a cylinder of a printing press. The cylinder carries a pair of coils which during certain portions of its rotation pass in close proximity to two interconnected stationary coils, one of which is connected to a DC power supply. If a sheet is absent at this time, the grippers on the cylinder ground one of the cylinder-mounted coils to cause a current to be induced in the other stationary coil to turn on an SCR and thereby cause a control relay to be energized.

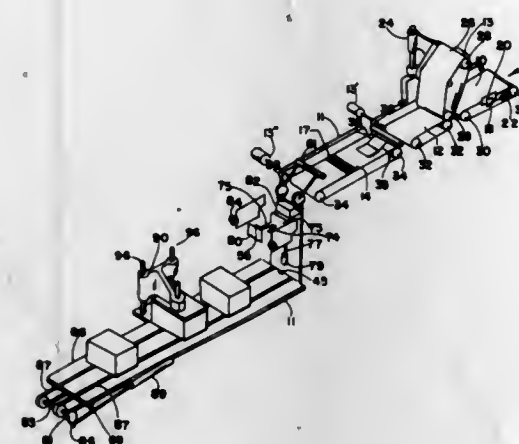
3,595,568

JOGGER STACKER MACHINE

Mervin W. Roskam, Janesville, and Donald W. Hamill, Beloit, both of, Wis., assignors to Beloit Corporation, Beloit, Wis.
Filed May 21, 1969, Ser. No. 826,497
Int. Cl. B65h 3/134

U.S. Cl. 271-89

11 Claims



A method and machine for receiving a continuous stream of signatures from a printing press and producing vertical stacks of accurately aligned signatures wherein the signatures are first aligned in the direction of conveyance, individually curved to increase their rigidity and projected into a supporting collector to align their leading edges. Each signature is maintained in alignment with the others while the stack is forming by means of continuous jogging and rotating brushes continuously depressing the side and back edges the uppermost signatures. The completed stack discharged to a compressor and binder.

3,595,569

ROUNABOUT AND SEASAW PLAYGROUND CAPSULE

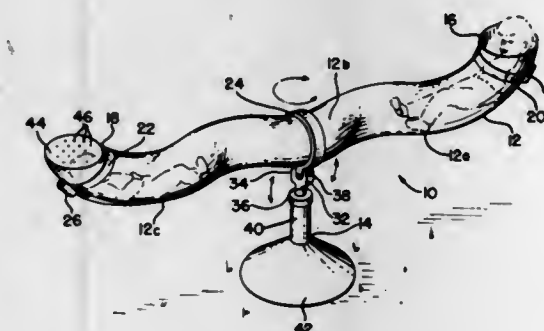
James C. Holte, 1601 East Republican, Apt. #16, Seattle, Wash.

Filed Mar. 13, 1969, Ser. No. 807,029

Int. Cl. A63g 1/32

U.S. Cl. 272-30

10 Claims



A playground capsule including an elongated tube of transparent material centrally supported for rotation about a vertical axis and pivotal movement about a horizontal axis. The tube is provided with spiral undulations along its length and ground surface engaging spring or shock units at either end thereof.

3,595,570

OCCUPANT-PROPELLED ROUNABOUT SWING SET

Emmett M. Huff, 2834 North Hanley Road, St. Louis, Mo.; Bernard McNames, 1175 Verlene, Florissant, Mo., and Albert Ellegood, 5793 Hawkins Fuchs Road, St. Louis, Mo.

Filed Jan. 17, 1969, Ser. No. 792,082

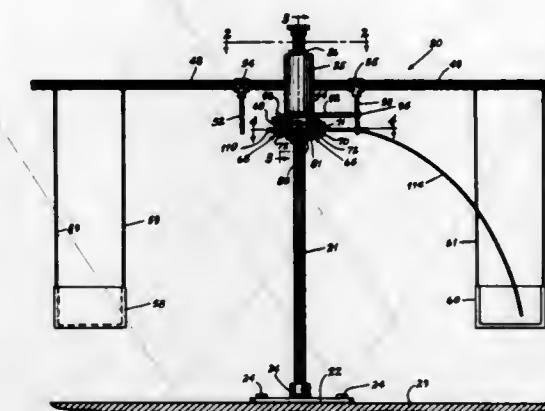
Int. Cl. A63g 1/12

U.S. Cl. 272-33

3 Claims

A swing rotatably supported by a vertical post. A clutch rotatable about the post with the swing and stopped against

rotation when a cord connected to the clutch is pulled to rotate the swing relative to the clutch. A spring returns the



clutch to its original relative position with respect to the swing when the clutch is released.

3,595,571

JUMPING APPARATUS

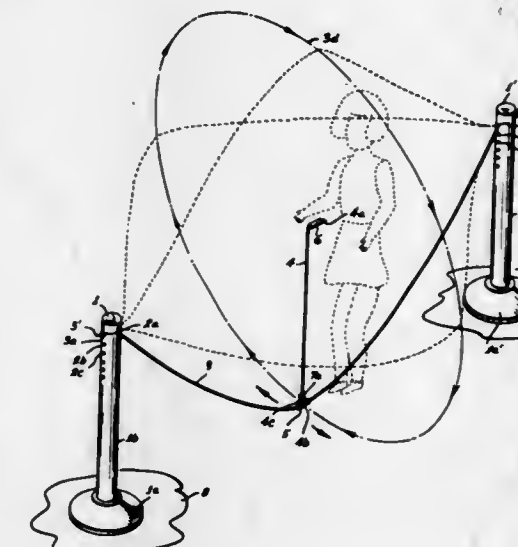
Raymond G. Spinnett, 1961-A Mitchell St., Santa Ana, Calif., and Freda P. Spinnett, 4635 East Cardwell St., Lynwood, Calif.

Filed Oct. 29, 1969, Ser. No. 872,072

Int. Cl. A63b 5/20

U.S. Cl. 272-75

8 Claims



An exercise or amusement apparatus is provided whereby a person can jump rope using only one hand for actuation. Two separate stanchions provide anchorage for each end of a primary line. The stanchions are weight adjustable and weight limited so as to fall over before allowing a person to be tripped by the primary line. The jumper holds one end of an actuating line which connects to a central part of the primary line and he is able to whirl the primary line around his body. A sleeve, connecting the actuating line to the primary line, has a greater bore than the line threading it so that kinks will not develop in the line and the jumper may move the position of the actuating line along the length of the primary line while continuing to actuate the line for jumping. Adjustable weight means are also provided for the actuating line for proper control of the swinging motion by an actuating party.

3,595,572

TRACK PIN AND BUSHING JOINT SEAL

Gerald L. Granda, Springfield, Ill., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Feb. 13, 1970, Ser. No. 11,095

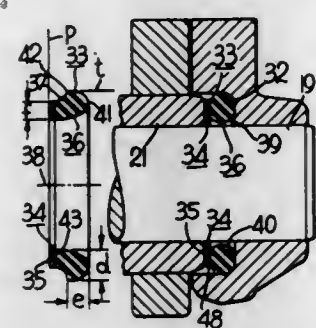
Int. Cl. F16j 15/00

U.S. Cl. 277-92

5 Claims

A pin and bushing face-type seal for an endless track belt of the type used on crawler tractors designed with a figura-

tion producing effective sealing over a relatively wide range



of variations of axial spacing between the end of the bushing and the confronting track link sidebar.

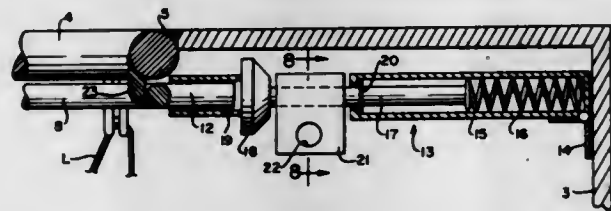
3,595,573

BASKETBALL GOAL WITH NET-LOCKING RING
Robert L. Kilbourne, Route 2, Box 213, Prince George, Va.
Filed Sept. 17, 1969, Ser. No. 858,786

Int. Cl. A63b 63/00

U.S. Cl. 273-1.5 R

8 Claims



A basketball goal wherein the supporting loops of the net are secured against removal from their supporting hooks on a main ring, by a removable locking ring which, when in operating position, obturates the opening in each hook. The locking ring is formed in halves pivoted together and having contacting radial extensions at their free ends. A spring-pressed sleeve assembly is hinged to the ring bracket and in assembled and operating position engages over and about the aforesaid extensions. Locking means are provided to prevent retraction of the sleeve, thus making impossible the removal of the locking ring and net.

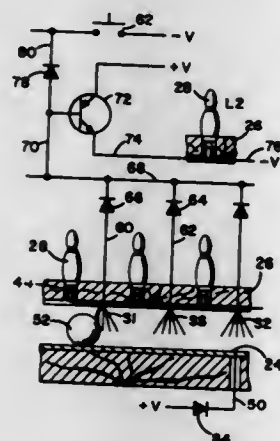
3,595,574

ELECTRIC BOWLING GAME
John L. Saffer, 4301 Mount Jeffers Ave., San Diego, Calif.
Filed Mar. 3, 1969, Ser. No. 803,845

Int. Cl. A63d 3/00

U.S. Cl. 273-41

5 Claims



An electric bowling game wherein illuminated bowling pins are displayed in their normal triangular set arrangement in a spaced position above the alley and a conductive ball is

moved down the alley to contact brush switch elements positioned below the illuminated pins and in substantially the same orientation, the contact with which extinguishes respective ones of the lighted pins in correlation with the path of the ball displaying the pins that are simulated as having been knocked down, all of which is accomplished through mechanical and circuit connections that do not have any moving parts.

3,595,575

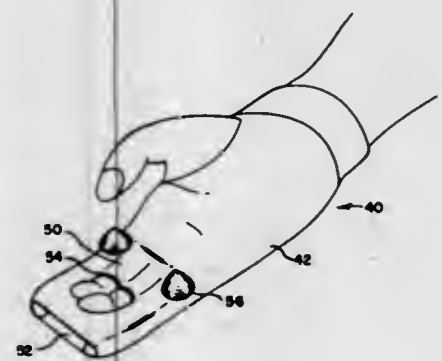
BOWLER'S FINGER SUPPORT AND BALL CONTROL DEVICE

William E. Gooch, 113 Willow Lane, Woodbridge, Va.
Filed Apr. 15, 1966, Ser. No. 542,849

Int. Cl. A63b 71/14

U.S. Cl. 273-54 B

2 Claims



This invention concerns bowling accessories, particularly finger supports and glove attachments which aid in the holding, controlling and releasing of bowling balls for improving performance. Supports for fingers inserted in bowling balls increase control and accuracy, avoid overtaxing hand and arm muscles, and augment gripping power of infirm persons. Knobs attached to the glove ensure proper grip to fully benefit from control provided by finger supports.

3,595,576

REPLACEABLE CUE TIP MOUNTING

Adolph T. Gunia, P.O. Box 20, Rt. 1, Antioch, Ill., and Andrew R. W. Mehringer, 1773 W. 33rd St., Chicago, Ill.
Filed Jan. 13, 1969, Ser. No. 790,668

Int. Cl. A63d 15/12

U.S. Cl. 273-70

5 Claims



A cue tip mounting for glueless attachment of a cue tip to the end of a cue stick, comprising a hollow ferrule adapted to receive the tip end of a cue stick, and provided with outwardly extending barbs constructed to be forced into the material of the cue tip, each barb having an enlarged head portion at its outer end terminating in a substantially knife edge, adapted to be interlocked with the material of such a cue tip, the barbs being symmetrically disposed in spaced relation with respect to the ferrule axis.

3,595,577

GOLF CLUB

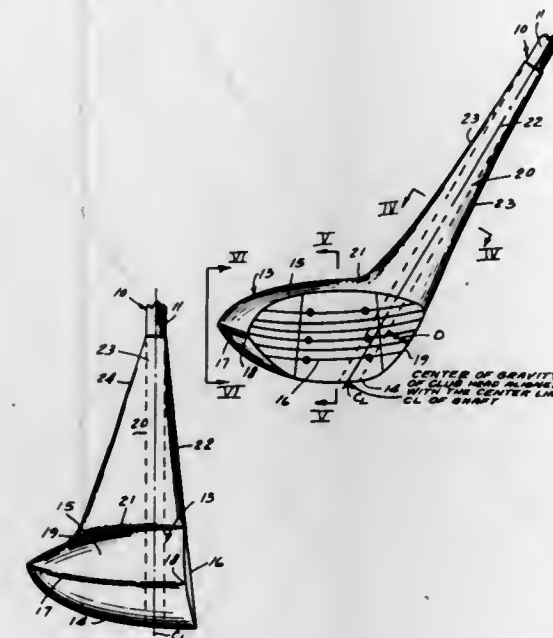
William R. Hodge, 6620 Calumet Ave., Hammond, Ind.

Filed July 24, 1968, Ser. No. 747,242

Int. Cl. A63b 53/04

U.S. Cl. 273-80 C

1 Claim



A golf club with a shaft entering the head near the heel but with the center of gravity in line with the shaft, a striking face extending on both sides of the shaft and an airfoil contour around the shaft, all contributing to a neutral stick effect eliminating twisting of the club during swing and impact with the ball.

3,595,578

BOOMERANG SHAPED PROJECTILE AND ROPE TARGET THEREFOR

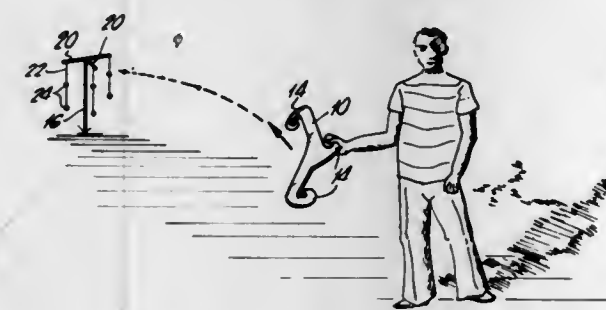
Michael J. Burcenski, 318 E. 12th St., Lockport, Ill.

Filed Feb. 2, 1970, Ser. No. 7,643

Int. Cl. A63b 67/06

U.S. Cl. 273-95 R

1 Claim



Members of generally boomerang shape but having outwardly extending hooks are adapted to be thrown by players at a spaced fixed target whereby, if properly aimed and thrown, the member will hook onto the target. The target includes a plurality of vertically extending lengths of rope supporting a plurality of vertically spaced balls.

3,595,579

ARROW SHAFTS WITH PLASTIC VANES AND METHODS OF FLETCHING

Alfred E. Benoit, 221 Whitney St., Northboro, Mass.

Filed Apr. 26, 1968, Ser. No. 724,430

Int. Cl. F41b 5/02

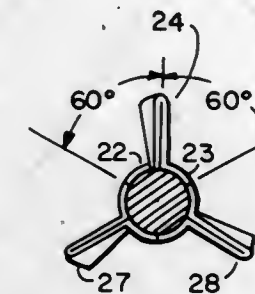
U.S. Cl. 273-106.5 C

11 Claims

An archery arrow is equipped with vanes made from a sheet of adhesive backed plastic material, each vane being formed from a section of a sheet of adhesive backed plastic material which is folded, so that both sides of the fold are

bonded together by the adhesive, except for strips at the ends thereof, by which the section is bonded to the arrow shaft, thereby providing vanes which are sufficiently flexible to bend and sufficiently resilient to return to shape after bending due to aerodynamic and mechanical forces normally encountered when the arrow is used.

The strips at the end of the folded sheet form flaps. The flaps of adjacent vanes are placed in abutting relationship so that when N vanes are used each vane subtends an arc of



360°/N about the periphery of the arrow shaft. The method of making and affixing the vanes includes the steps of cutting a section from a sheet of plastic material having an adhesive on one side, protected by a nonadhesive backing; removing the center portion of the backing to leave two edge strips; folding the section along the edges of the two strips to form flaps; folding the section along its centerline with the adhesive side in to form a double thickness vane; removing the remaining edge strips of backing and securing the vane to the arrow shaft.

3,595,580

CHECKER GAME APPARATUS

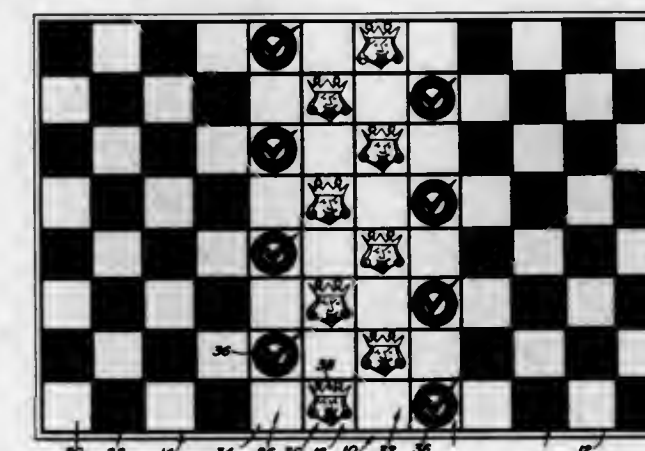
Edward P. Bucko, P.O. Box 5, Great Falls, Mont.

Filed May 1, 1969, Ser. No. 821,000

Int. Cl. A63f 3/02

U.S. Cl. 273-131 K

2 Claims



A checkerboard having at each end thereof diagonally arranged rows of white and black spaces so that each transverse and longitudinal row of spaces will have alternate black and white spaces thereon generally in the nature of a conventional checkerboard. Centrally of the board are four rows of spaces with the two outermost rows having specific indicia thereon and the outermost rows having different specific indicia thereon with the indicia in adjacent rows being staggered. Conventional distinguishably colored checker playing pieces are used for the end playing areas and crowned checkers are provided in the central two rows of the central area of the board, the lower parts of the checkers being of the same colors as the colors of the checkers used in the end areas, and the upper part of each checker being gold colored. By following prescribed rules of play, two or three players may employ the present invention.

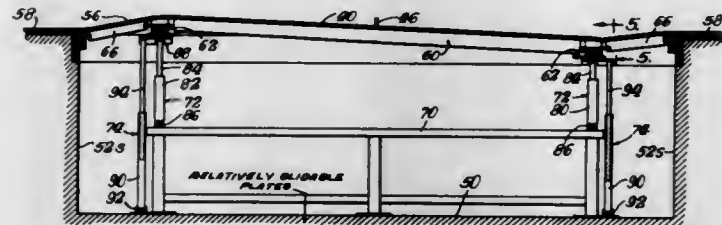
3,595,581 GOLF GREEN

Robert I. Anderson, Muskegon, and Paul R. Hoffman, Farmington, both of, Mich., assignors to Brunswick Corporation

Filed Oct. 5, 1966, Ser. No. 584,397
Int. Cl. A63b 67/02

U.S. Cl. 273-176 H

19 Claims



A contourable green for use in a golf game including a platform of sufficient rigidity to support one or more golfers and yet of sufficient flexibility to be distorted to a plurality of nonplanar forms. The platform includes an upper putting surface with a golf cup therein supported by two elongated flexible beams with a plurality of flexibly connected rigid cross-beams supported thereon. The beams comprise at least two abutting flexible plates adjacent a flexible walled partially restrained tube, whereby fluid pressure may be applied to the tube for rigidification of the beams. Apron members provide a pivotal connection between the platform supporting means and the floor. Included are at least two jacks secured to the underside of the platform at spaced locations for changing the contour thereof and stabilizers to prevent swaying movement of the platform. A selectively operable control for the jacks includes a cam surface with associated sensors whereby the jacks may be operated to distort the platform thereby providing a rolling, contoured putting surface.

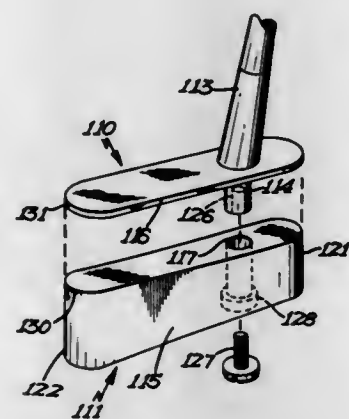
3,595,582 GOLF PUTTER

Loyal H. Chapman, 1801 Flag Ave. South, Minneapolis, Minn.

Filed Feb. 19, 1969, Ser. No. 800,417
Int. Cl. A63b 69/36

U.S. Cl. 273-183 D

5 Claims



A golf putter including on the upper surface thereof a plate having a straight forward edge which is angled relative to the striking face. The plate may overhang and obscure the striking face and be adjustably secured to the head at various inclinations relative the striking face so that the striking face assumes predetermined open or closed attitudes relative the line of approach between the putter head and the hole when the formed edge of the plate is normal to the line of approach. The plate may be secured to the head by magnetic attraction or by threaded securing elements. Cooperating indexing marks may be provided on the putter head and plate to facilitate adjustments.

3,595,583 TRAINING DEVICE

Jess Oppenheimer, 549 Moreno Ave., Los Angeles, Calif.

Filed Sept. 3, 1968, Ser. No. 756,932
Int. Cl. A63b 69/36

U.S. Cl. 273-191 R

6 Claims



A device for practicing a swing in which an elongate shaft is secured to extend forwardly of a person and a guy is pivotally secured to the shaft and to a forward portion of an instrument to be swung whereby to determine the arc of said swing.

In other embodiments, the arc is determined by guiding elements including laterally extending supports, guy lines secured, forwardly and rearwardly of the user, extendible lines, rigid frameworks and combinations thereof. The disclose structure may be used in games such as golf, baseball, tennis, bowling and the like.

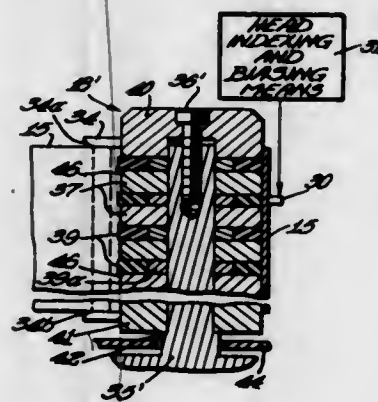
3,595,584 TRANSDUCER APPARATUS

Marvin Camras, Glencoe, Ill., assignor to IIT Research Institute, Chicago, Ill.

Division of Ser. No. 456,192, May 17, 1965, Pat. No. 3,449,528
Filed Feb. 7, 1969, Ser. No. 813,359
Int. Cl. G11b 5/00

U.S. Cl. 274-4

11 Claims



A video and/or audio magnetic transducer apparatus includes a capstan assembly formed with at least one annular groove therein and a compressible medium in the groove for nonrigidly backing a recording medium opposite a recording channel thereon. Adjustable stop means limit movement of a transducer head cooperable with the capstan when the head is in a cooperable operating position with respect to the recording medium for preventing damage thereto.

3,595,585 ROTARY SEAL ASSEMBLY

Barney C. Bristow, 233 Virginia Ave., San Mateo, Calif.

Filed Feb. 5, 1970, Ser. No. 8,972
Int. Cl. F16j 15/54

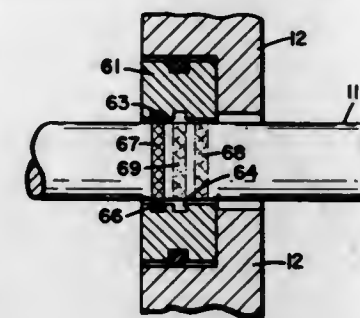
U.S. Cl. 277-58

10 Claims

Rotary seal assembly for forming a dynamic seal between a rotating shaft and a stationary housing. The assembly includes an insert member which carries an O-ring and is adapted to be mounted in the housing in a plurality of discrete positions. In each of these positions, the O-ring engages

a different portion of the shaft, thereby reducing the wear on the shaft and extending the life of the seal. A plurality of in-

terchangeable insert members can be used to spread the wear over additional portions of the shaft.



3,595,586

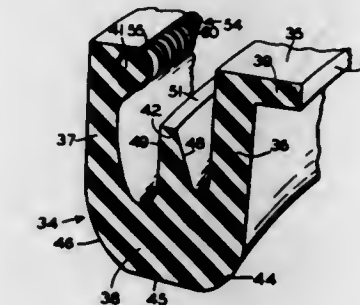
LUBRICANT SEAL FOR MAKING CYLINDRICAL OBJECTS

William R. Anderson, Perrysburg, Ohio, assignor to Anderson Associates Inc., Toledo, Ohio

Filed Sept. 10, 1969, Ser. No. 856,583
Int. Cl. F16j 15/32

U.S. Cl. 277-164

9 Claims



A seal between two relatively movable, telescopically interfitted cylindrical elements comprising a body of elastomer having a first flange embracing the outer surface of the inner element, a second flange embracing the outer surface of the outer element, and a helical spring having its convolutions closed upon itself and embedded in the elastomer in one of the flanges with the innermost portion of the convolutions exposed to engage the embraced cylindrical element. The seal has been applied to relatively rotating, right circular, cylinders such as the trunnions and bearing races of cardan-type universal joints as a grease seal and needle-bearing retainer.

3,595,587

PROTECTIVE SUPPORT FOR BALL BEARINGS

Dino Senigalliesi, Turin, Italy, assignor to RIV-SKF Officine di Villar Perosa S.p.A., Turin, Italy

Filed July 29, 1969, Ser. No. 845,828

Claims priority, application Italy, Aug. 7, 1968, 52751/A68
Int. Cl. B65d 53/00; F16c 33/78

U.S. Cl. 277-169

4 Claims



A protective support for a ball bearing comprises an annular resiliently pliable element which snaps into engagement

with the outer bearing ring and which has at least one circular lip on its inner edge for contacting the cylindrical surface of the inner bearing ring. The annular element is provided with a central radially deformable part which accommodates thermal expansion and prevents deformation of the element.

3,595,588

STATIC SEAL WITH FOIL LAMINATE

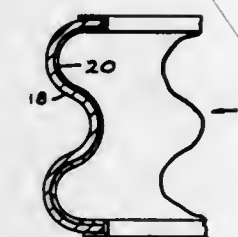
John E. Rode, Ligonier, Pa., assignor to Temper Corporation, Ligonier, Pa.

Filed July 14, 1969, Ser. No. 841,352

Int. Cl. F16j 15/08

U.S. Cl. 277-206 R

14 Claims



The invention pertains to a deformable metal seal having a base member imparting the shape and structural strength to the seal with a foil of softer material laminated with the body member to improve the sealing characteristics of the seal.

3,595,589

COMPOSITE GASKET

Thomas Knight Henderson, Beaumont, Tex., assignor to E.I. duPont de Nemours and Company, Wilmington, Del.

Filed Aug. 26, 1969, Ser. No. 853,153

Int. Cl. F16j 15/10

U.S. Cl. 277-235 B

5 Claims



A composite gasket consisting essentially of a resilient core in the form of an annular ring and a seamless plastic jacket covering and closely fitting the inner periphery and adjacent faces of the core. The core can be formed by an outer annular ring and an inner annular split ring or, alternatively, by two equal semiannular rings.

3,595,590

PISTON RING

Horst Beyer, Burscheid, Germany, assignor to Goetzwerke Friedrich Goetze Aktiengesellschaft, Burscheid, Germany

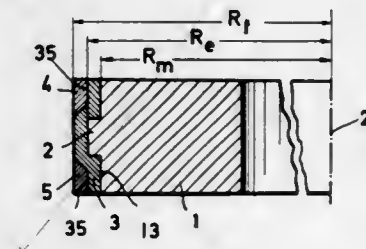
Filed June 23, 1969, Ser. No. 835,645

Claims priority, application Germany, June 21, 1968, P 17 51 573.0

Int. Cl. F16j 9/00

U.S. Cl. 277-235 R

9 Claims



The outer surface of a support ring is first provided with a protrusion, for example by grinding down protrusion-ad-

adjacent parts of the surface. Then the entire outer surface is coated with a hard chrome layer of substantially uniform thickness. Finally, depressions in the chrome are filled with molybdenum. The sliding-friction resistant properties of molybdenum are thus combined with the wear-resistant properties of chromium into a mechanical unit capable of withstanding rough usage.

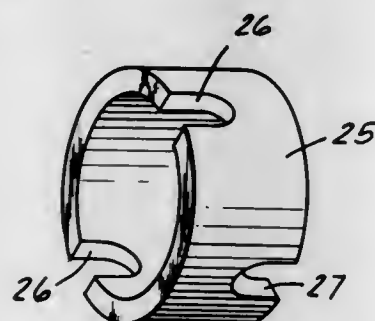
3,595,591 FLOATING TOOL HOLDER

Roland G. Koch, and Earl D. Brechtelsbauer, both of Frankmuth, Mich., assignors to Houdaille Industries Inc., Buffalo, N.Y.

Filed Jan. 22, 1969, Ser. No. 793,073
Int. Cl. B23b 31/08

U.S. Cl. 279-16

8 Claims



Nonrigid connection between the shank and nose portion of a toolholder for compensating for misalignment in parallelism between a workpiece and the toolholder. The shank and nose are connected by means of an annular driver having two pairs of diametrically opposed slots displaced 90° from one another, two pairs of dowel pins fixed to the shank and the nose, and two pair of rolls journaled on the dowel pins and engageable with the slots of the annular driver. The annular driver has a small amount of radial clearance with the shank and nose of the toolholder and is enclosed with a small amount of radial clearance in a hollow body having one end fixed to a flange on the shank and the other end flanged so as to radially overlap a flange on the nose, whereby the nose is retained in position on the shank.

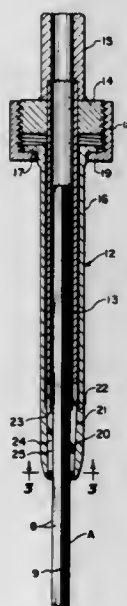
3,595,592 TOOLHOLDERS

Theodore R. Wagner, 257 Lansing St., Aurora, Colo.
Filed Feb. 5, 1969, Ser. No. 796,717

Int. Cl. B25g 3/24

U.S. Cl. 279-47

4 Claims



This toolholder has a specially designed collet in which the different shaped generally hexagonal, shanks of two different

tools, like an Allen wrench and a Bristol wrench, for example, can be mounted interchangeably for endwise adjustability.

3,595,593 COLLETS

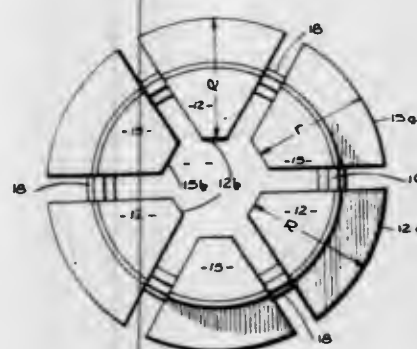
Derek Lawrence Gold, Cirencester, England, assignor to Gib Precision Limited, Barton Lane, Cirencester County of Gloucester, England

Filed Sept. 24, 1969, Ser. No. 860,697

Int. Cl. B23b 31/20

U.S. Cl. 279-57

3 Claims



A collet for use in gripping bars in machine tool operations, in which the bar-gripping jaws are spaced apart by spacing elements, themselves constructed as jaws applicable to the next largest size bar to be gripped.

3,595,594 MACHINE TOOL CHUCK

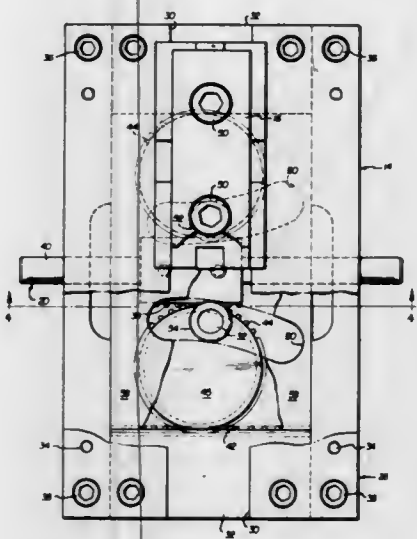
Orvil R. Aronson, 34 Newberry Place, Grosse Pointe Farms, Mich.

Filed Oct. 23, 1969, Ser. No. 868,822

Int. Cl. B25b 1/06

U.S. Cl. 279-117

8 Claims



A machine tool chuck of the two-jaw universal type which incorporates floating gears arranged between fixed and movable racks to reciprocate the chuck jaws to and from a workpiece clamping position. The floating gears are respectively drive connected to the jaws so that when an input force is applied to the movable racks and the clamping position is approached, the ratio between the input force and the output clamping force increases rapidly so that a substantial clamping force is imposed on the jaws for maintaining them in the clamping position. The clamping load is not imposed directly on the floating gears, but rather is transmitted directly to the massive chuck base. Clamping and unclamping motors provide the input forces for moving the jaws to and from the clamping position.

3,595,595

TOE IRON SAFETY SKI BINDINGS

Ludwig Axthammer, Schweinfurt, Germany, assignor to Hannes Marker, Garmisch-Partenkirchen, Germany

Filed Sept. 24, 1968, Ser. No. 761,972

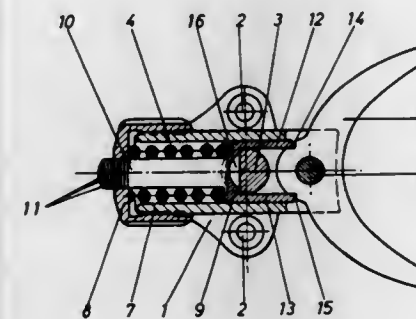
Claims priority, application Germany, Oct. 2, 1967, P 15 78

859.4

Int. Cl. A63c 9/85

U.S. Cl. 280-11.35 T

7 Claims



A soleholder carrier is mounted on a toe iron member that is fixed to the ski. The soleholder carrier is mounted on said toe iron member for rotation about a vertical pivot pin against the force of a helical compression spring and forms a stop, which is engageable by the toe portion of the boot and is so shaped that the boot will not be moved in the longitudinal direction of the ski, or will be moved only to a negligible extent in said direction, before the toe iron has reached its released position. The helical compression spring is mounted in a horizontal recess of the soleholder carrier and bears at one end on the carrier by means of an adjustable stop. The spring acts at the other end by means of a piston on a flat formed on the pivot pin. The piston is formed with a vertical recess at its end facing the pivot pin. The width of said vertical recess is smaller than the width of the flat formed on the pivot pin.

3,595,596

SAFETY SKI POLES PROVIDED WITH SNOWHEADS

Franz Xaver Bruckl, Krottenkopfstrasse 50, 8116 Eschenlohe, Germany

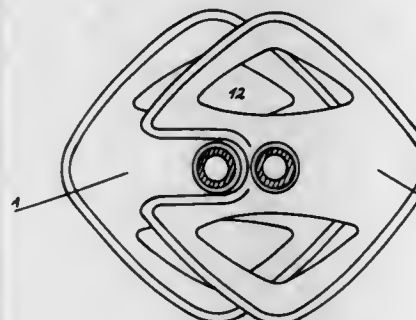
Filed Aug. 12, 1968, Ser. No. 751,956

Claims priority, application Germany, Aug. 17, 1967, P 15 78 728.7

Int. Cl. A63c 11/24

U.S. Cl. 280-11.37 Z

4 Claims



A pair of ski pole snowheads with one snowhead having a bore between the center and the outer edge of the snowhead with the other snowhead having elongated aperture extending inwardly from the outer edge of the snowhead. The diameter of the bore and the inside width of the aperture match the diameter of the ski pole tube adjacent to the snowhead.

3,595,597

VEHICLE LEVELLING SYSTEMS

Graham J. Wenham, Brimingham, England, assignor to Girling Limited

Filed June 4, 1969, Ser. No. 830,465

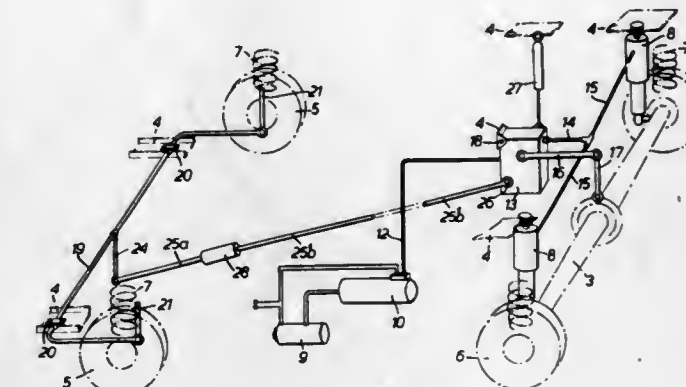
Claims priority, application Great Britain, June 5, 1968,

26,786/68

Int. Cl. B60g 11/26

U.S. Cl. 280-124

5 Claims



A vehicle suspension system of the kind in which the sprung mass of the vehicle is yieldably supported from road wheels adjacent the two ends of the vehicle and the support means associated with the road wheels adjacent one end include a fluid-pressure support device, the fluid pressure in that device being controlled automatically to compensate for variations in the loading of the vehicle by a levelling valve which is responsive to variations in the height of the sprung mass adjacent said one end of the vehicle; the position of the datum level from which the levelling valve measures the height of the unsprung mass is automatically adjusted in accordance with variations in the height of the sprung mass of the vehicle adjacent the other end thereof; the sprung mass of the vehicle can thus be kept level fore and aft.

3,595,598

TRAILER WITH UNITARY TIEDOWN CONTROL

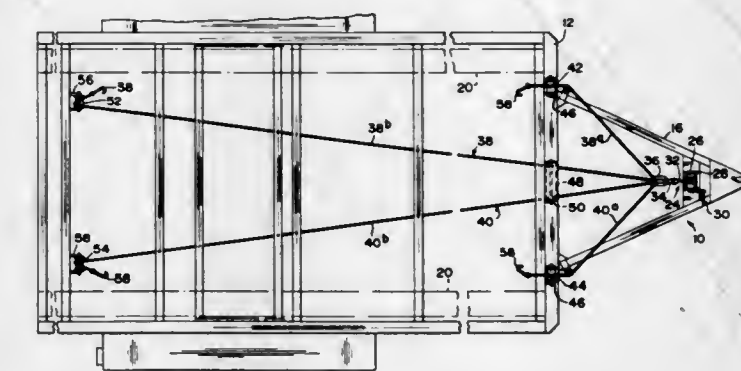
John N. Nuzum, Barberton, Ohio, assignor to Travel-Safe Trailer Mfg. Inc., Akron, Ohio

Filed Aug. 11, 1969, Ser. No. 849,058

Int. Cl. B60p 7/00

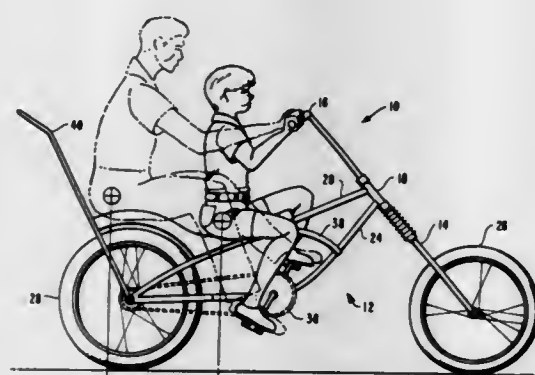
U.S. Cl. 280-179 A

3 Claims



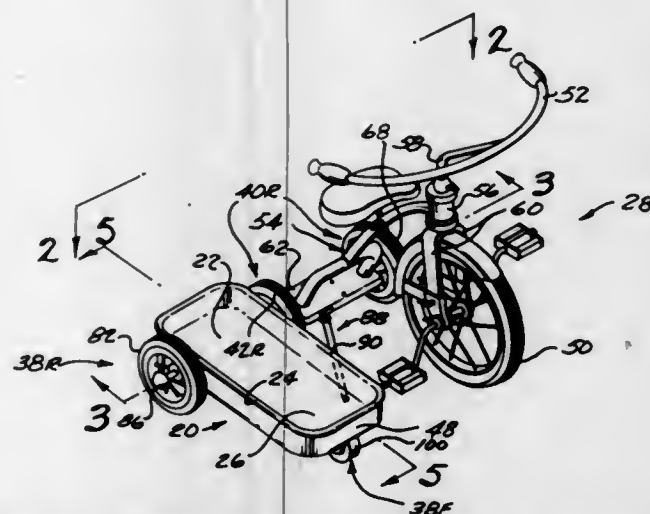
The trailer is adapted for vehicle transport and has a winch means on the frame for controlling windup of a control cable on the winch, an attachment means being secured to said cable, and a pair of control cables are threaded through or adjustably engaged with the attachment means. Guide means for the control cables guide opposite ends thereof to longitudinally spaced portions of the trailer to be adjacent end portions of a vehicle thereon, and engaging members are secured to each end of the control cables for engaging a vehicle and securing it to the trailer by a unitary tightening action on the control cables by takeup on the winch means.

3,595,599
BICYCLE TO ACCOMMODATE DIFFERENT SIZE RIDERS
 Michael Gale Black, 8401 Wheatland, Sun Valley, Calif.
 Filed Apr. 1, 1969, Ser. No. 812,090
 Int. Cl. B62k 3/02
 U.S. Cl. 280—282 4 Claims



The bicycle is characterized by an inclined front wheel fork and handle bar. The frame of the bicycle inclines downwardly from the front wheel fork toward the rear wheel. An elongated seat is fitted over the downwardly inclining frame and extends backwards rising arcuately over the rear wheel. In this way the seat has a double function in that the arcuate bottom surface of the seat over the rear wheel serves as a fender as well as a seat. With this arrangement, when smaller children ride the bicycle, they sit on the portion of the seat directly over the peddle. In this position the rearwardly inclined front wheel fork and handle bar puts the handle bar in close proximity to the arms of the child. Larger persons sit on the arcuate portion of the seat over the rear wheel and they are either directly over or slightly in back of the axis of the rear wheel to permit the rider to cause the front wheel of the bicycle to rise up by merely shifting his weight to the rear as he rides the bicycle.

3,595,600
AXLE EXTENSION APPARATUS FOR WHEELED VEHICLE APPARATUS
 Gerald K. Stevens, c/o P. O. Box 18948, Los Angeles, Calif.
 Filed Oct. 4, 1968, Ser. No. 765,257
 Int. Cl. B62k 27/00
 U.S. Cl. 280—203 13 Claims



The specification discloses axle extension apparatus for wheeled vehicle apparatus which, in one preferred form, may comprise a main wheeled vehicle and an auxiliary wheeled vehicle adapted to be attached so as to have a main axle of the main vehicle transversely substantially coaxially aligned with an extension axle of an auxiliary vehicle for simultaneous rolling movement and in a manner which is substantially rigid in a horizontal plane but provides vertical flexibility so as to allow the two-wheeled vehicles to have a limited extent of relative vertical pivotal movement with respect to each other as they simultaneously ride along an elevationally irregular terrain. In one preferred form, the main vehicle may comprise a tricycle and the auxiliary vehicle may comprise a tricycle sidecar, and connection and coupling frame means may also be provided connecting same together in a manner providing rigidity in a horizontal plane but limited vertical flexibility for the above-mentioned purposes. The apparatus is such as to make it possible to attach such an extension axle and tricycle sidecar to any tricycle either at the time of manufacture or subsequently.

CHEMICAL

3,595,601
DYE ADDITIVE FOR CELLULOSE ESTERS
 Charles L. Smart, Millington, N.J., assignor to Celanese Corporation, New York, N.Y.
 Continuation-in-part of application Ser. No. 526,005, Dec. 28, 1965, now Patent No. 3,454,349, dated July 8, 1969. This application Mar. 4, 1968, Ser. No. 710,354
 The portion of the term of the patent subsequent to July 8, 1986, has been disclaimed
 Int. Cl. D06p 3/42 15 Claims

U.S. Cl. 8—4
 Shaped articles of cellulose esters having improved dyeability and printability comprising a cellulose ester having incorporated therein a minor proportion of a vinyl acetate polymer having a molecular weight below about 15,000 and a process for producing said shaped articles.

3,595,602
NOVEL FIBER REACTIVE ULTRAVIOLET LIGHT ABSORBERS AND THEIR USE IN CELLULOSE TEXTILE MATERIALS
 John Christian Oppelt, Manville, Frederic Houghton Megson, Martinsville, and Michael Thomas Beachem, Somerset, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Original application Mar. 13, 1967, Ser. No. 622,396, now Patent No. 3,535,318, dated Oct. 20, 1970. Divided and this application Apr. 6, 1970, Ser. No. 31,053

Int. Cl. D06m 13/34, 13/30; D06p 5/08
 U.S. Cl. 8—74 6 Claims

This invention relates to new mono-aromatic-penta-alkyl ethers of hexamethylolmelamine and to their use in imparting crease-resistance to cellulosic textile materials. The new ethers of hexamethylolmelamine impart crease-resistance to cellulosic textile materials without any adverse effect on the light-fastness of such materials that have been dyed with direct dyes.

3,595,603
PROCESS FOR THE SIMULTANEOUS DESIZING, SCOURING AND BLEACHING OF FABRICS
 Giuseppe Cerana, Busto Arsizio, Italy, assignor to Roberto Cerana S.p.A., Busto Arsizio Varese, Italy

No Drawing. Continuation-in-part of application Ser. No. 496,586, Oct. 15, 1965, now Patent No. 3,377,131.

This application Feb. 12, 1968, Ser. No. 704,542
 Claims priority, application Italy, Feb. 27, 1967, 13,085/67

Int. Cl. D06l 3/02
 U.S. Cl. 8—111 1 Claim

In a method for simultaneously desizing, scouring and bleaching fabrics containing cotton fibers of the kind wherein the fabric is first impregnated at room temperature with an aqueous hydrogen peroxide containing solution and is subsequently treated with saturated steam, with hot water and with a mixture of hot water and steam, the invention proposes that the aqueous solution contain 2.5 to 8.5% by weight of hydrogen peroxide, as 35% aqueous solution, and 0.2 to 5% by weight of caustic soda of 36° Bé.

3,595,604
PROCESSES FOR WHITENING AND RETARDING SUNLIGHT YELLOWING OF PROTEIN FIBERS BY TREATMENT WITH A FLUORESCENT BRIGHTENING AGENT, THIOUREA, AND A SOURCE OF FORMALDEHYDE

Geoffrey William Evans, West Brunswick, Victoria, Australia, Adam Sinclair Inglis, Upton, N.Y., and Walter Ernest Savage, Jacana, Victoria, and Vincent Aloysius Williams, Belmont, Victoria, Australia, assignors to Commonwealth Scientific and Industrial Research Organization, East Melbourne, Victoria, Australia

No Drawing. Filed Oct. 3, 1967, Ser. No. 672,433
 Claims priority, application Australia, Oct. 4, 1966, 12,008/66

Int. Cl. D06m 3/02, 13/00
 U.S. Cl. 8—127.6 6 Claims

A process for whitening and reducing sunlight yellowing of wool, silk, and other protein fibers in which the fibers are treated with an aqueous solution containing a fluorescent brightening agent and subsequently treated with aqueous solutions of thiourea and a source of formaldehyde. The process may be combined with known bleaching, shrinkproofing, dyeing, and other textile fiber treatments.

3,595,605
PROCESS OF SURFACE SAPONIFYING CELLULOSE-2½-ACETATE, AND FABRIC MADE THEREFROM

Emil Kimmig, Freiburg im Breisgau, Germany, assignor to Deutsche Rhodiaceta AG, Freiburg im Breisgau, Germany

No Drawing. Filed Aug. 30, 1967, Ser. No. 664,291
 Int. Cl. D06m 1/06

U.S. Cl. 8—130 4 Claims

Cellulose-2½-acetate textile or knitted fabrics are made by wetting the raw materials; treating them at room temperature at a bath ratio of between 1:3 to 1:10 in a lye solution with slowly rising alkali content which is first raised up to only 2% of the material weight introduced. the lye solution is then heated to 80–100° C.; treating the product again in a lye solution with the alkali content being slowly increased to 4–5% of the introduced raw material weight, so that the saponification is only on the surface.

3,595,606
PROCESS OF INCREASING THE DYE RECEPTIVITY OF UNDYED POLYAMIDE

James P. Kimbrell, Jr., and Graham Chantrey, Decatur, Ala., assignors to Monsanto Company, St. Louis, Mo.

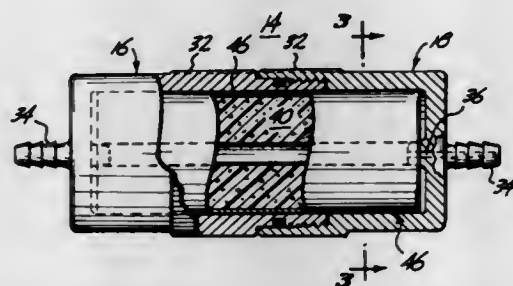
No Drawing. Filed May 1, 1967, Ser. No. 634,831

Int. Cl. D06m 3/30
 U.S. Cl. 8—130.1 8 Claims

A process of improving the dye receptivity of an undyed textile produced from a fiber-forming synthetic linear polycarbonamide having recurring amide groups as integral parts of the main polymer chain comprising contacting at a temperature of at least about 25° C. and for at least about one minute the article with a solution consisting essentially of a compound selected from pyridine and substituted pyridines and water at a weight ratio

of from about 95:5 to about 5:95, respectively, and then removing the pyridine or substituted pyridine compound from the article.

3,595,607
APPARATUS FOR ODORIZING AN AIRSTREAM
Kenneth W. Gores, Bellevue, Wash., assignor to Kirkman Laboratories, Inc., Portland, Oreg.
Filed Jan. 21, 1969, Ser. No. 792,374
Int. Cl. A611 9/04, 9/00
U.S. Cl. 21-74 3 Claims



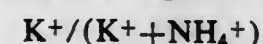
Apparatus is provided for imparting an agreeable odor to an airstream for the purpose of masking or neutralizing disagreeable odors that may be present or encountered. The apparatus comprises a casing consisting of two mating parts removably joined at the midpoint of the casing and having hollow stems at opposite ends thereof to permit operative coupling of the casing in a flexible air-handling conduit. Disposed within the casing is a porous body of cellular material substantially filling the casing and having a longitudinal air passage aligned with the hollow stems. Instanding bosses mounted on the casing interior orient the longitudinal passage into alignment with adit and exit openings formed by the hollow stems.

3,595,608
METHOD OF INCREASING RATE OF DISSOLUTION OF ALUMINUM IN ACID CHLORIDE SOLUTIONS
Michael J. Pryor, Woodbridge, Conn., assignor to Olin Mathieson Chemical Corporation
No Drawing. Original application July 26, 1967, Ser. No. 655,997. Divided and this application Feb. 2, 1970, Ser. No. 12,491
Int. Cl. C01f 7/56
U.S. Cl. 23-92 3 Claims

A method of increasing the rate of dissolution of aluminum in acid chloride solutions which comprises the steps of alloying the aluminum with from 0.04 to 0.5% of tin and then immersing the resultant alloy into the acid solution.

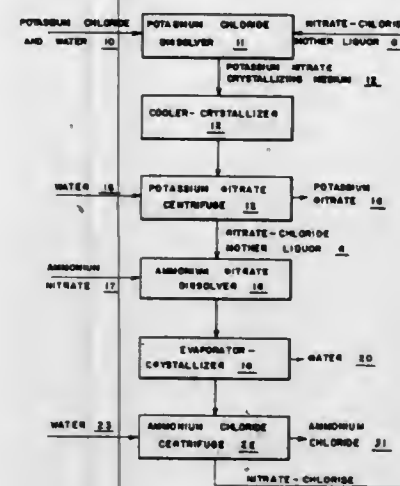
3,595,609
CYCLIC PROCESS FOR PRODUCING POTASSIUM NITRATE AND AMMONIUM CHLORIDE
Leland J. Beckham, Lutz, Fla., assignor to Allied Chemical Corporation, New York, N.Y.
Filed Oct. 13, 1969, Ser. No. 865,808
Int. Cl. C01c 1/16; C01d 9/10, 9/16
U.S. Cl. 23-100 10 Claims

Potassium chloride and water are added to a first aqueous nitrate-chloride mother liquor having a



mol ratio of not more than about 0.37 to form a potassium nitrate crystallization medium. The medium is cooled to precipitate crystalline potassium nitrate and form a second nitrate-chloride mother liquor. After separation of the potassium nitrate, ammonium nitrate is added to the second mother liquor, all added water is evaporated to form an ammonium chloride crystallization medium, and ammonium chloride is crystallized at a temperature higher than the potassium nitrate crystallization. The ammonium chloride is separated, and the residual mother

liquor is recycled to receive additional potassium chloride and water. The maintenance of a net balance of com-



ponents permits continuous operation of a cyclic metathesis operation.

3,595,610
MANUFACTURE OF AMMONIUM PHOSPHATES
Fred H. Brinkman and Robert E. Williams, Houston, Tex., assignors to Esso Production Research Company
Filed Nov. 14, 1968, Ser. No. 775,619
Int. Cl. C01b 25/28
U.S. Cl. 23-107 10 Claims

A process for the manufacture of an ammonium phosphate fertilizer wherein gypsum, phosphogypsum, anhydrite or a similar calcium sulfate is reacted with ammonium carbonate or ammonia and carbon dioxide to produce ammonium sulfate; the ammonium sulfate is contacted with a hydrogen ion exchange resin to form sulfuric acid which in turn is reacted with phosphate rock or the like to produce phosphoric acid; and this phosphoric acid is then used for regeneration of the ion exchange resin and the formation of ammonium phosphate.

3,595,611
CATION AND THERMAL STABILIZATION OF FAUJASITE-TYPE ZEOLITES
Carl Vance McDaniel, Laurel, Richard William Baker, Ellicott City, and Clark Ace Rundell, Silver Spring, Md., assignors to W. R. Grace & Co., New York, N.Y.
No Drawing. Filed Feb. 3, 1969, Ser. No. 796,215
Int. Cl. C01b 33/28
U.S. Cl. 23-111 5 Claims

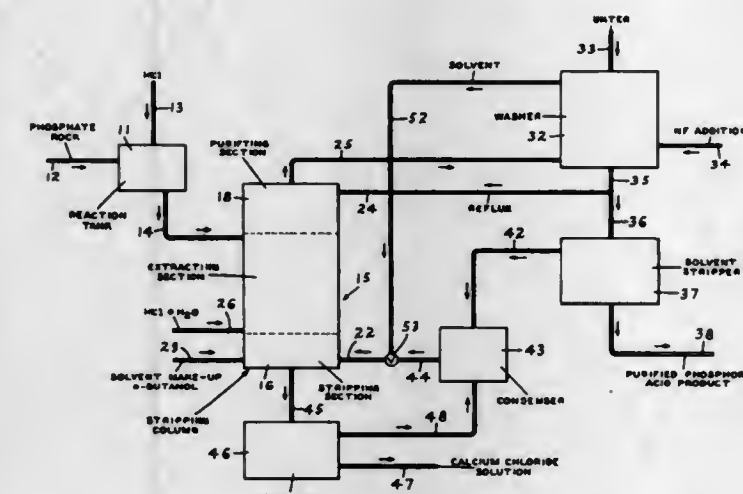
A process for preparing a faujasite type zeolite having a silica to alumina ratio of at least 3.2 by treating the faujasite with a combination ammonium ion exchange and metal cation exchange including rare earth to reduce the Na₂O level in the product to below 3% followed by thermal stabilization and a subsequent ammonium ion exchange. The resulting zeolite is characterized by high thermal stability and high catalytic activity and selectivity, particularly as a component in a hydrocarbon cracking catalyst.

3,595,612
PROCESS FOR PREPARING CHLORINE-FREE NITRIC ACID SOLUTIONS
Alfred Schmidt, Wolfgang Gauster, and Ferdinand Weinrotter, Linz (Danube), Walter Müller, Leonding, near Linz, and Günther Raab, Steyr, Austria, assignors to Österreichische Stickstoffwerke AG, Linz, Austria
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,964
Claims priority, application Austria, June 15, 1967, A 5,556/67
Int. Cl. C01b 21/46
U.S. Cl. 23-157A 6 Claims

Removal of practically all the chlorine content from nitric acid solutions by adding a small quantity of di-

nitrogen tetroxide after the bulk of the nitrosyl chloride has been driven off. Thus, severe corrosion problems are avoided.

3,595,613
PRODUCTION OF PHOSPHORIC ACID
William C. Klingelhoefer, Hopewell, Va., assignor to Allied Chemical Corporation, New York, N.Y.
Filed July 1, 1968, Ser. No. 741,706
Int. Cl. B01d 11/04; C01b 25/18, 25/22
U.S. Cl. 23-165 2 Claims



Recovering phosphoric acid from a reaction mixture produced by reacting hydrochloric acid with phosphate rock by mixing the reaction mixture with a lower aliphatic alcohol to form a first aqueous layer and a first organic layer which contains the phosphoric acid. The layers are separated and a water-soluble fluoride compound is added to the first organic layer. The organic layer is then washed with water to form a second aqueous layer and a second organic layer and the aqueous layer which contains the phosphoric acid is separated out.

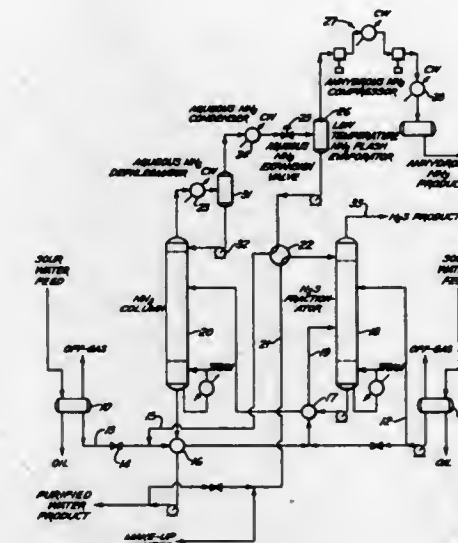
3,595,614
AMALGAM DECOMPOSITION
James M. Ford, Richard W. Ralston, and Walter J. Sakowski, Cleveland, Tenn., assignors to Olin Corporation
No Drawing. Filed Nov. 21, 1969, Ser. No. 878,927
Int. Cl. B01j 11/06, 11/22; C01d 1/00
U.S. Cl. 23-184 15 Claims

A method of decomposing an alkali metal amalgam by contacting it with water and graphite balls having a portion of their surface coated with an underlying ferrous metal and an overlying non-ferrous, amalgam-resistant metal. The decomposition reaction produces hydrogen, an alkali metal hydroxide with a concentration above 50% by weight, and mercury in which the sodium content is reduced to less than 0.01 percent.

3,595,615
RECOVERY OF HIGH PURITY AMMONIA AND HYDROGEN SULFIDE FROM AMMONIUM SULFIDES
Nicholas E. Kaparakos, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Mar. 26, 1969, Ser. No. 810,689
Int. Cl. C01b 17/16; C01c 1/00
U.S. Cl. 23-193 13 Claims

Process effluent solutions comprising aqueous hydrogen sulfide and ammonia are treated to recover the ammonia essentially free of hydrogen sulfide impurity. Hydrogen sulfide is first stripped from the solution and recovered essentially free of ammonia. Ammonia is then stripped from the aqua ammonia bottoms of the hydro-

gen sulfide stripping operation and is removed as an overhead stream together with water vapor and some hydrogen sulfide impurity. The overhead stream is first cooled somewhat to condense a portion of its water vapor content which returns to the ammonia distillation as reflux. The remainder of the overhead stream is then further cooled to effect total condensation and to react



substantially all the hydrogen sulfide impurity with ammonia to form NH₄SH or (NH₄)₂S salts, followed by flash vaporization with accompanying autorefrigeration. At the autorefrigeration temperature the vapor pressure of the salts is substantially nil so that the ammonia overhead of the flashing step is essentially free of hydrogen sulfide. The aqueous residue of the flashing step containing the salts is recycled to the hydrogen sulfide distillation.

3,595,616
METHOD OF PRODUCING CARBONYLS OF METALS OF THE VI AND VII GROUPS AND CARBONYL OF COBALT AND VANADIUM
Nikolai Alexandrovich Belozersky, Kirovsky prospekt 42b, kv. 36, and Olga Davidovna Krichvskaya, Ulitsa Vosstania 9, kv. 33, both of Leningrad, U.S.S.R.
No Drawing. Filed Sept. 20, 1968, Ser. No. 761,292
Int. Cl. C01g 1/04
U.S. Cl. 23-203C 3 Claims

A method of producing carbonyls of Groups VI and VII metals and also of cobalt and vanadium which comprises subjecting metals of Groups VI and VII, cobalt, vanadium or compounds thereof, to carbonylation in the presence of iron and/or nickel under superatmospheric pressure and at elevated temperature, followed by condensing the carbonyls of said metals from the resulting gas-vapor mixture while said mixture is being refluxed with liquid carbonyls of iron and/or nickel.

3,595,617
METHOD OF PREPARING SODIUM HYDRIDE
Jaroslav Vit, Vladimir Prochazka, and Oldrich Strouf, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia
No Drawing. Filed Apr. 23, 1968, Ser. No. 723,588
Claims priority, application Czechoslovakia, Apr. 28, 1967, 3,141/67
Int. Cl. C01b 6/04
U.S. Cl. 23-204 3 Claims

A method of producing sodium hydride by reacting sodium with hydrogen in the presence of a surface active agent which is an organic compound having 4 to 16 carbon atoms, one of said carbon atoms being a tertiary carbon atom bearing a single hydrogen atom which is activated by an activating group bonded directly to the tertiary carbon atom.

3,595,618

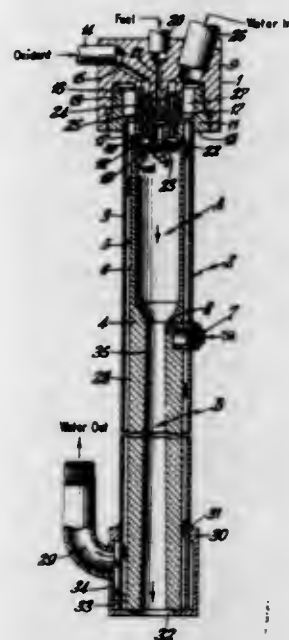
MANUFACTURE OF CARBON BLACK

Kazuo Kiyonaga, Newark, N.J., and George H. Smith, Sarasota, Fla., assignors to Union Carbide Corporation
Continuation-in-part of application Ser. No. 528,182, Feb. 17, 1966. This application July 22, 1969, Ser. No. 847,793

Int. Cl. C09c 1/50

U.S. Cl. 23—209.4

13 Claims



A process for manufacturing carbon black which consists of injecting a hydrocarbon feed material into a stream of very hot, high velocity combusted gases. The velocity must be greater than 1,000 feet per second, and the temperature 4,000° F.—6,000° F. The combusted gases are obtained by burning fuel with pure oxygen or oxygen enriched air. The process makes it possible to obtain channel grade carbon black by means of a furnace process.

ERRATA

For Classes 23—209 and 23—225 see:
Patent Nos. 3,595,965 and 3,595,966

3,595,619

SHIFT CONVERSION PROCESS FOR PRODUCTION OF HYDROGEN

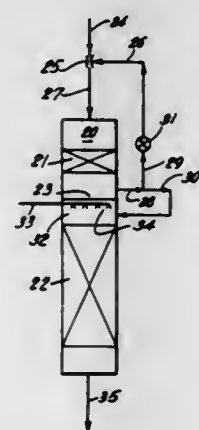
William L. Slater, La Habra, Calif., James R. Muenger, Beacon, N.Y., and Warren G. Schlinger, Pasadena, and Allen M. Robin, Claremont, Calif., assignors to Texaco Inc., New York, N.Y.

Filed Mar. 29, 1968, Ser. No. 717,240

Int. Cl. C01b 1/03

U.S. Cl. 23—213

14 Claims



In a steady-state continuous flow fixed-bed water-gas catalyst shift conversion reactor comprising a plurality of

separate catalyst beds in series at a temperature in the range of about 350° F. to 1050° F. and a pressure in the range of about 1 to 250 atmospheres, a gaseous feed stream comprising H₂O and CO is converted into H₂ and CO₂. A fraction of the effluent gas stream from the first catalyst bed in the reactor is recycled and mixed with a fresh feed stream of process gas e.g. synthesis gas to comprise said gaseous feed stream to the first catalyst bed. The residual fraction of said effluent gas stream is cooled and introduced into the second catalyst bed in the reactor. CO conversion is improved, process feed steam requirements are reduced, less catalyst is needed, undesirable back and side reactions are minimized, and the system is stabilized. Operating the system at high pressure also reduces overall catalyst requirements.

3,595,620

PREGNANCY DETECTION

Harry W. Gordon, Bronx, N.Y., assignor to Julius Schmid, Inc., New York, N.Y.

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,363

Int. Cl. G01n 21/06, 31/22, 33/16

U.S. Cl. 23—230

8 Claims

A method of in vitro pregnancy detection comprises contacting a urine sample of a female with a diagnostic composition consisting essentially of Bromocresol purple or Chlorophenol Red and observing the color produced.

3,595,621

CATALYTIC ANALYZER

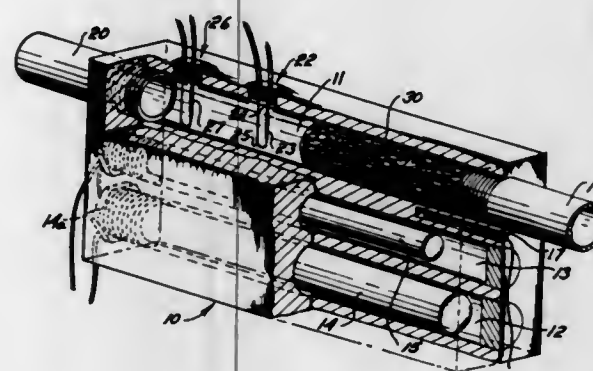
Anthony John Andreatch, 21 Hodge Road, Kendall Park, N.J. 08824

Filed Sept. 30, 1968, Ser. No. 763,625

Int. Cl. G01n 31/10, 31/12

U.S. Cl. 23—254E

7 Claims



A gas analysis technique and method of detecting the presence of certain constituents of a gas. A filament having a high thermal coefficient of conductivity is coated with an oxide catalyst and positioned in a gas stream to be analyzed. A heater supplies heat to the stream as it is passed to the catalyst coated filament and maintains the stream at temperatures at which the components of the stream to be detected react in the presence of the catalyst. Detecting elements coated with selective catalysts and made of tungsten filaments are disclosed.

3,595,622

CARBON BLACK REACTOR

Paul H. Johnson, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed May 12, 1969, Ser. No. 823,619

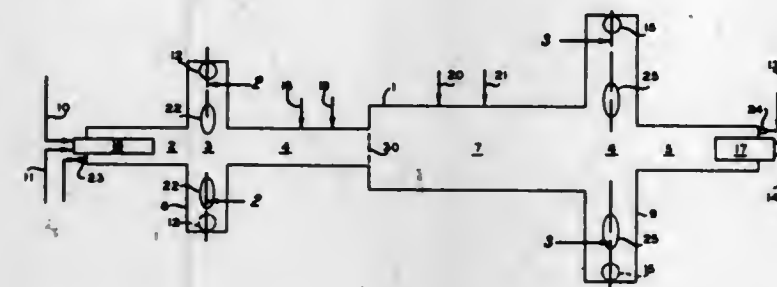
Int. Cl. C09c 1/50; C01b 31/02

U.S. Cl. 23—259.5

3 Claims

A unitary carbon black reactor constructed of two carbon black reactors connectively positioned in opposed

discharge, each being adapted proximate its feed introduction end for the introduction of carbon black-product-



ing reactants or, alternately, for the removal of carbon black produced in the opposed reactor.

3,595,623

APPARATUS FOR EXTRACTING FLAVORING ELEMENTS FROM VEGETABLE MATTER

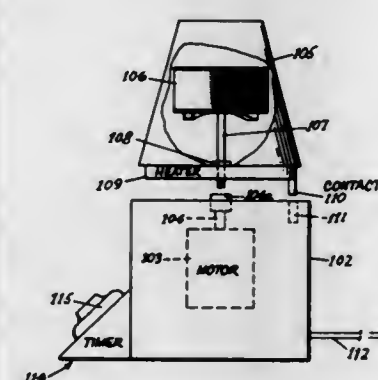
George S. Spertl, Burlington, Ky., assignor to Institutum Divi Thomae Foundation, Cincinnati, Ohio

Filed May 9, 1967, Ser. No. 637,277

Int. Cl. B01d 11/02; A23f 1/08

U.S. Cl. 23—269

5 Claims



The invention comprises a means for the extraction of flavoring elements from vegetable matter wherein a container for the vegetable matter is located in a surrounding vessel containing the desired amount of extracting liquid. The container has foraminous side walls and filtering means associated therewith. Means are provided for rotating the container within the vessel. Additional means are provided for drawing the extracting fluid from the vessel into the container where, by centrifugal force, the extracting fluid is caused to pass through the vegetable matter, the filtering means and the foraminous side walls of the container back into the vessel. Continuous circulation of the extracting liquid between the vessel and the container, through the vegetable matter, produces an excellent yield of flavoring elements from a minimum amount of vegetable matter in a minimum amount of time.

3,595,624

METHOD AND APPARATUS FOR WASHING CRYSTALLIZERS

David L. Bradfield, Westminster, Colo., Robert L. Curfman, Moab, Utah, and Richard Heine, Boulder, and Kurt W. Hirsch, Denver, Colo., assignors to Texas Gulf Sulphur Company, New York, N.Y.

Filed May 16, 1968, Ser. No. 729,708

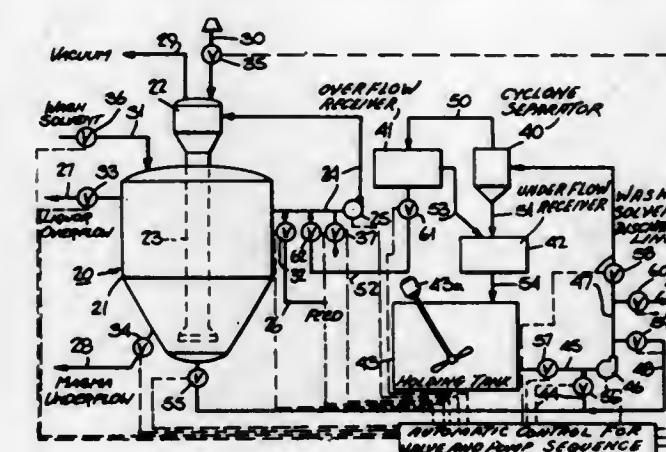
Int. Cl. B01d 9/00

U.S. Cl. 23—273

16 Claims

A method for removing soluble deposits on crystallizer surfaces is disclosed which includes the steps of (1) simultaneously draining magma from the crystallizer, separating the solids from the liquid phase of the magma, returning the liquid to the crystallizer to maintain the liquid level, and charging the solids to a holding tank; (2) then draining the liquid remaining in the crystallizer and charging

ing it to the holding tank; (3) next washing out the crystallizer with a suitable solvent for the soluble deposits and draining the crystallizer; (4) thereafter simultaneously draining the suspension retained in the holding tank from the tank, separating the solids from the liquid, feeding



the liquid to the crystallizer and returning the solids to the holding tank; and, (5) finally returning the solids remaining in the holding tank to the bottom of the crystallizer, whereby the crystallizer's contents are substantially restored to an on-stream condition. Apparatus for carrying out this process is also described.

3,595,625

CONTINUOUS CRYSTALLISING EQUIPMENT

John McNichol Bruce, Cumberland, England, assignor to Distington Engineering Company Limited

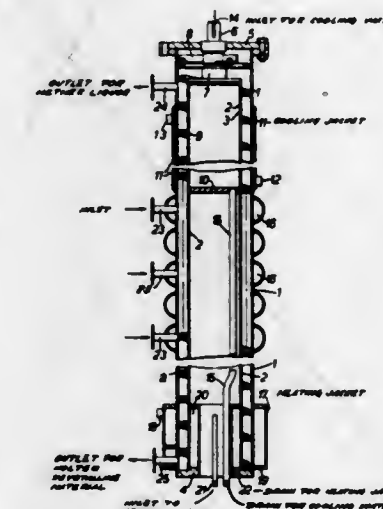
Filed Jan. 22, 1968, Ser. No. 699,427

Claims priority, application Great Britain, Jan. 27, 1967, 4,163/67

Int. Cl. B01d 9/04

U.S. Cl. 23—273F

10 Claims



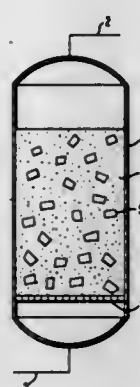
A continuous fractional crystallisation apparatus comprising an elongate annular vessel having inner and outer cylindrical walls forming between them an annular space, a helical member located within said vessel so as to surround said inner cylindrical wall and extending substantially the whole length of said annular space, and means for rotating said helical member about the major axis thereof within said annular space and relative to said cylindrical walls. The helical member is of composite construction and includes a plurality of co-extensive helical elements assembled together so as to be capable of movement relative to each other and so that a first one of said elements will rotate with a constant relationship to the wall surfaces defining said annular space while a second one of said elements rotates with a variable relationship to said wall surfaces.

3,595,626 CERAMIC FILLERS AND COVERS FOR PACKED BEDS

Donald M. Sowards, Claymont, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Nov. 14, 1968, Ser. No. 775,750
Int. Cl. B01j 9/04

U.S. Cl. 23—283

6 Claims



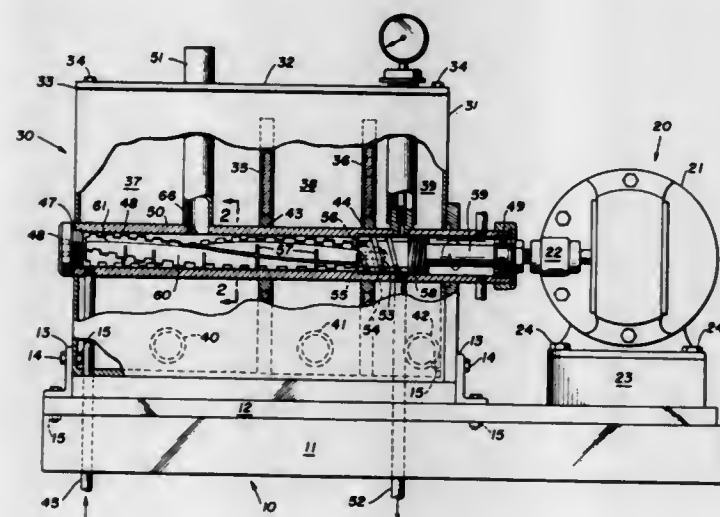
Ceramic honeycomb placed within or on top of a packed bed, and particularly a catalytic bed, improves the effectiveness of the bed.

3,595,627 CONTINUOUS CONDENSATION POLYMERIZATION FINISHER

James H. Abbott, Ballwin, Mo., Nick K. Harakas, Raleigh, N.C., and George A. Latinen, Springfield, Mass., assignors to Monsanto Company, St. Louis, Mo.
Filed Feb. 12, 1969, Ser. No. 798,627
Int. Cl. B01j 1/00; C08g 35/00

U.S. Cl. 23—285

8 Claims



A continuous polymerization finisher for removal within a brief holding time of reaction by-products such as water and low boiling organic substances eliminated during linear condensation of polyesters and polyamides. The continuous polymerization finisher comprises a substantially horizontal barrel with closed ends, means for heating said barrel, a supply inlet connected to one end of said barrel, an outlet connected to the opposite end of said barrel, at least one vacuum standpipe proximate the inlet, said standpipe being positioned tangentially to said barrel and disposed within a heating zone, a rotatable member mounted within said barrel proximate the outlet and located within said heating zone, an agitating shaft connected to said rotatable member, said shaft being provided

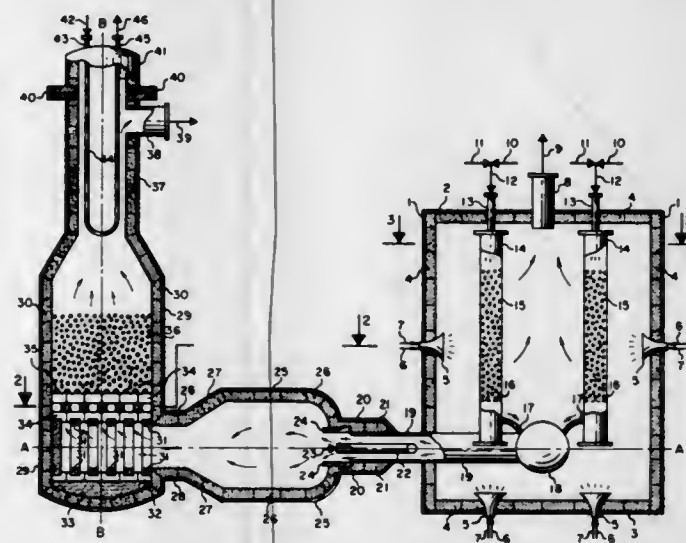
with a plurality of notched flights helixed at a predetermined angle, said shaft extending the length of said barrel, the notched flights having a rotatable sweep commensurate with the diameter of said barrel, a multiplicity of baffles secured to the notched flights, said baffles being spaced equal distances along the length of each of the flights, each of said baffles being attached along its length to said flights and having an arcuate trailing edge conforming to the radius of curvature of said barrel, and driving means for imparting rotation to said shaft.

3,595,628 APPARATUS FOR REFORMING HYDROCARBONS

John M. Connor, New York, N.Y., and Bernard C. Walton, West Orange, N.J., assignors to Chemical Construction Corporation, New York, N.Y.
Filed Nov. 26, 1968, Ser. No. 778,940
Int. Cl. B01j 9/04

U.S. Cl. 23—288

4 Claims



An improved secondary reformer is provided for use in conjunction with a primary reformer, for the catalytic conversion of fluid hydrocarbon by reaction with steam and air into a crude synthesis gas principally containing hydrogen carbon monoxide and nitrogen, which is suitable after further processing for usage in ammonia synthesis or the like. The apparatus features a separate refractory-lined reaction chamber for reaction of the primary reformer effluent gas stream with air, prior to passing the resulting intermediate process gas stream to secondary reforming. The primary reformer effluent transfer pipe, air inlet pipe, reaction chamber and transfer duct between the reaction chamber and the secondary reformer are coaxially aligned to provide uni-directional linear thermal expansion, which thus provides for stress-free operation of the apparatus combination.

3,595,629 PLUTONIUM AND NEPTUNIUM EXTRACTION PROCESS

Wallace W. Schulz, Richland, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 14, 1969, Ser. No. 850,150

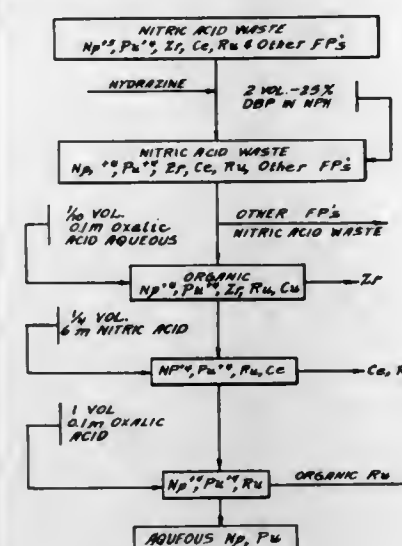
Int. Cl. B01d 11/04; C01g 56/00

U.S. Cl. 23—341

3 Claims

A process of separating plutonium and neptunium values from aqueous acid waste solutions containing these and other values by adding hydrazine to the aqueous waste solution to reduce selectively the neptunium to the tetravalent state and contacting the solution with a water immiscible organic solution of dibutylbutyl phosphonate to extract the tetravalent neptunium and pluto-

nium values plus zirconium, cerium and ruthenium values present. After separating the organic phase from the aqueous waste solution, the coextracted zirconium, ceri-



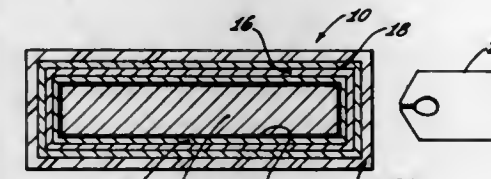
um and ruthenium values are scrubbed from the organic phase before stripping the neptunium and plutonium values with an aqueous oxalic acid stripping solution.

3,595,630 MAGNETIC STORAGE MEDIUM

George E. Wilhelm and Stanley S. Nagy, Studio City, and Moon T. Hahn, Santa Monica, Calif., assignors to Thin Film Incorporated, Los Angeles, Calif.
Filed Mar. 10, 1969, Ser. No. 805,573
Int. Cl. B32b 15/04

U.S. Cl. 29—195

12 Claims



A magnetizable storage member is formed from a substrate and thin layers deposited on the substrate. The thin layers include an element having properties of initially being non-magnetic and of becoming magnetizable when subjected to heat at a particular elevated temperature. A thin chemically inert layer is disposed between the thin magnetizable layers. The magnetizable layers may be nickel and the chemically inert layer may be gold. The magnetizable storage member is provided with magnetic properties corresponding to those provided by a storage member having iron oxide layers. A hard, thin, non-magnetic protective coating may be disposed on the storage member and may be made from a silicone.

The storage member is formed from the different layers discussed above and is then baked at the particular elevated temperatures to make the storage member magnetizable.

3,595,631 COMPOSITE ALUMINUM ALLOY

Irwin Broverman, Orange, Conn., assignor to Olin Mathieson Chemical Corporation
No Drawing. Original application Apr. 23, 1968, Ser. No. 723,629, now Patent No. 3,436,804, dated Apr. 8, 1969. Divided and this application Nov. 1, 1968, Ser. No. 794,445

Int. Cl. B32b 15/00

U.S. Cl. 29—197.5

3 Claims

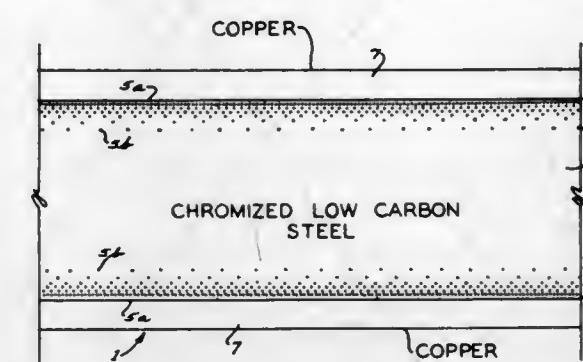
The disclosure teaches a composite aluminum alloy having high strength and good bright anodizing characteristics. The core is an aluminum base alloy containing from 2 to 10% magnesium, and the cladding is an aluminum base alloy containing from 0.01 to 2.5% magnesium.

3,595,632 CORROSION-RESISTANT COMPOSITE SHEET METAL MATERIAL

John W. Ross, Cumberland, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Sept. 23, 1968, Ser. No. 761,722
Int. Cl. B32b 15/00

U.S. Cl. 29—196.3

10 Claims



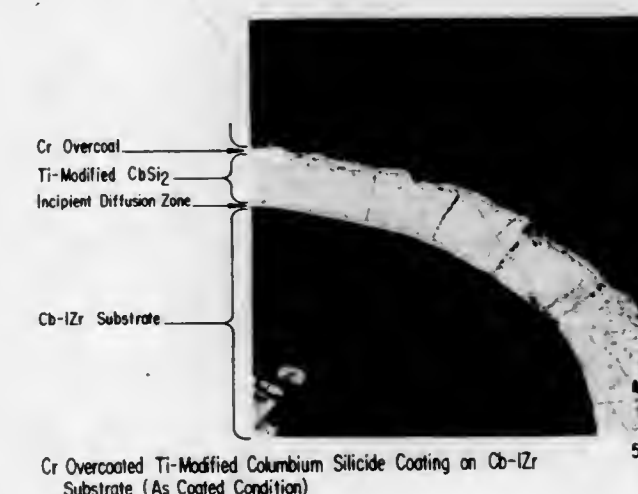
Composite sheet metal material for exterior sheet metal building products, such as gutters, downspouts, flashing, roofing, siding and the like, and resistant to corrosion, including galvanic corrosion, consisting of a core layer of chromized low carbon steel clad with copper.

3,595,633 COATINGS FOR HIGH-TEMPERATURE ALLOYS

Leonard A. Friedrich, West Hartford, and Emanuel C. Hrakis, Mansfield Center, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Apr. 14, 1964, Ser. No. 360,178
Int. Cl. B32p 3/00

U.S. Cl. 29—198

25 Claims



Columbium or its alloy having a titanium-modified columbium silicide coating has an overcoating of chromium on the silicide. The coating has high resistance to thermal and mechanical shock failure. The silicide coated columbium may be coated with chromium by surrounding the coated metal with a powdered pack of chromium and a volatilizable halide salt and an inert filler and heating to cause volatilization of the halogen in the halide salt.

3,595,634 ANTICORROSIVE GRINDSTONE

Kozo Sato, 89 Yamamoto-cho, Minami 3-chome, Yao, Osaka Prefecture, Japan
No Drawing. Continuation-in-part of abandoned application Ser. No. 650,662, June 22, 1967. This application Sept. 11, 1969, Ser. No. 857,233
Claims priority, application Japan, Sept. 22, 1965, 40/58,281

U.S. Cl. 51—298

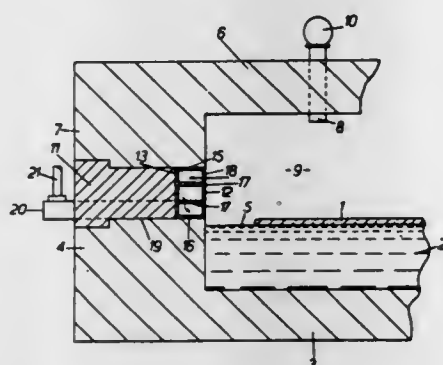
6 Claims

A method for producing a grindstone characterized by molding an epoxy resin binder with a hardening agent,

active sulphur and sodium nitrite. The novel grindstone is used to prevent rust and uneven finishing of a treated metal surface. The grindstone replenishes the loss due to hydrolysis of the grinding solution, thereby enabling the grinding solution to maintain its lubricating and anti-corrosive properties.

3,595,635 PROTECTIVE GAS SUPPLY SYSTEM FOR A GLASS FLOAT FURNACE

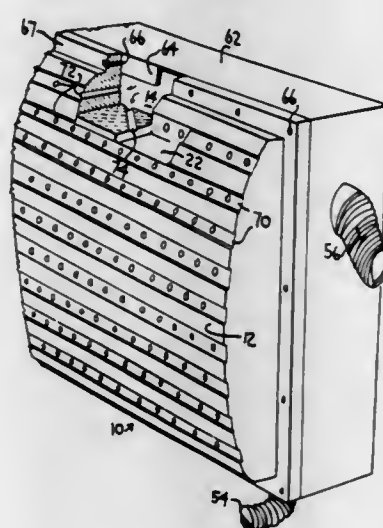
Frank Nixon, Billinge, near Wigan, England, assignor to Pilkington Brothers Limited, Liverpool, England
Filed Sept. 26, 1968, Ser. No. 762,736
Claims priority, application Great Britain, Nov. 15, 1967, 52,036/67
Int. Cl. C03b 18/02
U.S. Cl. 65—157 4 Claims



Protective atmosphere containing hydrogen is supplied to the headspace over the molten metal bath in the float process for flat glass manufacture, and gases are withdrawn from the headspace at a controlled rate along an elongated path communicating with the headspace.

3,595,636 APPARATUS FOR SHAPING AND COOLING GLASS SHEETS

Richard V. Posney, Freeport, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed May 3, 1968, Ser. No. 726,331
Int. Cl. C03b 23/02
U.S. Cl. 65—287 5 Claims

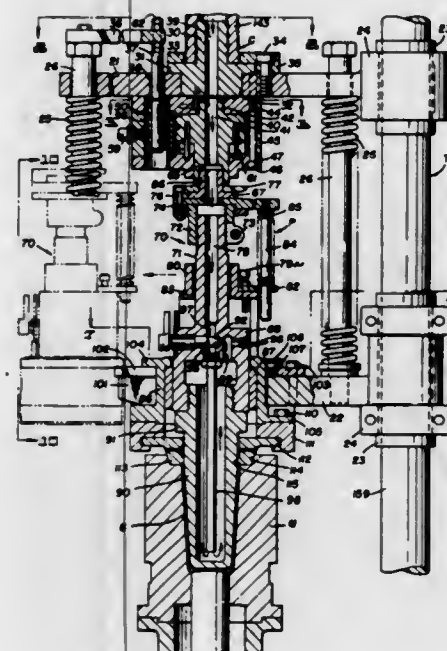


A mold for fabricating bent, tempered glass sheets having an apertured wall contoured to the shape desired for

the bent glass enclosing a fluid supply chamber characterized by spaced, elongated, shallow grooves and a row of apertures extending from the floor of said grooves through the rear surface of the contoured wall to deliver fluid under pressure into the chamber and thence through said apertures and grooves toward an adjacent glass sheet surface in a diffused state.

3,595,637 PLUNGER HEAD ASSEMBLY FOR USE IN A GLASS PRESSING MACHINE

John W. Eldred, James B. Legg, and Cecil W. McCreery, Columbus, Ohio, assignors to The Eldred Company, Columbus, Ohio
Filed Feb. 14, 1969, Ser. No. 799,481
Int. Cl. C03b 11/06
U.S. Cl. 65—318 15 Claims



A plunger head assembly mounted on a glass pressing or forming machine to cooperate with a press mold on the movable mold table thereof, the mounting being such that quick removal and replacement of the plunger head is possible. Also, it is provided with means permitting self-centering thereof relative to the mold with which it cooperates. In addition, the head assembly is such that the forming pressure for forming the glass charge in the mold is applied through actual rigid contact of relatively movable members of the assembly and after formation, the forming pressure is released and lesser but sufficient pressure is applied by fluid pressure means to maintain contact of the forming part of the plunger until the formed glass sufficiently cools and sets to retain its shape.

3,595,638 PROCESS FOR CONVERTING PETROLEUM COKE TO A NITROGEN CONTAINING FERTILIZER MULCH

William P. Doyle, Lagrangeville, Robert Y. Helsler, Wappingers Falls, and John A. Patterson, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed Nov. 24, 1969, Ser. No. 879,521
Int. Cl. C05f 11/02 9 Claims

Petroleum coke is converted to a product containing up to 12.3% nitrogen by ammoxidation of the coke followed by treating the ammoxidized product with concentrated nitric acid and neutralizing the resulting product with con-

centrated ammonium hydroxide. If the initial ammoxidation step is omitted a product containing around 7% nitrogen is obtained. The product will not harm plants and acts as a mulch after its nitrogen has been depleted. A micro-nutrient such as borax or a similar water-soluble salt can be added either during the ammoxidation or the neutralization steps to form a product which is both a micro-nutrient and a source of nitrogen.

3,595,639

TRIAZINYLAMINO SUBSTITUTED HERBICIDES

Paul J. Mason and William P. Moore, Chester, and Harry E. Ulmer, Hopewell, Va., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Sept. 4, 1968, Ser. No. 757,456

Int. Cl. A01n 9/22; C07d 55/20
U.S. Cl. 71—93 4 Claims

N,N'-bis[(2-chloro-4-alkylamino-6-s-triazinyl)amino]-dimethyl ethers are prepared by reacting a 2-alkylamino-4-amino-6-chloro-s-triazine with formaldehyde in alkaline solution. The products are highly selective herbicides. The herbicides are particularly useful because they will selectively destroy weeds in both corn and wheat crops, making possible an initial crop of corn immediately followed by a wheat crop.

3,595,640

PROCESS FOR PRODUCING DISPERSION STRENGTHENED IRON POWDER

W. J. Dennis Stone, 253 Westcroft Ave., and David Stewart Hay, 355 Penn St., both of Beaconsfield, Quebec, Canada

No Drawing. Filed Oct. 17, 1968, Ser. No. 768,541

Claims priority, application Great Britain, Oct. 19, 1967, 47,742/67

Int. Cl. B22f 9/00, 3/12
U.S. Cl. 75—5AA 4 Claims

A finely divided natural hematite ore concentrate containing silica, alumina and other acid insoluble impurities is passed through a high intensity wet magnetic separator to remove impurities other than alumina, after which the purified, finely divided hematite is reduced in the presence of hydrogen at a temperature below the melting point of iron and the iron powder obtained with alumina uniformly dispersed therein is collected.

3,595,641

PROCESS FOR PREPARING INTERMETALLIC BERYLLIDES

Milton S. Roush, Claude R. Wheeler, and Muneo Fujii, Phoenix, Ariz., assignors to The Garrett Corporation

No Drawing. Filed Oct. 10, 1968, Ser. No. 766,612

Int. Cl. C22c 25/00
U.S. Cl. 75—5 5 Claims

Intermetallic beryllides are prepared by induction melting particles of beryllium and a refractory metal, which particles are larger than 50 mesh at a temperature of at least about 3000° F. under slight pressure of an inert atmosphere, processing the resulting melted ingot into a powder, treating the powder with an aqueous solution of a disodium salt of ethylenediaminetetraacetic acid having a pH between about 4.0 and 6.0 followed by sintering the powder to form a solid beryllide product.

3,595,642

PORTLAND CEMENT WITH IMPARTED REFRACTORY CHARACTER

Charles H. Miller, Balboa, Calif., assignor to Motus Chemicals, Inc.

Filed Sept. 24, 1968, Ser. No. 761,991

Int. Cl. E21b 33/13; C04b 13/02
U.S. Cl. 166—292 4 Claims

A refractory cement in which an aluminum silicate, having from about 15 to about 27 weight percent of an aluminum oxide content, is combined with an hydraulic cement to impart resistance thereto to high temperature changes. The refractory cement is particularly useful in cementing oil well casings.

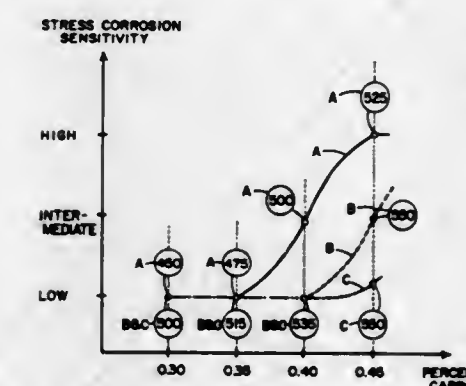
3,595,643

RAZOR BLADE OF A CHROMIUM CONTAINING STEEL

Joseph F. Boyce, Braintree, Mass., and Axel Vilhelm Bernstein and Jan-Christer Henric Oveesson Carlén, Sandviken, Sweden, assignors to Sandvikens Jernverks Aktiebolag, Sandviken, Sweden

Filed June 10, 1966, Ser. No. 556,691

Int. Cl. C22c 33/00
U.S. Cl. 75—126C 3 Claims



A razor blade made of a chromium stainless steel having good corrosion resistance and cutting properties and also a method forming such an article is disclosed. The steel contains .30-.45 carbon, 11-16 Cr, a member of the class consisting of tungsten and molybdenum wherein the amount of Mo may be .5-2.5% and W 1.0-5%, Si max. .70, Mn 1.5 max., 0-2% of V, Ta, Ti and Zr and 0-1% Co, Ni, Cu, Al, Be and B. The steel may be formed by cold rolling, hardening by heating to a range of 1000-1150° C. Subsequent tempering may be utilized.

3,595,644

HAFNIUM BASE ALLOY (CR-AL)

Vernon L. Hill, Niles, and Harry R. Nichols, Chicago, Ill., assignors to IIT Research Institute, Chicago, Ill.

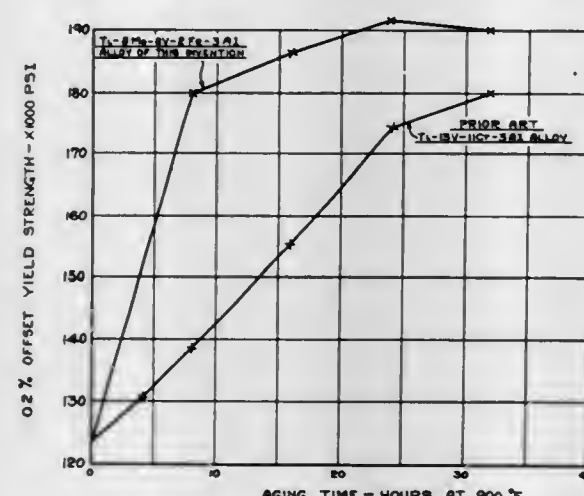
No Drawing. Filed Oct. 21, 1968, Ser. No. 769,399

Int. Cl. C22c 27/00
U.S. Cl. 75—134V 3 Claims

Hafnium base alloy containing between about 15 and about 35 weight percent tantalum and between about 0.5 and about 5 weight percent chromium. The alloy may

contain up to about 3.5 weight percent silicon and up to about 3.5 weight percent aluminum.

3,595,645
HEAT TREATABLE BETA TITANIUM BASE ALLOY AND PROCESSING THEREOF
 Donald B. Hunter and Harry W. Rosenberg, Henderson, Nev., assignors to Titanium Metals Corporation of America, New York, N.Y.
 Filed Mar. 16, 1966, Ser. No. 534,759
 Int. Cl. C22c 15/00
 U.S. Cl. 75—175.5 5 Claims



A titanium base alloy consisting essentially of about 7 to 9% each of molybdenum and vanadium, 1.5–2.75% iron, 2.5 to 3.5% aluminum and the balance titanium.

3,595,646
METHOD OF TREATING PHOTOCONDUCTORS OF THE CADMIUM SERIES TO FORM ELECTROPHOTOSENSITIVE MATERIAL MANIFESTING PERSISTENT INTERNAL POLARIZATION
 Koichi Kinoshita, Narashino-shi, Japan, assignor to Katsuragawa Denki Kabushiki Kaisha, Tokyo-to, Japan
 Filed Aug. 19, 1968, Ser. No. 753,494
 Claims priority, application Japan, Aug. 22, 1967, 42/53,429
 Int. Cl. G03g 5/02, 5/08

U.S. Cl. 96—1.5 5 Claims
 An impurity is diffused, by firing, into the surface of photoconductive material of the cadmium series to form a thin surface layer containing deep trap levels whereby to obtain an electrophotosensitive material manifesting persistent internal polarization effect.

3,595,647
COPYING MATERIAL FOR USE IN HIGH-SPEED ELECTROPHOTOGRAPHY
 Akiyoshi Yasumori, Makoto Nakamura, Akihiro Toguchi, and Setsuo Soga, Tokyo, and Shizuya Shimizu, Numazu-shi, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan
 Filed Oct. 23, 1968, Ser. No. 769,872
 Claims priority, application Japan, Oct. 31, 1967, 42/69,991
 Int. Cl. G03g 5/00

U.S. Cl. 96—1.5 1 Claim
 A high-speed electrophotographic copying material comprising a support and a photoconductive layer formed of a binder and coated on one surface of said support, in which the binder comprises a mixture consisting of (I) a copolymer produced by polymerizing one or more polymeric monomers containing nitrogen and one or more vinyl

monomers together and (II) one of the following; copolymer (1), mixture (2), and mixture (3):

- (1) a copolymer of (b) hydroxyethyl—(or metha)acrylate and (b-1) vinyl monomer having carboxylic acid radicals.
- (2) a mixture of (c) a copolymer formed from the above-mentioned carboxylic acid monomer and (c-1) the aforementioned vinyl monomer, and an organic acid anhydride,
- (3) a mixture consisting of the copolymer as described in (1) and the organic acid anhydride mentioned in (2).

3,595,648
POLY-N-VINYL-3-NITRO CARBAZOLE PHOTOCONDUCTIVE MATERIAL
 Kazuo Tubuko, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
 No Drawing. Filed Mar. 13, 1968, Ser. No. 712,590
 Claims priority, application Japan, Mar. 23, 1967, 42/17,651
 Int. Cl. G03g 5/06

U.S. Cl. 96—1.6 6 Claims
 An organic photoconductive material for use in electrophotographic copying paper, said material consisting essentially of poly-N-vinyl-3-nitrosocarbazole which is quite easily synthesized by introducing a nitroso radical into poly-N-vinyl carbazole, and also an electrophotographic copying paper prepared with a support paper and a light-sensitive layer which is formed with the aforesaid organic photoconductive material on one surface of said support paper.

3,595,649
ELECTROPHOTOGRAPHIC RECORDING PLATE FOR LITHOGRAPHY
 Sakae Shimizu, Kawasaki-shi, Junji Kurokawa, Yokohama-shi, Takayoshi Tanno, Tokyo, and Noriyuki Usui, Kawasaki-shi, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan
 No Drawing. Filed Mar. 25, 1968, Ser. No. 715,564
 Int. Cl. G03g 5/04, 5/08

U.S. Cl. 96—1.5 5 Claims
 An electrophotographic copying paper which is comprised of a support sheet, an intermediate layer formed on one surface of said support sheet with a water-soluble thermo-setting resin containing a hydroxymethyl radical, a photoconductive layer consisting of a photoconductive substance securely adhered to the upper surface of said intermediate layer by the use of a thermosetting resin having a hydroxyethyl radical and a carboxyl radical, and a layer of low electric resistance provided on the reverse surface of said support sheet, serves as a highly satisfactory recording plate for lithography.

3,595,650
PHOTOCONDUCTIVE COATING COMPOSITIONS, REPRODUCTION MATERIALS MADE THEREWITH, AND REPRODUCTION PROCESSES
 Robert D. Holzinger, Homewood, Joseph E. Miller, Dolton, and Alexander S. Wolf, Chicago Heights, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio
 No Drawing. Filed Jan. 13, 1967, Ser. No. 608,992
 Int. Cl. G03g 5/08, 13/22

U.S. Cl. 96—1.8 21 Claims
 Electrophotographic coating compositions and coated substrates comprising a metallic oxide (e.g., zinc oxide) are prepared with an oil modified polycarboxy-polyol binder resin. The binder resin for dry development should have an acid value of 5–50, a hydroxyl value of 33–133 and a cure rate of 50–110 seconds at 200° C., and for liquid development an acid value of 5–50, a maximum hydroxyl value of 66 and a cure rate of 5 to 40 seconds at 200° C.

3,595,651
FILM COLOR TRANSPARENCY AND METHOD OF MANUFACTURE
 Hale M. Luig, Brookmont, Md.
 (4511 Sangamore Road, Washington, D.C. 20016)
 Continuation-in-part of application Ser. No. 562,439, June 28, 1966. This application Feb. 13, 1969, Ser. No. 800,825
 Int. Cl. G03c 5/00

U.S. Cl. 96—27 6 Claims
 Method for making film color transparencies from black and white originals wherein photographic films exposed through conventional photomechanical processes are masked and the gelatin coating on either side of the exposed photographic film is treated successively with nontoxic water soluble dyes by a rub-on technique. The method provides an inexpensive rapid and safe means for making film color transparencies.

3,595,652
DIFFUSION TRANSFER PRODUCT AND PROCESS HAVING SILICEOUS MATERIAL AND OPACITY PROVIDING MATERIAL IN THE EMULSION
 Leonard C. Farney, Melrose, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
 No Drawing. Filed Jan. 11, 1966, Ser. No. 519,955
 Int. Cl. G03c 5/54

U.S. Cl. 96—29 20 Claims
 Photographic product for forming a composite print viewable as a positive reflection print, the product including a light-sensitive silver halide emulsion and a light opacity-providing material in the same layer as the emulsion or in an overlying layer, wherein the layer containing the opacity-providing material further includes a siliceous material.

3,595,653
ACID-CONTAINING LACQUER FOR PLANOGRAPHIC PRINTING PLATES
 Hartmut Steppan, Wiesbaden-Dotzheim, and Fritz Uhlig, Wiesbaden-Biebrich, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
 Filed May 15, 1967, Ser. No. 638,646
 Claims priority, application Germany, May 18, 1966, K 59,297
 Int. Cl. G03f 7/02

U.S. Cl. 96—33 12 Claims
 Disclosed is an improvement of a known planographic printing plate lacquer comprising a water insoluble film-forming resin in solution in a solvent mixture containing about 40 to 80% by weight of a polyhydric alcohol, the improvement being the addition of about 0.05 to 10% by weight of an acid, other than oxalic, having a dissociation constant greater than 10^{-3} at 20° C.

3,595,654
PROCESS FOR PREPARING COLOR PROOFS
 Stephen R. Hawley, West Chicago, and Bernard M. Bartosch, Hoffman Estates, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
 No Drawing. Filed May 29, 1968, Ser. No. 732,823
 Int. Cl. G03c 5/00

U.S. Cl. 96—35 6 Claims
 Color proofs, colored facsimiles of a colored design which is to be printed on an article, are prepared by exposing a photographic film having a transparent base to an image of the design. The film is developed, but not fixed, and then contacted with an etching solution to remove the exposed areas of the emulsion layer. The

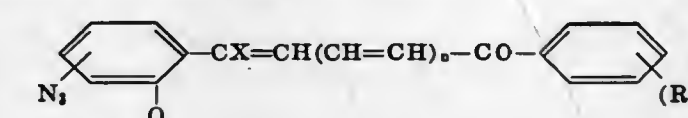
etched film is then fixed and coloring material applied thereto, the coloring material adhering to the non-etched (unexposed) areas of the emulsion.

3,595,655
NON-SILVER DIRECT POSITIVE DYES BLEACH-OUT SYSTEM USING POLYMETHINE DYES AND COLORLESS ACTIVATORS
 Ian D. Robinson, Auburndale, and Joanne C. Gerlach, Watertown, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.
 Filed Oct. 3, 1968, Ser. No. 764,661
 Int. Cl. G03c 1/72, 5/24

U.S. Cl. 96—48 20 Claims
 A direct positive, bleach-out photographic system suitable for photography and photocopy work. A polymethine dye and essentially colorless activator, supported in a binder, form the photosensitive system which is bleached out when exposed to a range of electromagnetic radiation extending from X-rays to the visible spectrum. The system is adapted to forming prints and transparencies in black and white, monochrome and full color.

3,595,656
REPROGRAPHIC MATERIALS CONTAINING A WATER-INSOLUBLE AZIDOCALCONE
 Hans Ruckert, Wiesbaden-Schierstein, Herbert Maar, Wiesbaden, and Walter Lüders, Neu-Isenburg, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
 No Drawing. Filed July 3, 1968, Ser. No. 742,141
 Claims priority, application Germany, July 7, 1967, P 15 97 614.4
 Int. Cl. G03c 1/52, 1/58

U.S. Cl. 96—49 31 Claims
 This invention relates to a reprographic material for the production of printing forms or other image-bearing products, the material including a layer containing at least one water-insoluble photosensitive azidocalcone compound of the general formula



in which Q is hydrogen or a substituent group, each R is a substituent group, X is hydrogen or halogen, $m=1$ or 2 and $n=0$ or 1, the azido group being in the 3- or 4-position of the benzene ring relative to the unsaturated chain, and one substituent group R may be linked with a further substituent group R of the same benzene ring or of the corresponding benzene ring of a second structure of the same kind.

3,595,657
NON-SILVER DIRECT POSITIVE DYE BLEACH-OUT SYSTEM USING INDIGOID DYES AND COLORLESS ACTIVATORS
 Ian D. Robinson, Auburndale, and Joanne C. Gerlach, Watertown, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.
 Filed Oct. 3, 1968, Ser. No. 764,744
 Int. Cl. G03c 5/24, 1/72

U.S. Cl. 96—48 13 Claims
 A direct positive bleach-out photographic system suitable for photography and photocopy work. An indigoid dye and activator, supported in a binder, form the photosensitive system which is bleached out when exposed to ultraviolet light.

3,595,658

NON-SILVER DIRECT POSITIVE DYE BLEACH-OUT SYSTEM USING POLYMETHINE DYES AND COLORED ACTIVATORS

Joanne C. Gerlach, Watertown, and Ian D. Robinson, Auburndale, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Filed Oct. 3, 1968, Ser. No. 764,662
Int. Cl. G03c 1/72, 5/24

U.S. Cl. 96—48

19 Claims

A direct positive bleach-out photographic system suitable for photography and photocopy work. A polymethine dye and a colored activator, supported in a binder, form the photosensitive system. Most of the combinations are bleached out when exposed to visible light. A few are sensitive to ultraviolet light and to X-rays. The system is adapted to forming prints and transparencies in black and white, monochrome and full color.

3,595,659

NON-SILVER DIRECT POSITIVE DYE BLEACH-OUT SYSTEM USING INDIGOID DYES AND COLORED ACTIVATORS

Joanne C. Gerlach, Watertown, Ian D. Robinson, Auburndale, and Kenneth D. Jordan, Walpole, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Filed Oct. 3, 1968, Ser. No. 764,766
Int. Cl. G03c 1/72, 5/24

U.S. Cl. 96—48

19 Claims

A direct positive bleach-out photographic system suitable for photography and photocopy work. An indigoid dye and a colored activator, supported in a binder, form the photosensitive system which is bleached out when exposed to visible light. A few are sensitive to ultraviolet light. The system is adapted to forming prints and transparencies in black and white, monochrome and full color.

3,595,660

METHOD OF PRODUCING PHOTOGRAPHIC IMAGES BY PHYSICAL DEVELOPING UTILIZING DIAZOSULFONATES

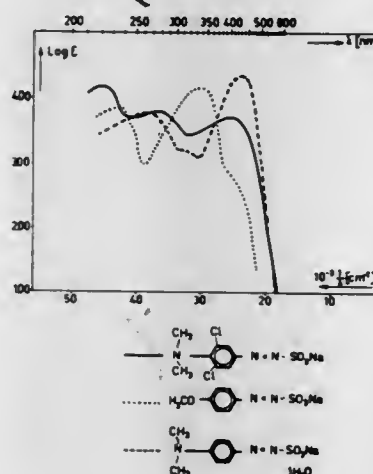
Leendert Klaas Hellings van Beek, Johannes Helfeierich, and Hendrik Jonker, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 27, 1968, Ser. No. 708,593
Claims priority, application Netherlands, Feb. 28, 1967, 6703133

Int. Cl. G03c 1/56, 1/62, 5/34

U.S. Cl. 96—49

8 Claims



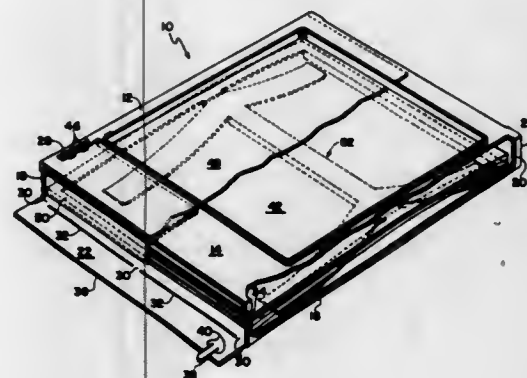
Benzenediazosulfonates having dissociation constants at a pH of 7.8 of not greater than 5×10^{-7} and molecular extinction coefficients at 435 nm. of at least 1000 employed in light sensitive layers used in the production of photographic images by the physical development of a latent mercury metal image.

3,595,661

PHOTOGRAPHIC FILM ASSEMBLAGENicholas Gold, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Dec. 16, 1968, Ser. No. 784,161
Int. Cl. G03b 17/26; G03c 3/00

U.S. Cl. 96—76

7 Claims



A photographic film assembly including a container having a wall with a light-transmitting section therein and a plurality of film units, each including a photosensitive area surrounded by a margin, stacked within the container, with the photosensitive areas located in alignment with the light-transmitting section. A support member is provided for engaging and supporting the film unit furthest from the light-transmitting section only at margins of the film unit and urging the film unit nearest the light-transmitting section against the wall in position for exposure to light transmitted through the light-transmitting section.

3,595,662

LIGHT-SENSITIVE MATERIAL

Jozef Frans Willems, Wilrijk, and Robrecht Julius Thiers, Brasschaat, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed Dec. 7, 1967, Ser. No. 688,670
Claims priority, application Great Britain, Mar. 6, 1967, 10,372/67

Int. Cl. G03c 1/34

U.S. Cl. 96—109

12 Claims

A light-sensitive material comprising a silver halide emulsion layer and containing a mercury(II) chelate of a (poly)amino-(poly)carboxylic acid in the form of the acid or a water-soluble salt is described. The chelate exerts a stabilizing and fog-inhibiting action upon the light-sensitive material without causing appreciable desensitization.

3,595,663

GELATIN EMULSION HARDENING COMPOSITION

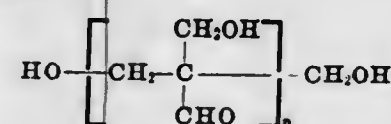
Salvatore Emmi, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y.

No Drawing. Filed July 15, 1968, Ser. No. 744,632
Int. Cl. G03c 1/30

U.S. Cl. 96—111

4 Claims

A gelatin emulsion hardener comprising a water soluble condensation product prepared by condensing acrolein and formaldehyde under alkaline conditions, and having the general formula:



wherein n is an integer from 1-5, inclusive. Delayed hardening is obtained by the use of the bisulfite adduct of the addition product.

3,595,664

PHOTOSENSITIVE CONDENSATION POLYMERS AND THE PROCESS OF MAKING SAMEJohn B. Rust, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Mar. 20, 1968, Ser. No. 714,532

Int. Cl. G03c 9/00, 1/68

U.S. Cl. 96—35.1

8 Claims

Method of producing transparent and colored resinous film by differential polymerization of compositions of polymerizable monomers and polymers from water-soluble and solvent soluble materials providing polymers derived from the condensation or combined addition and condensation reaction of (A) a formaldehyde material, (B) a photosensitive amide of an olefinic carboxylic acid or the photosensitive derivatives thereof, and (C) a cyanamide derivative as a member of the group consisting of thiourea, urea, guanidine and melamine, derivatives, and mixtures thereof, with or without (D) the soluble mono and polyvalent salts and salt reagents useful in photosensitivity, which compositions and polymers are photopolymerizable in the presence of a light activated catalyst to produce photopolymer masses by addition polymerization and simultaneously therewith or before or after condensation polymers are formed.

3,595,665

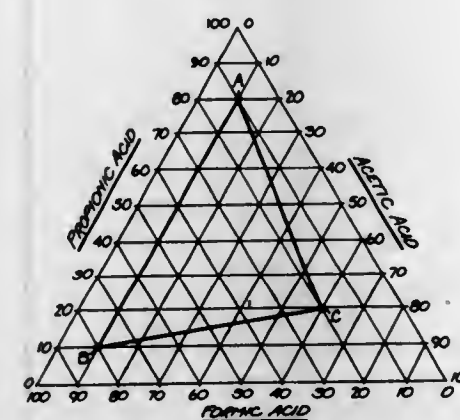
INHIBITION OF MOULD GROWTH ON CROPSJohn Jackson Hultson, Banstead, and Peter William John Watts, Beddington, England, assignors to BP Chemicals (U.K.) Limited, London, England
Filed Dec. 11, 1967, Ser. No. 689,678

Claims priority, application Great Britain, Dec. 23, 1966, 57,698/66

Int. Cl. A23k 3/00

U.S. Cl. 99—8

11 Claims



A = 10% Formic/10% Acetic/80% Propionic
B = 20% Formic/10% Acetic/70% Propionic
C = 20% Formic/60% Acetic/20% Propionic

Acetic acid, formic acid or binary and ternary mixtures of acetic, propionic and formic acids are used to prevent mould growth on crops and animal feedstuffs such as wheat and barley. The acid is preferably added in amounts 0.1 to 10% by weight of the dry crop, and may be added as an aqueous solution.

3,595,666

PROCESS OF INCREASING FAT-ABSORPTIVITY OF STARCH BY ENZYMATIC HYDROLYSIS

Herbert N. Dunning, Minneapolis, and Eugene H. Borochoff and Howard Olevsky, St. Louis Park, Minn., assignors to General Mills, Inc.

No Drawing. Filed Jan. 5, 1968, Ser. No. 695,831

Int. Cl. A23k 1/00

U.S. Cl. 99—10

2 Claims

A process for the improvement in shaping of a fat containing amylaceous food product by extrusion, said prod-

uct being normally not readily shapeable by extrusion under conditions conventionally employed in the food industry due to the effect of the fat on the food product as a whole; the process comprising the essentially simultaneous contacting of a fat containing amylaceous food product by an alpha-amylase and an amyloglucosidase to partially degrade the starch and the shaping by extrusion of the treated material.

3,595,667

SEAMING OR SEALING SYNTHETIC SAUSAGE CASINGS WITH ISOCYANATE ADHESIVE COMPOSITION

Albin F. Turbak and Henry J. Rose, Danville, Ill., assignors to Tee-Pak, Inc.

No Drawing. Application Nov. 26, 1968, Ser. No. 779,230, which is a continuation-in-part of application Ser. No. 718,343, Apr. 3, 1968. Divided and this application May 1, 1969, Ser. No. 821,067

Int. Cl. A22c 13/00

U.S. Cl. 99—176

7 Claims

A novel adhesive for sealing or joining sheets or films of regenerated cellulose or fiber-reinforced regenerated cellulose comprises a mixture of a polymeric polyisocyanate and an activator, such as a polyol or a reaction product of a polyol with ethylene oxide or the like, diluted to a suitable consistency with a volatile inert solvent. The coating composition may be used to seam sheets of regenerated cellulose or paper-reinforced regenerated cellulose into tubular form or in forming cemented end closures on tubes of regenerated cellulose or paper-reinforced regenerated cellulose. The adhesive composition is preferably applied in a very thin film and cured by heating at an elevated temperature, e.g. 300-320° F., for about 20-30 sec., more or less.

3,595,668

CONTINUOUS COFFEE ROASTING PROCESS

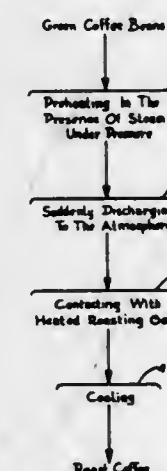
Lee Nutting, Berkeley, George S. Chong, Kensington, Jarrott T. Miller, San Mateo, and John G. McChesney, Tiburon, Calif., assignors to Hills Bros. Coffee, Inc., San Francisco, Calif.

Continuation-in-part of abandoned application Ser. No. 560,682, June 27, 1966. This application Dec. 22, 1969, Ser. No. 886,863

Int. Cl. A23f 1/02

U.S. Cl. 99—68

16 Claims



A continuous process for roasting coffee involving (1) the continuous and progressive preheating of green coffee beans in the presence of steam at 60 to 200 p.s.i. for 5 to 15 minutes to effect hydrolysis and partial roasting of

the beans, such preheating developing a characteristic flavor and aroma profile (as determined by gas chromatography) which, however, is not fully developed (as determined organoleptically following aqueous extraction) (2) the continuous and progressive discharge of the preheated beans to the atmosphere and (3) the immediate continuous and progressive roasting of the preheated beans in high velocity roasting gases at 450° to 575° F. for ½ to 15 minutes which effect fluidization of the beans together with further hydrolysis and controlled heating and drying of the same, such fluidized roasting completing the roasting process by fully developing the characteristic flavor and aroma profile developed during the preheating (as determined both by gas chromatography and organoleptically). Following the described preheating and roasting, the roasted beans can be (4) continuously and progressively cooled in high velocity cooling gases which effect fluidization of the roasted beans.

3,595,669

INSTANT COFFEE PRODUCT

Rudolf G. K. Strobel, Colerain Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Nov. 25, 1968, Ser. No. 778,758

Int. Cl. A23f 1/08

U.S. Cl. 99—71 11 Claims
Chelating agents are used as anti-scum and anti-foam additives for instant coffee. The chelating agents complex free polyvalent metal ions found in instant coffee dry components as well as the water used for reconstitution and thereby eliminate coffee cup scum and foam.

3,595,670

PROCESS FOR ALTERING THE MOISTURE ABSORPTIVE CHARACTERISTICS OF READY-TO-EAT BREAKFAST CEREAL

John F. Maloney, Jr., and Theodore W. Craig, Minneapolis, Minn., assignors to General Mills, Inc.

No Drawing. Filed July 31, 1968, Ser. No. 748,914

Int. Cl. A231 1/10

U.S. Cl. 99—83 6 Claims
A process for the treatment of a ready-to-eat breakfast cereal which comprises the addition of hydrophobic siliceous materials to the surface of the ready-to-eat breakfast cereal. The presence of hydrophobic siliceous materials on the surface of a ready-to-eat breakfast cereal will slow the absorption of milk, water or the like, by the breakfast cereal.

3,595,671

CONTINUOUS DOUGH-MAKING PROCESS AND COMPOSITIONS FOR USE THEREIN

Alfred Cooke and Harold G. P. Johansson, Montreal, Quebec, and Jacques R. Rolland, Longueuil, Quebec, Canada, assignors to Delmar Chemicals Limited, Ville La Salle, Quebec, Canada

Filed Feb. 11, 1970, Ser. No. 10,462

Int. Cl. A21d 2/28, 2/22, 2/04

U.S. Cl. 99—91 14 Claims
In a high-speed, continuous dough-making process, the need to prepare a conventional liquid fermentation brew is eliminated by including in the dough formula a prepared bakery additive composition containing defined amounts of a food grade sulfhydryl-containing reducing agent, a food grade antioxidant and an oxidizing improver. This substantially reduces the overall time required for the preparation of yeast-leavened products by an improved continuous dough-making process using standard continuous dough-making equipment in a much shorter time, and with greater flexibility and convenience than hitherto.

3,595,672

METHOD OF TREATING STRANDS OF SAUSAGE PRODUCTS

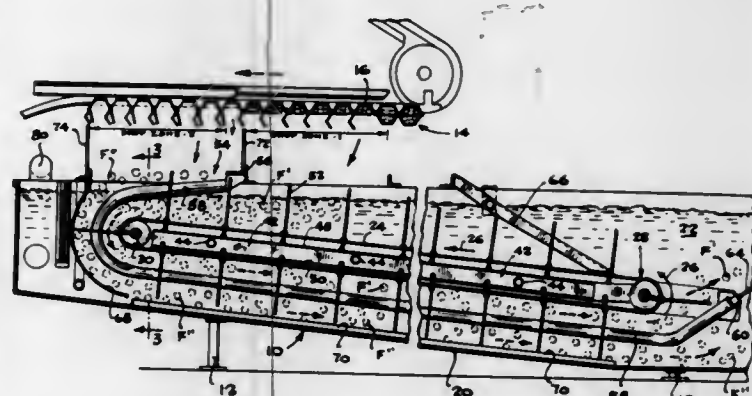
Miles S. Bajcar, Chicago, Ditlev Peder Madsen, Palos Park, and Vincent S. Sondej, Chicago, Ill., assignors to Chemetron Corporation, Chicago, Ill.

Original application Oct. 25, 1967, Ser. No. 678,011, now Patent No. 3,482,508, dated Dec. 9, 1969. Divided and this application May 27, 1969, Ser. No. 842,763

Int. Cl. A22c 11/00

U.S. Cl. 99—109

1 Claim



Apparatus having a grid which partially encircles a conveyor carrying spaced rows of pins that extend above and pass through the grid for positively moving discrete portions of a product through a treatment bath.

3,595,673

HARD BUTTER COMPRISING RANDOMLY ESTERIFIED TRIGLYCERIDES OF C₁₂ AND C₁₈₋₁₈ FATTY ACIDS

Paul Seiden, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Sept. 12, 1968, Ser. No. 759,530

Int. Cl. A23d 5/00; C11c 3/02

U.S. Cl. 99—118

3 Claims

Hard butter comprising randomly esterified triglycerides containing certain amounts of C₁₂ and C₁₈₋₁₈ fatty acids exhibits an extremely rapid change in solids content at temperatures downward of its complete melting point.

3,595,674

METHOD OF PREPARING A LIQUID SHORTENING

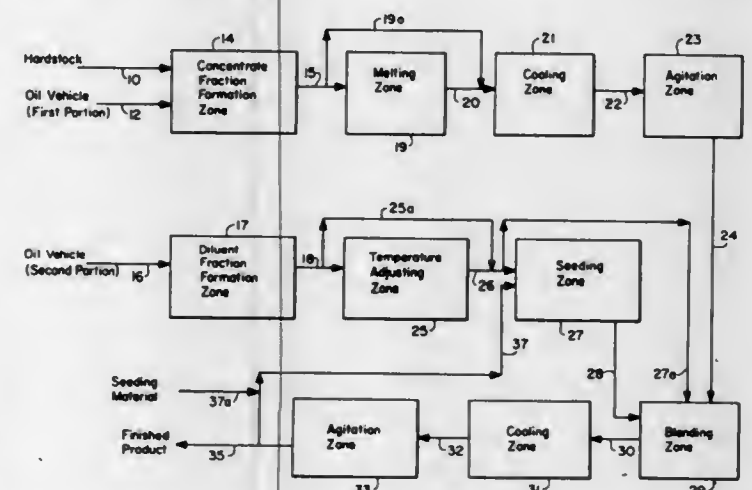
John R. Shaffer, Cincinnati, and Eddy R. Hair, Colerain Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 16, 1968, Ser. No. 784,042

Int. Cl. A23d 5/00

U.S. Cl. 99—118

10 Claims



An exceptionally stable liquid shortening suitable for use in continuous bread making, crouton making, and

doughnut frying is produced by a novel method. The method comprises forming concentrate and diluent fractions, separately processing each of these fractions, blending the processed fractions, and then processing the blend.

3,595,675

GELATIN COMPOSITION

Kenneth Owen Ash, Minneapolis, and George Christianson, Wayzata, Minn., assignors to General Mills, Inc.

Filed Nov. 21, 1966, Ser. No. 595,628

Int. Cl. A231 1/04

U.S. Cl. 99—130

8 Claims

Compositions comprising cold water soluble gelatin particles and spun sugar particles with the sugar particles being present in an amount of at least about two parts by weight for each part of the gelatin particles.

3,595,676

GELLING AGENT AND METHOD OF MAKING AND USING THE SAME

Arnold Langen, Haus Eitzweiler, and Henry Thiele, Wevelinghoven, Germany, assignors to Pfeifer & Langen, Cologne, Germany

Filed May 25, 1966, Ser. No. 552,839

Claims priority, application Germany, May 26, 1965, P 36,893; Dec. 1, 1965, P 38,243

Int. Cl. A231 1/04

U.S. Cl. 99—132

9 Claims

Preparing a granular composition suitable for making jams and jellies by finely grinding together equal portions of pectin and sugar, admixing this finely ground mixture with large wet sugar granules until the surfaces of the large sugar granules are coated with the finely ground pectin-sugar mixture. Fruit acid and powder may also be added along with the pectin-sugar mixture.

3,595,677

PROCESS FOR PRODUCTION OF CALCIUM 5'-NUCLEOTIDE ADDED FOOD

Emiko Hasegawa, Yono-shi, and Itaru Fukinbara and Taneo Nobukuni, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha

No Drawing. Filed June 27, 1967, Ser. No. 649,147

Claims priority, application Japan, July 1, 1966, 41/42,390; Dec. 9, 1966, 41/80,343

Int. Cl. A231 1/22

U.S. Cl. 99—140

11 Claims

A method of enhancing the flavor of food products containing phosphatase comprising admixing with said food at least one calcium salt of a 5'-nucleotide that has a particle size between 50 and 200 mesh and heat treating the mixture to deactivate the phosphatase contained therein, said heat treatment effecting dissolution of said salts whereby said salts remain substantially undecomposed by phosphatase in the food prior to said heat treatment.

3,595,678

METHOD OF STABILIZING MAILLARD REACTION PRODUCTS

Hideo Shimazaki and Shuji Tsukamoto, Kanagawa-ken, and Yasushi Komata, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Dec. 23, 1968, Ser. No. 786,462

Claims priority, application Japan, Dec. 27, 1967, 42/83,843

Int. Cl. A231 1/26

U.S. Cl. 99—140

4 Claims

The product of a Maillard reaction between an amino acid and a hexose or pentose is stabilized by hydrogenation under conditions severe enough to remove aldehyde groups without impairing the flavor or color of the product which make it suitable for use as a food additive.

3,595,679

TREATMENT OF BACON BELLIES

Walter S. Schoch, Western Springs, and Reese G. Lewis, Itasca, Ill., assignors to Armour and Company, Chicago, Ill.

No Drawing. Continuation of application Ser. No. 590,463, Oct. 31, 1966. This application Jan. 15, 1970, Ser. No. 4,169

Int. Cl. A23b 1/00, 1/04

U.S. Cl. 99—159

4 Claims

An improved process for preparing sliced bacon comprising the steps of curing and smoking bacon bellies in the presence of an edible polyphosphoric acid salt of an alkali metal, controlling the moisture content of the bellies so that the smoked and chilled weight thereof is less than about 103% of their green weight, and then slicing the bellies with a high-speed rotary slicing blade operating at a speed between 800-1400 revolutions per minute.

3,595,680

MACHINE AND METHOD FOR COATING FOOD PRODUCTS

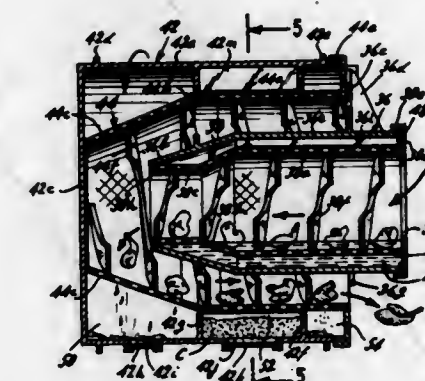
Leonard G. Fischer, College Point, Harold B. Kaufman, Jr., New York, and John P. McCarthy, College Point, N.Y., assignors to DCA Food Industries, Inc., New York, N.Y.

Filed May 8, 1969, Ser. No. 822,946

Int. Cl. A23b 1/10

U.S. Cl. 99—166

33 Claims



A machine and method for battering and then bread-ing food products wherein the machine comprises a rotary drum which includes a battering unit and a bread-ing unit arranged coaxially with each other, with the input end of the battering unit and the output end of the bread-ing unit being arranged at the same end of the rotary drum, such that the feed of the food product and the delivery of the battered and breaded food product is at the same end of the drum and wherein the rotary drum turns about a drum axis to progressively advance the food product through the battering unit and then through the bread-ing unit.

3,595,681

MICROBIAL STABILIZATION PROCESS FOR PRODUCE AND PRODUCT

Milton Kaplow, White Plains, and Joseph Hallk, Yonkers, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed Nov. 22, 1967, Ser. No. 684,952

Int. Cl. A23b 7/02, 1/04

U.S. Cl. 99—199

11 Claims

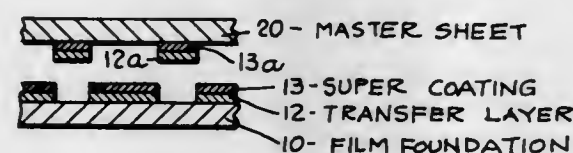
Microbial stabilization of produce is effected by the infusion of dehydrated produce having a moisture content of less than 20% with an aqueous polyhydric alcohol solution whereby the moisture level of the produce is increased to 20-40% and the polyhydric alcohol is caused to be present therein at a level of at least 5% of the total water soluble compounds present.

3,595,682
PROCESS FOR PREPARING A SMOKED BONELESS TURKEY ROLL
 Jack H. Lind and Henry M. Abrahamson, both of Aneta, N. Dak. 58212
 Filed Aug. 28, 1968, Ser. No. 755,847
 Int. Cl. A23b 1/04; A22c 21/00
 U.S. Cl. 99-229 4 Claims



A process for preparing a smoked, boneless, fully cooked ready to eat turkey roll which permits forming the roll using the turkey skin for a natural outer casing. The roll is held in a stretchable net during the cooking and smoking, but the net can be removed before sale.

3,595,683
PRESSURE SENSITIVE TRANSFER SHEET AND METHOD OF PRODUCING
 Douglas A. Newman, Glen Cove, N.Y., assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y.
 Continuation-in-part of application Ser. No. 677,539, Oct. 24, 1967. This application Sept. 12, 1968, Ser. No. 759,329
 The portion of the term of the patent subsequent to July 29, 1986, has been disclaimed
 Int. Cl. B41m 5/10
 U.S. Cl. 117-36.4 10 Claims



Process for producing novel transfer sheets having a flexible foundation carrying a pressure-transferable porous ink layer comprising a resinous binder material having dispersed therein a large amount of a porous filler and an incompatible liquid ink. The foundation has a smooth plastic release surface and the porous ink layer has thereon a frangible supercoating whereby the porous ink layer is rendered transferable under the effects of impact pressure to form squeeze-out type duplicating images on a master sheet.

3,595,684
ELECTROLESS COPPER PLATING
 John L. Morico, North Haven, and Howard W. Pender, Wolcott, Conn., assignors to Enthone, Incorporated, New Haven, Conn.
 No Drawing. Filed June 27, 1968, Ser. No. 740,486
 Int. Cl. B44d 1/092; C23c 3/02
 U.S. Cl. 117-47 14 Claims

A chemical reduction copper plating solution of improved stability comprising copper ions, formaldehyde as reducing agent for the copper ions, Rochelle salt is com-

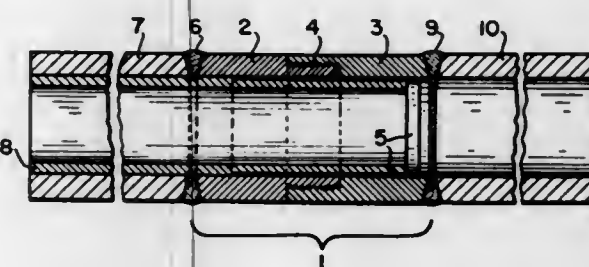
plexing agent for the copper ions, sodium hydroxide or potassium hydroxide, and additional methanol in amount to provide an excess of methanol sufficient to shift the equilibrium of a Cannizzaro side reaction in the direction of the reactants, the solution being free of an amine such as triethanolamine. By reason of (1) the excess of methanol sufficient to shift the equilibrium of the Cannizzaro reaction to the left, (2) Rochelle salt as complexer for the ionic copper and which appears to form a weaker complex with the ionic copper than EDTA, and (3) the absence of an amine such as triethanolamine or diethylamine from the solution and which is present in prior art electroless copper solutions, electroless copper plating solutions are provided of considerably longer life than those of the prior art and which effectively plate copper at materially lower solution temperatures than the temperatures required by the prior art electroless copper plating solutions.

3,595,685
METHOD FOR PREPARING SUEDE-LIKE MATERIAL
 Tosaku Maeda, Sadao Fujii, and Takeshi Nakamura, Kyoto, Japan, assignors to Nippon Cloth Industry Co., Ltd., Ukyo-ku, Kyoto, Japan
 No Drawing. Filed Dec. 27, 1968, Ser. No. 787,611
 Int. Cl. B44d 1/44; D06n 3/04
 U.S. Cl. 117-63 4 Claims

A suede-like material is prepared by coating a fibrous substrate with a mixture consisting of a synthetic polymer having a hardness of 75 to 95, a solvent for said polymer miscible with water, and 0.5 to 7 parts by weight of non-deliquescent 50-400 mesh powders soluble in water but insoluble in the said solvent, per one part of said synthetic polymer, exposing the coated substrate to a high moisture atmosphere to coagulate the polymer, dipping the fibrous substrate into water to extract the solvent and powders from the coated film and buffing the surface of the film with a buffing machine.

The present suede-like material is water washable and has a moisture permeability, and no fingerprints are left on the surface of the material.

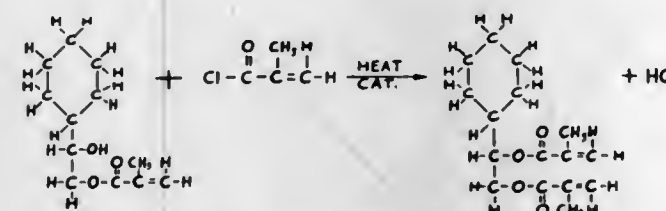
3,595,686
COATING A PIECE OF STEEL AND A PIECE COMPRISING ZIRCONIUM
 Marcel Armand, Michel Charveriat, and Jean-Pierre Givord, Albertville, France, assignors to Ugine Kuhlmann, Paris, France
 Filed Dec. 19, 1968, Ser. No. 785,175
 Int. Cl. B44d 1/06
 U.S. Cl. 117-71 2 Claims



A hydrogen resistant junction between pieces of zirconium or zirconium alloys and pieces of steel and a method of making same. The exposed surfaces adjacent the junction are coated with an alloy consisting essentially of Al, Si, Fe, Zr and alloying metals. The compatibility

of the alloy with both the zirconium or zirconium alloy piece and the steel piece enables the coating to be continuous and adherent to both.

3,595,687
DIVINYL COMPOUNDS FROM MONOEPOXIDES AND PAINTING PROCESS
 Santokh Labana, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.
 Filed Aug. 4, 1969, Ser. No. 865,543
 Int. Cl. B44d 1/50; C07c 69/52; C08f 1/24
 U.S. Cl. 117-93.31 21 Claims



A substrate is coated with a film-forming composition consisting essentially of vinyl monomers and a unique divinyl compound and the coating is converted to a tenaciously adhering, solvent-resistant, wear and weather-resistant coating by exposing the coated substrate to ionizing radiation, preferably in the form of an electron beam. This divinyl compound is formed by first reacting a monoepoxide with acrylic acid and methacrylic acid and subsequently reacting the resultant ester condensation product with a vinyl unsaturated acyl halide.

3,595,688
THERMALLY STABILIZED CELLULOSE MATERIAL PRODUCED BY TREATING CELLULOSE WITH MELAMINE IN COMBINATION WITH DIGLYCOLAMINE, DIMETHYL FORMAMIDE OR PIPERAZINE
 Fred S. Sadler, Racine, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis.
 No Drawing. Filed Mar. 27, 1969, Ser. No. 811,215
 Int. Cl. H01b 3/50, 3/52
 U.S. Cl. 117-136 10 Claims

A cellulose fiber material having improved thermal stability. The cellulose fiber material is treated with the combination of melamine and a compound selected from the group consisting of diglycolamine, piperazine, and dimethyl formamide. Treatment with this combination of ingredients enables the cellulose fibers to withstand deterioration by the action of heat over extended periods of time. The cellulose fiber material having improved thermal stability is useful as an insulator in electrical apparatus.

3,595,689
SUBSTRATE TREATED WITH A FLUORINE-CONTAINING AROMATIC COMPOUND
 Everett E. Gilbert, Morristown, N.J., Jack L. Herz, Syracuse, N.Y., and John J. Murray, Strling, Alton K. Price, Morristown Township, and Richard F. Sweeney, Randolph Township, Morris County, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
 No Drawing. Filed Apr. 1, 1968, Ser. No. 717,981
 Int. Cl. D06m 15/00
 U.S. Cl. 117-121 18 Claims

This specification discloses novel aromatic compositions containing two fluoroalkyl substituents each containing at least four perfluorinated carbon atoms. These compositions are prepared by reacting a phenylene diamine, aminophenol or dihydroxybenzene, substituted or

unsubstituted, with a polyfluoroalkyl carboxylic acid or a polyfluoroalkoxyalkyl carboxylic acid, or the corresponding acid halide, ester or anhydride of these acids. The novel compositions of the invention are useful as oil repellent coatings and sizes, particularly for textiles.

3,595,690
LEAD SULFIDE PHOTOCONDUCTIVE CELLS
 Raymond Cooperstein, Cincinnati, Ohio, assignor to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Sept. 19, 1957, Ser. No. 685,780
 Int. Cl. G03c 3/26, 1/00; H05k 3/00
 U.S. Cl. 117-211 7 Claims

1. The method of forming a photosensitive layer of lead sulfide crystals which comprises precipitating the crystals onto a glass support by adding a solution of thiourea to an alkali metal hydroxide solution of a lead salt, one of the solutions containing a water soluble manganese salt selected from the group consisting of manganese acetate, manganese nitrate, and manganese chloride, the lead salt being a water soluble salt selected from the group consisting of lead nitrate, lead acetate, lead chlorate and lead perchlorate, the concentrations in the solutions when first combined being as follows: lead between .05 and .06 molar, manganese between 5×10^{-5} and 5×10^{-4} molar thiourea between 0.15 and 0.3 molar, and hydroxide between .55 and .75 molar, immersing the glass support in the combined solutions to receive precipitated crystals of lead sulfide and then drying the surface.

3,595,691
PREPARATION OF PHOTOCONDUCTIVE RECORDING MATERIALS
 Karel Eugen Verhille and Robert Joseph Noe, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium
 Filed Apr. 26, 1968, Ser. No. 724,459
 Claims priority, application Great Britain, Apr. 26, 1967, 19,186/67
 Int. Cl. G03g 5/00
 U.S. Cl. 117-201 17 Claims

A porous photoconductive recording layer is obtained by dispersing inorganic photoconductive particles such as photoconductive zinc oxide in an organic solvent solution having dissolved therein a mixture of polymeric binding agents for the photoconductive particles which includes at least two polymers which are both insoluble in water at pH 7, are soluble to different extents, i.e., differentially soluble in the organic solvent solution, form a clear solution without noticeable turbidity when so dissolved, and are mutually insoluble in one another when in the solid state; coating the resultant dispersion on an appropriate support; drying the coating at a rate sufficient to precipitate at least a portion of one polymer prior to the precipitation of the other polymer; and then completing the drying of the coating. As a result of the preferential precipitation of the lesser soluble polymer, there results a dried coating structure containing random interconnecting microscopic cavities.

3,595,692
TELEPHONE CABLE HAVING APPLIED THERETO A TACKY SQUIRREL REPELLENT WHOSE ADHESIVE TACK EXCEEDS ITS COHESIVE TACK
 Oliver B. Gerrish, Kansas City, Mo., assignor to Southwestern Bell Telephone Company
 No Drawing. Filed Apr. 24, 1967, Ser. No. 632,896
 Int. Cl. B44d 1/16, 1/42; H01b 3/30
 U.S. Cl. 117-218 2 Claims

Protection of things from damage by squirrels, and other rodents, by coating the things with a sticky substance which, when stepped on by a squirrel, has insufficient cohesiveness to prevent the squirrel from freeing itself, but

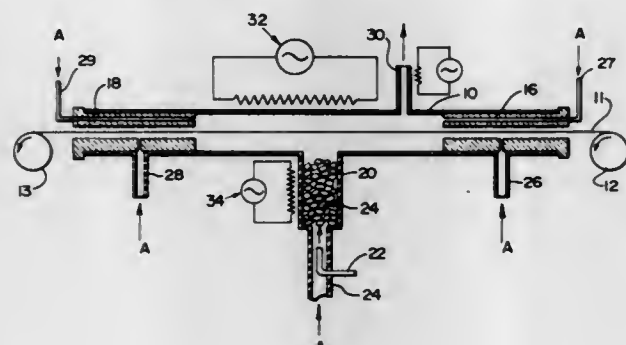
nevertheless sticks to the squirrel's tissue after he has freed himself, thereby teaching the squirrel to avoid all such things.

3,595,693 PROCESS FOR PRODUCING STABILIZED NIOBIUM-TIN SUPERCONDUCTOR

Peter C. Cecil, Holliston, Daniel F. Fairbanks, Winchester, and Daniel A. Reisner, Brockton, Mass., assignors to Norton Company

Filed Jan. 8, 1968, Ser. No. 696,468
Int. Cl. C23c 11/08, 17/12
U.S. Cl. 117—227

6 Claims



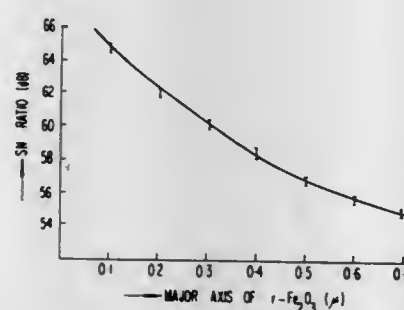
Superconductor, such as wire or strip, is coated with a thin strike coat of copper or other normal conductor metal, less than 50 microinches thick, by displacement reaction and then overcoated with normal conductor metal to stabilize the superconductor to produce a product characterized by highly adherent coating bond and to ease the problems of producing stabilized coatings on superconductors, particularly high field hard superconductors, such as niobium-tin.

3,595,694 MAGNETIC RECORDING TAPE

Norio Akai and Tomizo Taniguchi, Ibaraki-shi, Japan, assignors to Hitachi Maxell, Ltd., Osaka-fu, Japan

Filed Sept. 17, 1968, Ser. No. 760,233
Claims priority, application Japan, Sept. 18, 1968, 42/60,034
Int. Cl. H01f 10/02
U.S. Cl. 117—235

3 Claims



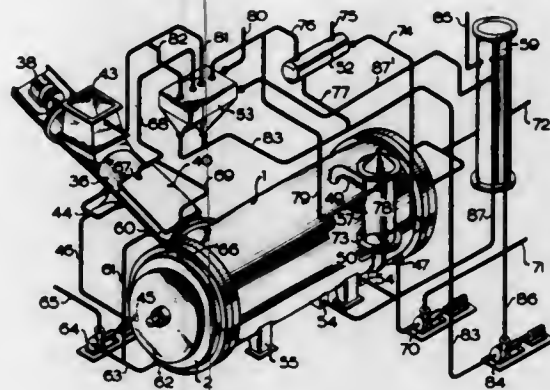
In a magnetic recording tape comprising a base film and a magnetic layer provided thereon, the improvement wherein the thickness of the base film and of the magnetic layer are respectively 38 to 42 microns and 12 to 8 microns, the magnetic material in the magnetic layer being needle-shape $\gamma\text{-Fe}_2\text{O}_3$ of 270 to 350 oersteds in coercive force, 0.1 to 0.3 micron in major axis length and 5 to 7 in major axis/minor axis ratio and the packing density of the magnetic material being not less than 1.7 g./cm.³. The noise and the print effect in the magnetic recording tape are much reduced.

3,595,695 METHOD AND APPARATUS FOR TREATING SUGAR BEET CHIPS

Eugen Langen and Heinrich Weddecke, Grevenbroich, Germany, assignors to Maschinenfabrik Buckau R. Wolf Aktiengesellschaft, Grevenbroich, Germany

Filed Dec. 4, 1969, Ser. No. 882,099
Claims priority, application Germany, Dec. 5, 1969, P 18 12 953.8
Int. Cl. B01d 11/02, 19/02; C13d 1/12
U.S. Cl. 127—5

22 Claims



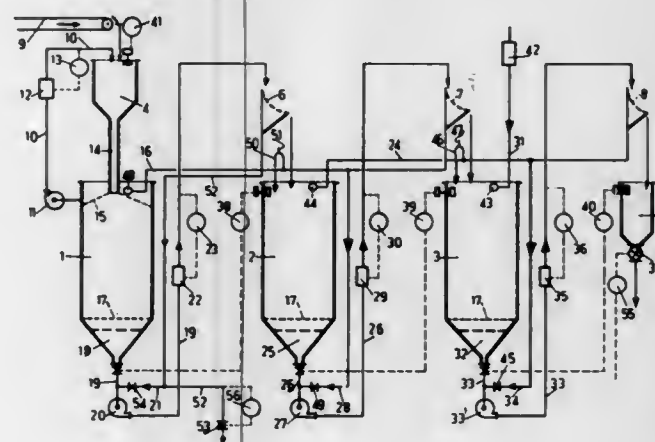
A stream of sugar beet chips is advanced from one end towards the other end of a substantially horizontal enclosed vessel. Air entrapped in the stream is withdrawn before it enters the vessel. A stream of sugar beet juice at elevated temperature is advanced through the vessel in counterflow to the stream of chips to thereby produce in the region of the upstream end of the vessel a counterflow zone. Intermediate this counterflow zone and the downstream end of the vessel chips and juice are continuously withdrawn and readmitted into the two streams to thereby produce a cross-current flow therein. In the same region additional sugar beet juice also at elevated temperature is admitted in cross-current flow. In the region of the downstream end of the vessel the treated chips, together with some of the incoming sugar beet juice, are withdrawn in form of a pumpable mixture or slurry.

3,595,696 CORN STEEPING PROCESS AND APPARATUS

Herman J. Vegter, Santpoort, Netherlands, assignor to Honig N.V., Netherlands

Filed Mar. 3, 1969, Ser. No. 803,893
Int. Cl. C131 1/02
U.S. Cl. 127—23

11 Claims



Corn and steeping liquor are continuously passed in opposite senses through a number of reaction vessels connected in series. In each vessel, the flow of corn and

liquor is concurrent. A corn-liquor mixture leaving each vessel is screened outside that vessel, whereupon the separated corn is passed to a next reaction vessel and the separated liquor to the preceding reaction vessel.

3,595,697 HERMETICALLY SEALED ELECTRIC BATTERY COMPRISING HERMETICALLY SEALED ELEC- TROCHEMICAL CONTROL CELL

Siegfried Dickfeldt, Hagen, Lutz Horn, Erlangen, and Freimut Peters, Hagen, Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany

Continuation of application Ser. No. 645,301, June 12, 1967. This application Apr. 30, 1970, Ser. No. 31,844
Claims priority, application Germany, June 15, 1966, V 31,253
Int. Cl. H01m 35/00, 43/04

U.S. Cl. 136—6

10 Claims

An electrochemical control device for use particularly in connection with storage batteries is formed of at least one hermetically sealed cell in which positive and negative electrodes are arranged including identical active mass so that the electrodes are of potentially changeable opposite polarity, whereby at the time of starting operation, the amount of reduceable material in the active mass of the electrode serving as cathode, measured in electrochemical equivalents, is greater than the amount of oxidizable material in the active mass of the electrode serving as anode, and wherein up to 40% of the combined amount of the active masses of the cathode and the anode, measured in electrochemical equivalents, is in reduced condition.

3,595,698 HYDRAZINE FUEL CELL WITH ACRYLIC ACID POLYMER MEMBRANE

Karl Victor Kordes, Lakewood, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Oct. 3, 1968, Ser. No. 764,965
Int. Cl. H01m 27/26

U.S. Cl. 136—86

5 Claims

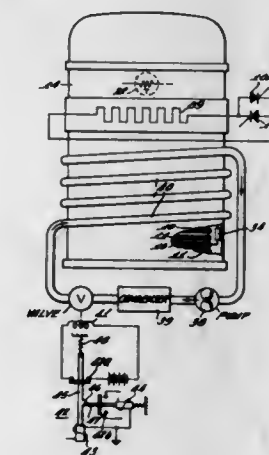
Alkali metal salts of ethylene-acrylic acid copolymers are useful as selective, ion permeable membranes for permeable membranes for hydrazine-air fuel cells and permit operation of the cell at high fuel concentrations.

3,595,699 FUEL CELL TEMPERATURE CONTROL

John Baude, Milwaukee, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Feb. 13, 1969, Ser. No. 798,933
Int. Cl. H01m 27/12
U.S. Cl. 136—86B

18 Claims



The invention comprises a fuel cell temperature control which anticipates heating by internal losses generated as a result of fuel cell load current variation and initiates cooling in advance of the actual time the temperature rise is

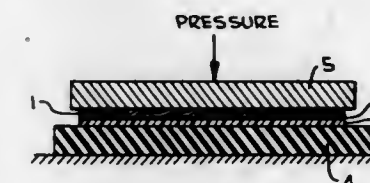
sensed by the temperature detecting means. A differential amplifier receives a first input signal which is a function of the rate of change of fuel cell current and time and a second input signal which is a function of fuel cell temperature, and means responsive to the output from the differential amplifier regulate the flow of coolant through a heat exchanger in heat transfer relation with the fuel cell.

3,595,700 METHOD OF MAKING ELECTRODE

Martin G. Rosansky, Forest Hills, N.Y., assignor to Leeson Corporation, Warwick, R.I.

Filed Mar. 30, 1967, Ser. No. 627,215
Int. Cl. H01m 13/00; B29c 15/00
U.S. Cl. 136—120

10 Claims



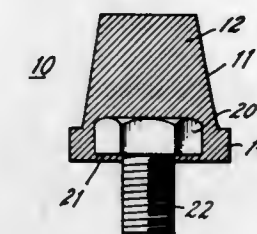
An improved method of assembling a lightweight electrode for disposition in an electrochemical cell and the resultant electrode is described. The method comprises applying a coating of catalyst to a continuous plastic membrane and pressing the coated film onto a metal grid by means of a pressure plate in contact with and bearing on the metal grid while the uncoated surface of the film is positioned on a resilient mat. As a result, the film and catalyst are firmly anchored to the grid with controlled distortion of the film.

3,595,701 STORAGE BATTERY CONNECTOR

Jack R. Lewis and John H. Dare, Norristown, Pa., assignors to Keystone Cable Corporation, Philadelphia, Pa.

Filed Aug. 20, 1969, Ser. No. 851,585
Int. Cl. H01m 5/00
U.S. Cl. 136—135R

3 Claims



A storage battery connector is provided having a body section with a tapered post, a polygonal central section for wrench engagement and a stud having an exposed threaded end and a concealed head which strengthens the body section.

3,595,702 ACTIVE MASS FOR GALVANIC ELEMENTS AND PROCESS OF MAKING THE SAME

Winfried Krey, Neunheim, Aalen, Germany, assignor to Varta Gesellschaft mit beschränkter Haftung, Ellwangen (Jagst), Germany

No Drawing. Filed July 15, 1969, Ser. No. 842,094
Claims priority, application Germany, July 16, 1968, P 17 71 815.9

Int. Cl. H01m 15/06, 9/00
U.S. Cl. 136—137

14 Claims

An active depolarizer-electrolyte mass for primary cells is formed by distributing a polyelectrolyte in the carbon

black- or graphite-containing depolarizer mass and then precipitating and cross-linking the polyelectrolyte by addition of polyvalent metal ions or hydrogen ions containing principal electrolyte. The composition permits setting up of the active mass without jeopardizing its consistency by too much or too little stirring, thus resulting in an improvement of the moldability into desired shapes of the mass.

3,595,703

METHODS OF IMPROVING THE DISCHARGE CAPACITY OF MANGANESE DIOXIDE USED IN THE CELL

Kazuhide Miyazaki and Michiaki Yamamoto, Tokyo, Japan, assignors to Mitsui Mining & Smelting Co., Ltd.

Filed Jan. 22, 1969, Ser. No. 793,072

Claims priority, application Japan, Aug. 17, 1968, 43/58,773

Int. Cl. H01m 15/00

U.S. Cl. 136—138 10 Claims

The present invention provides methods of improving the discharge capacity of manganese dioxide used as a cathode active material in the dry cell by contacting said manganese dioxide with a carbamate. According to the methods provided in this invention, the discharge duration of a given quantity of manganese dioxide when used in the cell can be improved by means of simple measures and at a slight cost. The cell voltage of the dry cell using manganese dioxide prepared according to this invention accordingly drops off to a lesser extent during discharge, therefore the discharge capacity is increased and the service life of the cell is remarkably lengthened.

3,595,704

COMPOSITION FOR THE SURFACE-TREATING OF METALS

Shozo Matsuda, Tadashi Tanaka, and Katsushi Saitoh, Kawasaki, and Saburo Ayusawa, Kitakyushu, Japan, assignors to Yawata Iron & Steel Co., Ltd., Tokyo, Japan

No Drawing. Filed Dec. 20, 1968, Ser. No. 785,770

Claims priority, application Japan, Dec. 23, 1967, 42/82,534

Int. Cl. C23f 7/26

U.S. Cl. 148—6.2 12 Claims

A composition for the surface-treatment of metals such as Fe, Zn, Sn and the like for preventing the metals from rusting, particularly suitable for an undercoating of paint, said composition comprising a water-soluble solution containing maleic acid copolymer and water-soluble chromium compound as the main components, wherein particularly polystyrene maleic acid copolymer is selected as the maleic acid copolymer, thereby to obtain the stability of the bath and to prevent the appearance of the film from turning black.

3,595,705

COPPER-BORON-SULFUR ALLOY AND METHOD OF TREATMENT

Robert S. Bray, Cheshire, Conn., assignor to Anaconda American Brass Company

Continuation-in-part of abandoned application Ser. No. 613,460, Feb. 2, 1967. This application June 13, 1969, Ser. No. 832,977

Int. Cl. C22f 1/08

U.S. Cl. 148—11.5 6 Claims

A copper boron sulfur alloy containing minor amounts of boron and sulfur is provided by this invention. When

this high conductivity alloy is solution annealed, rapidly cooled to room temperature and subsequently cold worked, it has a high softening temperature.

3,595,706

FORGED FINE CARBIDE ANTI-FRICTION BEARING COMPONENT MANUFACTURE

Richard L. Faunce and William M. Justusson, Farmington, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Filed June 9, 1969, Ser. No. 831,735

Int. Cl. C21d 7/14, 9/40

U.S. Cl. 148—12.3

8 Claims

This invention relates to a process for the manufacture of races for anti-friction bearings by a forging process and a thermal treatment that results in the production of a metallurgical structure characterized by uniformly distributed primary carbides ranging downward in size from one micron with the bulk of such carbides measuring between one half and one micron.

3,595,707

FORGED ANTI-FRICTION BEARING COMPONENT MANUFACTURE

Richard L. Faunce and William M. Justusson, Farmington, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Filed June 9, 1969, Ser. No. 831,736

Int. Cl. C21d 7/14, 9/40

U.S. Cl. 148—12.3

8 Claims

This invention relates to a process for the manufacture of races for anti-friction bearings by a forging process and a thermal treatment that results in the production of a metallurgical structure characterized by uniformly distributed carbides ranging in size from two to five microns.

3,595,708

PROCESS FOR SURFACE TREATMENT OF IRON AND ITS ALLOYS

Hargovind N. Vazirani, Passaic Township, Morris County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 12, 1968, Ser. No. 774,930

Int. Cl. C23f 7/10

U.S. Cl. 148—6.15

8 Claims

Treating the surface of iron and its alloys with an aqueous solution containing bromide ions or iodide ions and phosphoric acid results in improved surface for adhesive joining and for coating with organic finishes. Effectiveness of the treatment on highly corrosion resistant steels is somewhat improved by the addition of minor amounts of sulfuric acid to the solution.

3,595,709

PROCESS FOR PRODUCING FERROCHROME ALLOYS WITH HIGH NITROGEN CONTENT AND LOW CARBON CONTENT

Giovanni Sordillo and Franco Cazzaro, Salzano, Venice, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,892

Claims priority, application Italy, Mar. 7, 1967, 13,446/67

Int. Cl. C21d 5/10; C22c 39/14

U.S. Cl. 148—16

7 Claims

Ferrochrome alloys high in nitrogen (which may be as high as about 15%) and low in carbon (which may be as

low as about 0.3%) are made by treating pulverized ferrochrome up to 8% in carbon with a stream of gas comprising ammonia at temperatures of the order of about 500° to 800° C. The gas treatment may be carried out by the fixed bed method or the fluidized bed method.

3,595,710

EROSION RESISTANT DISPERSION HARDENED METALS

John B. Lambert, Towson, and Harold G. Marsh, Severna Park, Md., assignors to Fansteel Inc., Chicago, Ill.

No Drawing. Filed Oct. 25, 1968, Ser. No. 770,821

Int. Cl. C22c 19/00

U.S. Cl. 148—31

6 Claims

Dispersion hardened metals based on nickel or cobalt containing a small proportion of nickel and chromium are modified to improve high temperature erosion resistance by the inclusion of a large proportion of iron.

3,595,711

ANTIFRICTION BEARING COMPONENT MANUFACTURE

Richard L. Faunce and William M. Justusson, Farmington, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Filed June 9, 1969, Ser. No. 831,737

Int. Cl. C21d 1/00

U.S. Cl. 148—144

8 Claims

This invention relates to a process for the production of ball bearing inner races from rolled tubing. This rolled tubing is heat treated to produce a carbide particle size of one half to one micron. This very fine carbide particle size resulted in an inner bearing race life exhibiting a B-10 life 2.8 times that of inner bearing races with conventional, larger carbide particles.

3,595,712

PROCESSING OF ALUMINIDE-COATED NICKEL-BASE SUPERALLOYS

Donald H. Boone, North Haven, Cornelius P. Sullivan, Branford, and Clifford H. Wells, Clinton, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

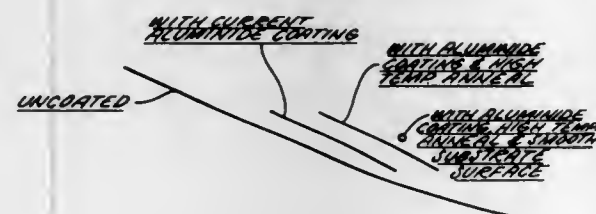
Filed Oct. 8, 1968, Ser. No. 765,777

Int. Cl. B23p 15/00; C21d 1/00

U.S. Cl. 148—162

8 Claims

LOW CYCLE FATIGUE RESULTS FOR HARDENED ALUMINIDE COATINGS



3,595,713

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE COMPRISING COMPLEMENTARY TRANSISTORS

Michel de Brébisson, Jean-Claude Frouin, and Jacques Thire, Caen, France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed July 1, 1968, Ser. No. 741,391

Claims priority, application France, June 30, 1967, 112,632

Int. Cl. H01l 7/36, 7/44

U.S. Cl. 148—175

5 Claims

A method of making an integrated circuit containing NPN and complementary PNP transistors is described. In a preferred arrangement, a P substrate without active buried layers is covered with a first N epitaxial layer in which an N+ buried layer for the NPN transistor and a P+ buried layer for the PNP transistor is provided. Then a second N epitaxial layer is provided. The N emitter and P base are provided by diffusion over the N+ buried layer. The P emitter is provided by diffusion over the P+ buried layer, but the N base is constituted by the second epitaxial layer. The P collector is formed by the buried layer, to which a diffused contact is made. The two buried layers remain spaced from the substrate and the surface. Thus, the PNP transistor is isolated by the first epitaxial layer.

3,595,714

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE COMPRISING A FIELD-EFFECT TRANSISTOR

Jacques Thire, Caponiere-Caen-Calvados, Michel de Brébisson, Richemond-Caen, and Jean-Claude Frouin, Defense-Passive-Caen, France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed July 1, 1968, Ser. No. 741,730

Claims priority, application France, June 30, 1967, 112,637

Int. Cl. H01l 7/36, 7/44

U.S. Cl. 148—175

3 Claims

A method of making a junction field effect transistor, by steps compatible with the planar technology is described. Two epitaxial layers of the same type are deposited on a substrate of the opposite type, with a buried layer of the opposite type provided between the epitaxial layers. The buried layer is maintained spaced from the substrate, to define an isolation zone for the transistor, and spaced from the surface, to define a channel region of the original epitaxial material underneath a diffused gate electrode.

3,595,715

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE COMPRISING A JUNCTION FIELD-EFFECT TRANSISTOR

Jacques Thire and René Glaise, Caen-Calvados, France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed July 1, 1968, Ser. No. 741,748

Claims priority, application France, June 30, 1967, 112,635

Int. Cl. H01l 7/36, 7/44

U.S. Cl. 148—175

3 Claims

A method is described for making a junction field effect transistor using two opposite-type buried layers in a substrate, and a single epitaxial layer. The top buried layer forms with a region diffused from the surface a cup-shaped volume constituting a control electrode. The channel, of epitaxial material, is defined by a surface diffusion within the cup. The bottom buried layer isolates the transistor from the substrate.

The fatigue properties of the aluminide-coated nickel-base superalloys, particularly in gas turbine engine applications, are improved by processing the coated article to decrease the brittleness of the coating, particularly through the use of a high temperature anneal between the coating and the substrate precipitation heat treat-

3,595,716 METHOD OF MANUFACTURING SEMICONDUCTOR DEVICES

John Anthony Kerr, Harrow, and Eric Wadham, Saint Albans, England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 28, 1968, Ser. No. 732,626
Claims priority, application Great Britain, May 16, 1968, 24,762/68

Int. Cl. H011 7/54

U.S. Cl. 148—187

9 Claims

A method of fabricating a transistor having emitter, base and collector or regions is disclosed. In a first operation there is formed in a semiconductor body part of one conductivity type at one surface thereof a shallow surface emitter region by incorporating therein a relatively high concentration of one-type forming impurities. Next ions of an impurity of the opposite conductivity type are implanted into said body part from said one surface over an area encompassing but larger than the emitter region and to a depth deeper than the emitter region such that the ions extend through the previously made emitter region to form a base region, said base ion impurity concentration exceeding the impurity concentration of the initial body part but being less than the emitter impurity concentration forming an opposite type base region defining spaced collector and emitter junctions which extend to the said one surface. Finally, the assembly is subjected to a base annealing treatment to remove semiconductor ion damage.

3,595,717 EPOXY CURED HYDROCARBON POLYMER PROPELLANT COMPOSITION AND METHOD OF MAKING THE SAME

Robert Dean Lowrey, Hopkins, Minn., and William Edward Hunter, Huntsville, Ala., assignors to Thiokol Chemical Corporation, Trenton, N.J.

No Drawing. Original application Jan. 6, 1958, Ser. No. 707,444. Divided and this application June 20, 1961, Ser. No. 130,441

Int. Cl. C06d 5/06

U.S. Cl. 149—19

10 Claims

1. A solid combustible composition adapted to be used as a missile propellant comprising a dispersion of a finely divided solid, non-metallic, inorganic oxidizing agent in a rubber-like matrix having a high fuel value, said matrix being essentially an epoxide-cured acrylobutadiene copolymer.

3,595,718 DRY ETCHING SYSTEM WITH INERT PARTICLES COATED WITH ADSORBED ACID

David H. Fishman, West Orange, and Frank M. Berardinelli, South Orange, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,369

Int. Cl. C23f 1/00; B41c 1/00; B24c 1/08

U.S. Cl. 156—2

5 Claims

This disclosure refers to or describes certain prior art systems for etching the surface of metals and plastics to form impressions on such surface or to make such surfaces receptive to coatings. Also disclosed herein is a new etching system which is particularly effective for the aforementioned, and other, purposes.

3,595,719 METHOD OF BONDING AN INSULATOR MEMBER TO A PASSIVATING LAYER COVERING A SUR- FACE OF A SEMICONDUCTOR DEVICE

Daniel I. Pomerantz, Lexington, Mass., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

No Drawing. Filed Nov. 27, 1968, Ser. No. 779,615

Int. Cl. H011 7/00

U.S. Cl. 156—17

7 Claims

A process for forming a bond between an insulator member and a passivating layer covering a surface of a

semiconductor device by etching the passivating layer to be bonded with an etchant and thereafter bonding the insulator member to the semiconductor device by the application of heat and electric potential thereto.

3,595,720 HEATING ELEMENTS

Jack Ames, Troon, and Thomas Gilmour Graham, Stevenson, Scotland, assignors to Imperial Chemical Industries Limited, London, England

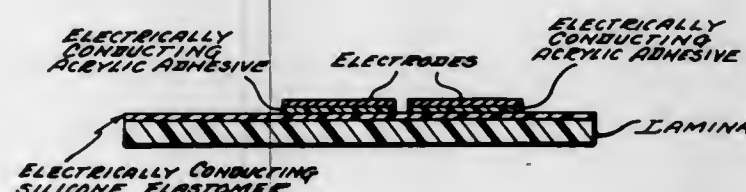
Filed Oct. 9, 1967, Ser. No. 673,949

Claims priority, application Great Britain, Oct. 20, 1966, 46,920/66

Int. Cl. H01b 13/06

U.S. Cl. 156—51

3 Claims



A process for the production of an electric heating element comprising applying to a coating of an electrically conducting silicone elastomer coated on at least one side of a lamina selected from the group consisting of woven, knitted, felted fabrics and film at least two electrodes coated with an electrically conducting acrylic adhesive and applying pressure whereby said electrodes become firmly attached to the said coating, said electrodes being selected from metal foil, gauze, braid and wire applied to the coating on the same side of the lamina.

3,595,721 PROCESS FOR MANUFACTURING A LEATHERY MATERIAL

Tatsuji Hamano, Sugano, Ichikawa, Chiba Prefecture, Japan, and Tomohisa Iizuka, Ichikawa-minami, Ichikawa, Chiba Prefecture, Japan

No Drawing. Filed Nov. 17, 1967, Ser. No. 683,775
Claims priority, application Japan, Dec. 1, 1966, 41/78,355

Int. Cl. D04h 13/00

U.S. Cl. 156—148

11 Claims

A simulated leather is produced from a lay-up of a layer of soft twist yarns and/or slivers and a batt consisting of similar fibers. The lay-up has two or more kinds of heat shrinkable synthetic fibers having different shrinkage percentages. The lay-up is subjected to needle punching, heat shrinking and resin treatment to provide an integrated layer having a structure simulating that of the corium of leather.

3,595,722 PROCESS FOR FORMING A THERMOPLASTIC PRODUCT

Henry D. Dawbarn, Waynesboro, Va., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Original application Apr. 17, 1964, Ser. No. 360,673, now Patent No. 3,445,319. Divided and this application Apr. 2, 1969, Ser. No. 841,641

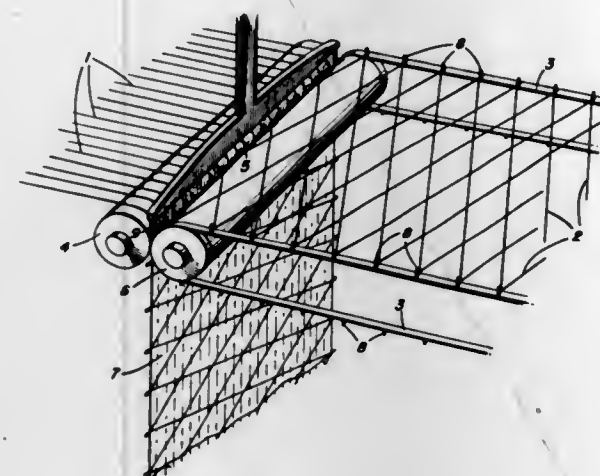
Int. Cl. B32b 5/00

U.S. Cl. 156—177

7 Claims

An integral thermoplastic product is provided from a prearranged array of straight, thermoplastic filaments. The filaments, arranged in the same plane, are conveyed

to a compressing zone from two or more directions, and contacted thereat with a molten film of thermoplastic. surface, presses the sheet material onto the rotating supporting surface, and cuts the sheet material in the region



The contacted filaments are cooled by quenching and an integral product is formed.

3,595,723 METHOD OF MANUFACTURING BOBBINS

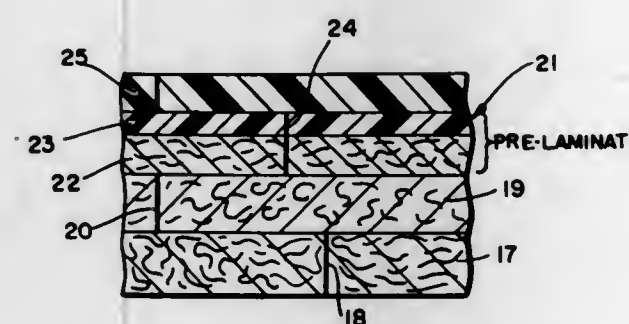
Robert C. Ellis, Kenilworth, Ill., and George A. Young, Bay Village, Ohio, assignors to Precision Paper Tube Company, Wheeling, Ill.

Filed Nov. 6, 1968, Ser. No. 773,730

Int. Cl. B31c; B65h 81/00

U.S. Cl. 156—190

3 Claims



The bobbin disclosed herein is an article on which conductor wire is wound to provide an inductor, such as a transformer. The bobbin includes a generally tubular section equipped with end flanges and the tubular section is constructed of inner layers of paper and an outer layer of film. Interposed between the outermost paper layer and the film layer is a layer previously made into a laminate having a paper face and a film face with the paper face abutting the outermost paper layer.

3,595,724 TIRE MATERIAL APPLYING APPARATUS

Jean Leblond, Comptegne, France, assignor to Unifroyal Englebert France S.A., Paris, France

Filed Nov. 6, 1967, Ser. No. 680,730

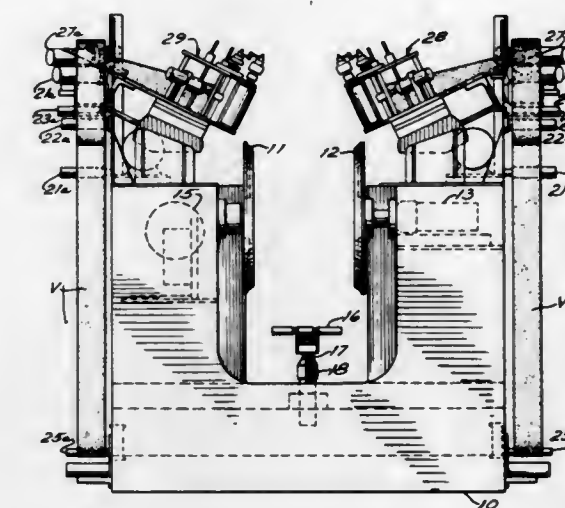
Claims priority, application France, Mar. 29, 1967, 100,720

Int. Cl. B29h 17/08

U.S. Cl. 156—405

15 Claims

Apparatus for applying a layer of sheet material to a supporting surface. The apparatus applies the leading edge of the sheet material to the supporting surface, rotates the supporting surface a predetermined angular amount to apply trailing portions of the sheet material



3,595,725 TOUGHENING GLASS IN SHEET FORM

Ernesto Coen, Liverpool, England, assignor to Pilkington Brothers Limited, Liverpool, England

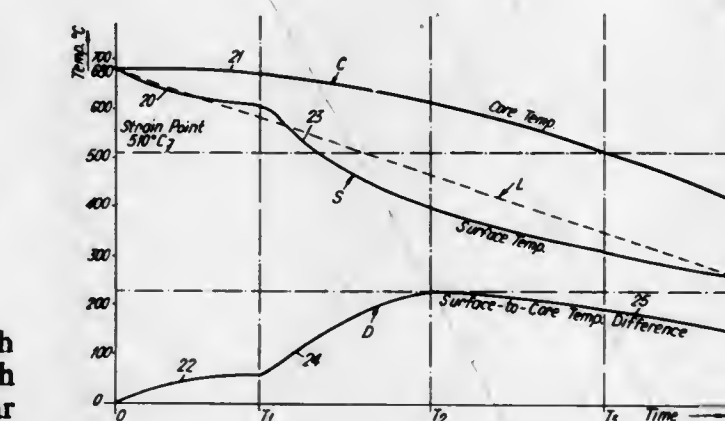
Continuation-in-part of application Ser. No. 530,844, Mar. 1, 1966. This application Apr. 29, 1969, Ser. No. 826,765

Claims priority, application Great Britain, Apr. 4, 1965, 15,285/65

Int. Cl. C03b 27/00

U.S. Cl. 161—1

9 Claims



A heated glass article is toughened by a two-stage quenching process in the first stage of which gaseous chilling medium lowers the surface temperature of the glass at a predetermined rate and in the second stage of which a higher rate of flow which continues the chilling is so controlled that there is an overall substantially linear rate of fall of the surface temperature of the glass during the whole of the toughening process.

3,595,726 ROOF LIGHT PANEL

Arthur H. Middleton, 160 Grand View Ave., San Francisco, Calif. 94114

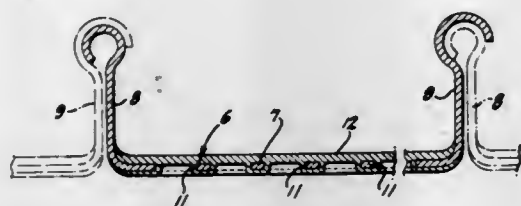
Filed Aug. 21, 1969, Ser. No. 851,834
Int. Cl. E04c 1/42, 2/54; E04h 5/62

U.S. Cl. 161—3.5

5 Claims

A roof light panel is made up of a trough-like aluminum sheet having upstanding longitudinal edges adapted to interlock with similar adjacent sheets. The bottom of the

panel is perforated. A sheet of translucent fiber glass reinforcing material overlies the perforations. A normally hard, translucent, sealing material envelops the rein-



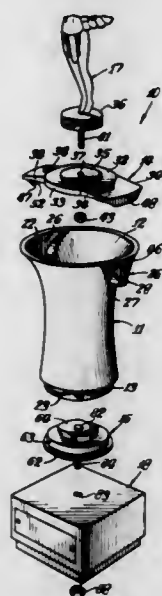
forcing material and seals the reinforcing material to the metal sheet. The sealing material also interengages the margins of the perforations.

3,595,727 MULTIPLE AND SELECTABLE PARTS TROPHY CONSTRUCTION

Dorothy K. Allen, Libertyville, Ill., assignor to
F. H. Noble & Company, Chicago, Ill.
Filed Dec. 22, 1967, Ser. No. 692,985
Int. Cl. A63g 33/00

U.S. Cl. 161-17

19 Claims

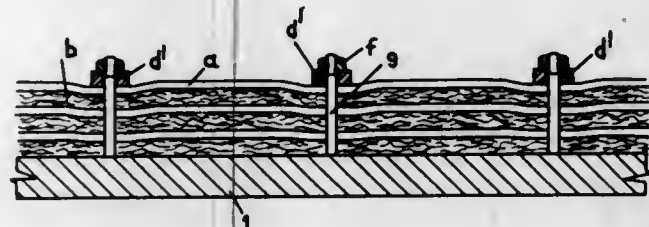


A selectable parts trophy construction wherein various parts of different size and shape may be rapidly and easily secured together in various ways to provide a wide variety of trophy assemblies of different size, shape and appearance. A selected one of a series of trophy body members, which are of different height and shape but which have the same upper and lower end configuration, serves as the primary element of each trophy assembly. An adapter member, adapted to have a figure or the like mounted thereon, is engageable with the upper end of the trophy body member, and another adapter member, adapted to have a wooden trophy base or the like mounted thereon, is engageable with the lower end of the trophy body member. Quick-acting connecting means, carried by each adapter member and the respective ends of the trophy body member, permit rapid assembly and/or disassembly of the trophy parts. Lock means associated with the connecting means prevents unintentional disengagement of the adapter members, and any parts mounted on the adapter members, from the trophy body member after the parts are assembled.

3,595,728
THERMAL INSULATION
Arthur Gray Robson, Knutsford, England, assignor to
The Nuclear Power Group Limited, Knutsford, England
Filed June 16, 1967, Ser. No. 646,580
Claims priority, application Great Britain, June 20, 1966,
27,434/66
Int. Cl. B32b 3/06

U.S. Cl. 161-53

9 Claims



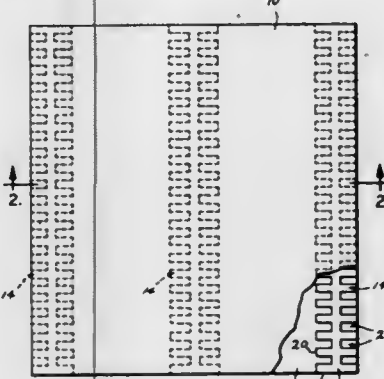
Thermal insulation formed from sheet members with spacer members separating the sheet members to form interspaces which are sealed from one another by seals formed by pairs of contacting surfaces at least one surface of each pair being of non-metallic, heat resistant material, the permeability of the spacer members and the compressibility of the non-metallic material being such that the spacer members in conjunction with said seals restrict the flow of fluid in and between the interspaces.

3,595,729 PALLET WHEREIN SPACER MEMBERS ARE FORMED OF RIGID FOAM POLYMERIC MATERIAL

Charles A. Cook, Bristol, Ind., assignor to Engineered
Foam Plastics, Inc., Elkhart, Ind.
Filed June 11, 1969, Ser. No. 832,128
Int. Cl. B32b 3/12

U.S. Cl. 161-69

6 Claims



A pallet having a substantially horizontal planar upper support member and a plurality of spacer members attached to the lower side of said support member. Each spacer member is formed of a rigid foam polymeric material and is laterally spaced from each other. Each spacer member further includes first and second oppositely positioned side edges and has a plurality of transversely directed slots therein which project inwardly from each of said first and second side edges.

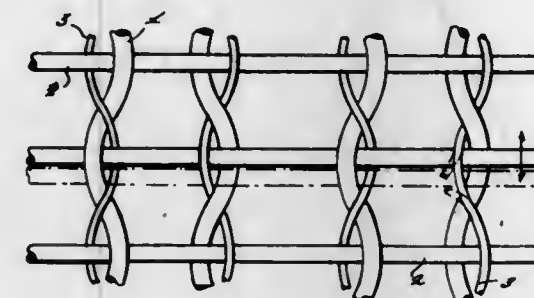
3,595,730
LENOWEAVE SUBSTRATE CONSTRUCTION
Ralph L. Richardson, Jr., Wayne, N.J., and William L. Horne, Liberty, N.C., assignors to Burlington Industries, Inc., Greensboro, N.C.
Filed Nov. 8, 1967, Ser. No. 681,509
Int. Cl. D03d 13/00, 19/00

U.S. Cl. 161-89

5 Claims

A low-texture backing or support fabric such as scrim is woven by the lenoweave method. A system of pairs of different strength warp yarns are interlaced (i.e. crossed

and twisted) at each point of contact with an interwoven system of filling yarn. The relatively strong or primary warp yarns and the filling yarns have identical tear or rupture strengths. When pressure causes the filling yarns to move or ride up and/or down the warp system, the relatively weak or secondary warp yarns rupture, while the relatively strong primary warp yarns remain intact,

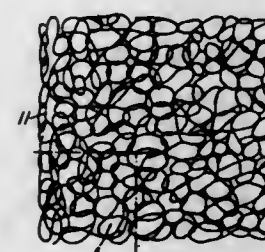


thus maintaining a balanced or uniform substrate construction prior to lamination. The lenoweave fabric may be employed as a chafer or finishing strip in the lamination of elastomeric material used for rubber tires. The foregoing abstract is not intended to define the scope of the invention and is only provided to permit a cursory review of the gist of the invention.

3,595,731
BONDED NON-WOVEN FIBROUS MATERIALS
Stanley Davies and Christopher Robert Sissons, Pontypool, England, assignors to British Nylon Spinners Limited, Pontypool, England
Continuation-in-part of applications Ser. No. 342,300 and Ser. No. 342,241, both Feb. 3, 1964. This application Aug. 13, 1968, Ser. No. 752,395
Claims priority, application Great Britain, Feb. 5, 1963, 4,733/63
Int. Cl. B32b 5/14; D04b 1/06, 3/14

U.S. Cl. 161-150

22 Claims



A bonded fibrous material containing crimped fibres is made by forming a fibrous structure containing composite potentially crimpable fibres which comprise two fibre-forming components one of which is potentially adhesive and subsequently developing the crimp and rendering the potentially adhesive component adhesive.

3,595,732
PROCESS AND MICROPOROUS PRODUCT
William C. Tingerthal, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
No Drawing. Continuation-in-part of abandoned application Ser. No. 572,216, Aug. 15, 1966. This application June 28, 1967, Ser. No. 649,468
Int. Cl. B32b 5/18, 5/32; B44d 1/02

U.S. Cl. 161-159

24 Claims

Microporous polymeric sheet materials and leather substitutes formed from polyurethane or polyurethane-urea polymers which are crosslinked by means of urethane or

urea linkages, and a method of forming such materials which includes mixing the active components including an organic-polyisocyanate, a polyol, usually a polyamine, and catalyst together in a solvent, carrying out the reaction in the solvent with agitation until a dispersion of particles insoluble in the solvent is formed, forming the dispersion into a layer and completing the reaction before removal of the liquid vehicle, thus forming a crosslinked micro-porous layer.

3,595,733 METHOD OF PREPARING ALPHA-UNSATURATED ORGANOSILICON COMPOUNDS

Anna C. Ching and John L. Speier, Midland, Mich., assignors to Dow Chemical Corporation, Midland, Mich.
No Drawing. Filed July 9, 1969, Ser. No. 840,472
Int. Cl. C07t 7/08, 7/18; C08g 31/22

U.S. Cl. 260-448.2E

3 Claims

Organosilicon compounds having the structure



are prepared by reacting $\equiv \text{SiH}$ with $\text{CH}_2=\text{CHR}$ in the presence of catalytic osmium such as chlorosmium acid, or metallic osmium in finely divided form. The by-product is an alkane of the formula $\text{CH}_3\text{CH}_2\text{R}$. For example, trichlorosilane plus ethylene gives vinyltrichlorosilane plus ethane.

3,595,734 PRODUCTION OF FOAMED ARTICLES

Hans-Dietrich Krug, Heidelberg, Germany, assignor to Carl Freudenberg K.G., Weinheim/Bergstrasse, Germany
Original application July 18, 1966, Ser. No. 566,009, now Patent No. 3,468,991, dated Sept. 23, 1969. Divided and this application Mar. 13, 1969, Ser. No. 840,560
Int. Cl. B32b 5/14, 5/20; B29d 27/00

U.S. Cl. 161-160

2 Claims

Polyurethane foam article comprising a foam form interior portion and a thick, substantially non-foam form, cross-linked skin surface portion integral with said foam form inner portion, which article was made by foaming polyurethane materials in a mold having internal surfaces coated with an organo-tin polyurethane cross-linking agent.

3,595,735
BLOWN TUBULAR FILMS
Frederick S. Tyrrell, Irvington, N.Y., assignor to National Distillers and Chemical Corporation, New York, N.Y.
No Drawing. Filed May 6, 1968, Ser. No. 727,023
Int. Cl. B29c 19/00; B32b 27/08

U.S. Cl. 161-162

8 Claims

Blown laminated tubular films, involving laminates of ethylene-vinyl acetate copolymer cores and linear polyethylene outer layers bonded thereto. The linear polyethylene layers incorporate nucleating agents. The resulting laminates have desirable optical, physical and mechanical characteristics, and are useful in various polyolefin film applications.

3,595,736
UNIAXIALLY ORIENTED FILMS AND TAPES
Richard Harold Barclay Butaux, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Apr. 27, 1967, Ser. No. 634,079
Claims priority, application Great Britain, May 26, 1966, 23,578/66
Int. Cl. B29d 7/00

U.S. Cl. 161-165

4 Claims

Uniaxially drawn films and tapes of polyethylene-1:2-diphenoxy-4:4'-dicarboxylate having in the direction of

drawing tensile strength of at least 20,000 p.s.i. and moduli of at least 0.8×10^6 p.s.i. and processes for their production. The films and tapes are useful in many applications, particularly as a magnetic recording tape base.

3,595,737

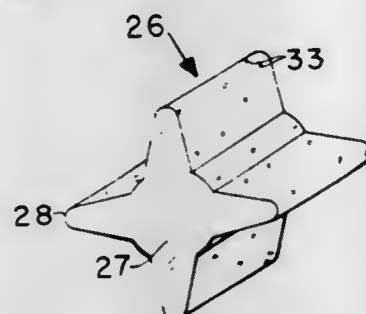
PELLET FOR IMPROVED EXTRUSION METHOD
Rosario J. Perrone, Marion, and Robert M. Wade, Wabash, Ind., assignors to Anaconda Wire and Cable Company

Original application Sept. 11, 1967, Ser. No. 666,574, now Patent No. 3,509,247, dated Apr. 28, 1970. Divided and this application Oct. 1, 1969, Ser. No. 871,204

Int. Cl. B29b 1/03

U.S. Cl. 161—168

5 Claims



Rubber or plastic pellets for use in a mixing extruder are fluted, with the number and depth of the flutes providing the proper surface to volume ratio for dusting or wetting with one of the components of the composition, such as a curing agent or colorant.

3,595,738

HELICALLY CRIMPED FILAMENTARY MATERIALS

Barry Henson Clarke and Geoffrey Marshall, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 21, 1968, Ser. No. 730,930
Claims priority, application Great Britain, May 22, 1967, 23,671/67

Int. Cl. D02g 3/02

U.S. Cl. 161—169

4 Claims

Disclosed is a crimped composite filament having a crimp index in the range of 40% to 70% and 8 to 25 crimps per inch, said filament composed of polyethylene terephthalate polymers having different intrinsic viscosities and having values of birefringence which differ by an amount whereby the factor $\Delta IV \cdot \Delta BR$ lies in the range of 1.9×10^{-4} to 3.3×10^{-3} where ΔIV is the difference in intrinsic viscosities and ΔBR is the difference in the birefringence of the two components.

3,595,739

HEAT-SEALABLE DEVICES FOR MARKING TEXTILE ARTICLES

Peter Meyer, London, England, assignor to Polymark Limited

Filed Mar. 11, 1968, Ser. No. 712,029

Claims priority, application Great Britain, Mar. 8, 1967, 10,949/67

Int. Cl. B32b 27/10, 27/34

U.S. Cl. 161—229

8 Claims

Heat sealable labels or the like and methods and marking articles by means of such labels are described. The label includes a flexible support incorporating a heat-curing film-forming resin system in the presence of alkylol or

alkoxy alkyl groups and under acid conditions, and an information-bearing marking printed on said support. Such a label when heat sealed to a textile or other article is wash- and wear-resistant and withstands the various treatments to which the article may be subjected.

3,595,740

HYDROLYZED ETHYLENE/VINYL ACETATE COPOLYMER AS OXYGEN BARRIER LAYER

Clare W. Gerow, Buffalo, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 8, 1968, Ser. No. 727,718

Int. Cl. B32b 27/08, 27/30

U.S. Cl. 161—254

3 Claims

Oxygen barrier films comprising an inner barrier layer of a melt extrudable hydrolyzed ethylene/vinyl acetate copolymer and outer layers comprising a base of a thermoplastic polymer and a heat sealing layer of an ethylene polymer or copolymer.

3,595,741

METHOD OF RECLAIMING STOCK FROM WASTE MATERIAL

Robert B. Goss, Appleton, Wis., assignor to Riverside Paper Corporation, Appleton, Wis.

Continuation-in-part of application Ser. No. 724,377, Apr. 26, 1968. This application Mar. 9, 1970, Ser. No. 17,892

Int. Cl. D21c 5/02

U.S. Cl. 162—5

12 Claims

A solvent extraction method for reclaiming stock from waste materials containing natural or synthetic plastic or resin material by extracting the plastic or resin material with a suitable solvent. The miscella is separated from the stock and the solvent is recovered by distillation during which a hydrocarbon carrier is added to the miscella to form a favorable liquid waste residue which is readily recoverable from the distillation apparatus.

3,595,742

COKING OF WASTE LIQUORS

Howard V. Hess, Glenham, and Edward L. Cole, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.

Filed Nov. 29, 1968, Ser. No. 780,081

The portion of the term of the patent subsequent to Apr. 21, 1987, has been disclaimed

Int. Cl. D21c 11/12

U.S. Cl. 162—30

8 Claims

Process for treatment of waste liquors from pulp and paper mills wherein waste liquor is heated under turbulent flow conditions in a tubular heater to a temperature above about 450° F. under pressure sufficient to prevent vaporization of water and form a water insoluble solid product, or coke, which is separated from treated aqueous liquid effluent of low COD suitable for reuse in the process or for disposal in lakes and streams without significant water pollution.

3,595,743

FIVE STAGE WOODPULP BLEACHING PROCESS

Ola Sepall, Quebec, Quebec, Canada, assignor to Anglo Paper Products, Limited, Quebec, Quebec, Canada

No Drawing. Filed Feb. 28, 1969, Ser. No. 803,398

Int. Cl. D21c 3/02, 3/26

U.S. Cl. 162—89

5 Claims

A bleaching sequence for woodpulp seeks to achieve reduced chemical and steam requirements with improved quality of pulp. The sequence comprises a treatment in

five stages with (1) a chlorination preferably but not essentially with addition of some chlorine dioxide, (2) an extraction with alkali, (3) a chlorine dioxide treatment with 0.2–0.8% chlorine dioxide, (4) a hypochlorite treatment, and (5) a final chlorine dioxide treatment.

3,595,744

PULP-FORMING MACHINE

Helge Natanael Skoldkvist, Storgatan 38A, Umea, Sweden

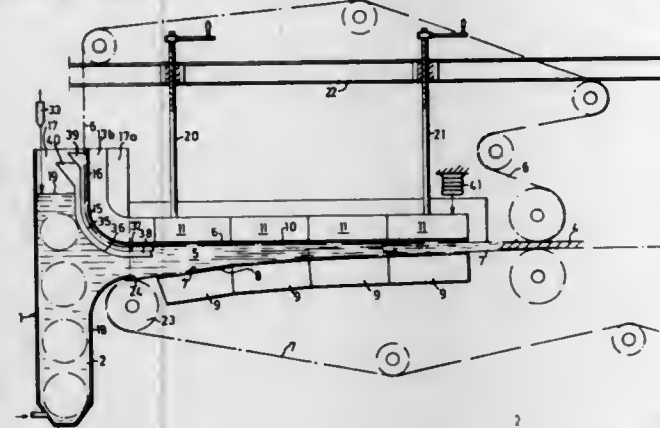
Continuation-in-part of abandoned application Ser. No. 602,392, Dec. 16, 1966. This application Mar. 26, 1968, Ser. No. 724,665

Claims priority, application Sweden, Dec. 22, 1965, 16,678/65; Poland, Mar. 29, 1967, 119,739

Int. Cl. D21f 1/24

U.S. Cl. 162—301

8 Claims



A pulp-forming machine wherein an upper portion of a front wall of a pulp stock chamber or inlet box is sealably movable between sidewalls of the chamber, and is through an arcuate portion rigidly connected with a top plate member of upper suction boxes to form a unit which is vertically movable relative to a lower plate of lower suction boxes to adjust the profile of the wedge-shaped pulp-forming or compression chamber to any desired shape. In one embodiment, the upper suction boxes are rigidly interconnected, while in the other embodiment, the upper suction boxes are hingedly interconnected to enable individual adjustment of the upper suction boxes when adjusting the profile of the compression chamber.

3,595,745

WEB PICK-UP

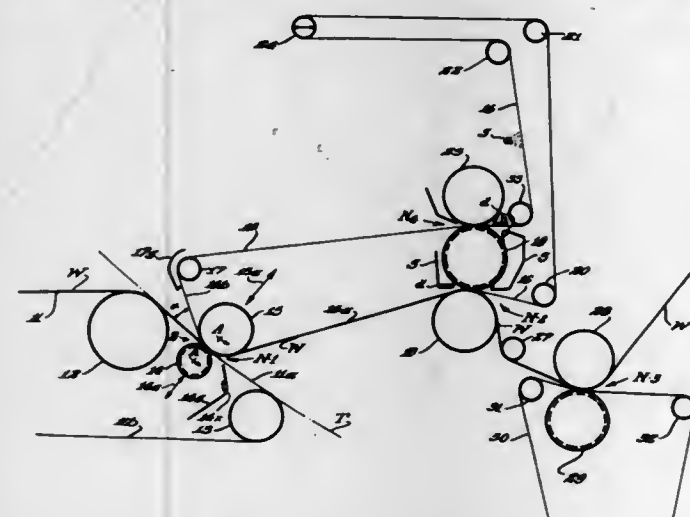
Dennis Callahan Cronin, Rockton, Ill., assignor to Beloit Corporation, Beloit, Wis.

Filed Nov. 15, 1967, Ser. No. 683,168

Int. Cl. D21f 2/00

U.S. Cl. 162—306

10 Claims



This relates to the transfer of a moist paper web from one porous belt to another, specifically, from a paper

machine forming wire to a pick-up felt. This is done by urging a pick-up felt (wrapping a pick-up roll) into contact with the web on the wire under press nip conditions which are afforded by the use of a grooved press roll backing the forming wire at the web pickup. In order to obtain the most favorable conditions for applying nip pressure and then carrying the web away from the wire on the pick-up felt the grooved roll used has a relatively small radius (and may be crowned to keep the wire spread).

3,595,746

SUCTION BOX FOR PAPER MAKING MACHINES

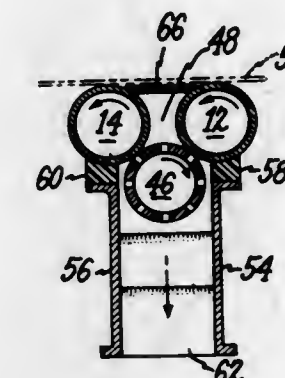
Harry Little, New Lebanon, N.Y. 12125

Continuation-in-part of application Ser. No. 628,796, Apr. 5, 1967. This application Dec. 8, 1969, Ser. No. 883,109

Int. Cl. D21f 1/50

U.S. Cl. 162—373

9 Claims



A suction box for paper making machines of the Fourdrinier type. The suction box comprises a pair of support rolls or cylinders over which the paper carrying screen travels and a perforated roll or cylinder on which the pair of support rolls rotate. A sealed chamber is provided about the perforated cylinder, with seals engaging a portion of the pair of support rolls. Suction is provided to the sealed chamber, substantially at the center of the length of the perforated cylinder. This draws the water from the web, through the perforated cylinder and into the suction drain outlet. Seals are provided at the ends of the cylinders to complete the suction box. Sealing means are also provided along the edge of the web, between the pair of support cylinders to improve the suction and prevent damage to the traveling screen.

3,595,747

SUCTION BOX COVERS WITH ROWS OF DRAINAGE OPENINGS FOR UNIFORM DEWATERING

Rudolph Walser, Delmar, N.Y., assignor to Huyck Corporation, Rensselaer, N.Y.

Continuation-in-part of abandoned application Ser. No. 561,936, June 30, 1966. This application Sept. 30, 1968, Ser. No. 767,049

Int. Cl. D21f 1/48

U.S. Cl. 162—374

7 Claims

This invention relates to suction box covers, and a method for producing them, for use in uniformly deliquifying a web on a traveling forming medium, for example in papermaking machines; the covers having a plurality of drainage openings of radius R oriented in uniformly spaced parallel rows, the openings in adjacent rows being spaced from each other in the cross-machine direction a center to center distance of A from the next adjacent opening, N consecutive rows of said openings forming

a repetitive pattern, said spacing A being determined by the equation:

$$\frac{R}{2} + \sum_{M=2}^{M=N} (-1)^{(m-1)} \sqrt{R^2 - \left\{ \frac{(m-1)A}{2N} \right\}^2} = 0$$

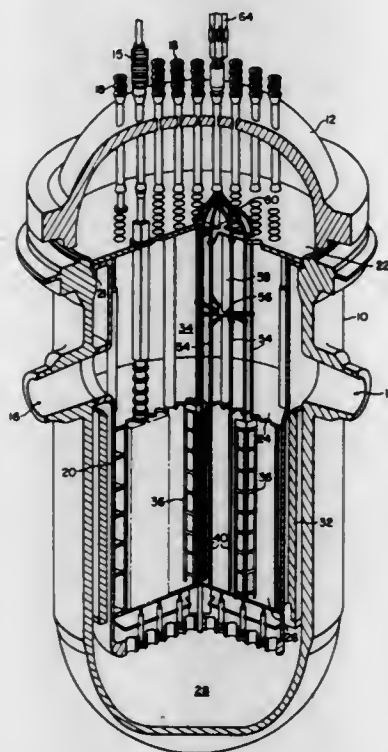
3,595,748

NUCLEAR REACTOR CONTROL DEVICE

Erling Frisch, Pittsburgh, Harry N. Andrews, Monroeville, and Howard E. Braun, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 24, 1968, Ser. No. 700,253
Int. Cl. G21c 7/16

U.S. Cl. 176—36

9 Claims



A nuclear reactor is disclosed wherein a portion of its fuel assemblies have primary or shutdown neutron absorbing control elements coupled to incremental drive mechanisms, and a portion of its fuel assemblies have one or more individually movable auxiliary fine flux trim rods (FFT) coupled to new and improved two-position mechanisms. The two-position mechanisms are associated with curved guide channels in such a manner as to control the position of individual FFT rods associated with a plurality of fuel assemblies.

3,595,749

PURIFICATION OF CULTIVATED MICRO-ORGANISMS

Alastair J. Clark, Banchory, and Raymond J. Hunt, Larbert, Scotland, assignors to The British Petroleum Company Limited, London, England
No Drawing. Filed June 19, 1968, Ser. No. 738,128
Claims priority, application Great Britain, June 19, 1967, 28,063/67

Int. Cl. C12b 1/26

U.S. Cl. 195—28

17 Claims

A process for the removal, at least in part, of contaminants from a mixture of a micro-organism and contaminants, the contaminants consisting of or including a hydrocarbon oil and water, which comprises subjecting the mixture to drum drying in a drier having a pair of hot rolls which constitute a nip whereby at least part of the water is removed by evaporation and wherein an oil enriched product is removed from above the nip and a micro-organism enriched product is removed, from at least one roll, below the nip.

3,595,750
PROCESS OF MAKING MAGNESIUM PHENOLIC LAXATIVE COMPOUND

Alfred Halpern, Great Neck, and Ernest J. Sasnor, Yonkers, N.Y., assignors to Synergistics, Yonkers, N.Y.
No Drawing. Application Dec. 3, 1968, Ser. No. 775,754, now Patent No. 3,526,635, which is a continuation-in-part of application Ser. No. 550,636, May 17, 1966. Divided and this application Nov. 14, 1969, Ser. No. 871,293

Int. Cl. C12d 13/02

U.S. Cl. 195—30

7 Claims

Magnesium compounds formed from phenolic laxative compounds, phenolphthalein, dihydroxyphenolisin, 4,4'-dihydroxy-2'-aminotriphenylmethane, and 4,4'-(2-pyridyl-methylene) dihydroxydiphenyl are described, together with a method for their preparation, and pharmaceutical compositions containing the same. Methods for achieving an increased pharmacologic response of said phenolic laxative compounds through use of the magnesium ion as well as methods for achieving an improved pharmacologic and therapeutic response with the new magnesium phenolic laxative compounds and pharmaceutical compositions containing the same are included.

3,595,751

PROCESS FOR PRODUCING L-LYSINE

Kiyoshi Nakayama, Sagami-hara-shi, and Hiroshi Hagino, Hachioji-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

No Drawing. Filed Mar. 13, 1969, Ser. No. 807,088
Claims priority, application Japan, Mar. 15, 1968, 43/16,458

Int. Cl. C12d 13/06

U.S. Cl. 195—49

12 Claims

A process for producing L-lysine by fermentation which comprises culturing an L-lysine-producing micro-organism under aerobic conditions in an aqueous nutrient medium containing ethyl alcohol as the main carbon-containing substrate. Genera of microorganisms employed include *Corynebacterium*, *Brevibacterium*, *Arthrobacter*, *Bacillus* and *Nocardia*.

3,595,752

TRIAZINOINDOLE COMPOUNDS

C. John Di Cuollo, Drexel Hill, Roland W. Kiney, Berwyn, and Richard C. Stewart, King of Prussia, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Original application Oct. 6, 1966, Ser. No. 584,657, now Patent No. 3,453,276, dated July 1, 1969. Divided and this application Jan. 17, 1969, Ser. No. 817,593

Int. Cl. C12d 1/02

U.S. Cl. 195—51

3 Claims

3-carboxyalkylaminotriazino[5,6-b]indoles are prepared microbiologically by action of a variety of organisms, preferably *Nocardia rubra* ATCC 19557, on the corresponding 3-hydroxyalkylaminotriazinoindole. The products have antiviral activity, particularly against rhinoviruses.

3,595,753

METHOD OF MAKING WHOOPING COUGH VACCINE

Vladimir Stejskal, Antonin Stejskal, and Vitezslav Stransky, Prague, Czechoslovakia, assignors to Ustav ser a ockovacich latek oborovy podnik, Prague, Czechoslovakia

No Drawing. Continuation-in-part of application Ser. No. 639,022, May 17, 1967. This application Sept. 27, 1967, Ser. No. 671,092

Claims priority, application Czechoslovakia, May 20, 1966, 3,397/66

Int. Cl. C12k 1/00

U.S. Cl. 195—96

3 Claims

A method of harvesting a culture of *H. pertussis* or *B. paraptussis* for conversion to whooping cough vaccine

in which the growth rate of the microorganisms in an inoculated nutrient medium is monitored, and a major portion of the culture is periodically withdrawn for conversion to vaccine and replaced by fresh medium while the growth rate μ is between 2.8 and 5.0 and the number of microorganisms increases at an exponential rate. Under the usual aerobic culturing conditions and with stirring a crop of microorganisms at the peak of their effectiveness may be harvested every 10 to 20 hours.

3,595,754

FABRIC FOR TESTING AMYLASE ACTIVITY

Theodore Cayle, Morganville, and Joseph W. Creely, Middlesex, N.J., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

No Drawing. Filed Feb. 12, 1969, Ser. No. 798,799

Int. Cl. C09k 3/00

U.S. Cl. 195—99

10 Claims

A test fabric for the determination of amylase activity comprising a fabric impregnated with a mixture of a finely divided colored pigment such as carbon black and a gelatinized starch binder.

3,595,755

DETECTION OF HYDROGEN PEROXIDE

Arnold Härtel, Darmstadt, Germany, assignor to E. Merck A.G., Darmstadt, Germany

No Drawing. Filed Mar. 11, 1968, Ser. No. 711,911
Claims priority, application Germany, Mar. 10, 1967, M 73,125; May 9, 1967, M 3,909

Int. Cl. C09k 3/00; C012k 1/00; G01n 31/14

U.S. Cl. 195—103.5

19 Claims

Water-soluble vanadates are redox catalysts in compositions (containing a water-soluble iodide) for the detection of small quantities of hydrogen peroxide. Said detection is useful in the diagnosis of diabetes mellitus, the control of insulin therapy and the determination of other metabolic imbalances.

3,595,756

LABORATORY REAGENT FOR ASSAY OF ALKALINE PHOSPHATASE

Bohdan M. Steciw, Philadelphia, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 627,430, Mar. 31, 1967. This application Nov. 26, 1968, Ser. No. 779,112

Int. Cl. G01n 31/14

U.S. Cl. 195—103.5

10 Claims

The sensitivity of the known assay for alkaline and acid phosphatases, employing stable salts of p-nitrophenyl phosphoric acid as the substrate, is significantly enhanced by the incorporation into reagent assay of a polyhydric alcohol, typically mannitol.

3,595,757

MULTIPLE EFFECT MULTISECTION FLASH EVAPORATOR

Kenkichi Izumi, Hitachi-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed July 16, 1969, Ser. No. 842,305

Claims priority, application Japan, July 19, 1968, 43/50,526

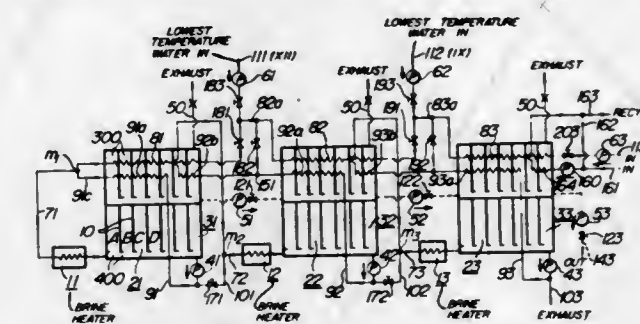
Int. Cl. B01d 3/02, 1/28

U.S. Cl. 202—173

2 Claims

A multiple effect multisection flash evaporator comprising a plurality of effect sections arranged in the order of temperature from a first effect section of highest temperature to a last effect section of lowest temperature and each divided into a number of flash chambers, the majority of said flash chambers constituting a heat recovery section and the minority thereof constituting a heat dissipation section. Each effect section is provided with one brine heater for increasing the flash range of

each flash chamber to thereby increase the quantity of vapor produced. The effect sections are each provided with means for disconnecting the effect sections as desired



from the system while the remainder of effect sections is operated by accommodating a variation in the quantity of the steam supplied to the system.

3,595,758

MULTISTAGE FLASH EVAPORATOR HAVING REMOVABLE FLASHING DEVICE

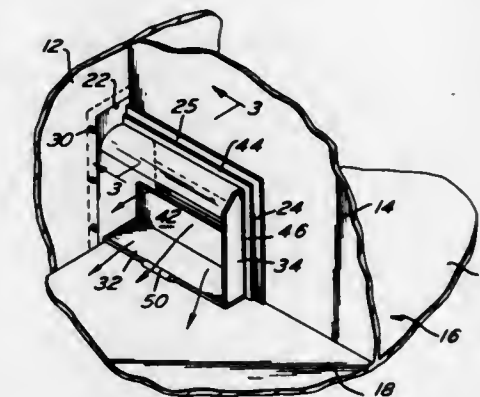
Walter M. Deputy, Jr., Wilmington, Del., and Charles M. Jennings, Norwood, and Gideon Levite, Philadelphia, Pa., assignors to Baldwin-Lima-Hamilton Corporation, Philadelphia, Pa.

Filed Aug. 21, 1968, Ser. No. 754,445

Int. Cl. B01d 3/06, 3/10

U.S. Cl. 202—173

9 Claims



A multistage flash evaporator for desalinization of water is disclosed wherein the flashing device between adjacent stages is removable from the evaporator shell.

3,595,759

DISTILLATION METHODS AND APPARATUS

John Chambers, Rte. 1, Box M41,

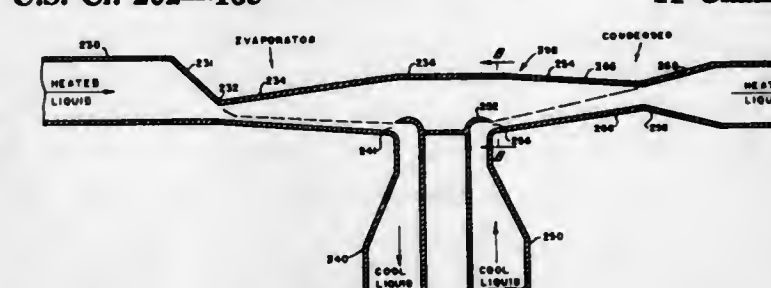
Del Mar, Calif. 92014

Continuation-in-part of application Ser. No. 528,431, Feb. 18, 1966. This application June 11, 1969, Ser. No. 832,226

Int. Cl. B01d 3/00; F28b 1/00

U.S. Cl. 202—185

11 Claims



A liquid is distilled by passing it through an evaporator in which it is vaporized by forced convection surface evaporation. The resulting vapor is then passed at a high velocity into a condenser wherein it directly contacts a fluid and condenses therein, with both the vapor and fluid losing velocity which produces an increase in the static pressure. The compression and condensation of the vapor in the liquid approaches an isentropic process.

3,595,760

ELECTRODEPOSITION OF ALUMINIUM

Nobuhiko Ishibashi and Masaki Yoshio, Fukuoka-shi, and Yoshimi Hanamura, Niihama-shi, Japan, assignors to Nisshin Steel Co., Ltd., Tokyo, Japan
No Drawing. Filed Mar. 20, 1968, Ser. No. 714,402
Claims priority, application Japan, Apr. 7, 1967, 42/22,508

Int. Cl. C23b 5/00

U.S. Cl. 204—14

10 Claims

The present invention relates to the improvements of the electrodeposition of aluminium and characterised by using a bath comprising, as a solvent, at least one member from the group consisting of tetrahydrofuran and its derivatives and, as solutes, (a) an aluminium halide and (b) at least one of lithium aluminium hydride and lithium hydride, in which the molar ratio of the solutes is 1 to 3. One or more aromatic compounds such as benzene together with a chain ether may be added to said bath. According to the present invention, smooth, high density, ductile and coherent aluminium film can be deposited on the cathode body.



preparing a metal plate receptive to a decorative noble metal deposit, characterized by the presence of micro-porous areas and microcracked areas over substantially the entire surface of said noble metal plate, comprising affixing to a basis material bearing a conductive metal surface a stratum of particles having a particle size of about 0.05–15 microns and a density on said conductive metal surface of about 100–5,000,000 particles/cm.²; and depositing in said stratum of particles a conductive metal layer containing sulfur-free nickel having an effective thickness less than the maximum thickness of said stratum of particles thereby forming a matrix wherein said particles are retained affixed to said surface in fixed position in said conductive metal layer; and at least some of said particles intercept the surface of said conductive metal layer.

3,595,761

CHEMICAL REDUCTION METAL PLATED DIALLYLPHthalate POLYMER AND PREPARATION PROCESS

Edward B. Saubestre, Hamden, Conn., and Lawrence J. Durney, North Caldwell, N.J., assignors to Enthone, Incorporated, West Haven Industrial Park, County of New Haven, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 433,775, Feb. 18, 1965. This application Mar. 5, 1969, Ser. No. 804,713

Int. Cl. C23b 5/64

U.S. Cl. 204—30

6 Claims

This invention is concerned with chemical reduction metal-plated diallylphthalate polymers wherein a thin, substantially non-porous, continuous metal layer of fine grain size and consisting essentially of chemical reduction metal is firmly adhered to the polymer surface by a bond strength equivalent to a Pull Test result of at least 5 pounds per inch. One or more metal electroplate layers may be deposited over the chemical reduction metal layer. The invention is also concerned with the preparation of metal-plated diallylphthalate polymers involving the contacting of the polymer surface destined to be metal plated with an alkaline aqueous solution containing about 5 to 45 weight percent of methyl Carbitol and about 5 to 30 weight percent of sodium hydroxide or potassium hydroxide until the polymer surface is converted to a gelled and hydrophilic polymer surface, followed by contacting the gelled hydrophilic surface with a chromic acid- and/or sulfuric acid-containing aqueous acid etchant solution until the polymer surface is converted to a surface readily bondable to electroless metal plating by a firmly adherent bond. The thus-treated polymer surface is then activated and electrolessly metal plated by contact with a chemical reduction metal plating solution until the polymer surface is converted to an electrically conductive surface. The thus-obtained conductive surface can then be electroplated, if desired, with one or more metal electroplate layers.

3,595,762

PLATING PROCESS

Hyman Chessin, Birmingham, Mich., assignor to M & T Chemicals Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 509,267, Nov. 23, 1965. This application Oct. 16, 1968, Ser. No. 767,972

The portion of the term of the patent subsequent to Apr. 6, 1988, has been disclaimed

Int. Cl. C23f 17/00; C23b 7/00, 5/06

U.S. Cl. 204—38R

21 Claims

In accordance with certain of its aspects, this invention relates to novel compositions and to a process for

3,595,763

PROCESS FOR THE PRODUCTION OF FLUOROCHLOROPHOSGENE

Peter Voss, Leverkusen, and Hans Niederprüm, Monheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 9, 1968, Ser. No. 766,299
Claims priority, application Germany, Oct. 18, 1967, F 53,810

Int. Cl. B01k 3/00

U.S. Cl. 204—59

4 Claims

Process for the production of carbonyl fluoride or carbonyl chlorofluoride by electrolyzing carbonyl dichloride or carbon monoxide optionally in the presence of carbonyl chloride, chlorine or chlorine donors in anhydrous hydrofluoric acid at a cell voltage of from 4 to 8 volts and at a temperature of from -20 to 20° C., the carbonyl fluoride or carbonyl chlorofluoride being removed from the reaction gases leaving the electrolysis cell by cooling.

3,595,764

ADIPONITRILE PRODUCTION BY THE ELECTROLYTIC HYDRODIMERIZATION OF ACRYLONITRILE

Maomi Seko and Kazuhiko Mihara, Tokyo, Shinsaku Ogawa and Shoichiro Kumazaki, Yokohama, and Ryozi Komori and Munee Yoshida, Kawasaki, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed May 31, 1967, Ser. No. 642,321
Claims priority, application Japan, June 14, 1966, 41/37,988, 41/37,989, 41/37,990

Int. Cl. C07b 1/00

U.S. Cl. 204—73

52 Claims

The electrolytic hydrodimerization of acrylonitrile using an emulsion having an oil phase and a continuous aqueous phase, the acrylonitrile being distributed in the aqueous phase as dissolved acrylonitrile and in the oil phase in sufficient quantity to supply additional acrylonitrile to the aqueous phase upon acrylonitrile depletion in that phase. The concentration of the dissolved acrylonitrile in the aqueous phase is preferably maintained below about 5% by weight and a quaternary ammonium compound is preferably utilized as the supporting electrolyte salt. The emulsion preferably contains an anion polymerization inhibitor to suppress electric current-induced acrylonitrile polymerization and preferably a protective colloid is present. The use of this anion polymerization inhibitor

and preferably the use of the protective colloid is also applicable when operating in the conventional manner utilizing a conventional solution as opposed to an emulsion for the electrolysis.

3,595,765

PROCESS FOR THE ELECTROLYTIC REGENERATION OF REDUCED CHROMIUM COMPOUNDS

Louis A. Joo, Johnson City, Tenn., assignor to Great Lakes Carbon Corporation, New York, N.Y.

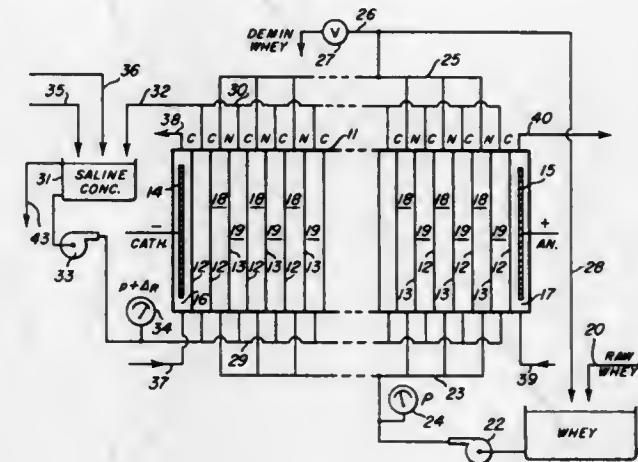
Original application Oct. 8, 1965, Ser. No. 493,995, now Patent No. 3,450,623, dated June 17, 1969. Divided and this application Aug. 7, 1968, Ser. No. 750,967
The portion of the term of the patent subsequent to Jan. 21, 1986, has been disclaimed

Int. Cl. B01k 1/00; C01g 37/00

U.S. Cl. 204—89

6 Claims

An electrolytic process for the continuous conversion of reduced chromium values to the hexavalent form, which consists in subjecting an aqueous sulfuric acid solution of reduced chromium to the action of direct current voltage applied in series to a multi-unit filter press type cell assembled from chromic acid resistant material, lead electrodes and polytetrahaloethylene diaphragms having a porosity of about 40% and a pore diameter preferably within the range of 50 to 150 microns.



3,595,766

PREVENTION OF PROTEIN PRECIPITATION IN THE ELECTRODIALYTIC TREATMENT OF WHEY

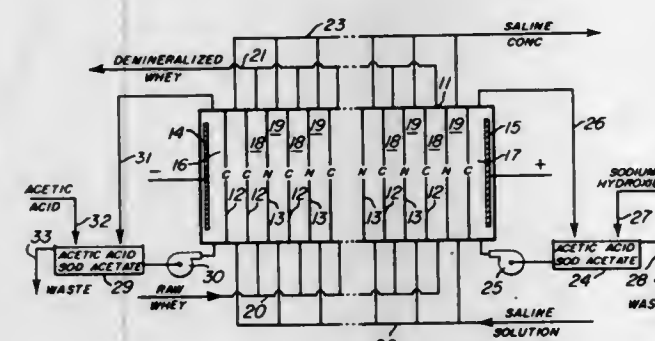
John R. Scheder, Horicon, Wis., assignor to Purity Electrochemical Company, Mayville, Wis.

Filed Feb. 27, 1969, Ser. No. 802,766

Int. Cl. B01d 13/02

U.S. Cl. 204—180P

5 Claims



Whey is demineralized in a multichamber electrodialysis cell comprising deionization chambers and concentrating chambers formed between alternating cation membranes of ion exchange material and neutral membranes. Protein precipitation is reduced, or prevented, by preventing substantial changes in the pH of at least the anolyte by the use of a buffer electrolyte, thus reducing the generation of hydrogen ions which appear to cause such precipitation.

3,595,767

PREVENTION OF CALCIUM PRECIPITATION IN THE ELECTRODIALYTIC DEMINERALIZATION OF WHEY

John R. Scheder, Horicon, Wis., assignor to Purity Electrochemical Company, Mayville, Wis.

Filed Feb. 27, 1969, Ser. No. 802,848

Int. Cl. B01d 13/02

U.S. Cl. 204—180P

4 Claims

Whey is demineralized in a multichamber electrodialysis cell comprising alternating ion exchange membranes

and neutral membranes. Calcium precipitation occurring in the cell primarily in its concentrating chambers on the face of the ion selective membranes bordering the concentrating chambers, and caused by accidental whey leakage in the concentrating stream, is prevented by a hydraulic pressure differential between the concentrating stream and the whey stream causing, in the event of hydraulic leakage, concentrate to pass into the whey stream rather than whey to pass into the concentrating stream.

A beneficial side effect of the hydraulic pressure inequality is an apparent reduction in membrane polarization.

3,595,768

PREVENTION OF CALCIUM PRECIPITATION IN THE ELECTRODIALYTIC DEMINERALIZATION OF WHEY

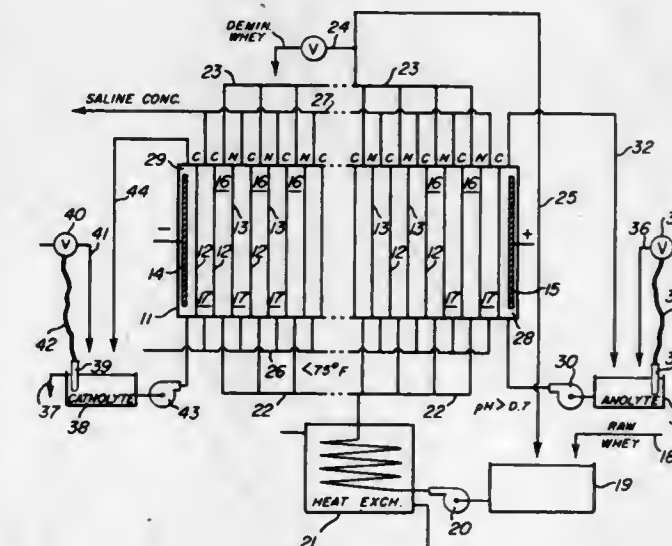
John R. Scheder, Horicon, Wis., assignor to Purity Electrochemical Company, Mayville, Wis.

Filed Feb. 27, 1969, Ser. No. 803,014

Int. Cl. B01d 13/02

U.S. Cl. 204—180P

3 Claims



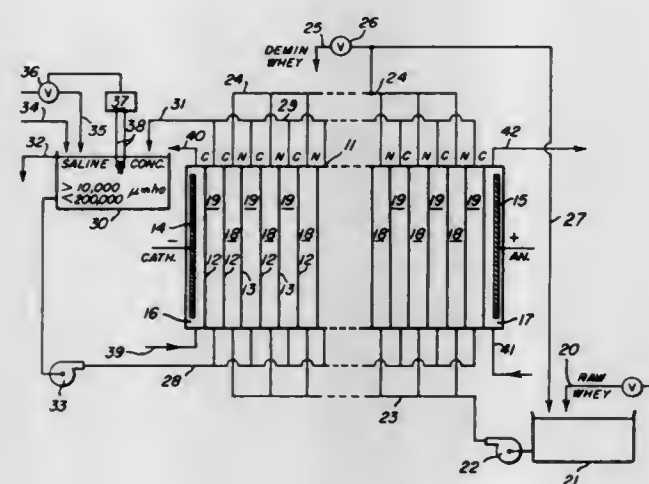
Whey is demineralized in a multichamber electrodialysis cell comprising ion exchange membranes and neutral membranes. Calcium precipitation occurring in the cell as a result of accidental whey leakage into the concentrating chambers is sharply reduced by temperature reduction of the recirculating whey streams, between passes, below 85° F.

3,595,769 PREVENTION OF CALCIUM PRECIPITATION IN THE ELECTRODIALYTIC DEMINERALIZATION OF WHEY

John R. Scheder, Horicon, Wis., assignor to Purity
Electrochemical Company, Mayville, Wis.
Filed Feb. 27, 1969, Ser. No. 803,015
Int. Cl. B01d 13/02

U.S. Cl. 204—180P

2 Claims



Whey is demineralized in a multichamber electro-dialysis cell comprising cation membranes and neutral membranes in alternating sequence.

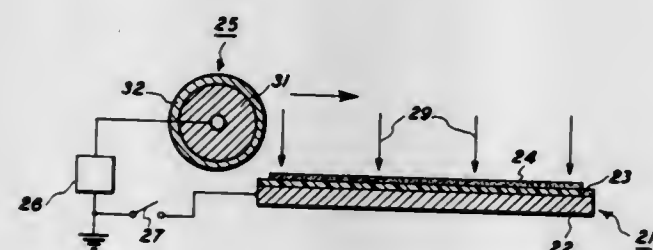
Calcium precipitation on the neutral membrane face in the whey stream is found to be related to the electrical conductivity of the adjacent salt stream, and a critical conductivity range is determined within which the productivity loss is at a minimum, including an optimum conductivity value at which productivity loss due to such calcium precipitation is practically zero.

3,595,770 SEQUENTIAL PHOTOELECTROPHORETIC IMAGING SYSTEM

Ray H. Luebke, Jr., and Leonard M. Carreira, Webster,
N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Filed Oct. 17, 1967, Ser. No. 675,864
Int. Cl. G03g 13/22

U.S. Cl. 204—181

6 Claims



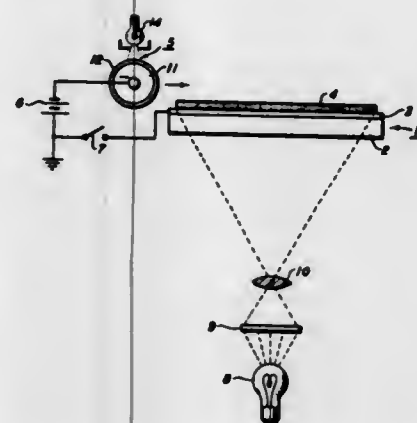
An electrophoretic imaging system comprising exposing a suspension of electrically photosensitive particles in a liquid carrier to imagewise light and, subsequently, developing the image by applying a field across the suspension which causes particle migration in image configuration. The photosensitive particles of this system exhibit fatigue characteristics in that they remain electrically sensitive for a period of time after having been exposed to activating electromagnetic radiation.

3,595,771 METHOD OF REMOVING ACCUMULATED CHARGES IN PHOTOELECTROPHORETIC IMAGING

John W. Weigl, West Webster, N.Y., assignor to Xerox
Corporation, Rochester, N.Y.
Filed Aug. 20, 1968, Ser. No. 753,973
Int. Cl. G03g 13/22

U.S. Cl. 204—181

8 Claims



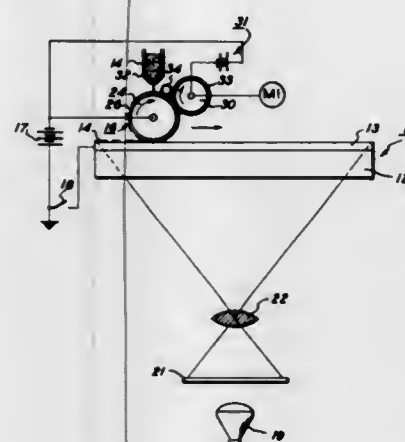
Accumulation of undesired potential on the blocking electrode in a photoelectrophoretic imaging system during successive imaging operations is prevented by incorporating a photoconductive layer in the blocking electrode. The photoconductive layer is discharged by flood illumination between imaging cycles.

3,595,772 METHOD OF BREAKING PARTICLE AGGLOMER- ATES IN THE PHOTO ELECTROPHORETIC IMAGING SYSTEM

Edwin Zucker, Rochester, N.Y., assignor to Xerox
Corporation, Rochester, N.Y.
Filed Oct. 3, 1968, Ser. No. 764,721
Int. Cl. G03g 13/22

U.S. Cl. 204—181

5 Claims



This invention relates to a method and apparatus for creating high shear stresses in a particulate suspension prior to use of such suspension for imaging or inking. The method and apparatus in one environment function to stress a thin layer of an electrophoretic suspension of particles in a liquid carrier. The prestressed suspension is better suited than unstressed suspensions for preparing both monochromatic and polychromatic copies from originals by particle migration through the suspension when it is exposed to electromagnetic radiation in image configuration while in an electric field across the suspension between two electrodes. The method and apparatus is also used for printing inks in order to form a prestressed, uniform, thin layer of the ink for application to the press.

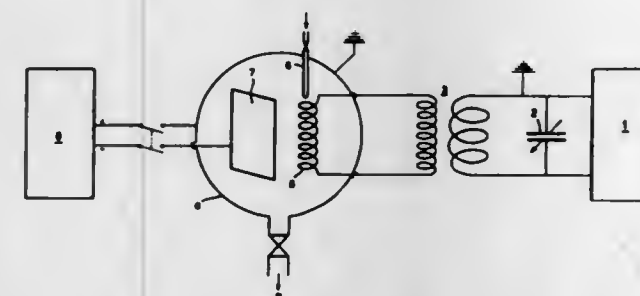
3,595,773 PROCESS FOR DEPOSITING ON SURFACES Joseph Gerard Wurm and Pierre Beucherle, Blandrion, and Michel Block, Cocquiol, Varese, Italy, assignors to European Atomic Energy Community (Euratom), Brussels, Belgium

Original application Sept. 16, 1966, Ser. No. 579,917, now
Patent No. 3,540,993, dated Nov. 17, 1970. Divided
and this application May 8, 1969, Ser. No. 842,051
Claims priority, application Belgium, Dec. 17, 1965,
21,744

Int. Cl. C23c 15/00

U.S. Cl. 204—192

10 Claims



A method for depositing a thin layer of at least partially conducting material on a body and comprising maintaining the body in a low pressure gaseous atmosphere, feeding gas into the atmosphere while maintaining the low pressure and applying a high-frequency voltage to a coil or electrode pair located within the atmosphere and adjacent both the body and feeding means to produce a high-frequency electromagnetic field for ionization of the gas.

3,595,774 LAY-IN ELECTRODE FOR ELECTROLYTIC STA- BILIZATION OF REFRIGERATION CONDENSERS

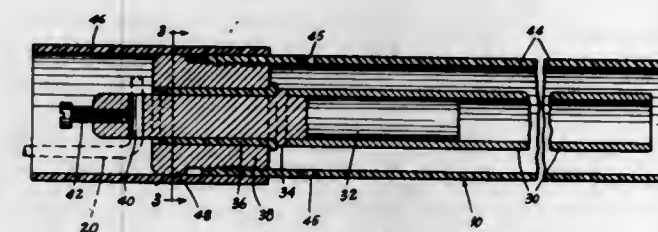
Eugene S. Bremerman, 82 Whitehall Court,
St. Louis, Mo. 63144

Filed Oct. 18, 1968, Ser. No. 768,768

Int. Cl. C23f 13/00

U.S. Cl. 204—196

3 Claims



Inhibition of scale formation and inhibition of electrolytic corrosion is accomplished by an insulated electrode which can be simply laid in a reservoir underlying refrigeration condenser coils.

3,595,775 SPUTTERING APPARATUS WITH SEALED CATHODE-SHIELD CHAMBER

Daniel H. Grantham, Glastonbury, Daniel J. Quinn, Man-
chester, and Edouard L. Paradis, Willimantic, Conn.,
assignors to United Aircraft Corporation, East Hart-
ford, Conn.

Filed May 15, 1969, Ser. No. 824,929

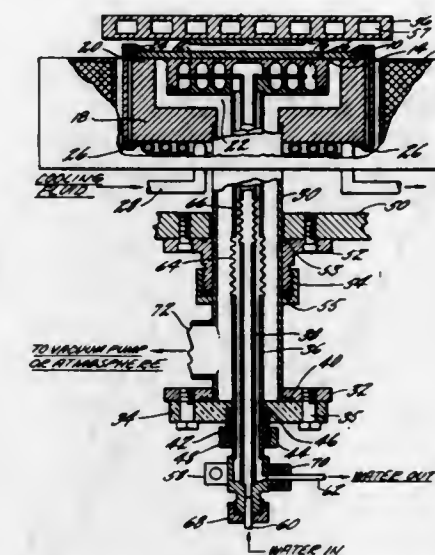
Int. Cl. C23c 15/00

U.S. Cl. 204—298

8 Claims

Films of material are deposited on a substrate at high rates by sputtering in which a target is bombarded by

ions in a low pressure glow discharge in the presence of a magnetic field. A very low pressure is provided by a vacuum pump in a sealed chamber between the cathode



and the ground shield to prevent arcing at high power densities. Atmospheric pressure may also be admitted to the sealed chamber.

3,595,776 PLASTICIZER MATERIALS DERIVED FROM CRUDE OILS

Donald D. Davidson, Pasadena, and Bernard K. Mueller,
Bakersfield, Calif., assignors to Witco Chemical Corpo-
ration, New York, N.Y.

No Drawing. Filed July 15, 1968, Ser. No. 744,670

Int. Cl. C10g 17/06, 31/14

U.S. Cl. 208—14

6 Claims

Preparation of petroleum-derived hydrocarbon oils which have particular utility as secondary plasticizers for synthetic polymers and elastomers. A lubricating oil fraction having an initial high content of aromatics is solvent extracted to produce an extract having an aromatics content of at least 87%, said extract is admixed with a strong mineral acid, the sludge which forms is separated, the remaining acid oil is neutralized, then subjected to vacuum distillation, and is then advantageously hydrogenated.

ERRATUM

For Class 208—19 see:
Patent No. 3,595,967

3,595,777 METHOD AND MEANS FOR DEHYDRATING A MIXTURE OF FLUIDS

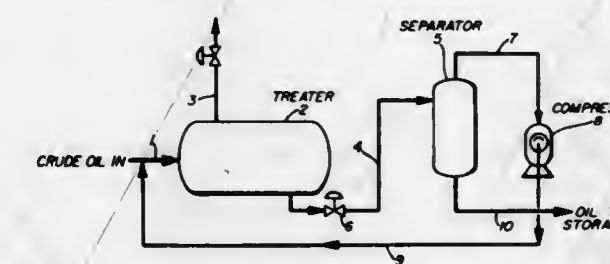
Joseph L. Maher, Tulsa, Okla., assignor to Combustion
Engineering, Inc., New York, N.Y.

Filed May 19, 1969, Ser. No. 825,727

Int. Cl. C10g 7/04

U.S. Cl. 208—187

4 Claims



A vessel receives a fluid mixture to process the mixture. Removal of the processed fluids is carried out with a pressure reduction. A vapor is evolved from the mix-

ture and compressed and mixed with the fluid mixture received by the vessel to raise the enthalpy of the mixture to carry out the process in the vessel.

3,595,778 DESULFURIZATION PROCESS INCLUDING AN OXIDATION STEP WITH OZONE AND A VANADIUM CATALYST

Richard D. Smetana, Beacon, and Sheldon Herbstman, Spring Valley, N.Y., and Theodore C. Mead, Port Arthur, Tex., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,265
Int. Cl. C10g 19/02, 23/02, 31/14

U.S. Cl. 208—208 9 Claims
A desulfurization process for the reduction of sulfur in a sulfur containing hydrocarbon oil by contacting the sulfur containing hydrocarbon oil with ozone in the presence of a Group IV-B, V-B or Group VI-B metal followed by sulfur reduction utilizing for example a base treatment, a thermal treatment or a hydrosulfurization treatment.

3,595,779 CATALYTIC HYDROGEN CONTACT PROCESS

Reese A. Peck, Raymond F. Wilson, and Frank E. Guptill, Jr., Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,635
Int. Cl. C10g 31/14

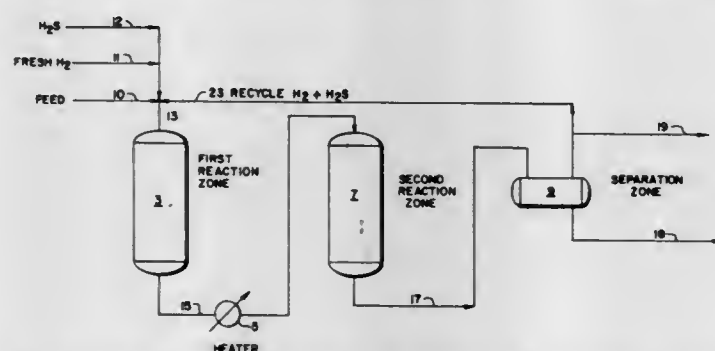
U.S. Cl. 208—210 8 Claims
A catalytic hydrogen contact process for the hydrosulfurization of heavy hydrocarbon materials by introducing a heavy hydrocarbon material into a catalyst zone comprising a first catalyst zone below and a second catalyst zone above the point of entry of the heavy hydrocarbon material, in the presence of hydrogen wherein the hydrogen is introduced in countercurrent relationship to said heavy hydrocarbon material and maintained at a rate sufficient to provide for liquid contact of the second catalyst zone and recovering an increased proportion of lower boiling hydrocarbons and/or hydrocarbons of reduced sulfur content.

3,595,780 PROCESS FOR STABILIZATION OF DIOLEFIN- CONTAINING HYDROCARBONS

Charles T. Adams, Houston, and Richard E. Fruit, La Porte, Tex., assignors to Shell Oil Company, New York, N.Y.

Filed May 1, 1969, Ser. No. 820,759
Int. Cl. C10g 23/02

U.S. Cl. 208—216 10 Claims

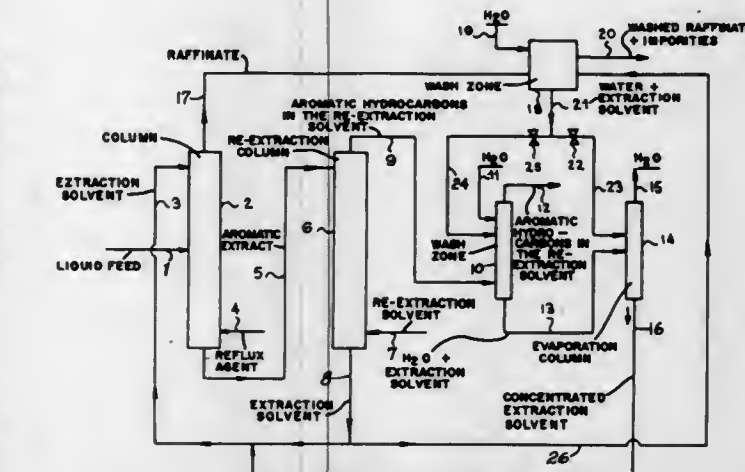


A process for stabilizing diolefins in cracked hydrocarbon oils by reaction with hydrogen sulfide in the presence of hydrogen to prevent or reduce polymerization and gum formation on subsequent heating. In one embodiment the process is used in connection with conventional hydrogenation/hydrosulfurization to stabilize diolefin-containing cracked oils by conversion, at least in part, of diolefins to organic sulfur compounds followed by subsequent hydrogenation and desulfurization.

3,595,781 SOLVENT EXTRACTION OF AROMATIC HYDROCARBONS

Francois Pierre Navarre, Paris, André Molines, Moureux-Neuf, and Claude Raimbault, Sevres, France, assignors to Institut Français du Pétrole, des Carburants et Lubrifiants, Ruell Malmaison, Hauts-de-Seine, France

Filed Dec. 3, 1968, Ser. No. 780,623
Claims priority, application France, Dec. 6, 1967, 131,258
Int. Cl. C10g 21/28 14 Claims



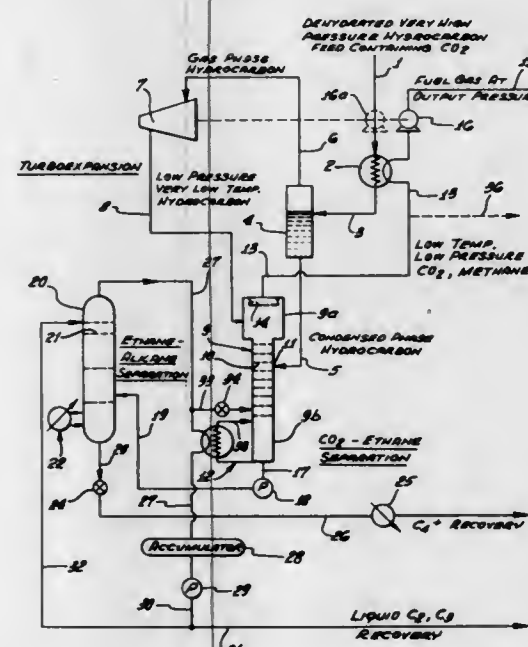
A process for purifying at least a portion of a recycled extraction solvent recovered, from the extract, in the solvent extraction of aromatic hydrocarbons from a liquid and mixture of said aromatic hydrocarbons and a raffinate which comprises contacting said portion of the extraction solvent with the raffinate in the presence of additional water so that the ratio of the total water to recycle extraction solvent present in about 0.7 part by weight of water to about 100 parts by weight of recycle extraction solvent.

3,595,782 METHOD FOR SEPARATING CARBON DIOXIDE FROM HYDROCARBONS

Robert W. Bucklin, Houston, and Howard Grekel, Claremore, Tex., and Lamar F. Sudduth, Tulsa, Okla., assignors to The Fluor Corporation, Ltd., and Pan American Petroleum Corporation, fractional part interest to each

Filed Dec. 5, 1968, Ser. No. 781,360
Int. Cl. C10g 5/06 39 Claims

U.S. Cl. 208—340



High carbon dioxide content e.g. 1-10% carbon dioxide by volume, high pressure hydrocarbon feed gases are proc-

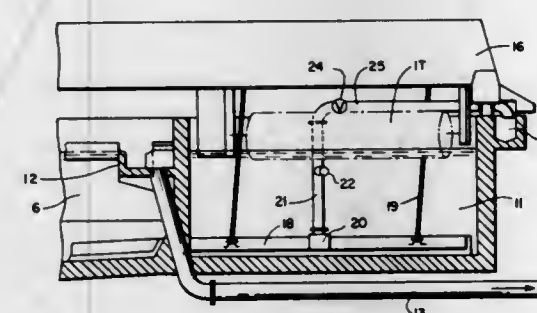
essed to liquid ethane essentially free of both methane and carbon dioxide with simultaneous production of low pressure distribution gas comprising methane and carbon dioxide without carbon dioxide icing to foul equipment by turbo-expansion of the precooled feed gas and stripping thereof while maintaining pressures thereon at which non-gaseous carbon dioxide remains dissolved in liquid hydrocarbon. Liquefaction of the ethane gas is achieved by heat exchange with stripper bottoms. The process thus achieves maximum conservation of heat and power.

3,595,783 METHOD AND APPARATUS FOR AEROBIC STABILIZATION OF SLUDGE

Peter Pflanz, Josef Muskat, and Werner Ohl, Michelbach, Germany, assignors to Passavant-Werke, Michelbacherhütte, Germany

Filed Feb. 28, 1969, Ser. No. 803,182
Claims priority, application Austria, May 21, 1968, 4,872/68
Int. Cl. C02c 1/10 16 Claims

U.S. Cl. 210—14



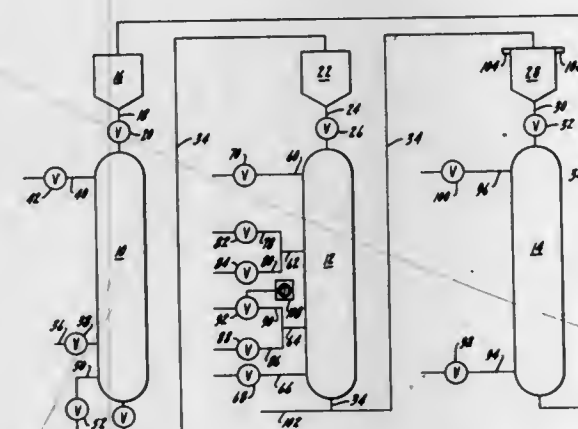
A method and apparatus for aerobic stabilization of sewage sludge. Separate circulating and aerating devices are provided, the former for stirring up sludge from the tank bottom and the latter for injecting gas into the stirred up sludge. Both devices may be mounted on the same traveling bridge with the aerating means forward of the circulating means for movement together along the tank.

3,595,784 CONTINUOUS COUNTERCURRENT ION EXCHANGE METHOD AND APPARATUS

Donald J. Butterworth, Lyndhurst, N.J., assignor to Ecodyne Corporation, Chicago, Ill.

Filed Oct. 14, 1968, Ser. No. 767,438
Int. Cl. B01d 15/02, 15/04 7 Claims

U.S. Cl. 210—33



In a conventional continuous countercurrent ion exchange resin systems, wherein the regeneration tank has an upper resin inlet, an upper liquid outlet, a regenerant

inlet below the liquid outlet, separation liquid inlet means below the regenerant inlet, and a lower resin outlet below the separation liquid inlet, a method for transferring resin is provided which insures a continuous upflow during the introduction of regenerant. The tank is filled with resin, regenerant is introduced at the regenerant inlet, and a separation liquid and supplemental separation liquid are introduced at the separation liquid inlet means to pressurize the tank and compact the resin, simultaneously forcing a minor portion of the resin out through the resin outlet. The introduction of supplemental separation liquid and the removal of resin from the tank are terminated at about the same time.

The invention also provides apparatus for carrying out the method, and comprising supplemental separation liquid inlet means communicating with the regeneration tank below the regenerant inlet, and having valve means thereon.

3,595,785 METHOD AND COMPOSITIONS FOR REMOVING PHOSPHATES FROM WATER

Burnett D. Bruce, Wheaton, and Heinz Seller, Cicero, Ill., assignors to Eagle-Picher Industries, Inc., Cincinnati, Ohio

No Drawing. Filed Feb. 5, 1970, Ser. No. 9,064
Int. Cl. C02b 1/18 8 Claims

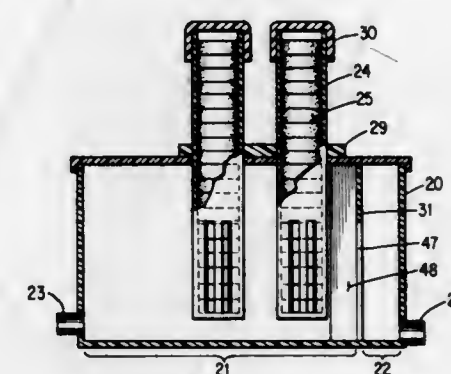
U.S. Cl. 210—59 8 Claims
Method and compositions for inorganic phosphates from waste waters wherein the phosphate bearing water is contacted with a borosilicate glass composition containing from 5 to 25% by weight of one or more of the following oxides: calcium oxide, barium oxide and zinc oxide.

3,595,786 APPARATUS FOR TREATING FLUIDS

Roland J. Horvath, South Euclid, and Charles G. Parsons, Mentor, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio

Continuation-in-part of abandoned application Ser. No. 748,840, July 30, 1968. This application Apr. 27, 1970, Ser. No. 32,099

Int. Cl. B01d 57/00 12 Claims



Apparatus for treating fluids has a container with an inlet and an outlet for receiving a fluid. Where necessary, a baffle means in the container is used to form a stilling zone to reduce the kinetic energy of the fluid entering the container. In a contact zone in the container at least one holding means for a treating agent is positioned in contact with the fluid for the purpose of treating the fluid with the agent. The amount of agent exposed to contact with the fluid is adjustable by changing the position of the holding means. The holding means is rechargeable from without the container and a baffle means with an adjustable weir opening (which could be the outlet to the container) is disposed after the contact zone to reg-

ulate the amount of fluid in the container capable of contacting the agent. The apparatus can be used in treating the effluent from waste water treatment plants.

3,595,787

STREAM POLLUTION CONTROL PROCESS

Morris Sheikh, 803 Canterbury Crescent,
Bloomfield Hills, Mich. 48013

No Drawing. Filed Apr. 14, 1966, Ser. No. 542,468
Int. Cl. C02c 5/02

U.S. Cl. 210—60 1 Claim

A stream pollution control process is disclosed comprising treating soluble oil waste emulsions in an industrial plant effluent with treatment chemicals selected from the group consisting of inorganic salts and bases to split said soluble oil waste emulsions into an oil phase containing said oil and a water phase containing said other pollutants, an emulsifier being added in said process to eliminate tendency of the oil phase to become sticky from said splitting by said treatment chemicals, separating said oil and water phases from each other and thereafter separately treating them without discharging oil or said other pollutants into streams, treating said oil phase to render it re-usable as soluble oil, concentrating the water phase to render it re-usable as said treatment chemicals for treating further amounts of said soluble oil waste emulsions, and repeating the above treatment in a closed cycle in respect to said industrial plant effluent by re-using the concentrated water phase as said treatment chemicals to treat further amounts of soluble oil waste emulsions in said industrial plant effluent.

3,595,788

FILTER FOR SEPARATING SUPERFLUID HELIUM

Wilhelmus Franciscus Knippenberg and Gerrit Verspul,
Emmasingel, Eindhoven, Netherlands, assignors to U.S.
Phillips Corporation, New York, N.Y.

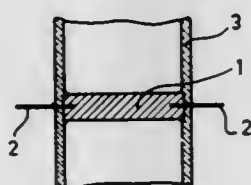
Filed Apr. 8, 1970, Ser. No. 26,696

Claims priority, application Netherlands, Apr. 16, 1969,
6906104

Int. Cl. B01d 39/00

U.S. Cl. 210—500

2 Claims



A filtering element for separating superfluid helium from liquid helium, characterized in that the filtering element consists of coherent microporous silicon carbide which is electrically conductive at least superficially due to additions (donors and/or acceptors) determining the conductivity properties, said element comprising current supply contacts.

3,595,789

GREASE RESISTANT TO OIL SEPARATION AT ELEVATED TEMPERATURE

Henry Selden Coshburn, Jr., New York, N.Y., assignor
to Mobil Oil Corporation

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,186

Int. Cl. C10m 5/20, 5/16, 7/25

U.S. Cl. 252—28

10 Claims

Greases substantially resistant to oil separation at elevated temperature are formed by preparing a grease composition containing a complex soap or a clay gelling agent and then mixing with the grease a minor amount of a polyisobutylene, a polystyrene, or a methacrylate copolymer, without substantial shearing of the polymer.

OIL SOLUBLE HIGHLY BASIC METAL SALTS OF ORGANIC ACIDS

George R. Norman, Lyndhurst, and William M. Le Suer,
Cleveland, Ohio, assignors to The Lubrizol Corporation,
Wickliffe, Ohio

No Drawing. Continuation-in-part of application Ser. No.
858,603, Dec. 10, 1959, which is a continuation-in-part
of application Ser. No. 410,461, Feb. 15, 1954. This
application Oct. 22, 1969, Ser. No. 868,586

Int. Cl. C10m 1/40, 1/46

The portion of the term of the patent subsequent
to Apr. 4, 1984, has been disclaimed

U.S. Cl. 252—32.7

13 Claims

Oil soluble basic metal salts of organic acids such as sulfonic acids, carboxylic acids and phosphorus acids are obtainable by the reaction of such acids with an excess amount of metal base in the presence of an acidic gas such as carbon dioxide and a promoter such as alcohol under substantially anhydrous conditions.

3,595,791

BASIC, SULFURIZED SALICYLATES AND METHOD FOR THEIR PREPARATION

Jerome M. Cohen, Cleveland, Ohio, assignor to The
Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Filed Mar. 11, 1969, Ser. No. 806,289

Int. Cl. C10m 1/24, 1/54

U.S. Cl. 252—33.6

14 Claims

Basic metal salts of salicylic acid sulfides are prepared by reacting a salicylic acid, or a salt thereof, with sulfur and an alkaline earth base at a temperature of about 150–250° C., in the presence of an alkylene or polyalkylene glycol or a monoether thereof. The products are useful as detergent additives for lubricants.

3,595,792

LUBRICATING OIL ADDITIVES

John Scotchford Elliott and Gerald John Joseph Jayne,
London, and Anthony David Brazier, Wokingham,
Berkshire, England, assignors to Castrol Limited, London,
England

No Drawing. Filed Apr. 4, 1968, Ser. No. 718,930

Claims priority, application Great Britain, Apr. 5, 1967,
15,726/67

Int. Cl. C10m 1/48

U.S. Cl. 252—32.7

9 Claims

The invention provides a lubricating oil additive consisting essentially of a mixture of at least one bismuth dihydrocarbyl dithiophosphate and at least one salt of a dihydrocarbyl dithiophosphoric acid and a metal of Group IIb of the Periodic Table selected from the group consisting of zinc dihydrocarbyl dithiophosphates and cadmium dihydrocarbyl dithiophosphates, which additive may be admixed with an oil of lubricating viscosity, for example in an amount of from 0.01% to 10% by weight based on the total weight of the oil and additive.

3,595,793

LUBRICANT COMPOSITION

Raymond H. Boehringer and Robert E. Vail, Cincinnati,
Ohio, assignors to Emery Industries, Inc., Cincinnati,
Ohio

No Drawing. Filed Aug. 14, 1968, Ser. No. 755,495

Int. Cl. C10m 1/36

U.S. Cl. 252—33.6

8 Claims

This invention is concerned with compounds that may be used as additives in synthetic lubricants. The compounds are formed from an amide of benzoic acid or a substituted benzoic acid and aminoguanidine bicarbonate, and a salt forming aliphatic or aromatic carboxylic acid having from about 6 to 40 carbon atoms.

3,595,794

ELECTROSTATOGRAPHIC DEVELOPER

Robert J. Hagenbach and Myron J. Lenhard, Rochester,
N.Y., assignors to Xerox Corporation, Rochester, N.Y.

No Drawing. Filed Apr. 17, 1967, Ser. No. 631,193

Int. Cl. G03g 9/02

U.S. Cl. 252—62.1

3 Claims

An electrostatographic developer mixture comprising finely-divided electroscopic toner particles having a size less than about 30 microns and substantially homogeneous glass carrier particles having an average particle size between about 30 microns and about 1000 microns, each of the carrier particles having a specific gravity between about 3.0 and about 7.6 and consisting essentially of from about 12 percent to about 30 percent by weight oxides of silicon and from about 70 percent to about 88 percent by weight oxides of lead and less than about 5 percent by weight oxides of sodium, potassium, lithium and mixtures thereof.

3,595,795

PIEZOELECTRIC CERAMIC

Norio Tsubouchi, Masao Takahashi, Tomeji Ohno, and
Tsuneo Akashi, Tokyo-to, Japan, assignors to Nippon
Electric Company, Limited, Tokyo, Japan

Filed Nov. 8, 1967, Ser. No. 681,494

Claims priority, application Japan, Nov. 11, 1966,
41/74,371, 41/74,372; Nov. 26, 1966, 41/77,372;

May 26, 1967, 42/33,509; June 19, 1967, 42/
39,854, 42/39,855

Int. Cl. C04b 35/46, 35/48

U.S. Cl. 252—62.9

4 Claims

A piezoelectric ceramic is disclosed consisting essentially of a solid solution of the three components $Pb(Li_{1/4}Zr_{3/4}O_3)$, $PbTiO_3$ and $PbZrO_3$, wherein Z represents one element selected from the group consisting of Nb, Ta and Sb.

3,595,796

TRACTION DRIVE TRANSMISSION CONTAINING NAPHTHENES, BRANCHED PARAFFINS, OR BLENDS OF NAPHTHENES AND BRANCHED PARAFFINS AS LUBRICANTS

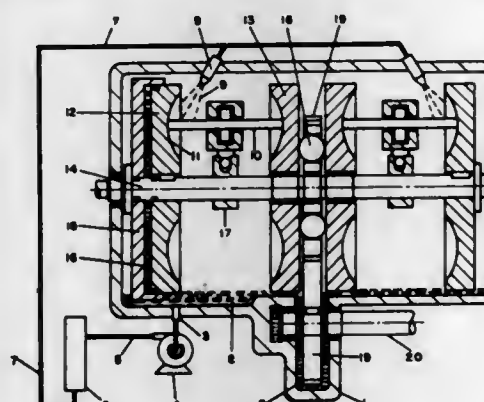
Irl N. Duling, West Chester, and David S. Gates, Swarthmore, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

Filed Nov. 1, 1967, Ser. No. 679,833

Int. Cl. C09k 3/00; F16h 15/08

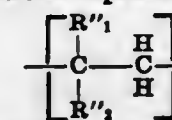
U.S. Cl. 252—73

20 Claims



Naphthenes, such as alkyl Decalins, perhydroterphenyls, perhydrofluorenes, perhydrogenated oligomers of styrene, α -methyl styrene, β -methyl styrene and mono-, di-, tri- or tetraalkyl or alkyl cyclohexyl substituted derivatives of such naphthenes are useful as lubricants or as components of lubricants for traction drive transmissions. A novel traction fluid having a high traction coefficient and a high viscosity index is obtained by blending selected naphthenes with from 0.1–20 parts by weight, based on the naphthene, of a branched paraffin corresponding to hydrogenated liquid C_3 – C_8 olefin polymer, copolymer, or terpolymer. Hydrogenated petroleum oils are also useful as trac-

tion fluids or as components of blended traction fluids, as are branched paraffins corresponding to the formula



wherein R''_1 is hydrogen or methyl, and when R''_1 is hydrogen, R''_2 is isopropyl or isobutyl, and when R''_1 is methyl, R''_2 is methyl, ethyl, isopropyl or isobutyl.

3,595,797

BLENDED BRANCHED PARAFFIN FLUIDS FOR USE IN TRACTION DRIVE TRANSMISSIONS

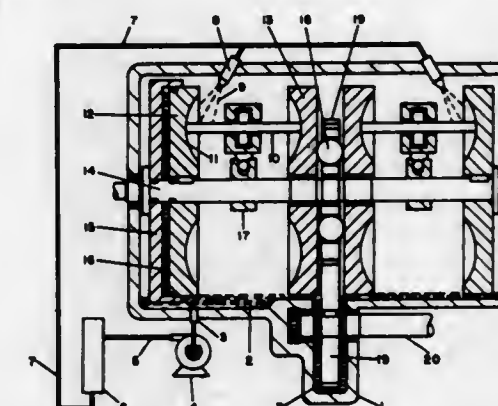
Irl N. Duling, West Chester, David S. Gates, Swarthmore, and Marcus W. Haseltine, Jr., Chester, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

Filed Nov. 1, 1967, Ser. No. 679,834

Int. Cl. F09k 3/00; F16h 15/08

U.S. Cl. 252—73

14 Claims



A hydrocarbon base stock, useful as a lubricant for a traction drive transmission, comprising a blend of

(a) at least one branched paraffin oil having an NMR spectrum showing a large peak at 8.58 tau and no more than a minor peak in the area of 8.84–8.85 tau, and

(b) at least one branched paraffin oil having an NMR spectrum showing a large NMR peak in the area of 8.84–8.85 tau, and no more than a minor peak in the area of 8.58 tau.

The base stock can also contain selected naphthenes.

3,595,798

CLEANSING COMPOSITIONS

Tom Smith, Leeds, and John Stewart Lodge, Dewsbury, England, assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,238

Int. Cl. C11d 7/54

U.S. Cl. 252—95

3 Claims

This invention concerns a solid denture cleanser composition which contains a peroxygen compound and the dye erythrosine. The composition also contains an amino carboxylic acid chelating agent which acts to control the rate at which the colour due to the erythrosine of an aqueous solution of the composition fades.

ERRATUM

For Class 252—99 see:
Patent No. 3,595,968

3,595,799

PICKLING ADDITIVE

Joseph C. Peterson, Indianapolis, Ind., assignor to Crown Chemical Company, Inc., Indianapolis, Ind.

Filed Apr. 1, 1968, Ser. No. 717,667

Int. Cl. C11d 7/34; C23g 1/06

U.S. Cl. 252—137

2 Claims

A pickling additive composition comprising from 20–25% thiourea, 20–25% urea, 20–25% di-ammonium phosphate and 20–25% ethylenediaminetetracetic acid

(EDTA), which, when added to an acid pickling bath, reduces acid consumption by at least 25%.

3,595,800

COMPOSITION AND PROCESS FOR CLEANING NONFERROUS METALS AND THEIR ALLOYS

Theophil J. Wleczorek, West Haven, Conn., assignor to Enthone, Incorporated, New Haven, Conn.

No Drawing. Filed June 26, 1968, Ser. No. 740,019

Int. Cl. C11d 9/30, 7/04; B21c 35/06

U.S. Cl. 252—117

11 Claims

Cleaning of metal surfaces and especially the surfaces of nonferrous metals and their alloys, as exemplified by the surfaces of zinc base die castings, to remove difficulty removable foreign deposits therefrom such as, for example, buffing compound residues and other soils, e.g. grease and oil, without any substantial corrosion and discoloration of the metal surface. The ready-to-use liquid cleaning composition comprises one or more soaps from the group of the amine and alkanolamine salts of fatty and rosin acids, an effective amount, sufficient to inhibit corrosion of the metal surface by the cleaning composition, of elemental sulfur, one or more solubilizers for the sulfur, and an aqueous liquid, usually water. Cleaner concentrate compositions adapted to be mixed together with the aqueous liquid to form such ready-to-use cleaning composition, also constitute the present invention.

3,595,801

AQUEOUS DISPERSIONS OF MIXTURES OF BENZOXAZOLE DERIVATIVES AND THEIR USE AS OPTICAL BRIGHTENERS

Günter Rösch, Altenhain, Taunus, Otto Smerz, Kelkheim, Taunus, and Erich Schinzel, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Dec. 9, 1968, Ser. No. 782,478

Claims priority, application Germany, Dec. 29, 1967,

P 15 94 855.7

Int. Cl. D06l 3/12

U.S. Cl. 252—301.2

9 Claims

A mixture of 1,4-naphthalene-bis-(2'-benzoxazoles) and of p-substituted 2-styryl benzoxazoles in the form of an aqueous dispersion shows a higher brightening effect on fibrous materials which are, at least partially, of synthetic origin, than the two components. The two components are used in a ratio of 0.1 to 10 parts by weight of styryl benzoxazole per each part by weight of naphthalene derivative.

3,595,802

DIVALENT EUROPIUM ACTIVATED BARIUM-STRONTIUM ALUMINATE LUMINESCENT MATERIAL

George Blasse, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 9, 1968, Ser. No. 782,277

Claims priority, application Netherlands, Dec. 12, 1967, 6716848

Int. Cl. C09k 1/66

U.S. Cl. 252—301.4R

3 Claims

Bivalent europium activated barium or barium-strontium luminescent aluminate useful in mercury vapor lamps.

3,595,803

METHOD FOR GROWING OXIDE SINGLE CRYSTALS

Cortland O. Dugger, 118 Fayerweather St., Cambridge, Mass. 02138

No Drawing. Continuation-in-part of application Ser. No. 619,132, Feb. 24, 1967. This application Sept. 4, 1969, Ser. No. 855,426

Int. Cl. C09k 1/68

U.S. Cl. 252—301.4

9 Claims

A method for forming stoichiometrically proportioned refractory oxide single crystals from a mixture of a

cationic halide such as magnesium fluoride and a cationic oxide such as aluminum oxide, in which the cations from both the halide and the oxide form the multiple cationic components of the resultant crystalline material. The method involves the steps of heating the mixture to a temperature slightly above its melting point for about one hour to effect an apparent hydrolysis of the halide and form a homogenous melt followed by the step of cooling the melt within a programmed cooling rate range of from about 0.5° C. per hour to about 10° C. per hour to a temperature which is slightly above the solidification point of the melt.

3,595,804

METHOD FOR PREPARING ZINC AND ZINC-CADMIUM SULFIDE PHOSPHORS

Joseph S. Martin, Jr., Lancaster, Pa., assignor to RCA Corporation

No Drawing. Filed Oct. 30, 1968, Ser. No. 771,984

Int. Cl. C09k 1/12

U.S. Cl. 252—301.6S

5 Claims

A method for preparing zinc and zinc-cadmium sulfide phosphors including placing in a covered container a mixture of zinc sulfide or zinc-cadmium sulfide, an activator quantity of copper or silver as a compound thereof, an activator quantity of aluminum as a compound thereof, a minor proportion of sulfur and a minor proportion of carbon. The mixture is heated to its reaction temperature and then cooled. After cooling, whatever carbon remains is removed as by screening the batch through a screen.

3,595,805

STEAM REFORMING WITH PRELIMINARY HYDRODESULFURIZATION

Johann Gunther E. Cohn, West Orange, and William C. Pfefferle, Middletown, N.J., assignors to Englehard Minerals & Chemicals Corporation, Newark, N.J.

Filed July 17, 1968, Ser. No. 745,439

Int. Cl. C01b 1/16

U.S. Cl. 252—373

4 Claims

A combination process for the desulfurization and steam reforming of normally liquid hydrocarbons wherein the hydrogen required for desulfurization is obtained from the steam reforming reaction product and introduced into the feed to the desulfurizer by diffusion through a non-porous hydrogen-permeable membrane.

3,595,806

METHOD FOR THE PRODUCTION OF ACTIVATED CARBON BY PARTIAL OXIDATION OF ATOMIZED CELLULOSE PULPING LIQUOR

Steven Prahacs, Dollard des Ormeaux, Quebec, Hugh G. Barclay, Dorval, Quebec, and Jean J. O. Gravel, Montreal, Quebec, Canada, assignors to Pulp and Paper Research Institute of Canada, Pointe Claire, Quebec, Canada

Filed Nov. 27, 1968, Ser. No. 779,578

Claims priority, application Canada, Aug. 21, 1968, 28,069

Int. Cl. C01b 31/08

U.S. Cl. 252—421

28 Claims

A process for the production of finely divided carbon, activatable by aqueous and/or acid leaching, from concentrated spent pulping liquor in a single high temperature stage which process comprises passing the spent liquor under pressure through at least one atomizing nozzle into a reactor chamber to form at least one high velocity atomized spray of finely divided liquid droplets intimately admixed with a free oxygen containing gas in an amount sufficient to effect a selected partial oxidation of the carbonaceous material in said liquor, said reaction chamber being maintained at a high temperature sufficient to effect said selected partial oxidation, each

atomized spray being passed in said chamber through an open-ended tube substantially coaxial with said spray and spaced from but adjacent to each spray nozzle to cause recirculation, by induction of a portion of the hot gaseous products of said partial oxidation to said spray adjacent said nozzle whereby to maintain the reaction temperature of said partial oxidation of the carbonaceous material in said liquor.

3,595,807

LIQUID CATALYST COMPOSITIONS AND THEIR USE IN THE PRODUCTION OF VINYL ACETATE FROM ETHYLENE

John D. Rushmere, Webster Farms, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Jan. 29, 1969, Ser. No. 795,039

Int. Cl. C07c 67/00

U.S. Cl. 252—429

2 Claims

Liquid catalyst compositions containing acetic acid, up to 20 weight percent water, a palladium compound catalyst, and salts to provide: copper, chromic (+3) and potassium cations, and acetate and chloride anions. Also, a cyclic method for producing vinyl acetate wherein such a catalyst composition is reacted with ethylene in a first stage to produce vinyl acetate and form cuprous copper which is reoxidized to the cupric state by reacting the catalyst composition with molecular oxygen in a second stage before the catalyst composition is recycled for re-use in the first stage.

3,595,808

CALCIUM NICKEL PHOSPHATE CATALYSTS AND METHOD OF PREPARING SAME

Hugh C. Bertsch, St. Louis, Mo., and John A. Drelbelbis, Wattsburg, Pa., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

No Drawing. Filed Dec. 13, 1968, Ser. No. 783,774

Int. Cl. B01j 11/82

U.S. Cl. 252—437

5 Claims

Dehydrogenation catalysts of improved selectivity are prepared by precipitating calcium nickel phosphate at a pH above 7 in the presence of a small amount of manganese, for example 0.1 mole percent based on the combined calcium plus nickel. Advantageously, the precipitation may be carried out at a constant pH. The resulting calcium nickel phosphates are essentially in the form of β -tricalcium phosphate and are substantially free from undesirable hydroxyapatite.

3,595,809

LANTHANUM CHROMIUM FERRITE CATALYST

William L. Kehl, Indiana Township, Allegheny County, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed June 27, 1969, Ser. No. 837,375

Int. Cl. B01j 11/32, 11/06

U.S. Cl. 252—462

9 Claims

A hydrocarbon conversion catalyst comprising lanthanum, chromium, iron and oxygen in a lanthanum chromium ferrite perovskite-type structure.

3,595,810

ZINC CHROMIUM FERRITE CATALYST

William L. Kehl, Indiana Township, Allegheny County, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Division and Continuation-in-part of application Ser. No. 493,222, Oct. 5, 1965. This application June 24, 1969, Ser. No. 836,138

Int. Cl. B01j 11/06, 11/32

U.S. Cl. 252—468

13 Claims

A hydrocarbon conversion catalyst comprising zinc,

chromium, iron and oxygen in a zinc chromium ferrite spinel-type structure.

3,595,811

METHOD OF PREPARING POLYPHENYLENE POLYMERS

Norman Bilow, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

No Drawing. Filed Sept. 5, 1967, Ser. No. 665,308

Int. Cl. C08g 33/00

U.S. Cl. 260—2

9 Claims

Method of providing improvement in the manufacture of commercially useful polyphenylene polymers by the polymerization of meta-terphenyl, ortho-terphenyl, biphenyl, quaterphenyls other than para quaterphenyl, and mixtures of the same, including mixtures of such compounds with other phenylene oligomers or polyphenyls with from 1 to 5 aromatic rings and the discovery of the use of excess strong Lewis acid polymerization catalyst to oxidant and monomer to effect a viscosity change, improving polymerization conditions and amazingly provided improved yield, better homogeneity and reducing the reaction temperature, and the improved polyphenylene products produced thereby.

3,595,812

CATIONIC POLYMERIZATION OF CYCLIC ETHERS

Jeffrey John Kendall Boulton, Lymm, England, assignor to B.P. Chemicals Limited, London, England

No Drawing. Filed Aug. 11, 1966, Ser. No. 571,707

Claims priority, application Great Britain, Sept. 7, 1965, 38,126/65; Jan. 13, 1966, 1,586/66; Feb. 1, 1966, 4,352/66

Int. Cl. C08g 1/04, 23/04; C08b 5/04

U.S. Cl. 260—2

6 Claims

Carbonium and oxonium hexafluoro phosphate compounds are used as catalysts in the polymerization of monomeric materials such as cyclic ethers, formals, acetals, N-arylimino compounds, alkyl vinyl ethers, aromatic vinyl compounds and alkenes.

3,595,813

TEXTILE FINISHING COMPOSITIONS

Earl H. Hartgrove, Jr., Parsippany, N.J., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

No Drawing. Filed Aug. 16, 1968, Ser. No. 753,079

Int. Cl. C08g 23/14, 23/20, 25/00

U.S. Cl. 260—2

5 Claims

A method of imparting durable antistatic finish to hydrophobic materials normally susceptible to accumulating electrostatic charges comprising treating said materials in an acid environment with a hydroxy terminated polyfunctional polyoxyalkylene compound and an acid-catalyzed nitrogen-containing crosslinking agent.

3,595,814

URETHANES CONTAINING MONOCARBAMATE CHAIN EXTENDERS

Rodney Frederick Lloyd and George Phillip Speranza, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Nov. 14, 1968, Ser. No. 775,923

Int. Cl. C08g 22/16, 22/44

U.S. Cl. 260—2.5AM

10 Claims

The use of monocarbamates as chain extenders in polyurethane compositions provides for the production of polyurethane elastomers having improved tensile strength, tear strength and elongation properties. The use of this class of chain extenders also provides for the production of a foamed polyurethane elastomer having a strong, scuff-resistant integral skin.

3,595,815 SELF-EXTINGUISHING PLASTICS COMPOSITIONS

Herbert Willersinn, Ludwigshafen (Rhine), Germany, Rolf Dieter Rauschenbach, Bombay, India, and Rudolf Ilgmann, Hohensachsen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Continuation-in-part of abandoned application Ser. No. 437,302, Mar. 4, 1965. This application Nov. 29, 1968, Ser. No. 780,222
Claims priority, application Germany, Mar. 6, 1964, P 12 82 939.9-43

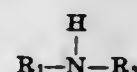
Int. Cl. C08f 47/10, 45/58, 45/62

U.S. Cl. 260—2.5 4 Claims
Self-extinguishing styrene polymers containing (a) an organic bromine compound and lead naphthenate or (b) an organic chlorine compound and iron naphthenate. The combinations (a) and (b) are exceedingly effective when used as flame-proofing agents.

3,595,816 POLYAMIDE COMPOSITION

Fred O. Barrett, Cincinnati, Ohio, assignor to Emery Industries, Inc., Cincinnati, Ohio
No Drawing. Filed Jan. 31, 1969, Ser. No. 795,706
Int. Cl. C08g 20/20, 51/60

U.S. Cl. 260—18 7 Claims
A stabilized polyamide composition prepared from a hydrogenated polymerized fatty acid, a polyfunctional amine, and an oxidation inhibitor having the general formula:



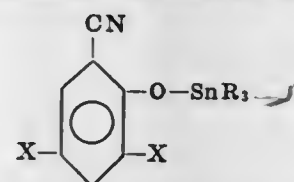
wherein R_1 and R_2 are aryl or substituted aryl radicals.

3,595,817 ORGANOTIN NITRILES AND THEIR USE IN SURFACE-COATING COMPOSITIONS

Adolph J. Deinet, Woodcliff Lake, N.J., assignor to Tenneco Chemicals, Inc.
No Drawing. Original application Feb. 19, 1969, Ser. No. 800,741. Divided and this application May 11, 1970, Ser. No. 36,377

Int. Cl. C09d 3/64, 3/74, 5/14

U.S. Cl. 260—22R 5 Claims
Organotin compounds that have the structural formula



wherein each R represents an alkyl group having from 4 to 8 carbon atoms or a phenyl group; one of the X substituents represents halogen; and the other X substituent represents hydrogen or halogen are effective in the control of the growth of fungi and other micro-organisms in surface-coating compositions.

3,595,818 THERMOPLASTIC MOLDING COMPOSITION CONTAINING POLYESTERS AND ALKALI METAL SALTS OF EPOXYCARBOXYLIC ACIDS

Klaus Weissmerel, Kelkheim, Taunus, Hans Deiss, Augsburg, Rudolf Uebe, Hofheim, Taunus, and Rudolf Kern, Mainz, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Nov. 28, 1969, Ser. No. 880,907
Claims priority, application Germany, Dec. 5, 1968, P 18 12 944.7

Int. Cl. C08g 17/16

U.S. Cl. 260—22 9 Claims
Thermoplastic molding compositions suitable for injection molding of linear saturated polyesters and alkali metal

salts of epoxycarboxylic acids, which are distinguished by especially suitable crystallizing properties.

3,595,819 HIGHLY TRANSPARENT SELF-EXTINGUISHING COMPOSITIONS OF METHACRYLATE AND VINYL CHLORIDE RESINS

Ibrahim Dakli and Tommaso Perotti Nigra, Busto Arsizio, and Rinaldo Casiraghi, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
No Drawing. Continuation-in-part of application Ser. No. 642,297, May 31, 1967, which is a continuation-in-part of application Ser. No. 354,791, Mar. 25, 1964, both now abandoned. This application July 24, 1968, Ser. No. 747,107

Int. Cl. C08f 29/22

U.S. Cl. 260—23 6 Claims
Highly transparent, self-extinguishing, thermoplastic compositions having high resistance to chemical reagents and to atmospheric conditions and good resiliency, comprising (1) from about 35–55% by weight of a methacrylate resin containing less than about 0.08% by weight of bivalent sulfur, the resin being made up of a methyl methacrylate homopolymer and/or a copolymer of methyl methacrylate with an alkyl acrylate, the alkyl acrylate content of the copolymer being lower than 5% by weight; (2) from about 45–65% by weight of a vinyl chloride resin made up of a copolymer of vinyl chloride with from about 3% to 5% by weight of 2-ethylhexyl acrylate; (3) from about 0–10% by weight of a non-flammable, organic phosphoric acid salt plasticizer; and (4) lubricants and antioxidants.

3,595,820 PROCESS FOR ENHANCING THE SULFUR RETENTION OF SULFURIZED POLYBUTENES

Marvin J. Den Herder, Olympia Fields, Arthur C. Borg, Chicago, and Paul C. Vienna, Calumet City, Ill., assignors to Standard Oil Company, Chicago, Ill.
No Drawing. Filed Oct. 14, 1968, Ser. No. 767,503
Int. Cl. C08f 47/00

U.S. Cl. 260—23 7 Claims
In a process for forming sulfurized polybutenes for use in metal working oils including reacting molten sulfur with low molecular weight polybutenes, stripping to remove light undesirable components such as hydrogen sulfide, various mercaptans and unreacted polybutenes, removing entrained sulfur and cooling to ambient conditions, the improvement which comprises enhancing the retention of chemically combined sulfur in such polybutenes by maintaining the pH in the range of about 2.0 to 5.5 for a period of time sufficient to substantially stabilize the chemically combined sulfur content of the sulfurized polybutenes. Suitably, the pH is maintained within the range set forth from after the stripping step until at least the ambient conditions are reached. Continued maintenance of the pH during storage is also desirable.

3,595,821 NEOPRENE BASED ADHESIVES

Sanford Spector, Cranford, Martin M. Grover, Upper Montclair, and Robert Glaser, Piscataway, N.J., assignors to PPG Industries, Inc., Pittsburgh, Pa.
No Drawing. Filed Mar. 30, 1967, Ser. No. 626,975
Int. Cl. C08g 5/22

U.S. Cl. 260—25 12 Claims
Neoprene-based adhesives comprising (1) three different types of chloroprene polymer, (2) an oil-soluble, heat-hardenable phenol-aldehyde resin, a reaction product of a terpene-phenol resin with such a phenol-aldehyde resin, and/or a metal resinate, and (3) an alkali metal or alkaline earth metal oxide or hydroxide. The three differ-

ent types of chloroprene polymer include a reactive, vulcanizable neoprene; a low softening, high crystallizing neoprene; and a low softening, medium crystallizing neoprene. These adhesives have unique combination of high heat resistance, high immediate strength and long bonding range.

3,595,822 LATEX PAINT COMPOSITIONS

Thomas F. Swank, 21 Hitchinpost Road, Chelmsford, Mass. 01824
No Drawing. Continuation-in-part of application Ser. No. 603,142, Dec. 20, 1966, now Patent No. 3,523,810. This application Oct. 10, 1969, Ser. No. 865,526
Int. Cl. C09d 5/02; C09c 1/36

U.S. Cl. 260—29.6R 9 Claims
This disclosure relates to the use of titanium dioxide coated with a boehmite-type alumina having an average crystallite size of at least about 50 angstroms as a pigment in the preparation of gel-resistant latex paint compositions.

3,595,823 STABLE AQUEOUS EMULSIONS OF STYRENE- ACRYLONITRILE-ACRYLIC TERPOLYMERS

Denis K. Huang, Laurel, Md., assignor to Westvaco Corporation, New York, N.Y.
No Drawing. Filed July 18, 1969, Ser. No. 843,240
Int. Cl. C08f 19/18

U.S. Cl. 260—29.6T 6 Claims
A terpolymer comprising a major amount of styrene, and minor amounts of acrylonitrile and another acrylic material, which has utility as an organic pigment in paper coating compositions. A stable aqueous emulsion of the terpolymer is prepared without the need for conventional protective colloids by use of bulky emulsifiers. The average particle size of the terpolymers produced ranges from about 0.1 to about 0.2 micron.

3,595,824 POLYESTER PLASTICIZER FOR POLYVINYL CHLORIDE FABRICS

Robert D. Aylesworth, Phillip A. Froehlich, Thomas B. Hilton, and Herbert G. Rodenberg, Cincinnati, Ohio, assignors to Emery Industries, Inc., Cincinnati, Ohio
No Drawing. Original application Sept. 12, 1966, Ser. No. 578,483, now Patent No. 3,501,554, dated Mar. 17, 1970. Divided and this application Aug. 11, 1969, Ser. No. 870,701

Int. Cl. C08g 39/10, 51/38

U.S. Cl. 260—31.6 4 Claims
The invention relates primarily to drycleanable vinyl fabrics and other vinyl constructions and to novel plasticizers for polyvinyl chloride resins having an improved resistance to extraction in drycleaning solvents, such as perchloroethylene. More particularly, the invention relates to new polymeric plasticizers and polyvinyl chloride resins plasticized therewith. The plasticizers comprise non-chain terminated polyesters having a molecular weight range of from about 1500 to 30,000 resulting from esterification of a dibasic acid-glycol reaction mixture consisting essentially of two or more alkanedioic acids having from 4 to 12 carbon atoms, and two or more different alkylene glycols having from 2 to 6 carbon atoms, at least one having 2 or 3 carbon atoms and at least one having 3 to 6 carbon atoms in which the content of dibasic acids below C_6 is from about 0–50 equivalent percent, the content of C_6 to C_9 dibasic acids is from about 50–100 equivalent percent, and that of C_{10} to C_{12} dibasic acids is from 0–50 equivalent percent, based on the total equivalents of dibasic acid, and the content of C_2 to C_3 and C_3 to C_6 glycols each being from 20–80 equivalent percent based on the total equivalents of glycol in the reaction mixture. The plasticizers of this invention may also include from 1 to about

40% by weight based on the weight of the polyester of a super polyester polymer having a molecular weight of above 15,000.

3,595,825 RESINS AND CATALYST COMPOSITIONS THEREFOR

Russell Alexander Lindsey Miller, Bishopbriggs, Scotland, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed May 10, 1968, Ser. No. 728,322
Claims priority, application Great Britain, May 16, 1967, 22,724/67

Int. Cl. C08g 31/16

U.S. Cl. 260—31.2 11 Claims
The present compositions are provided which are suitable for the production of laminates. The resin composition contains special catalyst system which allows the resin composition to be cured in very short times at low temperatures. Additionally the resin composition provides laminates, which when cured, are very hard and rigid laminates. The composition contains an organopolysiloxane resin having 1 to 1.6 organo groups per silicon atom which are connected to the silicon by a C-Si linkage, a lead salt selected from 2-ethylhexoate and 3,5-trimethylhexoate, butyltin 2-ethylhexoate and iron octoate.

3,595,826 PROCESS FOR PREPARING IMPROVED 2,3- DICHLORO-1,3-BUTADIENE ADHESIVES

Wendell R. Conard, Kent, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio
No Drawing. Filed May 24, 1968, Ser. No. 731,728
Int. Cl. C08c 11/22, 11/24; C09j 3/12

U.S. Cl. 260—33.6 13 Claims
The process described herein comprises an improved method for preparing copolymers of 2,3-dichloro-1,3-butadiene and acrylonitrile to produce adhesive compositions of improved solubility such that the composition does not need to be heated prior to application as is the case in presently known copolymers of this type. The process used herein produces a product of improved solubility by virtue of the fact that the copolymer is prepared by continuous or incremental addition of the dichlorobutadiene monomer as the polymerization proceeds. In this way the copolymers produced toward the end of the copolymerization period closely resemble in molecular weight, monomer distribution and various other properties the copolymers produced at the beginning of the copolymerization. Consequently the resulting copolymer is homogeneous, has improved solubility, can be applied "cold," that is without prior heating, and has excellent adhesive properties.

3,595,827 ETHYLENE INTERPOLYMERS HAVING IMPROVED SLIP AND ANTI-BLOCKING PROPERTIES

George N. Foster, Somerville, N.J., assignor to Union Carbide Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 843,760, July 22, 1969. This application Nov. 26, 1969, Ser. No. 880,363

Int. Cl. C08f 45/44, 45/04

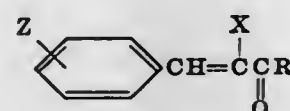
U.S. Cl. 260—32.6 10 Claims
The slip and anti-blocking properties of ethylene interpolymers have been improved by incorporating therein from about 0.02 to 1.0% by weight of amphipathic secondary fatty acid amides containing from about 20 to 24 carbon atoms and in which the nitrogen atom is substituted with a saturated hydrocarbon radical having from 14 to 26 carbon atoms and 0.01 to about 2.0% by weight of synthetic amorphous silica having a surface

area of about 175 to 400 meters²/g., a pore size of about 80-250 Å., and an average particle size of about 0.5 to 8.0 microns.

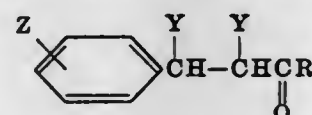
3,595,828

3-PHENYL-2-PROPEN-1-ONES AND 3-PHENYL-1-PROPANONES AS BIOTATS IN PLASTICS, PAINTS AND TEXTILES

Christian H. Stappfer, Newtown, Pa., assignor to Carlisle Chemical Works, Inc., Reading, Ohio
No Drawing. Filed July 25, 1969, Ser. No. 845,025
Int. Cl. C08f 45/64; C08k 1/76; C09d 5/14
U.S. Cl. 260-45.7 10 Claims
3-phenyl-2-propen-1-ones having the formula:



and/or 3-phenyl-1-propanones having the formula:



wherein R is alkyl, aryl, aralkyl, alkaryl or alkoxyaryl; X is hydrogen, chlorine or bromine; Y is chlorine or bromine; and Z is hydrogen, halogen, alkyl or aryl, are used as active biotats for the protection of poly(vinyl halide) formulations as well as other plastic compositions, textiles, coating compositions and paint compositions against fungi and bacteria.

3,595,829
POLYAMIDES

Geoffrey Spencer Davy, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England

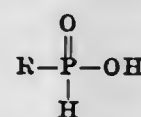
No Drawing. Filed July 29, 1968, Ser. No. 748,212
Claims priority, application Great Britain, Mar. 11, 1968, 11,769/68

Int. Cl. C08g 51/60

U.S. Cl. 260-45.8

9 Claims

Synthetic linear polyamides are stabilised against the degradative effects of heat by incorporating therewith a stabilising composition, devoid of copper and copper salts, and comprising a mixture of a diphenylamine substituted in each of the positions para to the amino group by an alkyl, cycloalkyl or aralkyl group with a phosphorus acid of the general formula



in which R represents a hydrogen atom, or an alkyl, cycloalkyl, aralkyl, aryl or hydroxyl group, or with a salt or ester of a said acid.

3,595,830

AMINO ORGANOSILANES AS ANTIOZONANTS FOR RUBBERS

William John Owen and Bryan Ewart Cooper, Glamorgan, Wales, assignors to Midland Silicones Limited, Reading, Berkshire, England

No Drawing. Filed July 23, 1969, Ser. No. 844,170
Claims priority, application Great Britain, July 26, 1968, 35,774/68

Int. Cl. C08c 11/66; C08d 11/04

U.S. Cl. 260-45.9

5 Claims

The resistance of a vulcanised organic elastomer to ozone is improved by incorporating certain amino organosilanes into the elastomer-forming composition prior to vulcanisation.

3,595,831 TRIPHENYLITIN NONYLPHENOXIDE AS A MICROBICIDE

Wilbur S. Taylor, Norwalk, Conn., assignor to R. T. Vanderbilt Company, Inc., New York, N.Y.

No Drawing. Filed July 10, 1968, Ser. No. 743,598

Int. Cl. C08f 45/64

U.S. Cl. 260-45.75K

3 Claims

Triphenyltin nonylphenoxide, which is produced by reaction of nonylphenol with triphenyltin hydroxide or bis-(triphenyltin) oxide, is useful as a bactericide and fungicide. It is especially useful as an additive to vinyl formulations and in agricultural uses in foliar applications.

3,595,832

HEAT INITIATED ROOM TEMPERATURE VULCANIZABLE SILICONE ELASTOMER

John P. Szendrey, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed May 19, 1969, Ser. No. 825,967

Int. Cl. C08f 11/04

U.S. Cl. 260-46.5

4 Claims

A mixture of a vinyl containing polydiorganosiloxane, RHSiCl_2 , an alkoxyated silicon compound and an organic peroxide is disclosed. The mixture cures to an elastomer after receiving an initial heating step and exposure to moisture. The mixture in the absence of moisture and after the initial heating step is stable and does not cure. A method of vulcanizing the above mixture is also disclosed.

3,595,833

COLD CURING EPOXY RESIN COMPOSITION

Ralph E. Stolton, Tolworth, Surrey, England, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Nov. 4, 1968, Ser. No. 773,308

Int. Cl. C08g 30/14

U.S. Cl. 260-47

9 Claims

Novel curing compositions useful in curing epoxy resins at low temperatures and having improved storage stability are provided, comprising a mixture of (1) an aromatic polyamine, (2) a polyalkene sulfone, (3) a component from the group consisting of dialkyl sulfoxides, cyclohexanone or alkyl substituted cyclohexanones, and (4) salicylic acid and/or lactic acid.

3,595,834

POLYSULFONAMIDES FROM DIPIPERIDYLS

Daniel Ashton Dimmig, King of Prussia, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

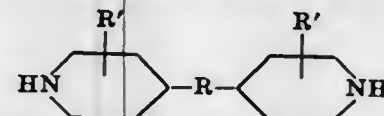
No Drawing. Filed Feb. 16, 1970, Ser. No. 11,893

Int. Cl. C08g 20/36

U.S. Cl. 260-49

4 Claims

High molecular weight, substantially amorphous polysulfonamides useful for forming fibers and films are the condensation products of an aromatic disulfonyl chloride and a dipiperidyl compound represented by



where R is lower alkylene and R' is hydrogen or lower alkyl.

3,595,835

THERMOSTABILIZED LINEAR POLYESTERS OR COPOLYESTERS

Eberhard Pilz, Bobingen über Augsburg, and Klaus Hoheisel and Eberhard Werner, Wiesbaden-Biebrich, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

No Drawing. Filed Dec. 2, 1968, Ser. No. 780,571

P 16 94 550.9

U.S. Cl. 260-45.85

10 Claims

This invention relates to a thermostabilized linear polyester or copolyester containing calcium acetate and phosphorous acid in a molar ratio in the range of 1:(0.1 to 0.8) and at least one additional phosphorus-containing stabilizer. The quantity of the phosphorous acid is in the range of 0.005 to 1 percent by weight and the quantity of the additional phosphorus-containing stabilizer is in the range of 0.001 to 5 percent by weight, both calculated on the quantity of the diester component employed.

3,595,836

PROCESS FOR THE PRODUCTION OF A DIMENSIONALLY STABLE POLYESTER FILM AND ARTICLE THEREOF

Wolfgang Korneli, Walter Selfried, and Eberhard Werner, Wiesbaden-Biebrich, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

No Drawing. Filed May 29, 1968, Ser. No. 732,864

Claims priority, application Germany, June 1, 1967, K 62,440

Int. Cl. B29c 25/00; C08c 19/00; D01d 5/12

U.S. Cl. 260-75

3 Claims

This invention relates to a planar, dimensionally stable polyethylene terephthalate film and a process for the production of the said planar, dimensionally stable polyethylene terephthalate film which comprises stretching an amorphous polyethylene terephthalate film, having a mean molecular weight less than 13,500, by at least 200 percent in orthogonal directions of the film plane at a temperature in the range of 85 to 95° C., with a force of not more than 0.5 kg./mm.², and then heating the film under tension to a temperature of at least 200° C. for at least five seconds.

3,595,837

THERMOPLASTIC POLYESTER MOLDING COMPOSITIONS CONTAINING SILICON SPIRANES

Walter Herwig and Ludwig Brinkmann, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Melster Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 31, 1969, Ser. No. 795,724

Claims priority, application Germany, Feb. 9, 1968, P 16 94 243.1

Int. Cl. C08g 39/04

U.S. Cl. 260-75

10 Claims

Molding compositions from linear saturated polyesters and silicon spiranes, which may be shaped in the thermoplastic state and from which injection-molded pieces can be made which do not exhibit flash formation.

3,595,838

POLYURETHANE COATING COMPOSITIONS

Akira Ogino, Toyonaka, Japan, assignor to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed May 22, 1968, Ser. No. 731,286

Claims priority, application Japan, May 23, 1967, 42/32,727, 42/32,728

Int. Cl. C08g 22/06, 22/18; C09d 3/72

U.S. Cl. 260-77.5

3 Claims

The compositions of the disclosure comprises (1) a polyester polyol and (2) an isocyanate component. By using, as isocyanate component, an adduct of trimethylolpropane and dimethylbenzene- ω,ω' -diisocyanate (XDI) in specified molar ratio (1:7 to 1:16) and essentially free from unreacted XDI, it is possible to produce a two-can type polyurethane coating composition having superior weathering resistance and excellent mechanical properties. Details of desirable polyester polyol components, which contribute improved corrosion resistance to the coating, are also disclosed.

3,595,839

CURABLE COMPOSITIONS OF IMPROVED VERSATILITY AND PROCESS OF PREPARING POLYUREAS

Kenneth B. Stokes, Minneapolis, Minn., assignor to General Mills, Inc.

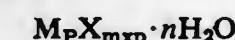
No Drawing. Filed Feb. 5, 1969, Ser. No. 796,922

Int. Cl. C08g 22/02

U.S. Cl. 260-77.5

21 Claims

Compositions capable of being cured under a wide variety of conditions comprising an organic polyisocyanate, a ketimine or aldimine blocked polyamine or isocyanate derivative thereof and an inorganic halide hydrate. Process of preparing polyureas from such compositions. The hydrate is of the formula:



where M is the metal ion, X is the halide ion, M is the valence of the metal ion, p is 1 or 2, and n is 1 to 7.

3,595,840

CONTROL OF PARTICLE SIZE IN VINYL MONOMER POLYMERIZATION

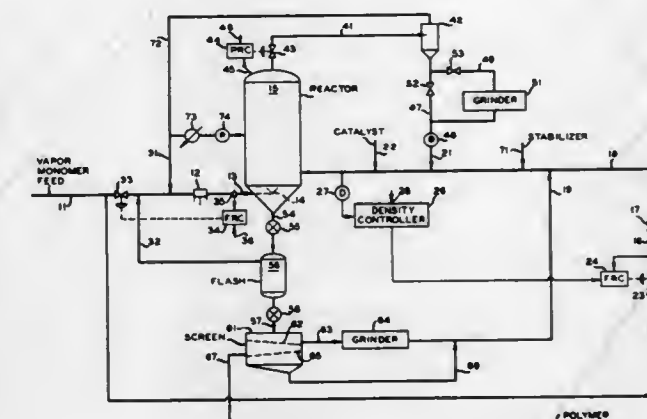
Charles W. Moberly and Gerald R. Kahle, Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Nov. 25, 1968, Ser. No. 778,709

Int. Cl. C08f 1/00, 3/00, 3/30

U.S. Cl. 260-78.4

8 Claims



A portion of the polymer particles withdrawn from a vapor phase polymerization reactor are ground to produce seed polymer particles which are then impregnated with a catalyst and reintroduced into the polymerization reactor. The portion to be ground can be the particles having a particle size greater than a desired value which are obtained by screening the reactor effluent. Polymer particles below a minimum size can also be returned to the reactor. Stabilizers can be added to the reactor to improve the properties of the polymer.

3,595,841

DIIMINOSUCCINONITRILE AS A VULCANIZATION RETARDER

David Apotheker, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Mar. 14, 1969, Ser. No. 807,412

Int. Cl. C08f 27/06; C08c 11/40

U.S. Cl. 260-79.5

7 Claims

Vulcanization with sulfur of a sulfur-curable elastomer in the presence of zinc oxide and an accelerator belonging to the group of lead, cadmium, zinc and ferric salts of certain thioacids is retarded by diiminosuccinonitrile. The thioacids are di(lower alkyl) dithiocarbamic acids, O,O-dialkyl phosphorodithioic acids, and 2-mercaptobenzothiazole.

3,595,842

NOVEL CATALYSTS FOR POLYMERIZATION OF ETHYLENE-ALPHA-OLEFIN DIENE TERPOLYMER RUBBERS

Alberg Schrage, East Orange, and Jules Ernest Schoenberg, Bergenfield, N.J., assignors to Dart Industries Inc., Los Angeles, Calif.

No Drawing. Filed Mar. 5, 1968, Ser. No. 710,643
Int. Cl. C08f 15/40

U.S. Cl. 260—80.78 9 Claims
Ethylene-alpha-olefin terpolymerization process resulting in products of reduced gel content, in which more particularly, rubbery terpolymers of ethylene, propylene, and a bridged ring diene hydrocarbon are prepared by transition metal catalysts in the presence of gel suppressing compounds consisting of amines, ethers, sulfides, siloxanes or phosphorous compounds or mixtures thereof.

3,595,843

VANADIUM COORDINATION CATALYSTS

James R. Huerta and Amos R. Anderson, Adrian, and Jeffrey G. Meyer, Chelsea, Mich., assignors to Dart Industries, Inc., Los Angeles, Calif.

No Drawing. Filed July 31, 1969, Ser. No. 846,606
Int. Cl. C08f 3/04, 15/04, 15/40

U.S. Cl. 260—80.78 21 Claims
The reaction product of a vanadium oxide such as vanadium pentoxide and an organophosphate such as triethyl phosphate in the presence of oxygen or an oxygen-containing gas such as air when combined with an organo-aluminum halide results in a very active vanadium coordination catalyst. This catalyst is especially useful in the production of "EP" and "EPDM" rubber.

3,595,844

VANADIUM ORGANOMETALLIC COMPOUNDS AND POLYMERIZATION CATALYSTS THEREOF

James R. Huerta, Adrian, and Jeffrey G. Meyer, Chelsea, Mich., assignors to Dart Industries, Inc., Los Angeles, Calif.

No Drawing. Filed July 31, 1969, Ser. No. 846,614
Int. Cl. C08f 15/40, 15/04; C01b 25/26

U.S. Cl. 260—80.78 22 Claims
The reaction product of a sulfur-containing vanadium salt such as vanadyl sulfate and an organophosphate, such as triethyl phosphate, results in a hydrocarbon soluble catalyst component. This component forms an active vanadium coordination catalyst when combined with an organo-aluminum halide. The resulting vanadium coordination catalyst is especially useful in the production of "EP" and "EPDM" rubber.

3,595,845

POLYMERIZATION OF CYCLIC ALKYLENE OXIDE WITH METHACRYLONITRILE USING AN ORGANOMETALLIC CATALYST

Hideo Tomomatsu, Austin, Tex., assignor to Jefferson Chemical Company, Houston, Tex.

No Drawing. Filed May 5, 1969, Ser. No. 821,983
Int. Cl. C08f 3/78, 7/12

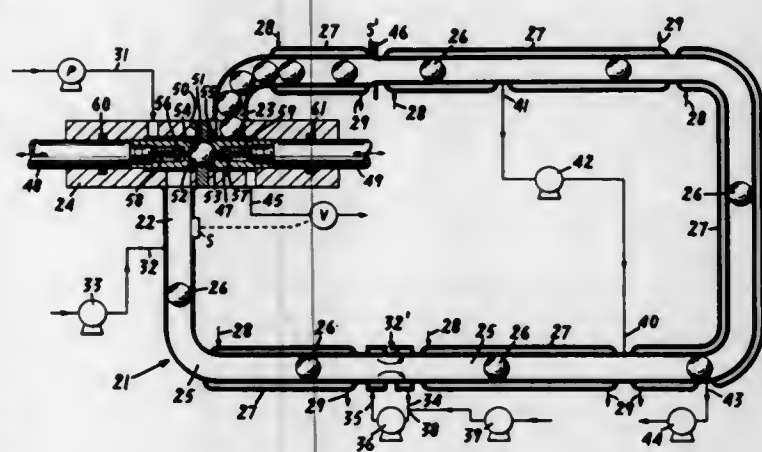
U.S. Cl. 260—88.7 7 Claims
High molecular weight polymers having a high degree of crystallinity are obtained from the copolymerization of cyclic alkylene oxide with methacrylonitrile using a catalyst of an organometallic compound of the formula MZx_{y-1} where M is a metal of zinc, magnesium, cadmium, beryllium or aluminum, Z is an alkylaryl group containing from one to 18 carbon atoms, X is hydrogen, halogen, Z, an alkoxy or aryloxy group containing 1 to 18 carbon atoms, and y is a whole number equal to the valent of M. The polymers obtained by the process of my invention are useful in the elastomer field.

3,595,846

CONTINUOUS CHEMICAL REACTIONS

Georges Rouzier, Clermont-Ferrand, France, assignor to Compagnie des Etablissements Michelin raisson sociale Michelin & Cie, Clermont-Ferrand, France

Filed Apr. 29, 1968, Ser. No. 725,102
Int. Cl. C08f 3/68, 1/98; C08d 1/00
U.S. Cl. 260—89.5 5 Claims



A continuous chemical reaction is carried out in a closed loop tubular reactor. Spherical separators spaced apart in the tube divide the tube into cells. The cells and separators are propelled past fixed stations at which operations are preformed which influence the chemical reaction. The reaction products are discharged at the end of the tube, and the separators are recovered through a lock and reintroduced at the beginning of the tube.

3,595,847

PROCESS FOR THE PRODUCTION OF SULPHUR-MODIFIED POLYCHLOROPRENES

Rudolf Mayer-Mader, Cologne-Buchheim, Willi Wolff, Schildgen, and Edmund Hüther, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 30, 1968, Ser. No. 788,052
Claims priority, application Germany, Jan. 8, 1968, P 17 20 111.5

U.S. Cl. 260—92.3 1 Claim
Process for producing sulphur-modified chloroprene polymers having a predetermined Mooney viscosity by polymerising chloroprene and up to 20% by weight of a comonomer in aqueous emulsion with a peptising agent, where coagulation of the latex is effected immediately after addition of the peptising agent and that the polymer is dried until a Mooney viscosity of 30 to 10 Mooney units above the potential minimum is obtained.

3,595,848

PROCESS FOR THE STABLE AQUEOUS MONOMER DISPERSION POLYMERIZATION AND MIXED POLYMERIZATION OF VINYL CHLORIDE

Herbert Reinecke and Johann Braun, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie GmbH, Munich, Germany

No Drawing. Filed Jan. 9, 1968, Ser. No. 696,515
Claims priority, application Germany, Jan. 20, 1967, W 43,195

U.S. Cl. 260—92.8 3 Claims
This invention relates to an improvement in the process for the polymerization of a polymerizable containing at least 80% polyvinyl chloride by stable aqueous monomer dispersion polymerization, the said improvement comprising in that at least during part of the polymerization a reflux condensation of the monomer is effected. This process results in faster polymerization times with better control of particle size of the polymerizate.

3,595,849

POLYMERIZATION CATALYST OF α -OLEFINS

Senji Nakano, Masamitsu Murayama, and Toshinobu Watanabe, Tokyo, and Takehisa Okawa, Kawasaki-shi, Japan, assignors to Mitsubishi Chemical Industries Ltd., Tokyo, Japan

No Drawing. Filed Feb. 29, 1968, Ser. No. 709,235
Claims priority, application Japan, Mar. 9, 1967, 42/14,429; Aug. 7, 1967, 42/50,297; Sept. 18, 1967, 42/59,410

U.S. Cl. 260—93.7 16 Claims
An improved polymerization catalyst for α -olefins formed by mixing a halide of a transition metal having a lower valency than the maximum valency, an organo-aluminum compound, and an ion exchange resin.

3,595,850

PROCESS FOR PRODUCTION OF POLYBUTADIENES HAVING IMPROVED TEAR STRENGTH

Motowo Takayanagi, Fukuoka-ken, and Shotaro Sugiura, Teturo Matsuura, Haruo Ueno, Fumio Tasaka, Minoru Kono, and Keiichi Tsuji, Yamaguchi-ken, Japan, assignors to Ube Industries Ltd., Yamaguchi-ken, Japan

No Drawing. Filed June 26, 1969, Ser. No. 836,962
Claims priority, application Japan, July 2, 1968, 43/45,615

U.S. Cl. 260—94.3 8 Claims
A process for the production of polybutadiene, which comprises polymerising butadiene in an inert organic solvent in the presence of a trans-1,4-polymerisation catalyst of an amount such that a trans-1,4-structure accounts for 3-30% of the final polybutadiene, adding a cis-1,4-polymerisation catalyst to this polymerisation system, and polymerising the butadiene further in this system, the trans-1,4-polymerisation and cis-1,4-polymerisation times being adjusted so that the final polybutadiene has a trans-1,4-structure of 3-30% and a cis-1,4-structure of at least 70%.

3,595,851

PROCESS FOR TREATING POLYMERS AND PRODUCT THEREOF

Stephen P. Boutsicaris, Akron, and Robert A. Hayes, Cuyahoga Falls, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation-in-part of application Ser. No. 715,521, Mar. 25, 1968. This application Aug. 29, 1969, Ser. No. 854,279

U.S. Cl. 260—94.7 20 Claims
This invention involves a process for preparing hard, tough, heat-resistant plastics of improved adhesion by the peroxide curing of hydroxy and acyloxy derivatives of butadiene liquid polymers having a molecular weight of 1,000-10,000, and having a high vinyl content, using a peroxide which gives free radicals of the structure $R_2(CH_2)CO\cdot$. Although the peroxide curing of butadiene polymers generally results in products having elastomer properties and being swellable in benzene, the process of this invention permits curing of esterified or hydroxylated butadiene polymers to give rigid, heat-resistant polymers of improved adhesion and wettability. The butadiene polymer prior to esterification or hydroxylation has at least 40%, preferably at least 70% by weight butadiene therein, advantageously having at least 60% and preferably at least 80% of the butadiene in the vinyl-type of repeating units, the average molecular weight being 1,000-10,000, preferably 3,000 to 10,000. After esterification or hydroxylation, the content of vinyl-type of repeating unit is at least 50% of the remaining butadiene repeating units. The proportion of peroxide used, preferably dicumyl peroxide, is 0.5-8, preferably 1-7 parts per 100

parts of polymer, and the curing temperature is at least 250° F. (120° C.), preferably 300-350° F. (150-180° C.). This process lends itself to liquid compounding for the incorporation of the peroxide and any modifiers, and for mixing with filler.

3,595,852

MONOAZO DYESTUFFS CONTAINING A THI-AZOLYL MERCAPTOALKYLAMINO GROUP

Rasso Hahn, Basel, and Curt Mueller, Binningen, Basel-Land, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

No Drawing. Filed July 1, 1968, Ser. No. 741,338
Claims priority, application Switzerland, July 11, 1967, 9,882/67

U.S. Cl. 260—158 11 Claims
Disperse dyes of the monazo series with a heterocyclic diazo component and a thiazolyl-mercapto-alkylamino substituted coupling component of the benzene series, having outstanding fastness properties, especially excellent thermostability fastness. The dyes build up excellently from aqueous dispersions on textiles of fully synthetic or semi-synthetic hydrophobic organic substances of high molecular weight. They are useful for dyeing fibers of linear aromatic polyester, cellulose acetate, cellulose triacetate, synthetic polyamide, polyolefins, acrylonitrile copolymers and polyvinyl compounds.

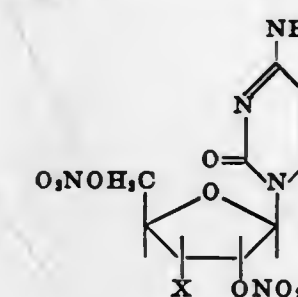
3,595,853

RIBOFURANOSYL CYTOSINE AND ARABINOFURANOSYL CYTOSINE DERIVATIVES

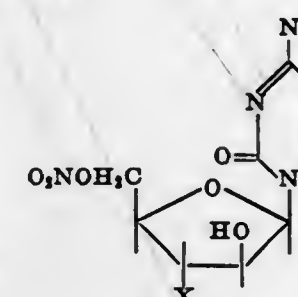
Tadashi Kanai, Motonobu Ichino, and Chiaki Yamashita, Oita-ken, Japan, assignors to Kohjin Co., Ltd., Tokyo, Japan

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,367
Claims priority, application Japan, Apr. 4, 1968, 43/21,760

U.S. Cl. 260—211.5 5 Claims
The invention relates to ribofuranosyl cytosine derivatives of the formula



or their acid salts in which X stands for OH or ONO₂, and it also relates to arabinofuranosyl cytosine derivatives of the formula



or their acid salts, and it further relates to a process for providing the above arabinofuranosyl cytosine derivatives. The ribofuranosyl cytosine derivatives of the invention are valuable intermediate compounds to provide arabinofuranosyl cytosine.

3,595,854

ACETATE FILAMENTS OF IMPROVED RESISTANCE TO HYDROTHERMAL DELUSTERING AND THE PROCESS FOR PREPARATION THEREOF

Masao Matsuzaki, Matsuyama-shi, Japan, assignor to Teljin Limited, Osaka, Japan

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,271
Claims priority, application Japan, Nov. 28, 1967, 42/76,632

Int. Cl. C08b 3/22

U.S. Cl. 260—230

3 Claims

Cellulose acetate filaments having excellent resistance to hydrothermal delustering in hot water of 110° C. and above, good qualitative reproducibility and practically satisfactory fiber strength, and process for producing such filaments by using cellulose acetate flakes which have been post-treated until their refined parameter at the stability of 0.08% is reduced to no higher than 80.

3,595,855

PROCESS FOR PRODUCING AMINOPENICILLINS
Charles A. Robinson, West Chester, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Dec. 5, 1968, Ser. No. 781,582

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1

3 Claims

A process for preparing aminopenicillins in high yield wherein 6-aminopenicillanic acid is silylated with the use of hexamethyldisilazane in methylene chloride at reflux temperature to give monosilylated 6-aminopenicillanic acid. The reaction mixture is then treated with a weak amine followed by reaction with a suitable organic acid halide hydrohalide. Solvolysis with water or an alcohol is then employed to remove the silyl group thereby to afford a solution of the aminopenicillin hydrohalide, which is then isolated as the aminopenicillin.

3,595,856

17β-HYDROXY-20,21-PREGNANEDICARBOXYLIC ACID γ-LACTONES AND DERIVATIVES

Yvon Lefebvre, Pierrefonds, Quebec, Canada, assignor to American-Home Products Corporation, New York, N.Y.

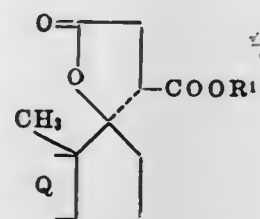
No Drawing. Filed Apr. 4, 1969, Ser. No. 813,711

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55

22 Claims

There are disclosed herein derivatives of 17β-hydroxy-pregnane-20,21-dicarboxylic acid γ-lactone of the Formula I:



in which R¹ represents a hydrogen atom, a methyl or an ethyl group and Q represents the A, B and C rings of a steroid nucleus of the 19-norpregnane or pregnane series together with the substituents attached thereto. The compounds are prepared by treating the corresponding 17α-[3'-furyl]-17β-hydroxysteroids with an organic peracid in the presence of a nucleophilic reagent, to obtain the corresponding 4,4-dihydroxy-2-butenic acid lactones attached in position 3 to the 17β-position of the respective

steroid; treating said last-named compounds with chromic acid to obtain the correspondingly substituted maleic anhydride derivatives; treating said last-named compounds with zinc and acetic acid to obtain the correspondingly substituted succinic anhydride derivatives; dissolving said last-named compounds in aqueous alkali and treating the solution with excess aqueous acid to obtain the corresponding compounds of Formula I, in which R¹ represents hydrogen; treatment of the latter compounds with diazomethane or diazoethane yields the corresponding methyl or ethyl esters. The compounds are useful as antigonadotrophic agents substantially free from estrogenic effects.

3,595,857

ALUMINUM HALIDE COMPLEXES WITH RIFAMYCINS AND THEIR DERIVATIVES

Joseph Anthony Mollica, Jr., Madison, Carl Richard Rehm, Bridgewater Township, Somerville, and Lincoln Harvey Werner, Summit, N.J., assignors to Ciba Corporation

No Drawing. Filed Nov. 7, 1968, Ser. No. 774,191

Int. Cl. C07d 87/54

U.S. Cl. 260—239.3

4 Claims

Complex salts derived from the rifamycins or their semisynthetic derivatives and aluminum salts exhibit enhanced water solubility.

3,595,858

1H-1,5-BENZODIAZEPINECARBOXAMIDE ANTIINFLAMMATORY AGENTS

James M. McManus, Old Lyme, Conn., assignor to Pfizer Inc.

No Drawing. Filed Oct. 21, 1969, Ser. No. 868,219

Int. Cl. C07d 53/04

U.S. Cl. 260—239.3

9 Claims

A new class of chemotherapeutic agents, 2,3-dihydro-2-oxo-1H-1,5-benzodiazepine-3-carboxamides, possessing antiinflammatory activity.

3,595,859

5-ARYLOTRIAZOLYL-2-STYRYL-BENZOTRIAZOLES

Carl-Wolfgang Schellhammer, Opladen, and Wolf-Dieter Wirth, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 8, 1968, Ser. No. 719,722

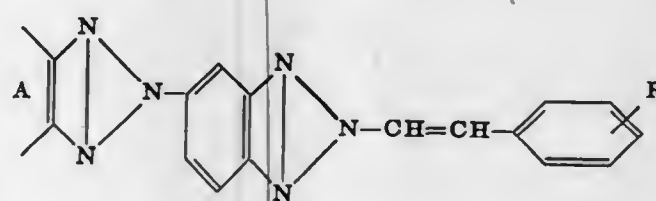
Claims priority, application Germany, Apr. 17, 1967, F 52,141

Int. Cl. C07d 55/04

U.S. Cl. 260—240

7 Claims

The invention involves new 5-arylotriazolyl 2-styryl benzotriazoles of the formula



which are useful as optical brightening agents. In the formula R is hydrogen, alkyl, alkoxy, carbalkoxy, acylamino, alkyl sulphonyl, carboxy, CN, an ammonium group, a hydrazinium group or halo, and A stands for the residual members of a mono- or polynuclear aromatic-carbocyclic

3,595,863

TETRAHYDROQUINOLINE COMPOUNDS CONTAINING CYANOMETHYLIDINE AND BENZOISULFIMIDO GROUPS

Clarence A. Coates, Jr., and Max A. Weaver, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Dec. 2, 1968, Ser. No. 780,577

Int. Cl. C07d 33/10

U.S. Cl. 260—283CN

7 Claims

Compounds having a 1,2,3,4-tetrahydroquinoline nucleus to which is attached a cyanovinylene group at the 6-position and a 1,2-benzisothiazolin-3-one-1,1-dioxide-alkyl group at the 1-position are useful as dyes for polyester textile materials.

3,595,864

PYRIDYL-3,3-DI-LOWER ALKYL-3,4-DIHYDRO-ISOQUINOLINES

Ernst Seeger, Helmut Teufel, Wolfhard Engel, and Hans Machleidt, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany

No Drawing. Filed Mar. 6, 1968, Ser. No. 710,745

Claims priority, application Germany, Mar. 10, 1967, T 33,404

The portion of the term of the patent subsequent to July 21, 1986, has been disclaimed

Int. Cl. C07d 35/36

U.S. Cl. 260—286

4 Claims

A novel process for the preparation of 1-pyridyl-3,4-dihydro-isoquinolines, which comprises dehydrating a corresponding 2-hydroxy-1-pyridyl-1,2,3,4-tetrahydro-isoquinoline.

3,595,865

5-(4-PYRIDYL)-5H-DIBENZO[a,b]CYCLOHEPTENES
John R. J. Sorenson, Morton Grove, and Kurt J. Rorig, Glenview, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Sept. 12, 1968, Ser. No. 759,495

Int. Cl. C07d 31/20, 31/24

U.S. Cl. 260—290

6 Claims

5H-dibenzo[a,d]cycloheptenes having a 4-pyridyl substituent at the 5-position are described herein. These compounds are prepared from the appropriate dibenzocyclohepten-5-one and 4-pyridyllithium. This reaction gives the corresponding 5-substituted dibenzocyclohepten-5-ol which is then reduced with hydriodic acid to remove the hydroxy group. The present compounds are useful as anti-convulsants, anti-ulcer agents, and anti-algal agents, and they inhibit germination of seeds of trifolium.

3,595,866

1-AMINO-3-AMINOALKYL-3-PHENYLOXINDOLE-COMPOUNDS

Donald E. Butler, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed Jan. 19, 1970, Ser. No. 4,043

Int. Cl. C07d 27/40

U.S. Cl. 260—293.4

6 Claims

1-amino-3-aminoalkyl-3-phenyloxindoles, in which the 1-amino group is substituted by an aralkyl group and by methyl, ethyl, or allyl and the 3-aminoalkyl group is a dialkylaminoalkyl group or a heterocyclic aminoalkyl group; acid-addition salts thereof; and their production by (1) reacting an alkali metal salt of a 1-amino-3-phenyloxindole with a haloalkylamine, (2) reacting a 1-amino-

3,595,860

PROCESS FOR PREPARING 4,4'-DIPHTHALIMIDINYL STILBENE COMPOUNDS

George P. Rizzi, Springfield Township, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

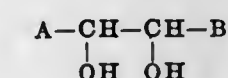
No Drawing. Filed Apr. 16, 1969, Ser. No. 816,789

Int. Cl. C07d 27/50

U.S. Cl. 260—240

10 Claims

A process for preparing 4,4'-diphthalimidinyl stilbene compounds which comprises reacting a phthalide with a 4,4'-diaminostilbene in a molar ratio of phthalide to 4,4'-diaminostilbene of from 0.1:10 to 10:0.1 in the presence of a polyhydric alcohol of the formula



wherein each A and B is hydrogen or hydroxyalkyl of from 1 to 4 carbon atoms; and an aliphatic tertiary amine. The compounds are useful as optical brighteners, particularly in bleach-containing detergent compositions.

3,595,861

NOVEL SYNTHESIS OF 2-QUINAZOLINE-PROPIONIC ACIDS AND DERIVATIVES

Stanley C. Bell, Penn Valley, and Peter H. L. Wei, Upper Darby, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Dec. 8, 1967, Ser. No. 689,009

Int. Cl. C07d 51/48

U.S. Cl. 260—251

16 Claims

This invention is concerned with 2-quinazolinepropionic acids, and derivatives thereof, which are pharmacologically efficacious as tranquilizing agents. Further, it relates to 5-hydroxytetrahydropyrroloquinazolinones which are useful intermediates in the preparation of these 2-quinazolinepropionic acids. Still further, it relates to a process for the preparation of these 2-quinazolinepropionic acids and esters. The reaction is effected by contacting an appropriate 2'-carbonyl-3-halopropionanilide (I) with an alkali metal cyanide (II), e.g., sodium and potassium cyanide, and a reactant (III) selected from the group consisting of water, an alcohol and a glycol at a temperature range from about 50° C. to about reflux temperatures for a period of about ten to about twenty-four hours.

3,595,862

ACYLOXYMETHYL DERIVATIVES OF PHENOBARBITAL AND BARBITAL

Julius A. Vida, Canton, Mass., assignor to The Kendall Company, Boston, Mass.

No Drawing. Filed Aug. 5, 1968, Ser. No. 749,973

Int. Cl. C07d 51/20

U.S. Cl. 260—257

5 Claims

N,N'-bis(acyloxymethyl)phenobarbital, N,N'-bis(acyloxymethyl)barbital, 3-acyloxymethyl diphenylhydantoin, and N,N'-diacyloxy diphenylhydantoin compounds are described as well as therapeutic compositions containing them and their use as anticonvulsant agents.

3-haloalkyl-3-phenyloxindole with an amine in the presence of a base, (3) reacting a 1-amino-3-(primary amino)alkyl-3-phenyloxindole with an aldehyde and gaseous hydrogen in the presence of a hydrogenation catalyst, and (4) reacting a 1-amino-3-(acylamino)alkyl-3-phenyloxindole with a reducing agent. The compounds of the invention are useful as chemical intermediates and as pharmacological agents that are active primarily as antidiarrheal agents.

3,595,867

2 - PIPERIDINO- AND METHYL-SUBSTITUTED PIPERIDINO-SUBSTITUTED-PHENYL CYCLOALKANE-METHANOLS AND DERIVATIVES

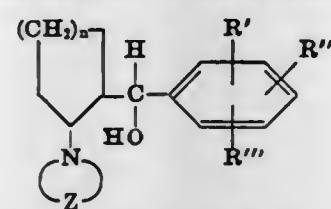
Jacob Szmuszkowicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Original application June 13, 1966, Ser. No. 556,892, now Patent No. 3,558,599, dated Jan. 26, 1971. Divided and this application Dec. 23, 1968, Ser. No. 786,385

Int. Cl. C07d 29/16

U.S. Cl. 260—294.7

16 Claims

Novel 1,3-aminoalcohol of the formula



(IV)

wherein n has the value of 1 to 4, inclusive, wherein



is a heterocyclic amino radical of 5 to 10 nuclear atoms, inclusive, wherein R' , R'' and R''' are hydrogen, halogen, alkyl and alkoxy containing from 1 to 6 carbon atoms, inclusive, or CF_3 , are prepared. The new compounds of Formula IV per se as well as in the form of acid addition salts have diuretic activity and some of them have antihyperglycemic activity. Compounds of Formula IV are thus useful to provide diuresis in mammals and are also useful as oral antidiabetic agents.

3,595,868

PERBROMOCYANOPYRIDINES AND VAPOR PHASE BROMINATION PROCESS FOR PREPARING THE SAME

Sven H. Ruetsman, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed July 18, 1968, Ser. No. 745,711

Int. Cl. C07d 31/46

U.S. Cl. 260—294.9

11 Claims

Perbromo derivatives of mono- and dicyanopyridines are prepared by contacting vapors of a suitable cyanopyridine and excess bromine at a temperature of from about 500° to about 700° C. The resulting bromination reaction goes forward in a rapid and efficient manner with little carbonization or tar formation. The perbromocyanopyridines are useful as pesticides, particularly for the control of insects and fungi.

3,595,869

PROCESS FOR PREPARING A DIASTEREOMER OF AN OPTICALLY ACTIVE ESTER OR AMIDE OF (CIS-1,2-EPOXYPROPYL)-PHOSPHONIC ACID

Richard F. Shuman, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed May 15, 1968, Ser. No. 729,468

Int. Cl. C07d 1/20

U.S. Cl. 260—297

3 Claims

A process for preparing a diastereomer of an optically active ester or amide of (cis-1,2-epoxypropyl)phosphonic

acid, which comprises separating enantiomers or diastereomers of an ester, an amide or a salt of said ester or amide derivative of (cis-1,2-epoxypropyl)phosphonic acid enantiomers. The derivatives of the optically-active isomers of (cis-1,2-epoxypropyl)phosphonic acid can then be converted to (cis-1,2-epoxypropyl)phosphonic acid enantiomers or a salt thereof. (—) (cis-1,2-epoxypropyl)phosphonic acid and its salts are active antibiotics, which are effective against various gram-negative and gram-positive pathogens.

3,595,870

METAL COMPLEXES OF 2-BENZIMIDAZOLE-CARBAMIC ACID ESTERS

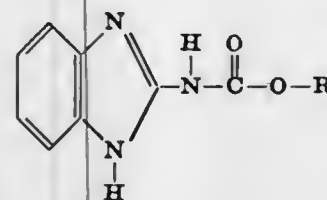
Hein L. Kloppling, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Nov. 19, 1968, Ser. No. 777,171

Int. Cl. C07d 47/38

U.S. Cl. 260—299

4 Claims

Metal complexes prepared by reacting (1) organic compounds having the formula



wherein R is lower alkyl, and (2) metal salts, such as zinc chloride or copper acetate, are useful as fungicides and/or mite ovicides.

3,595,871

PREPARING SUBSTITUTED THIAZOLE-SULFENAMIDES

Robert Henry Campbell, St. Albans, and John Joseph D'Amico, Dunbar, W. Va., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,785

Int. Cl. C07d 71/48

U.S. Cl. 260—306.6

11 Claims

An N-substituted 2-thiazolesulfenamide is reacted with a primary or secondary amine less volatile than the amine from the sulfenamide reactant and the more volatile amine by-product is removed from the reaction zone to obtain a different N-substituted 2-thiazolesulfenamide.

3,595,872

1-(2-BENZOXAZOLYL)BENZOTRIAZOLE AND 1-(2'-BENZOXAZOLYL)-3,5-DIMETHYLPYRAZOLE

Edward W. Pietrusza, Morristown, and Jack R. Pendersen, Parsippany, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Original application July 24, 1967, Ser. No. 655,298, now Patent No. 3,499,875, dated Mar. 10, 1970. Divided and this application Oct. 1, 1969, Ser. No. 870,966

Int. Cl. C07d 85/48

U.S. Cl. 260—307

2 Claims

This specification discloses novel benzoxazolyl derivatives selected from the group consisting of 1-(2-benzoxazolyl)benzotriazole, di-(2-benzoxazolyl)thioether, 1-(2-benzoxazolyl)benzoxazolinone - 2, and 1-(2'-benzoxazolyl)-3,5-dimethylpyrazole. These compounds are effective as promoters for the anionic polymerization of lactams, effecting conversion to high molecular weight polyamides rapidly at temperatures below the polymer melting point.

3,595,873

IMIDAZOLYL PHOSPHINATES AND PHOSPHINOTHIOATES

Paul B. Budde and Henry Tolkmith, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Application May 24, 1968, Ser. No. 731,745, now Patent No. 3,519,639, dated July 7, 1970, which is a continuation-in-part of application Ser. No. 604,177, Dec. 23, 1966. Divided and this application Nov. 3, 1969, Ser. No. 871,379

Int. Cl. C07d 49/36

U.S. Cl. 260—309

7 Claims

Disclosed are (a) imidazolyl phosphates and phosphorothioates wherein the phosphorus atom additionally bears two substituted phenoxy groups or one substituted phenoxy group and a lower alkylamino group or substituted phenyl group and (b) diimidazolyl phosphates and phosphorothioates wherein the phosphorus atom additionally bears a substituted phenoxy group in which, in each instance, the substituents are from 1 to 3 independent bromo, chloro, cyano, nitro, loweralkoxy, or loweralkyl groups. These compounds are useful as bactericides and fungicides.

3,595,874

3,4,5,10-TETRAHYDROAZEPINO[2,3-b]INDOL-5a(2H)-OLS

Jackson B. Hester, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

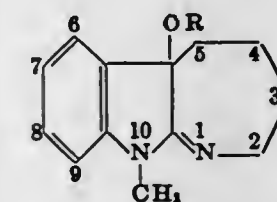
No Drawing. Filed Feb. 28, 1969, Ser. No. 803,474

Int. Cl. C07d 27/36

U.S. Cl. 260—326.3

3 Claims

New 3,4,5,10-tetrahydroazepino[2,3-b]indol-5a(2H)-ols of the formula:



wherein R is selected from the group consisting of hydrogen and acetyl, are prepared. These compounds and their pharmacologically acceptable acid addition salts have sedative action and can be used in mammals and birds as tranquilizers.

3,595,875

PREPARATION OF 2-PYRROLIDINONE

John M. Larkin, Wappingers Falls, and Kenneth L. Kreuz, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Dec. 9, 1968, Ser. No. 782,433

Int. Cl. C07d 27/08

U.S. Cl. 260—326.5

11 Claims

A method for preparing 2-pyrrolidinone by contacting 5-nitro-3-pentanone with an acidic oxidizing agent thereby forming 4-nitrobutyric acid and thereafter hydrogenating the 4-nitrobutyric acid in an alcoholic medium in the presence of a minor amount of a mineral acid and a hydrogenating catalyst at temperatures ranging from about 20 to 200° C. and under hydrogen pressures of from 1 to 100 atmospheres. The product 2-pyrrolidinone contemplated herein is useful as a solvent for polymers, insecticides and petroleum processing and separations, as a plasticizer for acrylic polymers and copolymers, as a decolorizing agent, and as a monomer for forming a polyamide.

3,595,876

SPIRO-AZATETRAMETHYLENE DERIVATIVES
Cornelis Albertus de Bock and Joseph Lucas Maria Antonius Schlatmann, Van Houtenlaan, Weesp, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.

No Drawing. Filed July 3, 1968, Ser. No. 742,130
Claims priority, application Netherlands, July 6, 1967, 6709380; Apr. 5, 1968, 6804904

Int. Cl. C07d 27/04

U.S. Cl. 260—326.8

6 Claims

Spiro-azatetramethylene derivatives of adamantane have been found to have useful antiviral properties.

3,595,877

2-OXA-STEROID AND THE PRODUCTION THEREOF

Robert Bucourt and Lucien Nedelec, Clichy-sous-Bois, France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Filed Aug. 14, 1968, Ser. No. 752,467

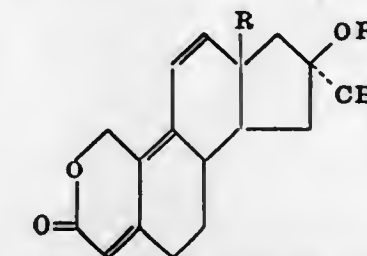
Claims priority, application France, Aug. 17, 1967, 118,090, 118,091; Dec. 7, 1967, 131,343; Mar. 7, 1968, 142,767

Int. Cl. C07d 7/20

U.S. Cl. 260—343.2

11 Claims

2-oxa-13 β -R-17 α -methyl- $\Delta^{4,9,11}$ -gonatrienes of the formula



(I)

wherein R is selected from the group consisting of methyl and ethyl and R' is selected from the group consisting of hydrogen, saturated alkyl of 1 to 5 carbon atoms which may contain a hetero oxygen atom, unsaturated alkyl of 2 to 5 carbon atoms, cycloalkyl of 3 to 5 carbon atoms which may contain a hetero oxygen atom, with the proviso that R is ethyl when R' is hydrogen which compounds possess anabolic and androgenic activity. The invention also relates to a novel process and novel intermediates for the preparation of the compounds of Formula I.

3,595,878

METHOXYPHENYL- AND PHENYL-DIALKYL- α -PYRONE NITRILES

Kyu Tal Lee, Kingsridge, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

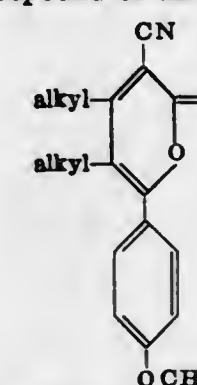
No Drawing. Filed Jan. 29, 1969, Ser. No. 795,059

Int. Cl. C07d 7/16

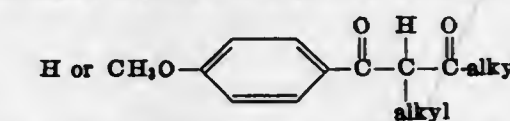
U.S. Cl. 260—343.5

12 Claims

Preparing a compound of the formula:

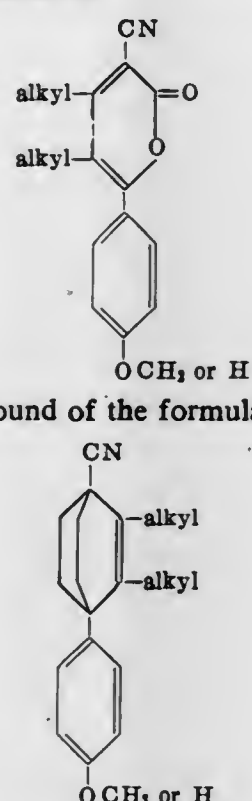


by admixing a diketone compound of the formula:

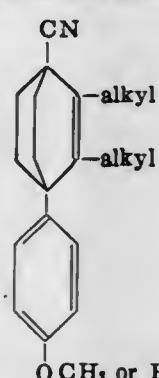


and ethyl cyanoacetate in the presence of a catalytic amount of ammonium acetate and glacial acetic acid;

and thereafter via an ethylene addition reaction with a compound of the formula:



producing a compound of the formula:



The 4-(p-methoxyphenyl)- and 4-phenyl-2,3-dialkylbicyclo[2.2.2]oct-2-ene nitrile products are intermediates for making dialkylbicyclo[2.2.2]oct-2-ene and octane-1 carboxylic acids, useful as antifertility or anti-implantation compounds.

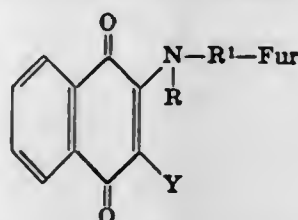
3,595,879

NAPHTHOQUINONE DERIVATIVES, PREPARATION THEREOF AND CHEMOTHERAPEUTIC COMPOSITIONS THEREWITH AND THEIR ADMINISTRATION

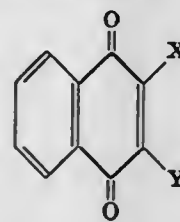
Siegfried Petersen, Leverkusen, and Dieter Tettenborn and Lieselotte Juhling, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Oct. 7, 1968, Ser. No. 765,661
Claims priority, application Germany, Oct. 10, 1967, F 53,724

Int. Cl. C07d 5/04, 5/16

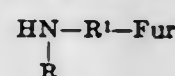
U.S. Cl. 260—347.7 23 Claims
New and chemotherapeutically active naphthoquinone derivatives are provided of the formula:



wherein Fur is a furan or tetrahydrofuran radical lower alkyl substituted or not, R is hydrogen or lower alkyl, R¹ is alkylene of 1-4 carbon atoms and Y is hydrogen, halogen or lower alkoxy, produced by reacting a 1,4-naphthoquinone of the formula:



with an amine of the formula



wherein Fur, R, R¹ and Y have the above meaning and X is hydrogen, halogen or lower alkoxy. The compounds are useful as bactericides, fungicides and anti-tumour agents for animals excluding humans. Representative compounds are 2-furfuryl-amino-1,4-naphthoquinone and the -3-chloro- and -3-methoxy-analogs.

3,595,880

PREPARATION OF (CIS-1,2-EPOXYPROPYL) PHOSPHONIC ACIDS

Raymond A. Firestone, Fanwood, N.J., assignor to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed May 15, 1968, Ser. No. 729,376
Int. Cl. C07d 1/20, 1/22

U.S. Cl. 260—348 6 Claims
Process for the preparation of (cis-1,2-epoxypropyl) phosphonic acids, esters or salts thereof which comprises eliminating or extruding sulfur dioxide, sulfur trioxide, carbon monoxide or nitrogen from an appropriately substituted 1,3-oxathietane S,S-dioxide compound, 1,3,4-dioxathiol S,S-dioxide compound, 3-oxo oxetan compound and 1,3,4-oxadiazoline compound, respectively. The 1,2-epoxypropyl phosphonic acids or salts thereof are active antibacterial agents.

3,595,881

PROCESS FOR SEPARATING ENANTIOMERS OF (CIS-1,2-EPOXYPROPYL)PHOSPHONIC ACID

Richard F. Shuman, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed May 15, 1968, Ser. No. 729,404
Int. Cl. C07d 1/20

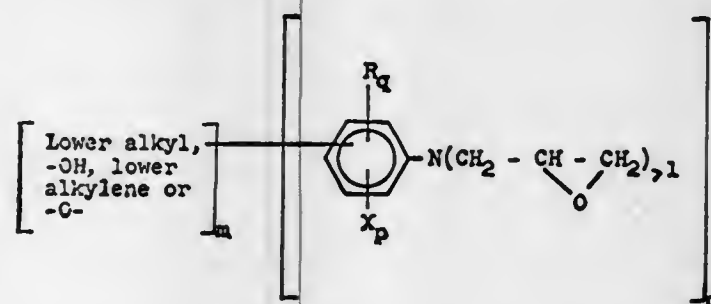
U.S. Cl. 260—348 9 Claims
Mixtures of (+) and (−) (cis-1,2-epoxypropyl)-phosphonic acid or a salt thereof are reacted with a metal salt of an optically-active acid or with a metal salt of a mixture of optically-active acid enantiomers to produce a metal salt of (cis-1,2-epoxypropyl)phosphonic acid containing a greater proportion of one of the enantiomers of (cis-1,2-epoxypropyl)phosphonic acid. The process is useful for preparing mixtures of the enantiomeric forms of (cis-1,2-epoxypropyl)phosphonic acid containing a greater proportion of the (−) enantiomer, which is an antibiotic substance active against various gram-positive and gram-negative pathogens.

3,595,882

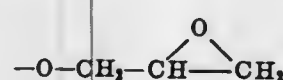
PROCESS FOR PREPARING HALOGENATED AMINE POLYEPOXIDES

Bart J. Bremmer, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Oct. 24, 1968, Ser. No. 770,435
Int. Cl. C07d 1/04

U.S. Cl. 260—348.6 2 Claims



Wherein lower alkyl is alkyl of up to four carbon atoms; m is an integer, zero or one; X is chloro or bromo; p is an integer from 1 to [5-(q+m)]; R is a moiety



and q is an integer, zero to two; and n is one or two, and process for preparing the compounds which comprises reacting an amino aromatic compound with epichlorohydrin, with opening of the oxirane ring; halogenation, and ring closure.

3,595,883

PROCESS FOR THE PREPARATION OF 14β-HYDROXY - 17 - KETO - 15 - ANDROSTENES AND NOVEL INTERMEDIATES PRODUCED THEREBY

Adriano Afonso, East Orange, N.J., assignor to Schering Corporation, Bloomfield, N.J.
No Drawing. Filed June 16, 1969, Ser. No. 833,704
Int. Cl. C07c 169/20

U.S. Cl. 260—397.45 17 Claims
14β-hydroperoxy-15-androsten-17-ones, prepared by the action of oxygen on 14-androsten-17-ones, upon treatment with a mild reducing agent yields 14β-hydroxy-15-androsten-17-ones, useful intermediates in the synthesis of steroidal cardenolides.

Preferred species are 14β-hydroperoxy-5α-15-androsten-3β-ol-17-one 3-acetate and the 5β-epimer thereof (prepared by the action of oxygen on 5α-14-androsten-3β-ol-17-one 3-acetate and the 5β-epimer thereof, respectively) each of which, upon mild reduction, preferably with triethyl phosphite, yields 14β-hydroxy-5α-15-androsten-3β-ol-17-one 3-acetate and the 5β-epimer thereof, respectively, which are useful intermediates in the synthesis of uzarigenin and digitoxigenin, respectively.

3,595,884

NOVEL 3-ENOL ETHERS OF 17α-HALOETHYNYL 19-NOR ANDROSTENES AND METHODS FOR THE PREPARATION OF SAME

John Fried, Plainfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.
No Drawing. Continuation of application Ser. No. 99,668, Mar. 31, 1961, which is a continuation-in-part of application Ser. No. 88,575, Mar. 2, 1961. This application Dec. 15, 1969, Ser. No. 885,363
Int. Cl. C07c 169/08

U.S. Cl. 260—397.4 17 Claims
This invention is concerned generally with novel steroid compounds and processes of preparing the same. More particularly, it relates to novel 3-enol ethers of 21-halonorethisterones and their Δ⁵⁽¹⁰⁾-isomers, and to processes for preparing these new compounds starting with 3-methoxy-2,5(10)-androstadiene-17-one. The 21-halonorethisterones, their Δ⁵⁽¹⁰⁾-isomers, and 3-enol ethers thereof, subject of the present invention, possess useful therapeutic properties as orally and parentally active progestational agents.

3,595,885

ORGANOPOLYSILOXANES AND THE PROCESS FOR THEIR PREPARATION

Gerd Rossmay, Essen-Werden, and Gotz Koerner, Mulheim (Ruhr), Germany, assignors to Th. Goldschmidt A.G., Essen, Germany
No Drawing. Continuation-in-part of abandoned application Ser. No. 431,448, Feb. 9, 1965. This application Nov. 26, 1968, Ser. No. 779,209
Claims priority, application Germany, Feb. 12, 1964, P 14 95 961.6
Int. Cl. C09f 5/08; C07f 7/08, 7/18

U.S. Cl. 260—398R 15 Claims
An equilibrated mixture of compounds of the average formula



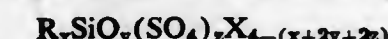
wherein R is a member selected from the group consisting of alkyl of from 1 to 6 carbon atoms, chloropropyl, vinyl, allyl, benzyl, phenyl and chlorophenyl;

Ac is acyl derived from a carboxylic acid of not more than 2 carboxylic groups and selected from the group

consisting of mono- and dibasic aliphatic saturated carboxylic acids, mono- and dibasic aliphatic unsaturated carboxylic acids, mono- and dibasic aromatic carboxylic acids, chloroacetic acid, thioglycolic acid and anthranilic acid, x and y being defined by

$$\begin{aligned} x &= 1.01-2.1 \\ y &= 0.5-1.3 \text{ and} \\ 4 &> (x+2y) > 2 \end{aligned}$$

A process of preparing the equilibrated mixture is also disclosed. Organopolysiloxanes of the general formula



wherein R, x and y have the above meaning, X is halogen and z=0.0001-0.2, are reacted with (a) carboxylic acid, (b) carboxylic acid salts, (c) anhydride of carboxylic acid or mixtures of (a), (b) and (c).

3,595,886

NOVEL FLUOROCARBON DERIVATIVES

Richard F. Sweeney, Dover, and Koel-Liang Liauw, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Original application Aug. 25, 1965, Ser. No. 482,597, now Patent No. 3,446,570. Divided and this application Jan. 6, 1969, Ser. No. 801,904
Int. Cl. C07c 143/90

U.S. Cl. 260—401 8 Claims
Polyfluorocarbon compounds prepared by reacting a perfluoroalkyl polyamide having from 3-17 perfluorinated carbon atoms with a vinyl sulfone. The compounds are useful as oil and water repellency agents for textiles.

3,595,887

HYDROGENATION OF POLYMERIC FAT ACIDS

Madhukar V. Kulkarni and Russell L. Scheribel, Kankakee, Ill., assignors to General Mills, Inc.
No Drawing. Filed Aug. 12, 1968, Ser. No. 751,701
Int. Cl. C11c 3/12

U.S. Cl. 260—409 16 Claims
There is disclosed an improved method of hydrogenating polymeric fat acids employing a two step process comprising first hydrogenating with a nickel catalyst followed by a second hydrogenation with a palladium catalyst. An optional acid treatment step between the two hydrogenation steps is also disclosed which involves treatment with an acid and an acid activated clay. The final products are useful in preparing polymers such as polyesters, diisocyanates, ester based urethanes, polyamides, and epoxy resins, which find utility in adhesives, coatings, castings, laminates, can sealants and inks.

3,595,888

PRODUCTION OF GLYCERYL MONOALKANOATES

Raymond Reiser and Arthur Furman Isbell, College Station, Tex., assignors to Research Corporation, New York, N.Y.
No Drawing. Filed May 13, 1968, Ser. No. 728,823
Int. Cl. C07d 13/04; C11c 3/04

U.S. Cl. 260—410.7 6 Claims
Glycerol monoalkanoates are made by heating triglycerides of saturated or unsaturated alkanolic acids with at least two moles of isopropylidene glycerol at from about 100° to about 200° C. and hydrolyzing the monoalkanoates of isopropylidene glycerol thereby produced to glyceryl monoalkanoates. The reaction of the isopropylidene glycerol with the triglycerides is catalyzed by acids and alkaline substances. The isopropylidene glycerol may be preformed or formed in the presence of the triglycerides by condensation of glycerol and acetone by azeotropic distillation of water of condensation.

3,595,889

ESTERS OF POLYHYDRIC ALKANOLS AND ACID-SUBSTITUTED AROMATIC COMPOUNDS

Stephen J. Wayo, Whiting, Ind., assignor to Atlantic Richfield Company, New York, N.Y.
No Drawing. Original application Sept. 3, 1965, Ser. No. 485,077, now Patent No. 3,337,460. Divided and this application Mar. 28, 1967, Ser. No. 640,764
Int. Cl. C10m 3/14; C11c 3/00

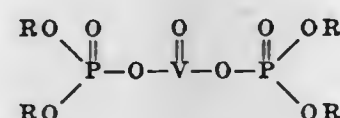
U.S. Cl. 260—410.6 7 Claims
Oil-soluble polymeric esterification products of polyhydric alcohols having at least 3 up to about 6 hydroxy groups reacted with the reaction product of a monoolefinically unsaturated fatty acid of about 12 to 24 carbon atoms with an aromatic hydrocarbon are disclosed. The esterification products are useful as pour point depressors for mineral oils.

3,595,890

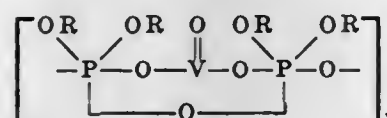
VANADIUM ORGANOPHOSPHATES

James R. Huerta and Amos R. Anderson, Adrian, and Jeffrey G. Meyer, Chelsea, Mich., assignors to Dart Industries, Inc., Los Angeles, Calif.
No Drawing. Filed June 24, 1969, Ser. No. 836,169
Int. Cl. C07f 9/00

U.S. Cl. 260—429R 14 Claims
Vanadium organophosphates represented by the formula:



and polymers thereof represented by the formula:



wherein x is 2 to 6, R is an alkyl or an alkyl ether having 1 to 16 carbon atoms or an aryl having up to 16 atoms, or mixtures thereof, can be prepared by a reaction between a vanadium oxide, oxyhalide, or halide or an alkyl vanadate and a trialkyl, trialkyl ether or a triaryl phosphate. A mixture of the vanadium organophosphate and an organoaluminum halide forms an active vanadium coordination catalyst. This catalyst is especially useful in the production of "EP" and "EPDM" rubber. A particularly effective vanadium coordination catalyst comprises vanadium (IV) oxybis-(diethyl phosphate) and an organoaluminum chloride.

3,595,891

PROCESS FOR HYDROCARBON SOLUBLE METAL SALTS

Stanley Bruce Cavitt, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Filed Sept. 17, 1969, Ser. No. 858,861
Int. Cl. C07f 9/00, 11/00

U.S. Cl. 260—429 8 Claims
Hydrocarbon-soluble organic metal salts of molybdenum, tungsten and vanadium are prepared by reacting the inorganic metal oxide or acid of molybdenum, tungsten or vanadium with a liquid alkoxyacetic acid to form an organic-soluble intermediate and then reacting the intermediate with a carboxylic acid. The compounds prepared by the process of this invention are useful as catalysts for the epoxidation of olefins, as lubricant additives, or as metal plating agents.

3,595,892

PROCESS FOR THE PRODUCTION OF ALKYL-OR CYCLOALKYL TIN HALIDES

Jan W. G. van den Hurk, Utrecht, Netherlands, assignor to Nederlandse Centrale Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek, The Hague, Netherlands
No Drawing. Filed July 15, 1968, Ser. No. 744,701
Claims priority, application Netherlands, July 18, 1967, 6709983
Int. Cl. C07f 7/22

U.S. Cl. 260—429.7 7 Claims
This invention relates to an improved process for the production of alkyl- or cycloalkyl tin halides by the direct reaction of metallic tin with alkyl- or cycloalkyl halides, comprising carrying out the reaction in the presence of an organo-antimony compound, or a mixture consisting of organo-antimony compounds as a catalyst.

3,595,893

REACTION PRODUCT OF A DIALKYL TIN DIFLUORIDE AND A DIALKYL TIN SULFIDE AND THE PROCESS THEREOF

Arnold Schroeder, Pamontstraat 8, Deventer, Netherlands, and Paulus G. J. Nieuwenhuis, Adelaarslaan 219, Apeldoorn, Netherlands
No Drawing. Original application Oct. 23, 1967, Ser. No. 677,067, now Patent No. 3,522,206, dated July 28, 1970. Divided and this application Aug. 27, 1969, Ser. No. 871,010
Claims priority, application Netherlands, Nov. 9, 1966, 6615781
Int. Cl. C08f 45/62, 7/22

U.S. Cl. 260—429.7 7 Claims
The present invention relates to a process for stabilizing polyvinyl chloride, and other polymers and copolymers which contain halogen, with a reaction product obtained from a dialkyl-tin-difluoride and a dialkyl-tin-sulphide, the reaction product being employed either as such or formed in situ.

3,595,894

ORGANOSILICON COMPOUNDS

Edwin Ian Gilbert Brown and James Jack, Stevenston, Scotland, and Edward Jervis Vickers, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Aug. 5, 1968, Ser. No. 750,022
Claims priority, application Great Britain, Aug. 7, 1967, 36,146/67
Int. Cl. C07f 7/02, 7/04

U.S. Cl. 260—448.2B 6 Claims
Silanes and siloxanes of the general formula



where R is a radical free from the olefinic unsaturation and of a valency 2 to 4 selected from the group consisting of hydrocarbon radicals having from 3 to 11 carbon atoms and radicals consisting of carbon, hydrogen and oxygen having from 7 to 17 carbon atoms, the oxygen being present in the form of ether linkages, R' is a divalent saturated hydrocarbon radical having not more than 4 carbon atoms, R'' is selected from the group consisting of lower alkyl radicals and polyoxyalkylene residues of the general formula $(\text{C}_b\text{H}_{2b}\text{O})_z\text{R}'''$ where b is 2, 3 or 4, z is a positive integer and R''' is selected from the group consisting of lower alkyl groups and cycloalkyl groups, n is 2, 3 or 4, X is 0 or a positive integer, y+1 is the valency of the radical R and R², R³ and R⁴ are selected from the group consisting of lower alkyl and lower alkyl-siloxanyl groups. These compounds find utility as surfactants in the manufacture of polyurethane foams and as lubricants for textile fibres.

3,595,895

NOVEL DISILOXANE COMPOUNDS

Richard P. Bush and Christopher Arthur Pearce, Glamorgan, Wales, assignors to Midland Silicones Limited, Reading, Berkshire, England
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,814
Claims priority, application Great Britain, Oct. 5, 1967, 45,558/67
Int. Cl. C07f 7/02

U.S. Cl. 260—448.2N 11 Claims
Novel disiloxane compounds of the general formula $(\text{R}_3\text{Si})_2\text{NSiR}^1\text{OSiR}^2\text{X}$ wherein R represents hydrogen, an alkyl, alkenyl or a monocyclic aryl radical, R' being an alkyl or alkenyl or a monocyclic aryl, R'' being a monovalent hydrocarbon radical and X being hydrogen, a halogen, an alkoxy, a hydroxyl, or a $-\text{NR}_3'''$ radical wherein R''' is defined above as R and process of preparing thereof are included in this invention. The disiloxanes are useful as intermediates in the preparation of other organosilicon products or in the modification of organic compounds by reaction therewith.

3,595,896

METHOD FOR THE HYDROLYSIS OF ORGANOHALOGENOSILANES

Siegfried Nitzsche, Ferdinand Gerstner, and Rudolf Strasser, Berghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Bavaria, Germany
Filed Aug. 15, 1969, Ser. No. 850,513
Claims priority, application Germany, Aug. 20, 1968, P 17 95 182.5
Int. Cl. C07f 7/02; C08g 31/38

U.S. Cl. 260—448.2E 13 Claims
A continuous method for hydrolyzing halogenosilanes wherein the water employed for hydrolysis is admixed with silane hydrolyzates and acts as a scrubbing stream on the halogenosilanes.

ERRATUM

For Class 260—448 see:
Patent No. 3,595,733

3,595,897

ADDITION OF HYDROGEN CYANIDE TO ORGANO-SILICON COMPOUNDS CONTAINING UNSATURATED SUBSTITUENTS

Earle S. Brown, South Charleston, W. Va., Frank D. Mendicino, Marietta, Ohio, and Edward A. Rick, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Nov. 12, 1968, Ser. No. 775,101
Int. Cl. C07f 7/02, 7/04

U.S. Cl. 260—448.2E 16 Claims
A homogeneous liquid phase process which comprises contacting hydrogen cyanide and an organosilicon compound containing at least one unsaturated substituent in the presence of a zero-valent nickel, palladium or platinum complex, under such conditions of temperature and pressure as to maintain a liquid phase reaction mixture. In a preferred embodiment, excess, non-reactive ligand is added to the reaction mixture in such an amount that the ratio of moles of excess ligand (which can be the same as or different from the ligand in the catalyst complex) to moles of HCN is varied within the range of 0.1 to 1 to 25 to 1 in order to greatly increase the turnover of the catalyst, i.e., number of moles of product per mole of catalyst.

3,595,898

PERESTERS BY REACTION OF CARBOXYLIC ACIDS WITH ORGANIC HYDROPEROXIDES

Robert Joseph Harvey and Charles Nathan Winnick, Teaneck, N.J., assignors to Halcon International, Inc.
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,860
Int. Cl. C07c 69/00

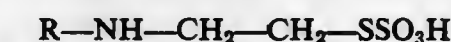
U.S. Cl. 260—453 10 Claims
This invention relates to a process for the manufacture of peresters and more particularly to such a process wherein the peresters are prepared by reaction between an organic hydroperoxide and a carboxylic acid. In particularly preferred embodiments, this invention relates to processes for the manufacture of tertiary alkyl peresters and to secondary and tertiary aralkyl peresters. Thus, this invention is especially applicable to the manufacture of such peresters as, for example, t-butyl peracetate, t-butyl perbenzoate, ethylbenzyl perpivalate and cumyl perisobutyrate.

3,595,899

2 - (PHENYLALKYLAMINO)ETHANETHIO-SULFURIC ACIDS AS ANTIRADIATION AGENTS

Daniel L. Klayman, Chevy Chase, Md., and William Franklin Gilmore, Oxford, Miss., assignors to the United States of America as represented by the Secretary of the Army
No Drawing. Continuation-in-part of abandoned application Ser. No. 506,291, Nov. 3, 1965. This application June 17, 1968, Ser. No. 737,358
Int. Cl. C07c 141/00

U.S. Cl. 260—453 2 Claims
N-substituted 2-aminoethanethiosulfuric acids of the formula:



wherein R represents alkyl or phenyl alkyl, are effective antiradiation drugs for animals. The compounds are useful in prevention of cellular damage from radiation. The methods of preparation include the reaction of a primary bromo hydrocarbon with 2-aminoethanethiosulfuric acid, reacting a 2 (sec-alkyl amino) ethyl bromide hydrobromide with sodium thiosulfate pentahydrate, and reacting ammonium thiosulfate with a 1-substituted aziridine.

3,595,900

CYANATOPHENYL-TERMINATED POLYARYLENE ETHERS

Basil L. Loudas, St. Paul, and Herward A. Vogel, Oakdale, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
No Drawing. Filed July 1, 1968, Ser. No. 741,303
Int. Cl. C07c 135/00; C07d 55/08

U.S. Cl. 260—453 8 Claims
Hydroxy-terminated polyarylene ethers are reacted with cyanogen halides to produce cyanatophenyl-terminated polyarylene ethers which can be thermally polymerized to produce polyarylene ether cyanurates having outstanding strength, toughness, and flexibility and useful in adhesives, coatings, and binders.

3,595,901

SELECTIVE 1:1 ADDITION OF ETHYLENE AND ACRYLONITRILE IN PRESENCE OF PALLADIUM METAL SALTS

Claibourne D. Smith, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Feb. 19, 1969, Ser. No. 800,759
Int. Cl. C07c 121/30

U.S. Cl. 260—465.9 4 Claims
Isomeric pentenenitriles are prepared by the selective 1:1 addition of ethylene and acrylonitrile in the presence of palladium metal salts.

3,595,902

HYDROXYCYCLOALKANONES

Paul Bellet, Paris, and Truong Van Thuong, Clichy-sous-Bois, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Original application Apr. 19, 1966, Ser. No. 543,531, now Patent No. 3,432,393, dated Mar. 11, 1969. Divided and this application Oct. 7, 1968, Ser. No. 786,519

Claims priority, application France, Apr. 28, 1965, 15,005

Int. Cl. C07c 61/36, 69/74

U.S. Cl. 260—468R 1 Claim
Optically active 1-hydroxycycloalkane-3-ones selected from the group consisting of levorotatory 1 β -hydroxy-2 β -methyl-2 α -(3'-oxo-6'-carbomethoxy-hexyl)-cyclopentane-3-one, dextrorotatory 1- β -hydroxy-2 α -methyl-2 β -(3'-oxo-6'-carbomethoxyhexyl)-cyclopentane-3-one and levorotatory 3-methoxy-8,14-seco- $\Delta^{1,3,5(10),9(11)}$ -estratetraene-17-ol-14-one of the natural series. The compounds are optically active intermediates in the total synthesis of steroids.

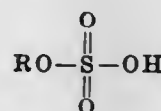
3,595,903

PROCESS FOR PREPARING ALIPHATIC MONOMERCAPTANS

Carl C. Greco, Bronx, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Sept. 20, 1967, Ser. No. 669,261
Int. Cl. C07c 149/06, 149/20

U.S. Cl. 260—481 10 Claims
A process for preparing aliphatic monomercaptans which comprises, first neutralizing an organo sulfate of the formula:



wherein R is an aliphatic radical free of reactive substituents of from 1 to 18 carbon atoms, with a metal hydroxide. The resultant organo sulfate is then reacted with a metal trithiocarbonate and the resultant metal organic trithiocarbonate acidified with an aqueous acid to produce the desired aliphatic monomercaptan.

3,595,904

MONOALKYL FUMARATES OF TETRACYCLINE COMPOUNDS

Albert E. Timreck, Rego Park, N.Y., and Helmut W. Raaf, Karlsruhe-Waldstadt, Germany, assignors to Pfizer Inc., New York, N.Y.

No Drawing. Filed May 18, 1967, Ser. No. 639,281
Int. Cl. A61k 21/00; C07c 103/19

U.S. Cl. 260—485 9 Claims
Monoalkyl fumarate compounds of medicaments containing basic or quaternary nitrogen atoms are quite insoluble and are useful in sustained release and tasteless dosage forms such as chewable tablets, suspensions, suppositories and depot injectables. Insolubility prevents unpleasant taste from becoming apparent while the tablet is ingested and enhances sustained release characteristics. Suitable medicaments include antibiotics, vitamins and central nervous system regulators.

3,595,905

PREPARATION OF UNSATURATED ESTERS

Robert G. Schultz, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Apr. 18, 1966, Ser. No. 545,521
Int. Cl. C07c 67/04

U.S. Cl. 260—497A 7 Claims
The present invention relates to the preparation of unsaturated esters from olefines utilizing a palladium catalyst which includes various palladium compounds, which

may also be used in combination with metal salts. Unsaturated esters having a high degree of terminal substitution relative to internal substitution are obtained.

3,595,906

METHOD FOR PREPARING LIGHT-COLORED OLEFIN SULFONATES

Masuzo Nagayama and Hiroshi Okada, Tokyo, Japan, assignors to Lion Fat & Oil Co., Ltd., Tokyo, Japan
No Drawing. Filed May 2, 1969, Ser. No. 821,478
Claims priority, application Japan, May 16, 1968, 43/33,006

Int. Cl. C07c 143/16

U.S. Cl. 260—513 4 Claims
A method for preparing α -olefin sulfonates comprising mixing α -olefin feed with a certain type of Friedel-Crafts catalyst to react α -olefin component or impurities in the feed therewith, separating said component from the impurities, sulfonating the purified α -olefin component as a thin film, neutralizing the sulfonated α -olefin, and hydrolysing the neutralized products.

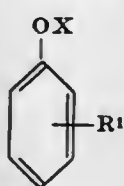
3,595,907

CARBOXYLATION OF INDENE

Edwin L. Patmore, Fishkill, and William R. Siegert and Harry Chafetz, Poughkeepsie, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,901
Int. Cl. C07c 51/14

U.S. Cl. 260—515 4 Claims
Method of carboxylating a compound of the group of $\text{R}-\text{C}\equiv\text{CH}$, RCH_2CN , indene, cyclopentadiene or fluorene, where R is hydrocarbyl, comprising contacting said compound with carbon dioxide under substantially anhydrous conditions in the presence of a base of the formula:



where X is sodium or potassium, R¹ is hydrogen or alkyl and subsequently acidifying the resultant reaction product to form the carboxylated product.

3,595,908

TWO-STEP OXIDATION OF PARAXYLENE FOR THE PRODUCTION OF TEREPHTHALIC ACID

Daniel Lumbruso, Le Vesinet, Yvelines, France, assignor to Institut Francais du Pétrole des Carburants et Lubrifiants, Rueil-Malmaison, France

No Drawing. Filed Nov. 1, 1966, Ser. No. 591,143
Int. Cl. C07c 63/02

U.S. Cl. 260—524R 8 Claims
For the production of terephthalic acid by the oxidation of paraxylene, an improvement is obtained by conducting a two-step continuous process, as follows:

- (1) passing molecular oxygen into a reaction zone maintained at 80–125° C., said reaction zone containing a mixture of paraxylene and paratoluic acid in a proportion of 0.5–4% by weight paraxylene and 96–99.5% by weight paratoluic acid, the former and the latter being dissolved in an aliphatic carboxylic acid containing an oxidation catalyst, paraxylene being fed continuously to the reaction zone to maintain the above ratio of paraxylene to paratoluic acid and
- (2) withdrawing resultant reaction mixture continuously from the first reaction zone, and passing same to a second reaction zone separate and distinct from said first reaction zone, and subjecting said reaction mixture to additional oxidation with molecular

oxygen at 130–170° C., recovering terephthalic acid and paratoluic acid from said second reaction zone, and recycling at least a part of said recovered paratoluic acid to said first reaction zone.

3,595,909

PROCESS FOR MAKING ACID METAL SALTS FROM ORGANIC HYDROXYL COMPOUNDS

Robert C. Sheldon, Marshfield, Mass., assignor to Middleboro Chemical Industries, Inc., Middleboro, Mass.
Filed Nov. 1, 1967, Ser. No. 679,745

Int. Cl. C07c 51/30

U.S. Cl. 260—528 1 Claim
A process for making acid metal salts from organic hydroxyl compounds comprising mixing water and a catalyst comprising palladium on inert support material in a reactor, agitating the mixture to produce a uniform catalyst suspension, admixing with the catalyst suspension the hydroxyl compound to be converted, injecting oxygen into the mixture, and admitting a metal hydroxide to the reactor, to convert substantially all of the hydroxyl compound to its corresponding organic acid metal salt.

3,595,910

PRODUCTION OF UNSATURATED ALIPHATIC CARBOXYLIC ACIDS

William John Ball, Capel, near Dorking, England, assignor to BP Chemicals (U.K.) Limited, London, England

No Drawing. Filed Apr. 21, 1967, Ser. No. 632,549
Claims priority, application Great Britain, May 4, 1966, 19,612/66

Int. Cl. C07c 57/04

U.S. Cl. 260—530 11 Claims
Vapour phase catalytic oxidation of (meth) acrolein using an oxide composition containing antimony, molybdenum and cobalt as catalyst.

3,595,911

PRODUCTION OF UNSATURATED CARBOXYLIC ACIDS

William John Ball, Capel, near Dorking, England, assignor to The Distillers Company Limited, Edinburgh, Scotland

No Drawing. Filed Feb. 2, 1967, Ser. No. 613,410
Claims priority, application Great Britain, Feb. 26, 1966, 8,571/66

Int. Cl. C07c 57/04

U.S. Cl. 260—533N 12 Claims
The application relates to the production of acrylic or methacrylic acid by the vapour phase catalytic oxidation of the corresponding unsaturated aldehydes or olefines wherein the oxidation catalyst is an oxide composition containing antimony and molybdenum together with one or more specified polyvalent metals.

3,595,912

PROCESS FOR REMOVING ALLOTHREONINE

Yasuo Ariyoshi, Kanagawa-ken, and Naotake Sato, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Filed Aug. 29, 1969, Ser. No. 854,169

Claims priority, application Japan, Sept. 4, 1968, 43/63,560

Int. Cl. C07c 101/30, 143/30, 143/56

U.S. Cl. 260—534M 3 Claims
Threonine can be purified of accompanying allothreonine by precipitation of allothreonine from a common aqueous solution as an insoluble addition compound with 5-nitronaphthalene-1-sulfonic acid, 6- or 8-chloronaphthalene-2-sulfonic acid, anthraquinone- β -sulfonic acid,

H-acid, o-sulfobenzoic acid, tetrachlorophthalic acid, 3,6-dichlorophthalic acid, tetrabromophthalic acid, α -naphthylphosphoric acid, or chlorendic acid. Little, if any, threonine is precipitated.

3,595,913

CRYSTALLIZATION OF ACETYSULFANILYL CHLORIDE

Lawrence James Ross, North Plainfield, and Albert Joseph Costello, Oakland, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed May 12, 1969, Ser. No. 823,947
Int. Cl. C07c 143/70

U.S. Cl. 260—543R 7 Claims
Pure N-acysulfanilyl chlorides are obtained from the reaction of an acylanilide and chlorosulfonic acid by adding an organic solvent and a cationic or nonionic surfactant to the reaction mixture after reaction is complete but prior to crystallizing the product. The product is precipitated by adding water to the reaction mixture to reduce the sulfuric acid strength thereof to below about 50%.

3,595,914

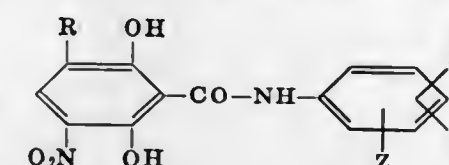
3-NITRO- γ -RESORCYLIC ACID ANILIDES

Heinrich Ruschig, Bad Soden, Taunus, Dieter Duwel, Hofheim, Taunus, and Johann Konig, Niederhofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 10, 1969, Ser. No. 790,437
Claims priority, application Germany, Jan. 18, 1968, P 16 68 080.1

Int. Cl. C07c 103/30

U.S. Cl. 260—559 12 Claims
Anthelmintically-active anilides of the formula



wherein R is H, Cl, Br, or I; X is halogen, NO₂, or CF₃; Y is H, CH₃, CF₃, OCH₃, or halogen; and Z is H, or, if Y is OCH₃ or halogen, then Z is H, OCH₃, or halogen.

3,595,915

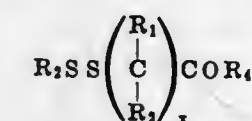
POLYCHLOROETHYLTHIO AND POLYCHLORO-VINYLTIO CARBOXYLIC ACID AMIDES

Carl D. Emerson, Kansas City, Mo., and Paul C. Aichenegg, Prairie Village, Kans., assignors to Chemagro Corporation, New York, N.Y.

No Drawing. Application Oct. 2, 1964, Ser. No. 401,253, now Patent No. 3,442,941, dated May 6, 1969, which is a continuation of application Ser. No. 841,162, Feb. 5, 1969. Divided and this application Apr. 7, 1970, Ser. No. 24,418

Int. Cl. C07c 103/30

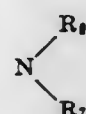
U.S. Cl. 260—561 7 Claims
Compounds are prepared having the formula:



where:

- R₁ and R₂ are selected from the group consisting of hydrogen, lower alkyl, carboxyl lower alkyl, carbocyclic aryl, carbocyclic haloaryl, haloalkyl, and ester of carboxy lower alkyl;
R₃ is selected from the group consisting of polyhaloethyl and polyhalovinyl;
R₄ is selected from the group consisting of OH, SH, OR₅ where R₅ is selected from the group consisting of alkyl-

carbocyclic aryl, halocarbocyclic aryl, haloalkyl and alkylthioalkyl, SR_5 ,



where:

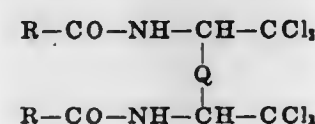
R_6 and R_7 are selected from the group consisting of hydrogen, alkyl and carbocyclic aryl or R_6 and R_7 together with N complete a heterocyclic ring, and OMe where Me is selected from the group consisting of the metals of Groups I, II, VI, VII and VIII of the Periodic Table; and x is an integer from 1 to 2 inclusive. Such materials have been found useful to kill nematodes, fungi and undesirable plants. They also are useful as defoliating agents.

3,595,916

NOVEL DIAMINO COMPOUNDS

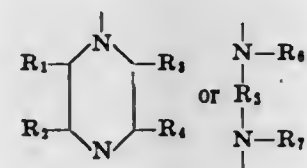
Walter Ost, Klaus Thomas, and Dietrich Jerchel, Ingelheim am Rhein, and Karl-Richard Appel, Biberach am der Riss, Germany, assignors to C. H. Boehringer Sohn, Ingelheim am Rhein, Germany
No Drawing. Filed Jan. 22, 1969, Ser. No. 793,187
Claims priority, application Austria, Jan. 23, 1968, A 674/68; May 17, 1968, A 4,795/68
Int. Cl. A01N 5/00

U.S. Cl. 260—561 6 Claims
The compounds are biocidal diamino compounds of the formula



wherein

R is hydrogen or lower alkyl which may have one or more halogen atoms attached thereto, and Q is



where

R_1 is hydrogen, lower alkyl or phenyl,
 R_2, R_3 and R_4 are each hydrogen or lower alkyl,
 R_5 is alkylene of 1 to 10 carbon atoms, and
 R_6 and R_7 are each hydrogen, alkyl of 1 to 16 carbon atoms, allyl, β -cyanoethyl, phenyl or benzyl, which may have one or two halogen substituents attached thereto.

3,595,917

DIAMINE BRIDGED-RING COMPOUNDS

David J. Trecker and Joseph P. Henry, South Charleston, and John W. Lynn, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Original application Dec. 9, 1965, Ser. No. 520,298, now Patent No. 3,492,330, dated Jan. 27, 1970. Divided and this application July 30, 1969, Ser. No. 846,256
Int. Cl. C07c 87/40, 149/26; C08g 22/24

U.S. Cl. 260—563 2 Claims

A class of 2,5- and 2,6-diamine norbornanes, e.g. 5(6)-aminoethyl-2-(2-aminoethyl)norbornane, is produced by the free radical addition of a functionally substituted alkane to the unsaturated carbon atoms of a bridged-ring olefin. The functionally substituted alkane is free of non-benzenoid carbon-to-carbon unsaturation and contains at

least one hydrogen atom bonded to a carbon atom which, in turn, is (i) a carbon atom of a functional substituent or (ii) a carbon atom in a position alpha to the functional substituent. The norbornanes produced have the radical of the functionally substituted alkane bonded to the bridged-ring olefin moiety by a carbon-to-carbon bond. The products are useful in the manufacture of polymers.

3,595,918

STABILIZATION OF TOLYLENE DIAMINE

George A. Salensky, Metuchen, N.J., assignor to Union Carbide Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 698,140, Jan. 16, 1968. This application Dec. 27, 1968, Ser. No. 787,554
Int. Cl. C07c 85/16, 87/58

U.S. Cl. 260—578 7 Claims
Tolylenediamine stabilized with ascorbic acid to prevent discoloration and staining.

3,595,919

PROCESS OF MANUFACTURING N,N'-POLYTHIO-BIS-DIALKYLAMINE

Kyung S. Shim, Dobbs Ferry, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed July 23, 1968, Ser. No. 746,745
Int. Cl. C07c 85/00, 85/04

U.S. Cl. 260—583 5 Claims
A two step process for manufacturing N,N'-polythio-bis-dialkylamine which consists of intermixing a dialkylamine with a water immiscible organic solvent and thereafter adding simultaneously an aqueous inorganic base and a sulfur chloride composition to form an intermediate product. The intermediate product is separated from an aqueous layer that is formed. Thereafter, elemental sulfur is added to the organic layer and reacted therewith to form an end product consisting of N,N'-polythio-bis-dialkylamine wherein said sulfur rank ranges between 5 and 8.

3,595,920

PROCESS FOR CONVERTING AN OLEFIN TO A PRODUCT CONTAINING HIGHER AND LOWER OLEFINS

Alan F. Ellis, Murrysville, and Edward T. Sabourin, Allison Park, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed May 5, 1969, Ser. No. 821,945
Int. Cl. C07c 3/62

U.S. Cl. 260—683D 10 Claims
A process for converting, by metathesis, an olefin, particularly an alpha olefin, to a product containing a mixture of olefins of higher and lower carbon number than the olefin charge, which involves contacting the olefin charge with a novel composition containing alumina, molybdenum or rhenium and silver or copper.

3,595,921

REDUCING THE COLOR CONTENT OF POLY-ETHYLENE POLYAMINES PREPARED BY THE REACTION OF AMMONIA WITH ETHYLENE DICHLORIDE

James William Pitts, Port Neches, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Filed June 16, 1969, Ser. No. 833,802
Int. Cl. C07c 85/16

U.S. Cl. 260—583 6 Claims
The color content of the polyethylene polyamine products prepared by the reaction of ethylene dichloride with ammonia is reduced by refluxing the product in the presence of at least about 0.5 wt. percent potassium hydroxide for at least one hour at a temperature of about 110° to

about 190° C. at the reduced pressure corresponding to the refluxing temperature and recovering the polyethylene polyamine product having a substantially reduced color content from the refluxing mixture.

3,595,922

BENZIL PREPARATION

Philip Manos, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 551,872, May 23, 1966. This application Mar. 25, 1969, Ser. No. 810,376
Int. Cl. C07c 49/76

U.S. Cl. 260—590 3 Claims
Process for preparing benzils from benzoin by reaction with cupric carboxylate catalyst at 20–130° C. and oxygen.

3,595,923

CONDENSATION PRODUCT OF 2-ETHYLHEXANOL A POLYETHYLENE GLYCOL MONO-N-BUTYL ETHER AND THIODIGLYCOL

Hans-George Schmelzer, Cologne-Stammheim, Willi Wolff, Cologne-Muelheim, and Hans Holtschmidt, Horst Kopnick, and Eberhart Degener, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed June 17, 1968, Ser. No. 737,280
Claims priority, application Germany, June 30, 1967, F 52,829
Int. Cl. C07c 149/14; C08d 11/02; C08f 45/46

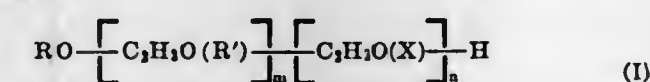
U.S. Cl. 260—609 4 Claims
Plasticizer for elastomers comprising the condensation product of 2-ethylhexanol, a polyethylene glycol mono-n-butyl ether with an average molecular weight of from 200–400 and thiodiglycol in a molar ratio of 0.8–2:0.05–0.2:1 respectively.

3,595,924

CHEMICAL COMPOUNDS HAVING EMULSIFYING PROPERTIES

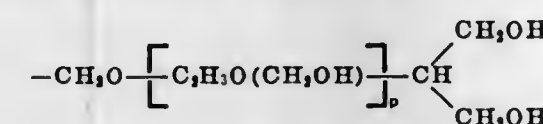
Gregoire Kalopissis, Paris, and Guy Vanlerberghe, Mity-Mory, France, assignors to L'Oréal, Paris, France
No Drawing. Filed Oct. 23, 1967, Ser. No. 677,047
Claims priority, application Luxembourg, Oct. 21, 1966, 52,227; Oct. 24, 1966, 52,228; Oct. 6, 1967, 54,622
Int. Cl. C07c 43/04

U.S. Cl. 260—615 3 Claims
This invention relates to new emulsifiers responding to the formula:

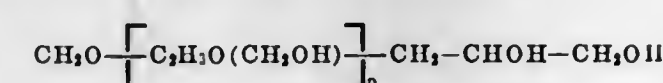


In this formula R indicates a saturated aliphatic radical comprising 12 to 20, and preferably 16 to 18 carbon atoms; R' indicates a methyl or ethyl radical; X indicates either:

- a hydroxymethyl radical
- a radical responding to the formula:



or a radical responding to the formula:



m is a number between 1 and 10, preferably between 2 and 6, inclusive; n is a number equal to or greater than one, but no greater than 5; and p is a number between 0

and 10 inclusive, the product $n(p+2)$ being between 2 and 12 inclusive. The invention also includes cosmetic compositions comprising such emulsifiers.

3,595,925

FLUORINATION OF ω -HYDRO-FLUORINATED POLYETHERS

Bruce H. Garth, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Jan. 30, 1969, Ser. No. 795,342
Int. Cl. C07c 41/00

U.S. Cl. 260—615 8 Claims
Process for the liquid phase fluorination of hydro-terminated polyfluorinated polyethers which comprises reacting the polyethers with antimony pentafluoride.

3,595,926

PRODUCTION OF FREE FLOWING PARA-FORMALDEHYDE

Hans-Joachim Mann, Mainz (Rhine), Walter Pohl, Gotzenhain uber-Langen, Klaus Simon, Buschschlag uber-Sprendlingen, and Wolfgang Weigert, Offenbach am Main, Germany, assignors to Deutsche Gold-und Silber Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
Continuation of application Ser. No. 673,198, Oct. 5, 1967, which is a continuation-in-part of application Ser. No. 632,905, Apr. 24, 1967. This application Oct. 24, 1969, Ser. No. 869,393
Claims priority, application Germany, May 9, 1967, D 53,028
Int. Cl. C07c 47/10

U.S. Cl. 260—615.5 7 Claims
Process for the production of a free flowing paraformaldehyde product which comprises spraying a liquid formaldehyde concentrate containing 85 to 90% by weight of formaldehyde in the form of droplets into the upper portion of a cooling tower supplying a cooling inert gas at a temperature which is below +39° C., and preferably between -40 and +30° C., to the cooling tower and passing it upwardly therethrough, permitting the droplets to solidify as they drop through the rising gas before they reach the bottom of the tower and withdrawing the solidified particles from the bottom of the tower. Preferably a fluidized bed of solidified paraformaldehyde particles is maintained in the bottom portion of the tower and the solidified particles are further cooled after removal from the tower.

Int. Cl. C07c 47/10

U.S. Cl. 260—615.5

7 Claims

U.S. Cl. 260—615.5

7 Claims

U.S. Cl. 260—615.5

7 Claims

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U.S. Cl. 260—615.5

7 Claims

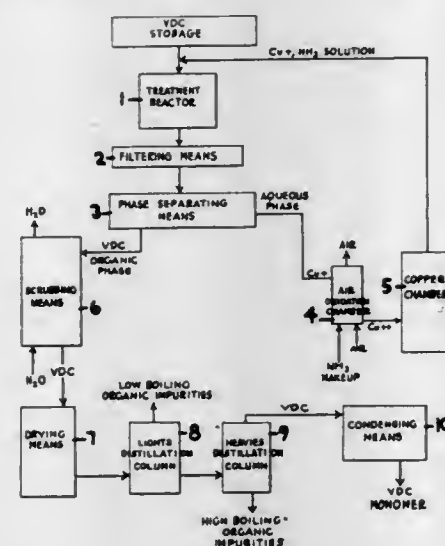
U.S. Cl. 260—615.5

7 Claims

U.S. Cl. 260—615.5

7 Claims

tacting the monomer with at least 2 percent by volume, basis the volume of the monomer, of an aqueous solution containing ions of either silver, copper or mercury;



and, desirably, a coordinating ligand which is non-reactive with the monomer and which may be readily phase-separated from the monomer.

3,595,929

PROCESS FOR PREPARING METHYLCYCLOHEXENES

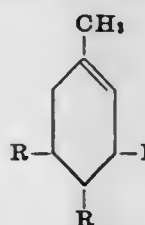
André Lakodey and Francis Weiss, Pierre-Benite, France, assignors to Ugué Kuhlmann

No Drawing. Filed Dec. 9, 1969, Ser. No. 883,581

Claims priority, application France, Dec. 10, 1968, 177,358

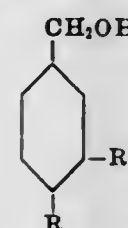
Int. Cl. C07c 1/24

U.S. Cl. 260-666 3 Claims
Methylcyclohexenes of the following formula:



(I)

in which R represents a methyl radical or a hydrogen atom and in which at least one R substituent is a hydrogen atom and those two R representing methyl radical are adjacent, are prepared by dehydrating a hexahydrobenzylic alcohol having the following Formula II



(II)

in which R has the meaning given above, in the vapor phase.

3,595,930

ANIONIC ADDITION OF DIARYLMETHANES TO HYDROCARBONS

John E. Hofmann and Alan Schriesheim, Berkeley Heights, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed June 1, 1965, Ser. No. 460,508

Int. Cl. C07c 15/16, 15/20

U.S. Cl. 260-668C 4 Claims

A method of effecting the anionic addition of weakly acidic nucleophilic molecules with hydrocarbon substrates in the presence of a basic catalyst by use of alkyl phosphoramidate and tetraalkyl urea solvents.

3,595,931

HYDROGENOLYSIS OF AROMATIC HALIDES

Russell G. Hay, Gibsonia, and John G. McNulty and William L. Walsh, Glenshaw, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed May 28, 1968, Ser. No. 732,549

Int. Cl. C07c 15/02

U.S. Cl. 260-668

11 Claims

A process is provided for the replacement of a halogen moiety on a halogenated aromatic with a hydrogen. The process involves contacting the halogenated aromatic in the vapor phase in the presence of hydrogen with a supported catalyst containing a minor amount of Pt or Pd and a minor amount of a hydrated alkali or alkaline earth metal oxide such as KOH.

3,595,932

METHOD OF PRODUCING BENZENE AND ITS LOW-MOLECULAR WEIGHT HOMOLOGS

Gdal Nosonovich Maslyansky, Prospekt Obukhovskoi Oborony 23, kv. 18; Georgy Lazarevich Rabinovich, Ulitsa Kibalchicha 16, kv. 34; Nina Khrisanfovna Avtonomova, Zverinskaya ulitsa 7/9, kv. 48; and Kira Lvovna Brisker, Naberezhnaya Chernol Rechki 10, kv. 30, all of Leningrad, U.S.S.R.

No Drawing. Filed Aug. 20, 1968, Ser. No. 753,886

Int. Cl. B01J 11/06; C07c 3/00, 3/58

U.S. Cl. 260-672

1 Claim

Alkyl benzenes are dealkylated with steam at a temperature of 380-600° C. in the presence of a catalyst. The catalyst is a binary system consisting of platinum, palladium, rhodium, iridium, ruthenium or mixtures thereof, deposited in an amount of 0.05 to 5% by weight on a carrier consisting of aluminum oxide, aluminosilicate, a combination of aluminum oxide with oxides of nickel or aluminum oxide with oxides of cobalt.

3,595,933

PROCESS FOR THE SEPARATION OF ORGANIC COMPOUNDS BY EXTRACTION WITH 1,3-DICYANOBUTANE

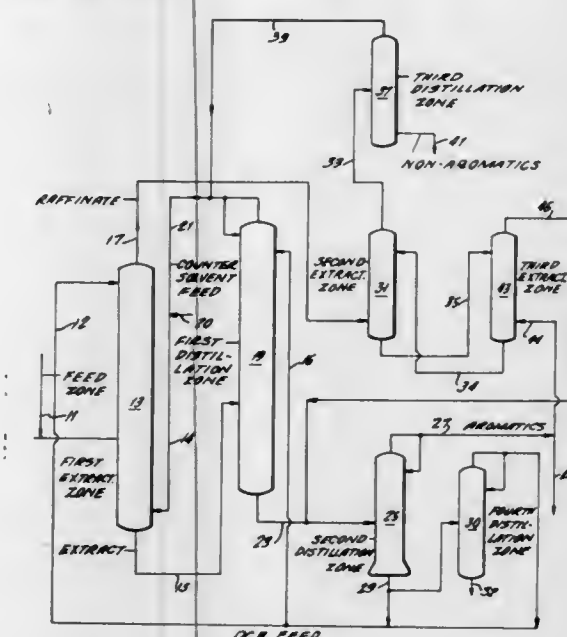
Julian Feldman, Cincinnati, Ohio, and Joel B. Pedigo, Wheaton, Ill., assignors to National Distillers and Chemical Corporation, New York, N.Y.

Filed July 18, 1968, Ser. No. 745,921

Int. Cl. C07c 7/10; C10g 21/20, 21/28

U.S. Cl. 260-674SE

11 Claims



traction, extractive distillation, extractive stripping, and the like. The extraction of aromatic from non-aromatic hydrocarbons is a preferred form of separation which may be effected by this process.

3,595,934

RADIATION RESISTANT VINYL-CONTAINING SILOXANE COMPOSITIONS

Anthony J. Butler, Keith E. Polmanteer, and Forrest O. Stark, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Nov. 6, 1967, Ser. No. 681,015

Int. Cl. C08g 47/00

U.S. Cl. 260-825

2 Claims

A tacky copolymer of vinylmethylphenylsiloxyl-end-blocked phenylmethylsiloxane fluids and tris(dimethylhydrogensiloxy)phenylsilane as crosslinker with a significant excess of SiH is found to yield a very stable interlayer for radiation cave windows.

3,595,935

POLYBLENDS HAVING IMPROVED PROPERTIES

Lamberto Crescentini, Chester, Va., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Jan. 31, 1969, Ser. No. 795,691

Int. Cl. C08g 41/04

U.S. Cl. 260-857R

9 Claims

When polyamides having a substantial proportion of primary amino end-groups and carboxyl end-groups bound to terminating agents containing tertiary or unreactive secondary amino groups are melt-blended with polyesters, filaments can be spun therefrom without adverse interaction between the polymers and with enhanced dyeability.

3,595,936

FILAMENT COMPRISING A POLYMER BLEND OF POLYESTER AND POLYAMIDE CONTAINING AN ORGANIC PHOSPHORUS COMPOUND AND A STERICALLY HINDERED PHENOLIC COMPOUND

Amnon Birenzve and Gene C. Weedon, Richmond, Va., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Apr. 29, 1969, Ser. No. 820,320

Int. Cl. C08g 41/04

U.S. Cl. 260-857

16 Claims

A process for increasing the whiteness of a filament extruded from a polymer blend comprised of polyester and polyamide which comprises incorporating in the polymer blend, prior to extrusion thereof, about 0.05 to 3 weight percent, based upon the weight of the polyamide and polyester, of an organic phosphorus compound and about 0.05 to 3 weight percent, based upon the weight of the polyamide and polyester, of a sterically hindered phenolic compound and melt extruding the polymer blend to form a filament having increased whiteness.

3,595,937

THERMOPLASTIC POLYESTER MOULDING COMPOSITIONS CONTAINING POLYACETALS

Klaus Weissmeyer, Kelkheim, Taunus, Karlheinz Burg, Hofheim, Taunus, and Harald Cherdron, Wiesbaden, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Sept. 23, 1968, Ser. No. 761,807

Claims priority, application Germany, Oct. 11, 1967, P 16 94 204.4

Int. Cl. C08c 11/32; C08g 39/10, 51/18

U.S. Cl. 260-860

21 Claims

Thermoplastic moulding compositions comprising a linear saturated polyester and polyacetals, from which shaped articles can be made having a good surface hardness and a high impact strength and bending strength.

3,595,938

POLYETHYLENE GLYCOL TEREPHTHALATE/POLY-1,4-DIMETHYLOL-CYCLOHEXANE TEREPHTHALATE BLOCK COPOLYESTER THERMOPLASTIC MOULDING COMPOSITIONS

Klaus Weissmeyer, Kelkheim, Taunus, and Ludwig Brinkmann and Walter Herwig, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Sept. 26, 1968, Ser. No. 762,984

Claims priority, application Germany, Oct. 7, 1967, P 17 20 722.6

Int. Cl. C08g 39/10

U.S. Cl. 260-860

5 Claims

Thermoplastic moulding compositions comprising block copolyesters of polyethylene glycol terephthalate units and poly-1,4-dimethylolcyclohexane terephthalate units from which mouldings having a high impact strength and bending strength can be produced.

3,595,939

PROCESS FOR THE PRODUCTION OF VINYL CHLORIDE/VINYL ALCOHOL COPOLYMERS

Marvin Koral, Warren, Elliott Farber, Trenton, and Christian W. Johnston, Belle Mead, N.J., assignors to Tenneco Chemicals, Inc.

No Drawing. Filed Dec. 27, 1968, Ser. No. 787,588

Int. Cl. C08f 27/14

U.S. Cl. 260-871

10 Claims

Heat-stable vinyl chloride/vinyl alcohol copolymers are prepared by heating a vinyl chloride/vinyl acetate copolymer in suspension in a lower alcohol that contains a strong acid catalyst until most or all of the acetate groups have been converted to alcohol groups and treating the recovered copolymer with, for example, calcium hydroxide, to neutralize the acid that is present in it.

3,595,940

GRAFT COPOLYMERS AND PROCESS FOR THEIR MANUFACTURE

Gerhard Kuhne and Jürgen Kuhl, Burghausen, Salzach, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Oct. 29, 1968, Ser. No. 771,605

Claims priority, application Germany, Nov. 17, 1967, P 17 20 750.0

Int. Cl. C08f 29/24, 19/08, 19/10

U.S. Cl. 260-876

8 Claims

The present invention relates to crystal clear graft copolymers of high impact strength and their manufacture by polymerizing vinyl chloride to an extent of polymerization of 50 to 85%, then adding an elastomer latex obtained from butadiene, styrene and vinyl esters, in an amount within the range of from 1 to 30% by weight calculated on the vinyl chloride and finally continuing the polymerization of the whole mixture.

The resulting graft copolymers can be used either alone or in admixture with suspension or mass polyvinyl chloride for making crystal clear shaped articles of high notched impact tensile strength.

3,595,941

METHOD FOR CONTROLLING THE MOONEY VISCOSITY OF ALKALI METAL-TERMINATED POLYMERS

Ralph C. Farrar and Alvin C. Rothlisberger, Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Nov. 4, 1966, Ser. No. 592,000

Int. Cl. C08d 5/02; C08f 15/04, 27/00

U.S. Cl. 260-879

12 Claims

In the formation of random or block copolymers of a conjugated diene and styrene, a yellow color forms only

when polymerization of the conjugated diene is substantially complete. The color formation is utilized to determine the optimum time for addition of treating agents to provide coupling and/or branching, so as to substantially increase the Mooney value of the final polymer.

3,595,942 PARTIALLY HYDROGENATED BLOCK COPOLYMERS

Milton M. Wald, Walnut Creek, and Myron G. Quam, deceased, late of Hayward, Calif.; said Wald assignor to Shell Oil Company, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 333,671, Dec. 26, 1963. This application Dec. 24, 1968, Ser. No. 806,763
(Filed under Rule 47(a) and 35 U.S.C. 116)
Int. Cl. C08f 15/04

U.S. Cl. 260—880 4 Claims
Block copolymers of monovinyl arenes with conjugated dienes are hydrogenated to form selectively hydrogenated products wherein only the conjugated diene blocks are hydrogenated, the resulting materials having substantial advantages relative to higher melt temperatures and therefore higher service temperatures, excellent resistance to oxidation and reduced creep and set characteristics.

3,595,943
HOT MELT COATING COMPOSITIONS FOR
PRINTED SHEETS AND COATED, LENTICU-
LATED SHEETS HAVING 3-D APPEARANCE
Marion O. Brunson, Brecksville, Ohio, and Ted L. Douglas, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 685,957, Nov. 27, 1967. This application Apr. 5, 1968, Ser. No. 719,217
Int. Cl. C08f 29/12

U.S. Cl. 260—897B 8 Claims
Flexible sheets (such as paper) having a three dimensional (3-D) appearance have a printed stereographic image coated with a hot melt coating composition having on its surface a lenticulated pattern, said coating composition being essentially (50–100%) composed of maleated polyethylene. About 5 to 45% of the coating composition may be a copolymer of ethylene and either an alkyl (1–8 carbons) acrylate or a vinyl alkanoate (1–8 carbons). Such coating compositions as contain 5–45% copolymer (70 to 95% ethylene–30 to 5% ethyl acrylate) have even greater adhesion to both paper and ink-printed areas, and also other desirable properties, e.g. resist blocking, stain resistant, withstand folding, resist stress cracking, abrasion resistant, possess inherent stability with little or no additives, etc.

3,595,944
OIL- AND WATER-REPELLENT FLUORINE-
CONTAINING COMPOSITIONS
George Hall Manning and Samuel John Webster, Run-
corn, England, assignors to Imperial Chemical Indus-
tries Limited, London, England
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,908
Claims priority, application Great Britain, Aug. 24, 1967, 18,777/67
Int. Cl. C08f 29/22

U.S. Cl. 260—900 11 Claims
The oleophobic and hydrophobic properties of polymers of highly fluorinated monomers the fluorinated parts of whose molecules are branched are increased by mixing the polymers with oleophobic and hydrophobic polymers of highly fluorinated monomers whose fluorinated parts have linear structures; preferred mixtures comprise 0.50% to 15% of the latter and 85% to 99.5% of the former.

Improved solubility of the mixtures in halogenated solvents is given by co-polymerising the monomers with polymerisable vinyl compounds not containing fluorine, for example butyl methacrylate.

Solutions in such solvents can be applied to textiles to impart oleophobic and hydrophobic properties. Resistance to dry-cleaning and laundering of treated fabrics can be improved by introducing into the copolymerisation systems minor proportions of monomers able to introduce cross-linking sites, for example hydroxyethyl methacrylate, and subsequently curing by heating the treated fabric.

Preferred linear molecules are 1H,1H-pentadecafluorooctyl acrylate and the reaction product of poly(vinyl alcohol) and perfluorooctanoic acid; preferred branched molecules are (i) the methacrylic ester,



of the tetrafluoroethylene pentamer derivative of p-hydroxybenzyl alcohol, (ii) the vinyl ester



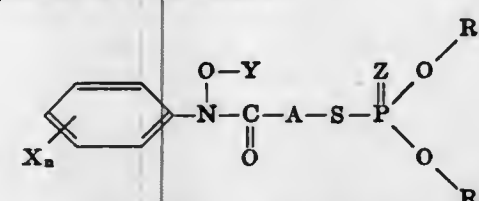
of the tetrafluoroethylene pentamer derivative of p-hydroxybenzoic acid and (iii) the vinyl ester



of tridecafluoro-2-methyl-2-ethyl-1H,1H-butane-1-carboxylic acid.

3,595,945
N-PHENYL-N-HYDROXY(ALKOXY) - α - (O,O-DI-
ALKYLPHOSPHORO(DI)THIOATE)-ACETAMIDES
John Krenzer, Oak Park, and Sidney B. Richter, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.
No Drawing. Filed Dec. 28, 1967, Ser. No. 694,068
Int. Cl. C07f 9/16; A01n 9/36

U.S. Cl. 260—943 11 Claims
A compound of the formula:



wherein n is an integer of from 0 to 3; X is selected from the group consisting of a halogen, an aliphatic radical, nitro, hydroxy, alkoxy, acyl, acyloxy, and cyano; Y is selected from the group consisting of hydrogen, alkyl, acyl, alkoxy, carbonyl, alkylthiocarbonyl and a carbamoyl radical; A is alkylene; Z is selected from the group consisting of oxygen and sulfur; and R_1 and R_2 are selected from the group consisting of alkyl and phenyl. The compounds are pesticides.

ERRATA

For Classes 260—47, 78, 79, 247, and 448 see:
Patent Nos. 3,595,969 thru 3,595,974

3,595,946
PROCESS FOR THE PRODUCTION OF CARBON
FILAMENTS FROM COAL TAR PITCH
Louis A. Joo, Johnson City, John A. McKee, Elizabeth-
ton, and Frederick L. Shea, Johnson City, Tenn., as-
signors to Great Lakes Carbon Corporation, New York, N.Y.
No Drawing. Filed June 4, 1968, Ser. No. 734,257
Int. Cl. C01b 31/07

U.S. Cl. 264—29 5 Claims
Carbon filaments are made from specially treated high temperature coal tar pitch. The pitch is filtered, heat

treated and its low molecular weight components are removed by distillation. The treated pitch is spun into filaments, the filaments partially oxidized and then carbonized under carefully regulated conditions to yield filamentary carbon having a tensile strength of more than 100,000 p.s.i. The filaments may be graphitized.

3,595,947
METHOD OF MANUFACTURING STRUCTURAL
ELEMENTS
Pieter Simon Wielinga, Vuren an der Waal, Netherlands,
assignor to Fabriek van Bouwmaterialen "Loevestein"
N.V., Vuren an der Waal, Netherlands
Filed Mar. 3, 1967, Ser. No. 620,485
Claims priority, application Netherlands, Mar. 4, 1966, 6602812
Int. B29h 7/20; B44c 3/20

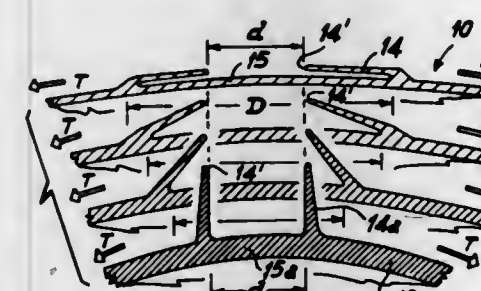
U.S. Cl. 264—42 9 Claims



A structural element of cellular concrete having a surface layer of concrete is formed by first molding a concrete body having a cellular-forming substance, hardening the cellular body formed therefrom, applying an outer layer of concrete material of substantially the same components as the cellular concrete body but without the cellular-forming substance, and then subjecting the body to the action of steam under superatmospheric pressure, whereby to harden said layer.

3,595,948
PROCESS FOR THE INDUSTRIAL PRODUCTION
OF BALLS, BALLOONS AND HOLLOW BODIES
WHICH MAY BE INFLATED, FOR RECREATIVE
AND SPORTING USE
Aquilino Cosani, 33010 Osoppo (Udine), Italy
Filed May 22, 1969, Ser. No. 826,845
Claims priority, application Italy, May 24, 1968, 16,863/68
Int. Cl. B29c 17/06

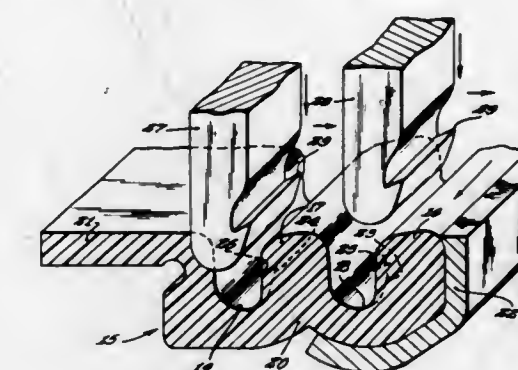
U.S. Cl. 264—94 6 Claims



The present process relates to the formation of end hollow bodies by expansion of a hollow body to very reduced dimensions with formation of inwardly converging end pieces and leading to the formation of a converging flange or pocket, adapted to receive a flange forming the base of the handle or the member to be connected to the hollow body.

3,595,949
METHOD OF MAKING PLASTIC FASTENER
PROFILE
Karel J. Staller, Rutherford, N.J., assignor to
Flexigrip, Inc., Orangeburg, N.Y.
Filed Jan. 16, 1968, Ser. No. 698,245
Int. Cl. B29c 17/10

U.S. Cl. 264—146 6 Claims



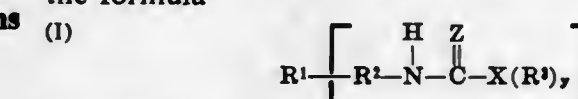
A method for making an improved plastic fastener strip of a type with releasably interlocking rib and groove elements and particularly for extruding a streamlined rib element and undercutting grooves to form an overhanging tooth.

3,595,950
PRECURE COATING FOR RUBBERY POLYMERS
Stanley M. Mezynski, Akron, Ohio, assignor to The
Goodyear Tire & Rubber Company, Akron, Ohio
Filed May 29, 1967, Ser. No. 642,177
Int. Cl. B29h 21/04; B44d 1/24

U.S. Cl. 264—130 10 Claims
Precure coatings for unvulcanized polymers such as those found in the sidewall areas of pneumatic tires, the coatings comprising a polymeric portion of ethylene propylene terpolymers alone or in combination with other polymeric materials to retard surface defect formation and to prevent the polymer from adhering to the mold after vulcanization.

3,595,951
PROCESS FOR SPINNING POLY(p-BENZAMIDE)
Francis M. Logullo, Wilmington, Del., assignor to E. I. du
Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed June 27, 1969, Ser. No. 837,349
Int. Cl. D01f 1/02

U.S. Cl. 264—211 10 Claims
Poly(p-benzamide) dope containing about 1 to 10 percent based upon the weight of polymer, of a modifier of the formula



wherein
 R^1 is an aliphatic or aromatic hydrocarbon radical having a valence of n ,
 R^2 is a single bond or a divalent aromatic hydrocarbon radical,
 R^3 is a monovalent aliphatic or aromatic hydrocarbon radical,
 X is a divalent oxygen ($—O—$) or sulfur ($—S—$) radical, or a trivalent nitrogen ($—N<$) radical,
 y is 1 or 2,
 n is an integer between 2 and 4, inclusive, and
 Z is a divalent oxygen ($=O$) or sulfur ($=S$) radical,
is extruded to form a shaped article and the article is heated for up to 160 hours at 190 to 250 °C. This process improves the tenacity and modulus of the shaped article, as well as increasing the inherent viscosity of the polymer, without adversely affecting other desirable properties, e.g., elongation, to any appreciable extent.

3,595,952 STEAM CONDITIONING OF POLYAMIDE FILAMENT

Nolan Davidson Boyer and John Edward Hansen, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 555,982, June 8, 1966. This application Apr. 5, 1968, Ser. No. 719,220

Int. Cl. B29c 25/00

U.S. Cl. 264—235 14 Claims
Polyamide monofilament is exposed to saturated steam at a pressure of 20 to 90 p.s.i.g. for 0.010 to 5 seconds to improve the knot strength of the monofilament.

3,595,953 PROCESS FOR PRODUCING POLYESTER FIBERS AND HAVING HIGH AND CONSTANT SHRINKAGE

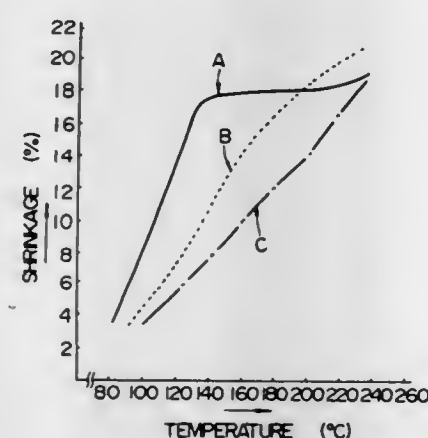
Takeshi Konishi, Kurashiki, and Keizo Ueda, Nishinomiya, Japan, assignors to Kurashiki Rayon Co., Ltd., Kurashiki, Okayama Prefecture, Japan

Filed May 14, 1969, Ser. No. 824,604

Claims priority, application Japan, May 17, 1968, 43/33,337; May 22, 1968, 43/34,537; May 25, 1968, 43/35,642

Int. Cl. D02j 1/22

U.S. Cl. 264—290 6 Claims



Polyester fibers or filaments which exhibit a high and constant shrinkage at varying heat-treatment temperatures for development of shrinkage are obtained by drawing undrawn fibers or filaments to a least 3 times their original length at a temperature of 40 to 70° C., shrinking the drawn fibers or filaments at a temperature of 65–130° C. by 10–50% of the drawn length, and thereafter, drawing the fibers or filaments by 10–80% of the shrunken length at a temperature of 40–70° C. and to an extent not in excess of 1.2 times the above-mentioned drawn length. Spun yarns and textile fabrics containing the so obtained fibers or filaments have a high and uniform shrinkage at varying heat-treatment temperatures.

3,595,954 ANTIBIOTIC MACROMOMYCIN AND PROCESS FOR MAKING SAME

Hamao Umezawa, 23 Toyotama-kita-2, Nerima-ku; Tomjo Takeuchi, 701A New Fujimansion Higashi Gotanda, Shinagawa-ku; Masa Hamada, 1-7-3-4 Fujicho, Hoya-shi; Masaaki Ishizuka, 2-3-4 Denenchofu, Ota-ku; Hideo Chimura, 3-17-1-402 Shimo Kita-ku; and Kenji Maeda, 2-3-15 Higashi Gotanda, Shinagawa-ku, all of Tokyo, Japan

Filed Apr. 22, 1968, Ser. No. 723,214

Claims priority, application Japan, May 17, 1967, 42/30,923

Int. Cl. A61k 21/00

U.S. Cl. 424—117 4 Claims
Macromomycin inhibits the growth of various microorganisms e.g., *Staphylococcus aureus* and inhibits the

growth of Sarcoma 180 tumor in mice. The antibiotic macromomycin is produced by fermentation of a new species of *Streptomyces* which has been designated *Streptomyces macromomyceticus*.

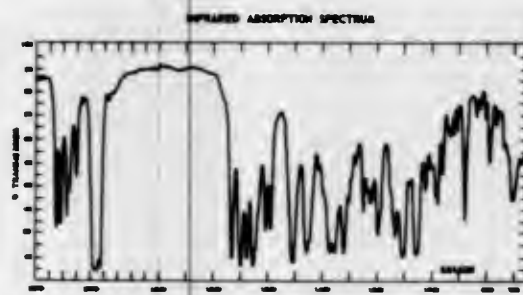
3,595,955 GELDANAMYCIN AND PROCESS FOR PRODUCING SAME

Clarence De Boer and Durey H. Peterson, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Mar. 26, 1969, Ser. No. 810,707

Int. Cl. A61k 21/00

U.S. Cl. 424—121 7 Claims



Antibiotic geldanamycin is producible by culturing *Streptomyces hygroscopicus* var. *geldanus* var. *nova* in an aqueous nutrient medium. Geldanamycin is active against the nematode *Syphacia obvelata* and can be used to inhibit this nematode in mice and monkeys.

3,595,956 COMPOSITIONS CONTAINING 2,4,5-TRICHLOROPHENOL AND POLYMYXIN B AND NEOMYCIN

Herbert J. Florestano, Indianapolis, Ind., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of applications Ser. No. 604,608 and Ser. No. 604,631, both Dec. 27, 1966. This application June 6, 1968, Ser. No. 734,850

Int. Cl. A61k 27/00

U.S. Cl. 424—177 8 Claims
Antimicrobial compositions comprising mixtures of 2, 4,5-trichlorophenol and neomycin or polymyxin B as the essential active ingredients thereof are disclosed. Such compositions comprising 2,4,5-trichlorophenol and polymyxin B or neomycin possess greater antimicrobial activity than the individual components of the compositions employed separately.

3,595,957 ANTICARIOGENIC COMPOSITIONS AND METHODS

Joseph C. Muhler, Indianapolis, Ind., assignor to Indiana University Foundation, Bloomington, Ind.

No Drawing. Continuation of application Ser. No. 621,155, Mar. 7, 1967. This application Apr. 28, 1970, Ser. No. 29,774

Int. Cl. A61k 7/16, 27/00

U.S. Cl. 424—199 8 Claims

By reacting urea and phosphorus pentoxide in an aqueous environment a new class of compounds may be obtained. These compounds exhibit a high degree of anticariogenic effectiveness, especially in the presence of sugar

or when employed in comestibles or sugar-containing comestibles. Among these new compounds are dimerized urea carbamido pyrophosphate, tetraurea pyrophosphate, and urea pyrophosphate.

3,595,958 STABLE NALED DUSTS

Theodore H. Koundakjian, Berkeley, and John R. Mattox, Sausalito, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Oct. 12, 1966, Ser. No. 586,049

Int. Cl. A01n 9/36

U.S. Cl. 424—225 5 Claims
Free-flowing pesticidal dust comprising naled, a calcined, anhydrous alkaline earth metal sulfate as a carrier and a micro silica as a flow agent.

3,595,959 METHOD OF COMBATING FUNGI AND BACTERIA USING 2,3-DIHYDRO-1,3-BENZOXAZINE-4H-2-THIONE - 4 - ONE AND DERIVATIVES OF DIHYDRO-1,3-BENZOXAZINE-2-THIONE-4-ONE

Teruhisa Noguchi, Fujisawa-shi, Keisuke Komoto, Hiratsuka-shi, Sho Hashimoto, Kahoku-gun, Koshin Miyazaki, Takaoka-shi, and Koishi Hashimoto, Kahoku-gun, Japan, assignors to Nippon Soda Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Original application Apr. 10, 1967, Ser. No. 629,415. Divided and this application Nov. 20, 1968, Ser. No. 798,526

Claims priority, application Japan, Apr. 14, 1966, 41/23,249; Apr. 30, 1966, 41/27,244

Int. Cl. A01n 9/00, 9/22

U.S. Cl. 424—248 5 Claims
Dihydro-1,3-benzoxazine-2-thione-4 one or derivatives thereof which have one to three substituents on the benzene ring, have fungicidal and bactericidal activities against microbes which cause plant diseases such as melonose and scab of citrus plants, anthracnose of cucumber plants and leaf mold of tomato plants. The compounds having substituent or substituents are novel compounds. This invention relates to derivatives of dihydro-1,3-benzoxazine-2-thione-4 one or derivatives thereof having certain substituents and to a novel agricultural and horticultural fungicidal and bactericidal use of these compounds and of a known analogous compound not having any substituent.

3,595,960 TREATMENT OF HYPERTENSION WITH α -(SUBSTITUTED - 4 - AMINOPHENYL) - α - LOWER ALKYLGLUTARIMIDE

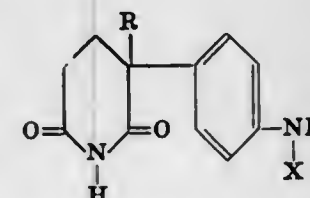
Robert Gaunt, Chatham, N.J., assignor to

Ciba Corporation, Summit, N.J.

No Drawing. Filed Dec. 3, 1968, Ser. No. 780,889

Int. Cl. A61k 27/00

U.S. Cl. 424—267 5 Claims
 α -(4-aminophenyl)- α -lower alkylglutarimides, e.g. those of the formula



R=lower alkyl

X=H or lower alkanoyl

and salts thereof decrease blood pressure in hypertensives with reduced renin blood levels and normal or reduced mineralocorticoid secretion rate.

3,595,961 HYPOTENSIVE COMPOSITIONS CONTAINING 2-(2' - HALO-ANILINO) - 1,3 - DIAZACYCLOPENTENES-(2) AND METHODS OF USING THE SAME

Helmut Stähle, Herbert Köppe, Karl Zeile, and Martin Wolf, Ingelheim am Rhein, and Wolfgang Hoefke, Budenheim (Rhine), Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Original application Sept. 30, 1966, Ser. No. 583,421, now Patent No. 3,462,433, dated Aug. 9, 1969. Divided and this application Apr. 17, 1969, Ser. No. 817,200

Int. Cl. A61k 15/12

U.S. Cl. 424—273 14 Claims
Hypotensive compositions comprising a derivative of 2-(2'-halo-anilino)-1,3-diazacyclopentene-(2) as an active ingredient, and a method of reducing the blood pressure in warm-blooded animals therewith.

3,595,962 METHOD OF USING 4-ARYLBICYCLO[2.2.2]OCTYL URETHANS AS ANTIDEPRESSANTS AND COMPOSITIONS THEREOF

Paul E. Aldrich, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 697,302, Jan. 12, 1968. This application Feb. 6, 1970, Ser. No. 9,395

Int. Cl. A61k 27/00

U.S. Cl. 424—274 6 Claims
This invention teaches the preparation of 4-arylbicyclo[2.2.2]oct-1-yl urethans and methods of using and formulating the same as antidepressant agents.

Representative of the compounds within the scope of this invention are ethyl N-4-phenylbicyclo[2.2.2]oct-2-en-1-yl urethan and propyl N-4-(o-tolyl)bicyclo[2.2.2]octane-1-yl urethan.

3,595,963 METHOD OF CONTROLLING THE GROWTH OF FUNGI

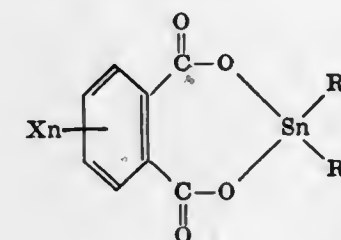
Pasquale P. Minieri, Woodside, N.Y., assignor to

Tenneco Chemicals, Inc.

No Drawing. Continuation-in-part of application Ser. No. 620,293, Mar. 3, 1967. This application Apr. 3, 1969, Ser. No. 813,342

Int. Cl. A01n 9/00

U.S. Cl. 424—288 6 Claims
Organotin compounds, which have the structure



wherein each R represents phenyl or an alkyl group having from 4 to 8 carbon atoms; X represents alkyl groups having from 1 to 4 carbon atoms, halogen, phenyl, carboxy, or nitro; and n represents an integer in the range of 1 to 4, effectively control the growth of fungi, and particularly plant pathogens, without causing appreciable injury to the host plant. Among the most effective of these fungicides is dibutyl tin 3,4-dimethyl-6-isobutylphthalate.

3,595,964

METHODS OF TREATING CESTODES WITH DIBUTYL LEAD ESTERS

Georges Gras, Montpellier, France, assignor to International Lead Zinc Research Organization, Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 624,144, Mar. 20, 1967. This application June 5, 1968, Ser. No. 734,517

Claims priority, application Netherlands, Mar. 24, 1966, 6603908

Int. Cl. A61k 27/00

U.S. Cl. 424—293

4 Claims

The disclosure of the present application relates to a composition useful as an antihelmintic particularly as an agent useful in combating tape-worms for warm blooded animals, wherein an effective quantity of the dibutyl-lead di-ester of a fatty acid is the active ingredient.

ERRATUM

For Class 424—263 see:
Patent No. 3,595,975

3,595,965

PURIFICATION OF PETROLEUM COKE

William F. Franz, Gardiner, and Howard V. Hess, Glenham, N.Y., assignors to Texaco Inc., New York, N.Y.

Filed June 27, 1969, Ser. No. 837,255

Int. Cl. C01b 31/02

U.S. Cl. 23—209.9

6 Claims

Purification of petroleum coke high in sulfur and containing metallic impurities by passing an excess of synthesis gas in contact with the preoxidized coke at a temperature and pressure at which the carbon monoxide of the synthesis gas is caused to combine with the metals, under the catalytic effect of the sulfur in the coke, to form gasiform metal carbonyls which are readily separated. The resulting synthesis gas is then used to hydrosulfurize the coke under appropriate conditions.

3,595,966

PROCESS FOR THE PRODUCTION OF SULFUR

Pierre A. Mathieu, Arthez-de-Bearn, France, assignor to Societe Nationale des Petroles d'Aquitaine, Paris, France

No Drawing. Continuation-in-part of applications Ser. No. 761,368, July 11, 1968, and Ser. No. 805,044, Mar. 6, 1969, which are, respectively, continuations of applications Ser. No. 520,204, Jan. 12, 1966, and Ser. No. 541,497, Apr. 11, 1966. This application Oct. 2, 1969, Ser. No. 863,379

Claims priority, application France, Jan. 22, 1965, 3,085; Apr. 13, 1965, 12,941

Int. Cl. C01b 17/04

U.S. Cl. 23—225R

4 Claims

Sulfur is prepared by the simultaneous introduction of hydrogen sulfide and sulfur dioxide into an aqueous medium containing from 10 to 120 grams sodium chloride and from 0.6 to 85 grams magnesium sulfate per liter.

3,595,967

BASE OIL STOCK FOR FIVE-GRADE LUBRICANT FOR INTERNAL COMBUSTION ENGINES

Richard L. Riedel, Bay Village, and Richard D. Schieman, Avon Lake, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Sept. 25, 1969, Ser. No. 860,958

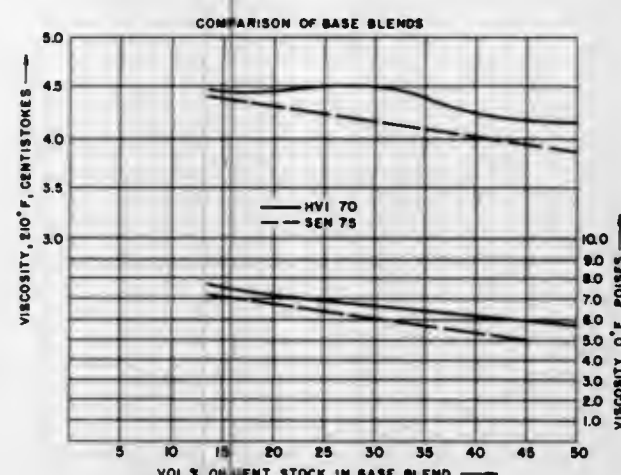
Int. Cl. C10g 41/00

U.S. Cl. 208—19

5 Claims

A blended motor oil base stock for gasoline internal combustion engines is provided which is usable the year round despite extreme climatic conditions. The base oil is

formulated to meet specifications for a SAE 10W50 five-grade motor oil when suitable additives are incorporated



therein. The motor oil comprises a blend of two neutral oils and a dewaxed catalytically cracked cycle oil.

3,595,968

PHOSPHATE ESTER ADDITIVES FOR LOW FOAM NONIONICS

William L. Groves, Jr., Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed June 9, 1969, Ser. No. 831,718

Int. Cl. B01d 19/04; C11d 3/36, 7/48

U.S. Cl. 252—99

2 Claims

Organic phosphate ester additives, when blended with low foam nonionic compounds, suppress foam generated by proteinaceous soil on particules being cleaned. The esters are produced by phosphorylation of C₁₆ to C₂₀ alcohols, the 1-mole ethylene oxide adduct of 16 to 20 carbon alcohols, their blends, an alcohol-1-mole ethoxylate mixture, or a blend of ethylene oxide adducts of a C₁₆ to C₂₀ alcohol wherein the 1-mole adduct is optimized.

3,595,969

ANAEROBIC ADHESIVE COMPOSITION

Thomas H. Shepherd, Hopewell, and Francis E. Gould, Princeton, N.J., assignors to Princeton Chemical Research, Inc., Princeton, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 541,429, Mar. 9, 1966. This application Aug. 13, 1969, Ser. No. 849,893

Int. Cl. C09j 3/14, 5/10; C07c 69/76

U.S. Cl. 260—28.5

6 Claims

An anaerobic adhesive consists of a half-ester of (1) a tetracarboxylic acid having an aromatic nucleus with the carboxylic acid groups being attached thereto and (2) a hydroxy lower alkyl methacrylate. This is a continuation-in-part of application S.N. 541,429 filed Mar. 9, 1966, now abandoned.

3,595,970

PROCESS FOR HARDENING EPOXY RESINS WITH FLUOPHOSPHORIC ACID

Ernst Nolken, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed May 19, 1969, Ser. No. 825,938

Claims priority, application Germany, May 28, 1968, P 17 70 506.5

Int. Cl. C08g 30/12

U.S. Cl. 260—47

7 Claims

Process for hardening epoxy compounds having more than one epoxy group per molecule, if desired with addition of lactones or copolymerizable cyclic ethers, comprising using fluophosphoric acid, if desired in admixture with acid phosphorus compounds as hardener for epoxy

resin to provide for low temperature hardening, increased hardening rate, and improved mechanical properties of the hardened resin.

3,595,971

PROCESS FOR THE MANUFACTURE OF POLYIMIDES

Erich Behr, Troisdorf, Germany, assignor to Dynamit Nobel AG, Troisdorf, Germany

No Drawing. Filed July 3, 1969, Ser. No. 839,807

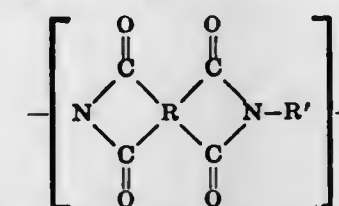
Claims priority, application Germany, July 4, 1968, P 17 70 796.9

Int. Cl. C08g 20/32

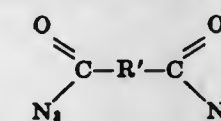
U.S. Cl. 260—47

8 Claims

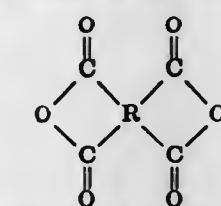
Process for preparing polyimides containing units having the following formula:



wherein R and R' each represent at least one aliphatic, aromatic or cycloaliphatic radical which may be substituted and which may contain hetero atoms comprising reacting a dicarboxylic acid diazide having the formula:



wherein R' has the same meaning as given above with a tetracarboxylic acid dianhydride having the formula:



wherein R has the same meaning as given above, at a temperature of from 0 to 300° C. The adhesive compositions may contain minor amounts of adjuvants such as inert fillers or extenders, methyl cellulose, potassium triphosphate, sodium acetate and mixtures thereof.

3,595,972

OXIRANE AND EPISULFIDE POLYMERIZATION USING CATALYSTS BASED ON ALUMINUM PYROLATE

Arlen B. Mekler, Wilmington, Del., and Alfred E. Borchelt and Richard W. Sauer, Cherry Hill, N.J., assignors to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Original application Mar. 2, 1967, Ser. No. 619,937, now Patent No. 3,489,691. Divided and this application Aug. 11, 1969, Ser. No. 862,128

Int. Cl. C08g 23/14

U.S. Cl. 260—79R

4 Claims

The pyrolysis of alkylaluminum compounds in a non-oxidizing, non-hydrolyzing environment produces a catalytically active solid which is characterized by the evolution of a hydrocarbon gas upon hydrolysis. Preferably, an alkylaluminum compound is heated at temperatures in excess of 400° F. for a time in excess of 6 hours. The

catalyst can be utilized to promote various chemical reactions such as alkylation, polymerization, particularly epoxide polymerization, isomerization, dehydrogenation, hydrogenation, condensation, dealkylation, arylation, acylation and disproportionation. Various improvements are also obtained when this catalyst is combined with either a Lewis base, aluminum chelate or water.

3,595,973

N-PARA SECONDARY HYDROCARBON AMINO PHENYLMORPHOLINES

Richard W. Kibler, Cuyahoga Falls, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Original application July 21, 1965, Ser. No. 473,821. Divided and this application Mar. 17, 1969, Ser. No. 829,826

Int. Cl. C07d 87/40

U.S. Cl. 260—247

8 Claims

N(p-sec. aminophenyl) morpholine and piperazine and 2,6-dimethyl morpholine compounds are disclosed which are rubber antiozonants.

3,595,974

BIS-SILYLPHENYL CARBONATES

Norman C. Lloyd, Cardiff, Glamorgan, Christopher A. Pearce, Cowbridge, Glamorgan, and Ian Pattison, Penarth, Glamorgan, Wales, assignors to Midland Silicones Limited, Reading, Berkshire, England

No Drawing. Filed May 21, 1969, Ser. No. 826,730

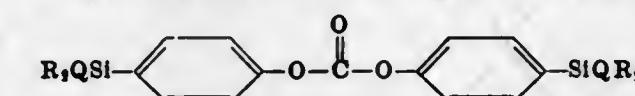
Claims priority, application Great Britain, May 29, 1968, 25,831/68; Oct. 9, 1968, 47,800/68

Int. Cl. C07f 7/02, 7/04

U.S. Cl. 260—448.2B

11 Claims

Bis-silylphenylcarbonates of the general formula



where Q is H, halogen, alkoxy, monovalent hydrocarbon radical or —OH, and R is alkyl, alkenyl or aryl radical and preparation thereof by reacting the corresponding silylated phenols with an ester-forming derivative of carbonic acid such as phosgene and corresponding polymers and copolymers prepared by hydrolysis of Q groups from the silicon atoms.

3,595,975

DISINFECTING COMPOSITIONS

Claude Gauvreau, Ville la Salle, Quebec, Canada, assignor to Holliston Laboratories, Inc., Boston, Mass.

No Drawing. Continuation of application Ser. No. 500,225, Oct. 21, 1965. This application July 29, 1969, Ser. No. 854,009

Int. Cl. A01n 9/22

U.S. Cl. 424—263

21 Claims

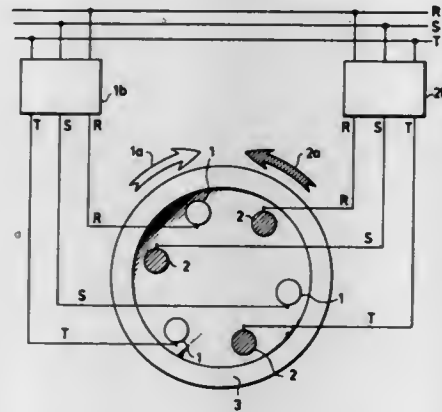
This invention relates to antiseptic compositions for inhibiting the growth of micro-organisms. More particularly, the invention relates to such compositions having high activity in that their phenol coefficients are large, including as one active constituent a halide salt of cetyl pyridinium and as a second active constituent a member of the group of organic compounds all having ten carbon atoms consisting of the terpenes and their oxygenated derivatives.

ELECTRICAL

3,595,976 METHOD AND APPARATUS FOR ELECTROSLAG REMELTING

Manfred Wahlster, Bochum-Stiepel, and Alok Choudhury, Hattingen, both of, Germany, assignors to Rheinstahl Huttenwerke Ag., Essen, Germany
Filed Feb. 26, 1970, Ser. No. 014,594
Claims priority, application Germany, Feb. 27, 1969, G 69 07 777; P 19 09 866.9
Int. Cl. H05b 3/60

U.S. Cl. 13-12

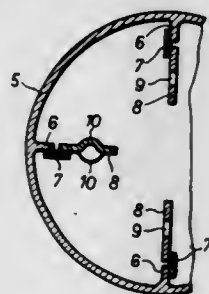


In a method and apparatus for electroslag remelting ingots, using plural electrodes connected to a source of polyphase alternating current, a first set of n electrodes are connected to a source of polyphase AC potential to provide a voltage vector rotating in a selected angular direction, and a second set of n electrodes are connected to a source of polyphase AC potential to provide a voltage vector rotating in an angular direction opposite to such selected direction. The first and second electrodes are positioned in a mold with each electrode of one set located between a pair of electrodes of the other set, and the electrodes are energized to effect the electroslag remelting operation. Preferably the electrodes of the two sets are arranged in alternation on a common circle. Novel bus bar and clamp means are facilitating adjustment and replacement of electrodes. More than two sets of electrodes may be used, provided the number of electrodes in each set is equal to the number of electrodes in each other set. Preferably, the electrodes are connected to terminals of a low frequency inverter system furnishing a Y-connected polyphase current, and the junction of the Y-connection is connected to the bottom of the mold.

3,595,977 SELF-BAKING ELECTRODES FOR ELECTRIC ARC FURNACES

Bruno Orlando, Milan, Italy, assignor to Kinglor, Finanz-und Beratungsanstalt, Eschen, Liechtenstein
Filed Sept. 19, 1969, Ser. No. 859,428
Claims priority, application Switzerland, Nov. 28, 1968, 17,784/68
Int. Cl. H05b 7/06

U.S. Cl. 13-18



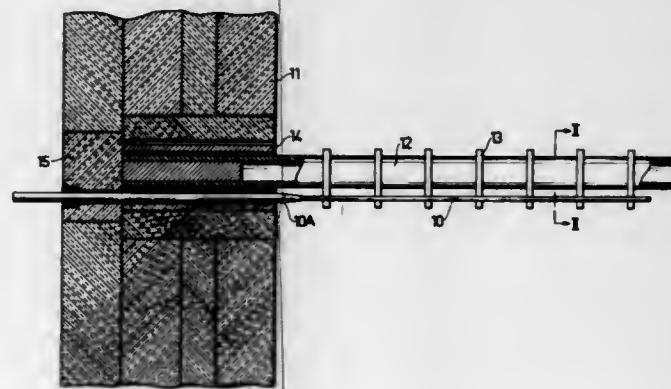
A self-baking electrode of the Soderberg type for electric arc furnaces comprises an outer metal sleeve containing the

electrode mixture and internal reinforcing members for the electrode mixture, said reinforcing or structural members being electrically insulated from the outer metallic sleeve. The internal wall of the sleeve preferably is provided with radial ribs extending the whole length of the sleeve and the reinforcing members are attached to the ribs by means of insulating strips.

3,595,978 ELECTRIC RESISTANCE HEATING ASSEMBLY

Erik Stenfors, Ewert Malm, and Bengt Magnusson, all of Hallstahammar, Sweden, assignors to Aktiebolaget Kanthal, Hallstahammar, Sweden
Filed Sept. 5, 1969, Ser. No. 855,657
Int. Cl. H05b 3/12

U.S. Cl. 13-25

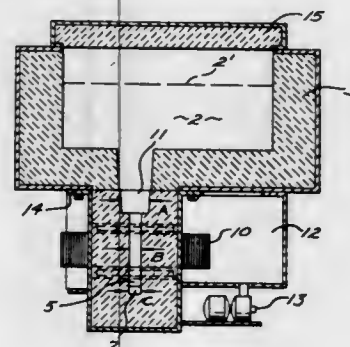


An electric resistance heating assembly suitable for insertion in a furnace. The assembly includes a resistance heating element consisting of a material which is plastically deformable at its operating temperature. The heating element is in the form of elongated members which are mounted substantially horizontally. The assembly further includes a heat resistant carrier which is capable of supporting the heating element at several points along substantially its entire length in such a way that the heating element is substantially free radiating. The assembly, comprising the heating element and the supporting carrier is mountable as a unit in the furnace or other area to be heated.

3,595,979 INDUCTION FURNACES

Wilbur E. Shearman, Cortland, Ohio, assignor to Ajax Magnethermic Corporation, Warren, Ohio
Filed Jan. 28, 1970, Ser. No. 6,441
Int. Cl. H05b 5/14

U.S. Cl. 13-29



There is disclosed herein an induction furnace of the submerged resistor type for melting metals wherein a throat is interposed between the hearth and the secondary loop and that portion of the throat at its intersection with a central

JULY 27, 1971

ELECTRICAL

1321

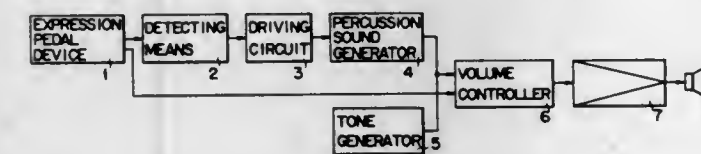
channel of the secondary loop has a portion of an axial dimension substantially greater than the axial dimension of said center channel and substantially greater than the actual dimension of a bottom channel, said axial dimensions being those parallel to the axis of primary coils threading the secondary loop and each of the channels has a major portion of its length of substantially uniform cross section.

3,595,980 ELECTRONIC MUSICAL INSTRUMENT WITH A PERCUSSION SOUND PRODUCING DEVICE

Norio Tomisawa, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-Ken, Japan
Filed Sept. 16, 1969, Ser. No. 858,352
Claims priority, application Japan, Sept. 25, 1968, 43/83145
Int. Cl. G10k 1/02

U.S. Cl. 84-1.24

8 Claims



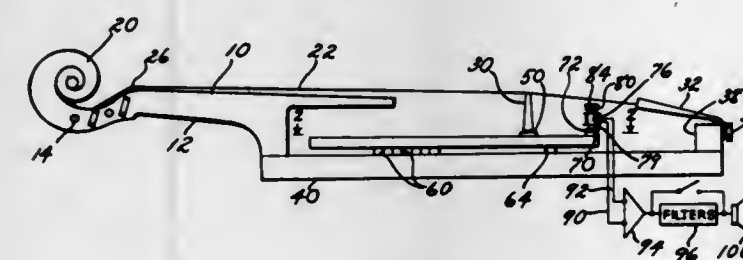
An electronic musical instrument includes an expression pedal device for controlling the tone volume of the musical tone signal. The device further operably cooperates with a detector for detecting the operation of the expression pedal and generating an electric signal. A driving pulse generator which generates a driving pulse upon receipt of the output electric signal from the detector; and a percussion sound generator which generates percussion sound signals in response to the driving pulse. Percussion sounds are produced according to the operation of the expression pedal.

3,595,981 ELECTRONIC STRINGED MUSICAL INSTRUMENT WITH PLURAL RESONATORS AND PICKUP

Alvin S. Hopping, Nolan's Point, P.O. Box 34, Lake Hopatcong, N.J.
Filed July 31, 1969, Ser. No. 846,473
Int. Cl. G10f 1/02

U.S. Cl. 84-1.16

7 Claims



An electronic stringed musical instrument in which the vibrations of the strings are transmitted to resonant beams, the vibrations in said beams are transmitted to a common electromechanical transducer, and the electrical signal thus generated is amplified and converted into sound.

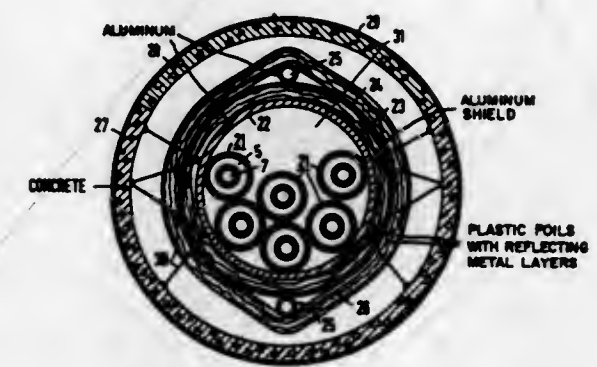
3,595,982 SUPERCONDUCTING ALTERNATING CURRENT CABLE

Wilhelm Kafka, Tennenlohe, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Dec. 18, 1968, Ser. No. 784,809
Claims priority, application Germany, Dec. 20, 1967, P 16 40 750.4
Int. Cl. H01b 7/34, 9/04

U.S. Cl. 174-15

26 Claims

A superconducting alternating current cable has a space for conducting a fluid of insulating helium and a carrier



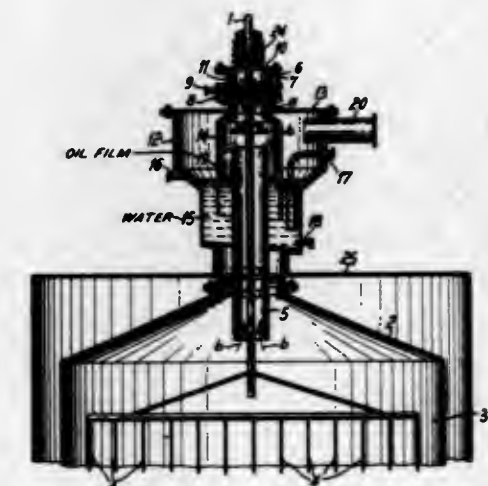
cooling helium, the insulating helium being kept at a pressure different from that of the cooling helium.

3,595,983 DEVICE FOR PASSING A TENSION SUPPLY LINE THROUGH THE COVER OF AN ELECTRIC FILTER

Fritz Muller, Knapsack near Cologne; Friedrich-Wilhelm Kampmann, Liblar; Hermann Niemann, Blesheim, and Hugo Werner, Hermulheim near Cologne, all of, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack near Cologne, Germany
Filed Oct. 6, 1969, Ser. No. 863,890
Claims priority, application Germany, Oct. 4, 1968, P 18 01 143.3

Int. Cl. B03c 3/34; H01b 17/26
U.S. Cl. 174-31.5

11 Claims



Lead-in device for passing a tension supply line or conductor through the cover of an electric filter down to its spray system, the tension supply line or conductor being concentrically surrounded by a duct arranged to run from the filter cover to the interior of the filter. The tension supply line or conductor is arranged to be surrounded by an insulator by positioning the said insulator above the filter cover so as to be spaced therefrom and so as to be radially spaced from the tension supply line or conductor, and an insulating bush is secured to the tension supply line or conductor at a position below the insulator. The insulating bush is arranged to be surrounded by a barrier disc so as to leave a barrier slit, and the space left above the barrier disc is occupied by a sealing gas maintained under overpressure with respect to the pressure prevailing inside the filter.

television signal. In place of a conventional cathode-ray tube, the apparatus has a display panel comprised of a plurality of closely spaced triads of light-emitting diodes arranged in a plurality of closely spaced horizontal rows. Each triad consists of three closely spaced light-emitting diodes, each having an electroluminescent output of a different primary color. Conventional circuitry is used to detect and convert a composite color television signal into its luminance, chrominance, and scanning components. A grid sweep unit is provided to successively apply the amplified video signals across the rows of diode triads causing them to be actuated in accordance with the signals applied thereto to provide the visual display or picture. In the disclosed embodiment, the horizontal and vertical sweep units consist of a pyramid of bistable switches whose sequential outputs are applied to logic circuits operatively connected to the diode triads such that the video signals are caused to successively sweep the rows of triads.

3,595,992

AUTOMATIC CHROMINANCE CONTROLLED AMPLIFIER AND COLOR KILLER CIRCUIT

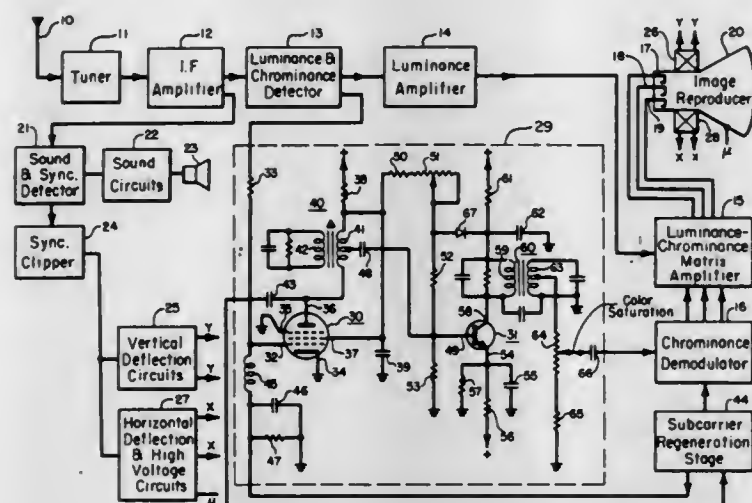
Dwight J. Poppy, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed July 2, 1969, Ser. No. 838,625

Int. Cl. H04n 9/48

U.S. Cl. 178-5.4 AC

8 Claims



A color television receiver has a two-stage chrominance channel for amplifying a detected chrominance subcarrier signal. The first chrominance amplifier stage in this channel, a pentode vacuum tube, is gain controlled by an applied control voltage amplitude related to the chrominance signal, and serves to concurrently amplify both the chrominance signal and the applied control voltage. The second chrominance amplifier stage, an NPN transistor, has a diode connected between its collector and base circuits which is forward biased during chrominance reception by the amplified control voltage from the first stage to establish a stabilizing degenerative feedback loop, and reverse biased during the reception of monochrome signals or signals not providing satisfactory color reproduction to permit conduction in the transistor to be interrupted by the amplified control voltage.

3,595,993

NOISE-CANCELLING CIRCUITS

John N. Pratt, Indianapolis, Ind., assignor to RCA Corporation

Filed Aug. 25, 1969, Ser. No. 852,853

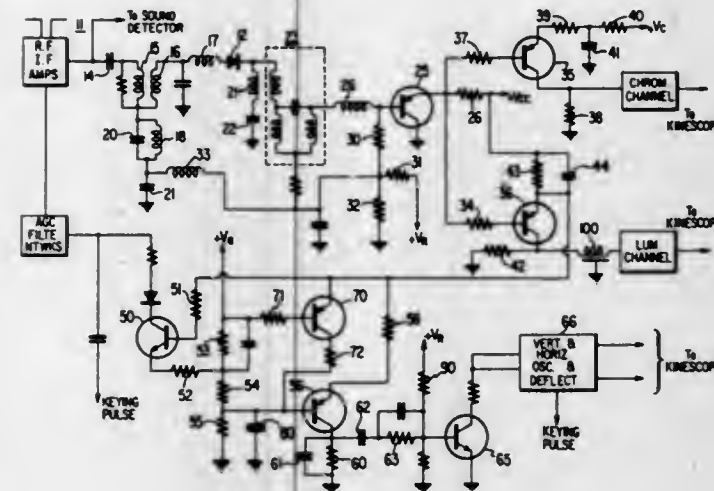
Int. Cl. H04n 9/12

U.S. Cl. 178-5.4 R

8 Claims

A noise canceller employs a transistor having an emitter electrode direct coupled to a source of composite signals and a collector electrode coupled to the input electrode of a sync amplifier. The base electrode is biased from a reference voltage divider causes the transistor to conduct for noise pulses

above sync tips. The conduction of the transistor tends to cut off the sync amplifier, while further serving to load the com-



posite signal source and thereby reduce the magnitude of noise pulses applied to an AGC circuit also coupled to said source.

3,595,994

FACSIMILE PRINTER-ENLARGER UTILIZING A DISPLACEABLE MARKING STREAM

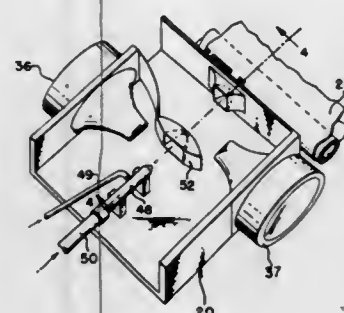
Franklin M. Whitman, 3608 Bagley Avenue N., Seattle, Wash.

Filed Jan. 17, 1969, Ser. No. 791,970

Int. Cl. G01d 15/18; H04n 1/24

U.S. Cl. 178-6.6 R

19 Claims



A facsimile printer-enlarger comprising an optical-mechanical scanning system by which light patterns reflected off a graphic original are scanned line by line by a photocell which converts them into electrical signals. The signals are amplified and control two air-pulse generators that are situated upstream and downstream of a fulcrum nozzle through which a stream of marking ink is directed. An air pulse from the upstream generator deflects the ink stream a small amount which deflection is greatly increased downstream due to the leverage action of the nozzle. The downstream air-pulse generator assists in the deflection. A printout is established as the ink stream strikes a recording surface. The printout is enlarged either by optically increasing the size of the reflected light patterns, mechanically enlarging the scanning ratio of the photocell and printout, or both. In a modified form the downstream air-pulse generator may be a constant airstream to act as a biasing force. In a second modified form either pulse generator may utilize a constant airstream that is modulated in accordance to the signals received. In still another form the pulse generators are staged for recording enlargements or for general fluid-amplification applications. A method of making an enlarged facsimile is also disclosed.

3,595,995

AUTOMATIC STEREO INSTRUMENT FOR REGISTRATION OF SIMILAR STEREO PHOTOGRAPHS

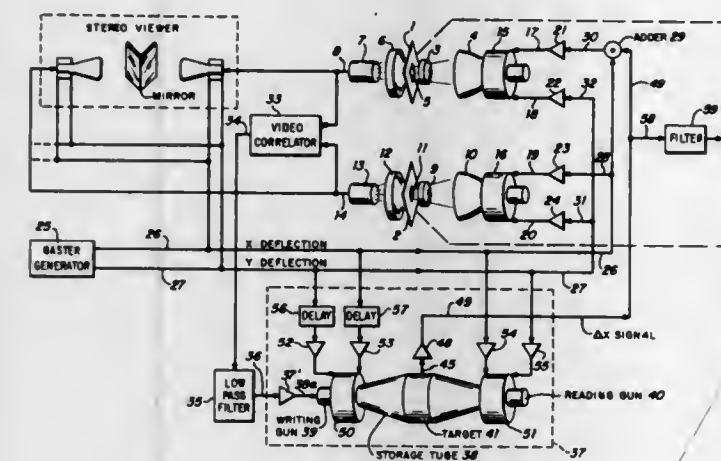
Gilbert L. Hobrough, Vancouver, British Columbia, Canada, assignor to Itek Corporation, Lexington, Mass.

Filed Sept. 11, 1968, Ser. No. 758,954

Int. Cl. H04n 9/54; G01c 1/118

U.S. Cl. 178-6.8

12 Claims



This invention pertains to the art of photogrammetry and is concerned primarily with instruments that achieve the registration of similar stereo photographic images automatically by electronic scanning means. In particular, the invention concerns the transformation of such images as required to achieve registration and provides an improved method of establishing the complex high order transformations necessary when correlating stereo photographs of rough terrain.

3,595,996

CHARGE IMAGE STORAGE METHOD AND APPARATUS

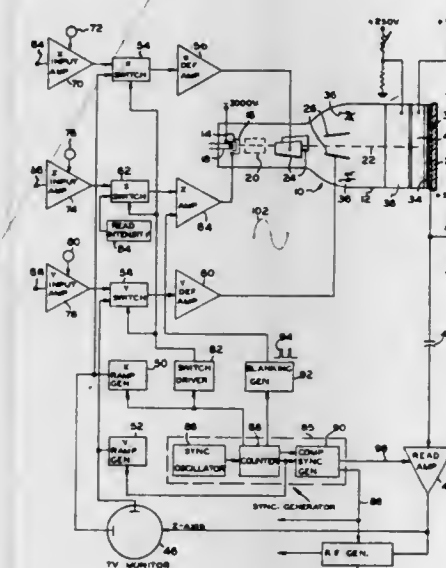
Peter J. Unger, Beaverton, Oreg., assignor to Textronix, Inc., Beaverton, Oreg.

Filed Dec. 6, 1968, Ser. No. 781,764

Int. Cl. H01J 29/39

U.S. Cl. 178-6.8

14 Claims



A cathode-ray storage tube is employed for bistably storing a charge image corresponding to input signal information and for providing an electrical readout corresponding to such information. For purposes of electrical readout, the tube's electron beam is caused to scan, raster fashion, over the stored image. An electrical signal corresponding to the stored image is produced on the storage tube's target electrode. The input signal applied to the apparatus is sampled at times during the retrace interval of horizontal raster lines, substantially concurrently with the occurrence of the input signal.

3,595,997

DATA READOUT SYSTEM

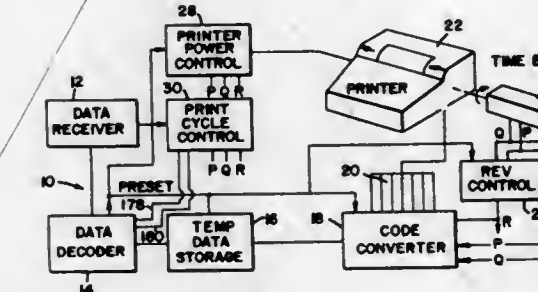
Lester Q. Krasin, Dallas, Tex., assignor to Seismograph Service Corporation, Tulsa, Okla.

Filed Oct. 17, 1968, Ser. No. 768,327

Int. Cl. H04l 15/26

U.S. Cl. 178-23

12 Claims



A system for printing out plain language words or word groups in response to a single data input signal comprises means for decoding and temporarily storing data input signals received from a remote transmission source, a printout means responsive to input impulses, time base means mechanically coupled to said printout means for providing sequential synchronizing outputs for each actuation of the printout means, and programmable converter means for combining the synchronizing outputs from the time base means with a data input signal for producing a sequence of coded pulses for actuating said printout means to print a predetermined combination of characters in accordance with the established converter programming.

3,595,998

POLARITY INDEPENDENT PREAMPLIFIER FOR SOUND TRANSMITTERS

Werner Fidi, Baden, and Bernhard Weingartner, Vienna, both of Austria, assignors to Akustische u. Kino-Gerate Gesellschaft m.b.H., Wien, Germany

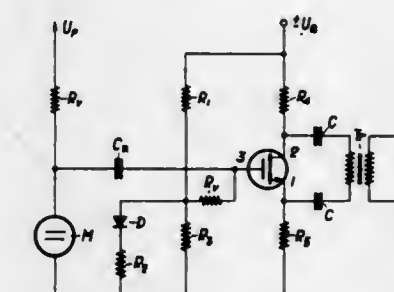
Filed July 1, 1969, Ser. No. 838,091

Claims priority, application Austria, July 5, 1968, 6520/68

Int. Cl. H03f 3/00

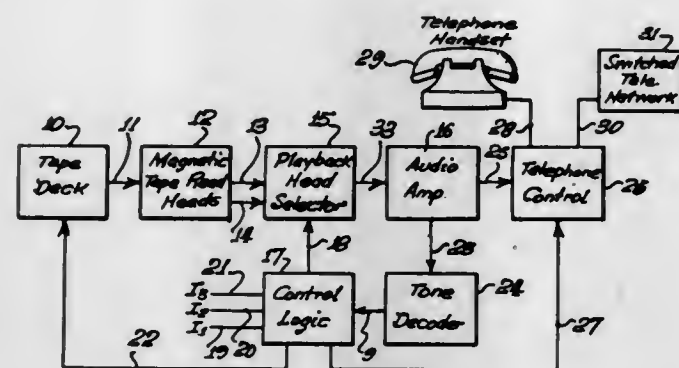
U.S. Cl. 179-1 A

6 Claims



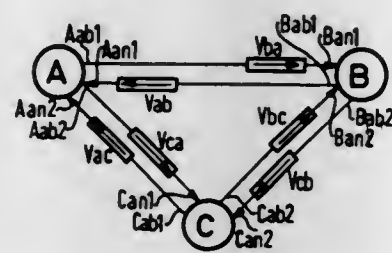
A preamplifier for sound transmitters includes at least one field effect transistor having a gate electrode and first and second output electrodes. An output circuit is connected across the output electrodes, a first output electrode resistor is connected between a feed voltage input terminal and the first output electrode and a second output electrode resistor is connected between a reference potential terminal and the second output electrode. The output electrode resistors have substantially the same resistance. A polarity dependent biasing circuit is connected between the feed voltage input terminal and the gate electrode, and maintains, at the gate, substantially a predetermined negative bias potential relative to the potential at the first output electrode if a potential which is negative by a predetermined amount relative to the potential at the reference potential terminal is applied to the feed voltage input terminal, and relative to the potential at the second output electrode if a potential which is positive by the predetermined amount relative to the potential at the reference potential terminal is applied to the feed voltage input terminal.

3,595,999
AUTOMATIC TELEPHONE ALARM APPARATUS
 Martin Alan Cole, 10368 Starca, Whittier, Calif.
 Filed Dec. 9, 1968, Ser. No. 782,344
 Int. Cl. H04m 1/64, 1/104
 U.S. Cl. 179-6 D 8 Claims



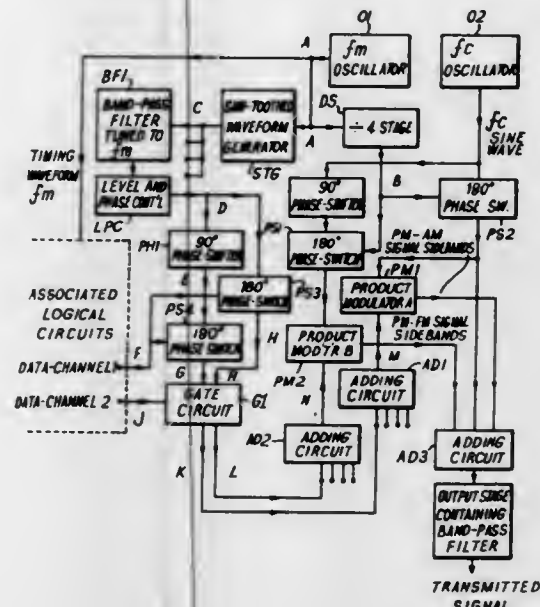
An automatic telephone alarm apparatus for transmitting simulated dialing pulses to a switched telephone network and prerecorded voice messages to the selected telephone instrument. Message groups are stored on multitrack magnetic tape and are played back using a standard audio tape cartridge playback unit. The specific track to be played back is determined by the presence of one or more external stimuli. The selection of a specific message group from the plurality of groups recorded on a single tape track is determined by a combination of the presence of one or more external stimuli and a detection circuit responsive to a specific recorded audio tone header which precedes each message. The occurrence of an external signal initiates the switching of the telephone line from a telephone instrument to the system's output, transmission of the recorded simulated selection pulses to the telephone network, and transmission of the recorded message to the selected telephone instrument.

3,596,000
PROCESS FOR TRANSMISSION OF MESSAGES IN TIME MULTIPLEX COMMUNICATION SYSTEM
 Karl-Anton Lutz, and Karl-Heinz Neufang, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
 Filed Sept. 26, 1969, Ser. No. 861,249
 Claims priority, application Germany, Oct. 2, 1968, P 18 00 694.5
 Int. Cl. H04j 3/00
 U.S. Cl. 179-15 AQ 4 Claims



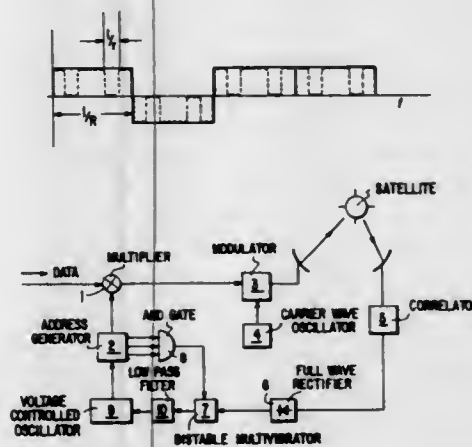
A time multiplex communication system for transmission of pulse code modulated signals, using several exchange stations. At each exchange station, varying delays in transmission are compensated for by insertion of delay lines in the transmission paths, to synchronize the pulse frames of the arriving lines with each other. The pulse frames of the departing lines are also synchronized with each other. At each exchange station, the next available time channel is assigned to a signal to be forwarded, as compared with the signal as it arrives at the station. The pulse frames of departing lines are delayed by a set time interval as compared with arriving lines, and the time slots within pulse frames which are assigned to arriving and departing signals are also so set, to require the minimum storage capacity at the exchange stations.

3,596,001
FREQUENCY DIVISION MULTIPLEXING
 Adrian P. Clark, Taplow, England, assignor to British Telecommunications Research Limited, Taplow, England
 Continuation of application Ser. No. 584,419, Oct. 5, 1966, now abandoned. This application Oct. 9, 1969, Ser. No. 866,136
 Int. Cl. H04j 1/20
 U.S. Cl. 179-15 FD 2 Claims



In a time division multiplex electrical signalling system having a main carrier modulated by a first group of subcarriers to produce signals in frequency bands of higher frequency than the main carrier and a second group of subcarriers arranged to modulate the main carrier to produce signals in frequency bands having lower frequency than that of the main carrier. Each subcarrier of the first group is modulated with respect to the main carrier by a respective information-bearing signal and each subcarrier of the second group is modulated with respect to a respective subcarrier of the first group by an information-bearing signal.

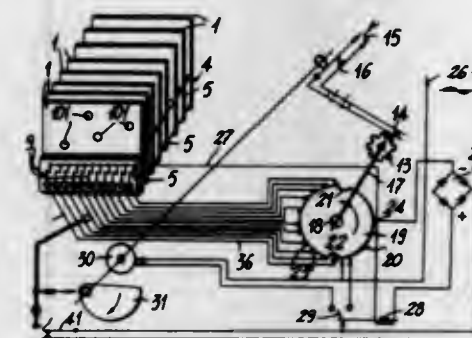
3,596,002
SYSTEM FOR TRANSMITTING BINARY-CODED DATA
 Horst Ohnsorge, Erstetten, and Wolf Herold, Ay (Iller), both of Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm Danube, Germany
 Filed Oct. 24, 1969, Ser. No. 869,053
 Claims priority, application Germany, Oct. 24, 1968, P 18 04 14.1
 Int. Cl. H04j 7/02
 U.S. Cl. 179-15 BA 6 Claims



A satellite link binary data transmission system including a plurality of ground stations capable of operating simultaneously, each station transmitting a cyclically repeated address code word and polarity modulating each such word according to the value of one data bit to be transmitted, the satellite

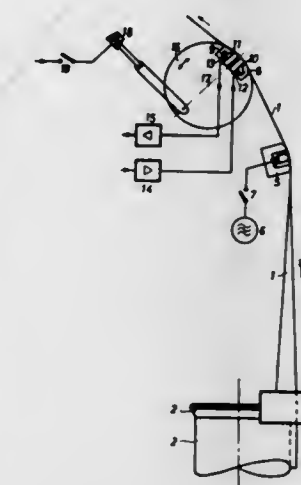
being arranged to combine all transmitted signals into a composite signal and each station being arranged to receive the composite signal and to extract therefrom the data directed to it by correlating the composite signal with its own address word.

3,596,003
AUTOMATIC PUNCHED MULTICARD DEVICE FOR CALL DIALING OF TELEPHONE NUMBERS
 Raffaele Poli, Galleria Del Leone, 3, Bologna, Italy
 Filed Nov. 13, 1968, Ser. No. 775,297
 Claims priority, application Italy, Nov. 15, 1967, 7425A/67
 Int. Cl. H04m 1/48
 U.S. Cl. 179-90 CS 3 Claims



Automatic device for call dialing of stored telephone numbers by means of punched cards allowing to select one of a plurality of telephone numbers or addresses and dial such a selected number or address. Punched card system allows a substantial time saving and is particularly useful in direct dialing services.

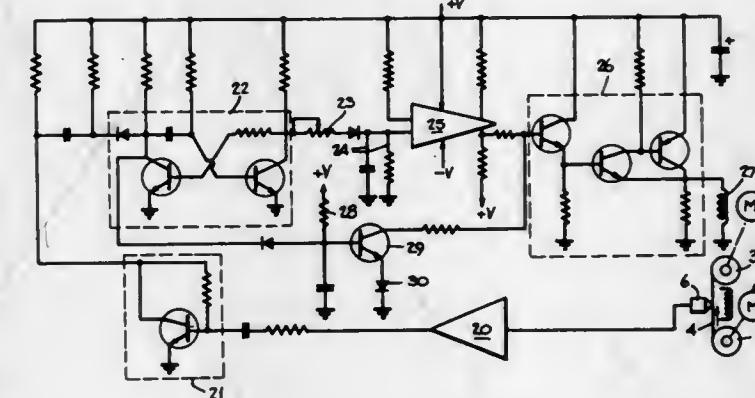
3,596,004
VIDEO TAPE RECORDER WITH SOUND HEAD HAVING SEPARATE RECORD AND PLAYBACK ELEMENTS SHIFTABLE TO MAINTAIN A FIXED DISTANCE FROM THE VIDEO HEAD WHEEL
 Rudolf Prochnow, Darmstadt-Eberstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany
 Filed Dec. 24, 1968, Ser. No. 786,643
 Claims priority, application Germany, Dec. 27, 1967, P 15 24 840.5
 Int. Cl. G11b 21/02
 U.S. Cl. 179-100.2 T 4 Claims



An apparatus for deriving at least two different information signals from a tapelike information carrier, especially the video signal and the sound signal of a television program from the magnetic tape of a video tape recorder by a rotating head wheel for the video signal and a combined sound head with one magnetic circuit for recording and another magnetic circuit for reproducing the sound signal in a longitudinal sound track, the gaps of the two magnetic circuits having a fixed distance in the direction of the sound track. The combined sound head is displaceable in the direction of the

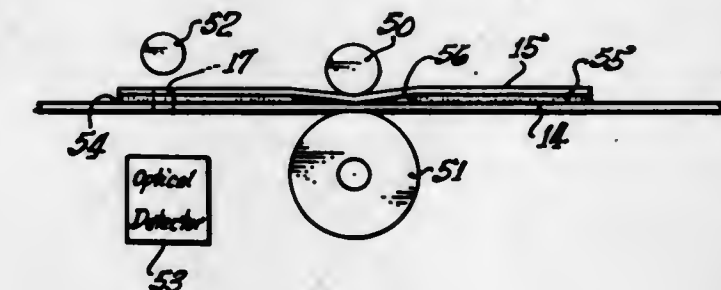
sound track, by such an amount that the gap of the reproducing magnetic circuit in the reproducing mode has the same distance from the head wheel as the gap of the recording magnetic circuit in the recording mode. The shifting of the combined sound head can be effected automatically, e.g. by an electromagnet, during change between recording and reproducing mode of the video tape recorder.

3,596,005
CAPSTAN-FREE TAPE RECORDER
 Robert Edward Hamilton, Chelmsford, Mass., assignor to Viatron Computer Systems Corporation, Burlington, Mass.
 Filed Jan. 13, 1969, Ser. No. 791,547
 Int. Cl. G11b 15/32, 15/52; B65h 17/02
 U.S. Cl. 179-100.2 S 1 Claim



A tape recording and playback device in which the recording tape is moved from a supply reel to a takeup reel at a constant tape speed and where the tape is driven by a drive motor coupled directly to the tape takeup reel. The tape speed is kept constant by a prerecorded control signal on the recording tape which is fed to the motor through a control or servoamplifier. The automatic adjustment of the takeup reel speed to provide a constant tape speed eliminates additional tape drive rollers or capstans and permits the tape to be run in either direction between the reels when a second motor is connected to the tape supply reel. When the system is driving a tape in the forward direction, the takeup reel motor supplies the power using the control system and the supply reel motor is used as a dynamic brake. When the tape is running in the opposite direction, the functions of the motors are reversed.

3,596,006
CASSETTE TAPE-STRENGTHENING PATCH AND OPTICAL OPENING
 David W. Lawhon, Los Angeles, Calif., assignor to Capitol Records, Inc., Hollywood, Calif.
 Filed Mar. 13, 1969, Ser. No. 806,968
 Int. Cl. G11b 5/78, 15/29, 23/42
 U.S. Cl. 179-100.2 A 12 Claims

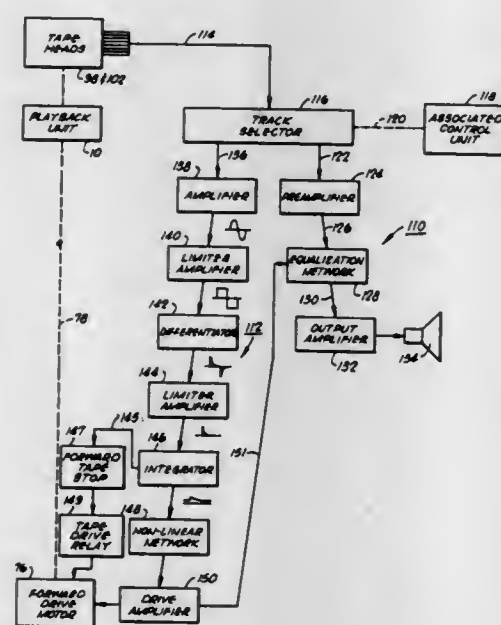
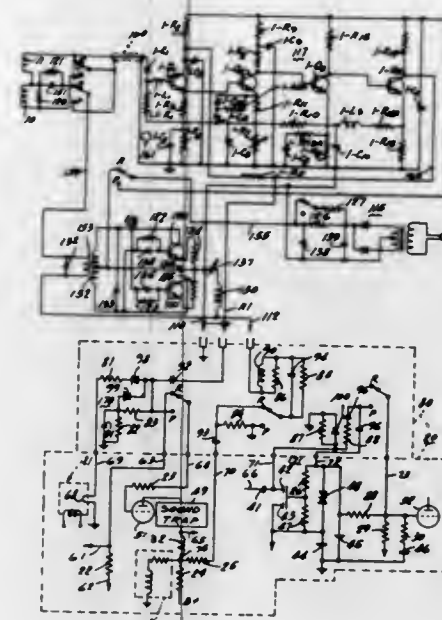


A combination of magnetic recording tape adapted to be mounted in a tape cassette and a strengthening patch therefore wherein the patch is connected to the recording tape at a point which would become worn by the tape cassette advance mechanism, the wear occurring when the end of tape is reached. An opening is inserted through the combination of the recording tape and the patch for optical sensing of the end of tape.

3,596,007 APPARATUS FOR VARIABLE SPEED PLAYBACK OF PLURAL TRACK RECORDS

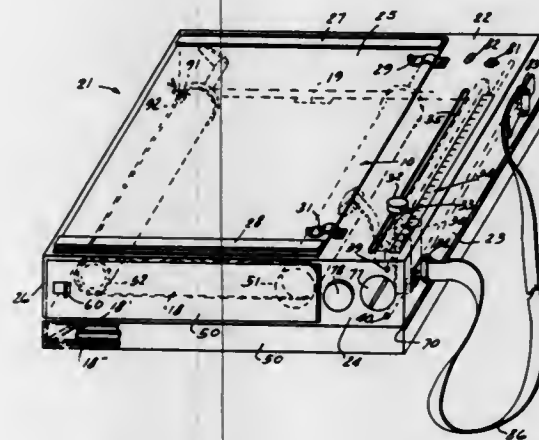
David D. Price, Jr., and Lawrence R. De Bell, both of Oklahoma City, Okla., assignors to Economy Co., Oklahoma City, Okla., by said De Bell
Filed Aug. 27, 1968, Ser. No. 755,573
Int. Cl. G11b 15/52; G09b 5/04
U.S. Cl. 179-100.2 S 9 Claims

good visual display during recording, and circuitry for phase correction and pulse modification. Playback circuitry for



reduced thermal noise, phase correction and improved response. Frequency modulation sound on video track.

**3,596,009
TRANSLATING MACHINE**
Geoffrey C. Clifford, Utica, N.Y., and Charles H. Flubacker, Arlington Heights, Ill., assignors to Interpretale Internationale, Inc., Utica, N.Y.
Filed Nov. 1, 1968, Ser. No. 772,492
Int. Cl. G11b 1/02, 5/56, 15/22
U.S. Cl. 179-100.2 3 Claims



A translating machine that allows a prerecorded message to be selected by a user and reproduced. The machine might translate English to Russian, Russian to English, English to Vietnamese or any language to another language, for example.

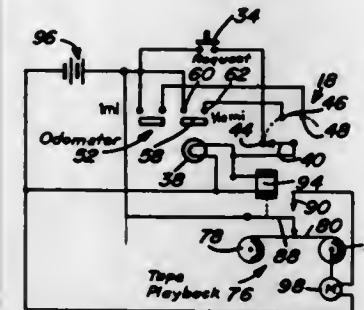
**3,596,010
TRAVEL-DIRECTING DEVICE**
Harry C. Patterson, Apt. 1506, Presbyterian Apts., Virginia Ave., Fort Myers, Fla.
Filed July 28, 1967, Ser. No. 656,803
Int. Cl. G11b 15/02, 31/00, 15/18
U.S. Cl. 179-100.2 S 6 Claims

An automotive vehicle equipped with a tape playback device modified so that continuous movement of the tape is stopped after each message portion recorded thereon. Travel-directing information instructs the vehicle driver to

**3,596,008
VIDEO TRANSDUCING ELECTRIC CIRCUITS**
Marvin Camras, Glencoe, Ill., assignor to IIT Research Institute, Chicago, Ill.
Continuation-in-part of application Ser. No. 528,934, Feb. 21, 1966, now abandoned, and a continuation-in-part of 545,050, Apr. 25, 1966, now Patent No. 3,484,546, dated Dec. 16, 1969. This application June 27, 1967, Ser. No. 649,256
Int. Cl. G11b 5/44; H04n 5/78; H03t 1/34
U.S. Cl. 179-100.2 27 Claims

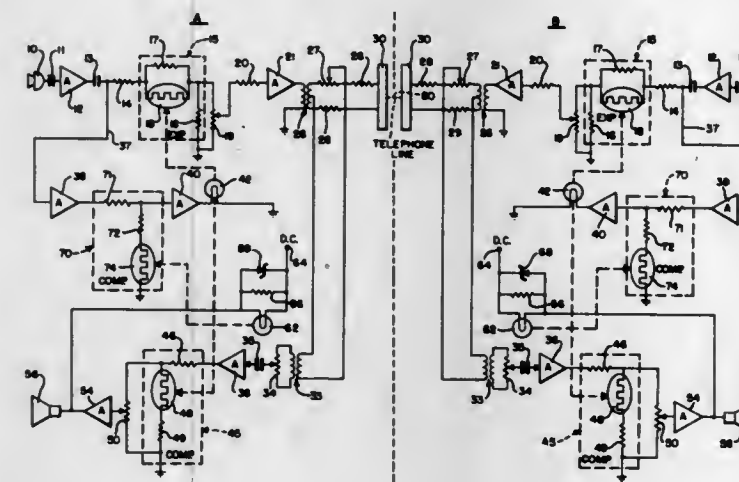
Monochrome and color television recording and playback circuitry for coupling with a standard broadcast receiver. Recording signals supplied to the recording head without further amplification, and with circuitry for maintaining a

position a selector switch assembly for controlling operation of the tape playback device to resume message playback



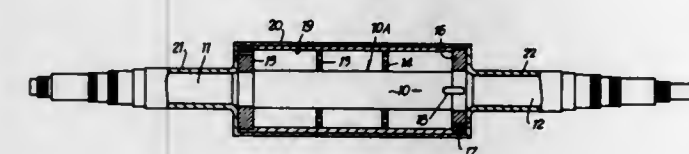
either on demand, by actuating a pushbutton request switch, or by signals produced at predetermined distances travelled.

**3,596,011
GAIN-SWITCHING CIRCUITS**
George Alexandrovich, Commack, N.Y., assignor to Fairchild Sound Equipment Corporation, Long Island City, N.Y.
Filed Mar. 18, 1969, Ser. No. 808,244
Int. Cl. H04b 3/20; H04m 1/60
U.S. Cl. 179-170.2 14 Claims



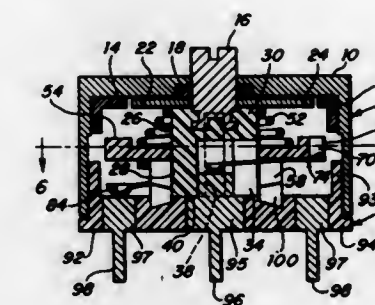
A system for communication between two stations over lines, and particularly telephone lines, in which each station has a transmitter channel and a receiver channel. In response to an outgoing signal from one station the gain of the transmitter channel of that station is expanded by an expander circuit and the gain of the receiver channel at the same station is suppressed to prevent acoustical feedback. In response to an incoming signal from the transmitter channel station, the expander circuit in the transmitter channel of the first station is prevented from operating.

**3,596,012
APPARATUS FOR THE PRODUCTION OF ELECTROLYTIC TINPLATE**
Jack Harrild Jordan, Wether House, Dingwall Road, Croydon, Surrey, England
Filed Nov. 29, 1967, Ser. No. 686,782
Claims priority, application Great Britain, Nov. 30, 1966, 53662/66
Int. Cl. B01k 3/00
U.S. Cl. 191-1 A 1 Claim



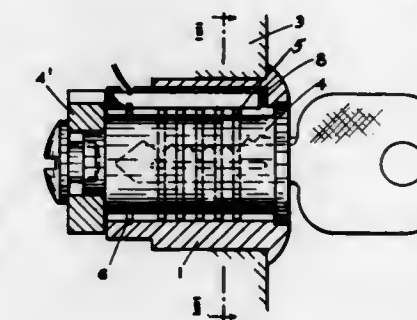
A conductor roll for use in the production of electrolytic tinplate has a cylindrical steel barrel with a coating of alu-

**3,596,013
ROTARY SWITCH WITH DETENT**
George E. Pihl, Abington, Mass., assignor to Miniature Electronic Components Corp., Holbrook, Mass.
Filed Jan. 8, 1970, Ser. No. 1,509
Int. Cl. H01h 21/78, 19/58
U.S. Cl. 200-11 EA 9 Claims



A miniature rotary switch having a detent mechanism comprising cooperating sets of triangular teeth and a wiper contact that undergoes lifting and lowering with respect to a series of fixed contacts as it is rotated from one to another of said fixed contacts.

**3,596,014
BURGLARPROOF LOCK**
Uriel Erez, 31, Maalei Hazafim, Ramat Gan, Israel
Filed Apr. 25, 1969, Ser. No. 819,267
Int. Cl. H01h 27/00
U.S. Cl. 200-44 2 Claims

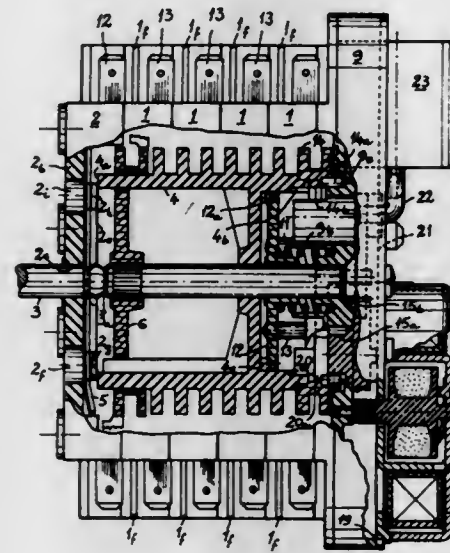


A burglarproof Yale-type lock includes a conductive strip positioned in the lock to be contacted by the tumblers when the wrong key is inserted in the lock to complete a circuit to energize an alarm. A second conductive strip may also be positioned in the lock which is normally in contact with the tumblers. A switch which is closed by opening the door or the like is positioned in the circuit between the second strip and the alarm such that if the wrong or no key is inserted in the lock and the door is opened the alarm will be energized, but if the correct key is inserted the alarm will not be energized.

**3,596,015
PROGRAMMER FOR ELECTRIC HOUSEHOLD APPLIANCES**
Jean Jullien-Davin, Valence, France, assignor to Grouzet, Paris, France
Filed June 16, 1969, Ser. No. 833,607
Claims priority, application France, June 21, 1968, 156,201
Int. Cl. H01h 7/08, 43/10
U.S. Cl. 200-38 R 11 Claims

In a programmer for electric household appliances and having a continuously rotating reversing cam unit, a program cam unit which rotates in step-by-step motion, identical contactor elements capable of being actuated by the cams and stacked in any desired number, said contactor elements being

mounted between two end-plates and comprising male connectors which can be associated with movable connectors connected to contact-strips and fitted with contact-points, means for driving the program cams in step-by-step motion and associated with means for putting them temporarily out of action and at least one constant-speed electric motor, the fact that the end-plate which limits the stack of contactor elements on one side constitutes a separate contactor element which is adapted to receive stationary and movable



contacts and has a continuous surface which is pierced by a central hole which serves as a bearing for the cam shaft, by smooth holes for fixing the apparatus by means of screws engaged without previous tapping in the said holes which are so arranged as to permit all the usual fixing arrangements, and by holes for the pivotal mounting of the swivel-pins of effort-multiplication levers for controlling from the cams contact-strips which are intended to serve as a general switch and consequently to have a clearance of at least 3 millimeters in the open position.

3,596,016

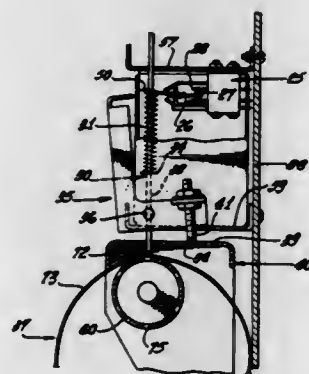
PROGRAMMED ILLUMINATION OF PANEL DISPLAY SECTIONS

Kenneth A. Busche, 18728 Prairie St., Northridge, Calif.
Filed Mar. 3, 1969, Ser. No. 803,807

Int. Cl. H01h 43/08

U.S. Cl. 200-46

12 Claims

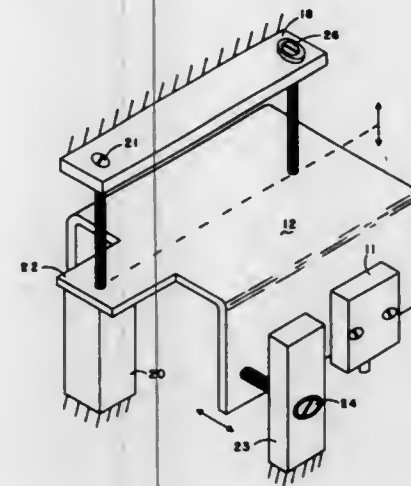


The disclosure concerns control apparatus, usable for controlling information displays, and including a bistable mechanical switching device adapted to be set and reset, and a programming element such as a sheet or drum movable between programming positions in which a shoulder or opening is selectively presented for controlling setting or resetting of the switch device as the element is further moved in its programming position.

3,596,017
MECHANICAL ADJUSTMENT MEANS FOR ELECTRICAL LIMIT SWITCHES
Winston F. Williams, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed Apr. 29, 1970, Ser. No. 33,019
Int. Cl. H01h 3/42

U.S. Cl. 200-47

12 Claims

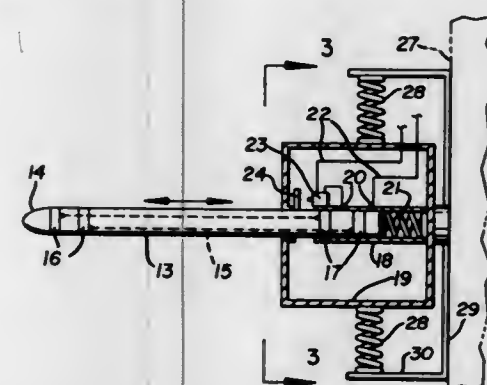


A mounting means for a positionable mounting plane with respect to a fixed base plane permits selective translation and space separation adjustments over a limited range. Translation is effected by a first lead screw means imparting limited pivot action about the axis of a second lead screw mounting means. Adjustment of the second lead screw effects separation by deflection of the member defining the mounting plane.

3,596,018
ELECTRICAL CONNECTION DEVICE FOR VEHICLES
James L. Elmes, Youngstown, Ohio, assignor to Howard Gross, Poland, Ohio, a part interest
Filed June 25, 1969, Ser. No. 836,355
Int. Cl. H01h 33/30

U.S. Cl. 200-51.09

4 Claims



An electrical connection device is disclosed for establishing an electrical circuit between a relatively fixed stationary location and a movable vehicle and comprises a directional guide and connection receptacle mounted on the vehicle and an elongated probe carrying electrical conductors movably mounted on a fixed support and incorporating switch means which are actuated by the positioning of the probe relative to its environment and support means as by registry with the directional guide and connection receptacle on the vehicle.

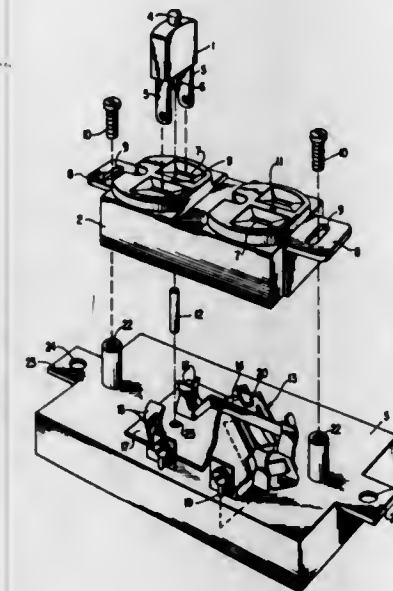
3,596,019
SAFETY PLUG AND OUTLET
Henry W. Koester, 10 Wyndover Lane, Cos Cob, Conn.
Filed Sept. 5, 1969, Ser. No. 855,577
Int. Cl. H01r 33/30

U.S. Cl. 200-51.09

3 Claims

Disclosed herein is a safety plug and outlet which may be readily interchanged for a standard electrical outlet and

which has a unique safety arrangement whereby it is practically impossible for a person employing the device of this invention to get an electrical shock when inserting the plug of an appliance or other equipment into the outlet. The device contemplates the use of a depressor in the plug which operates a switch in the positive line to the outlet so that no current flows to the positive contact blades of the outlet until the plug is practically completely inserted in the socket. By this arrangement, it is practically impossible for one to touch a prong of the plug which could be partially inserted in the

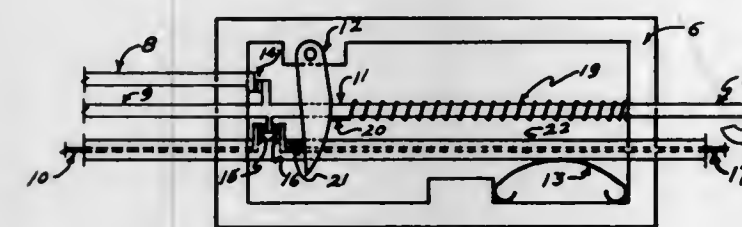


socket and thus receive an electrical shock. The switch in the positive line may operate through the use of a snap-acting spring so that the connection in the switch is positively and securely made or else is biased open so that the switch will not flicker between an off and on position. The invention further contemplates an adapter which may be inserted into the standard junction box of an ordinary wall outlet so that the device of the present invention may be used without any significant structural changes in any area where its use may be desired.

3,596,020
SWITCHING DEVICE FOR OPERATING WARNING SIGNAL LAMPS IN A MOTOR VEHICLE
Jack L. Warren, P. O. Box 5784, Reno, Nev.
Filed Aug. 11, 1969, Ser. No. 849,618
Int. Cl. H01h 3/14

U.S. Cl. 200-61.89

3 Claims

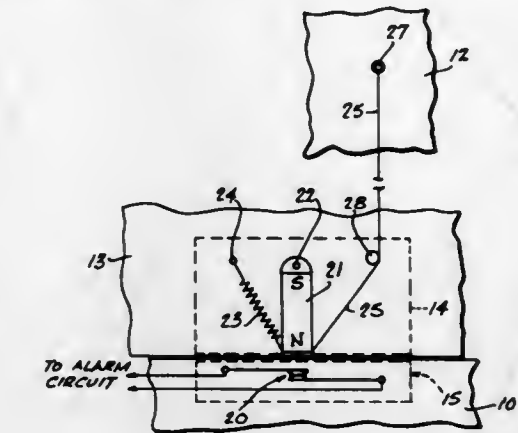


A switching device is disclosed which includes a housing mounted on the accelerator rod or another part of an accelerator system of a motor vehicle. The housing encompasses switching elements which are operative in response to the change in direction of the pressure on the accelerator by the foot of the operator. The switching elements operate an indicator device at the rear of the vehicle to alert a driver in a trailing vehicle that the pressure on the accelerator pedal is either being advanced for greater speed, backed off for even speed or the foot entirely removed therefrom.

3,596,021
BURGLAR ALARM OR THE LIKE
Benno Bensiyan Saul, 5830 St. Luc, Apt. 16, Montreal, Quebec, Canada
Filed Nov. 28, 1969, Ser. No. 880,764
Claims priority, application Canada, Dec. 2, 1968, 036,658
Int. Cl. H01h 3/02

U.S. Cl. 200-61.93

5 Claims

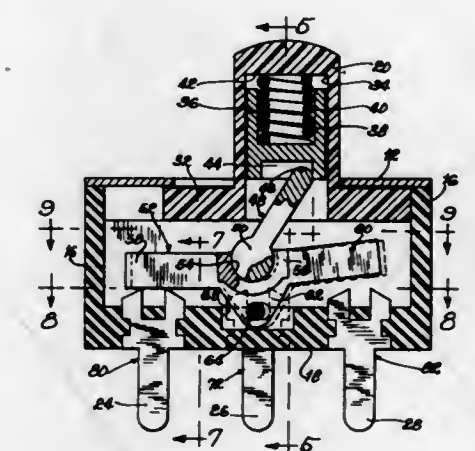


A magnetically operated switch is embedded in a frame member of a window or door, and is operable by the proximity of a magnet mounted on a cooperating movable member, thus detecting bodily movement of the movable member. The magnet is pivotable and arranged to operate the switch if it is displaced from its normal position. It is spring-urged away from normal position, but held therein by a cord extending across the face of a panel of the movable member, so that interference with such panel will actuate the switch and give an alarm.

3,596,022
SWITCH WITH WIPING CONTACT STRUCTURE
Richard B. Gaber, Forest Park; Eric H. Petersen, Evergreen Park, and Matthew C. Podgorski, Wood Dale, all of Ill., assignors to Chicago Switch, Inc., Chicago, Ill.
Filed June 13, 1969, Ser. No. 832,982
Int. Cl. H01h 13/28

U.S. Cl. 200-67

9 Claims



A switch construction comprising a base, at least one stationary contact associated with the base and a movable contact in the form of a rocker. The seat supporting the rocker permits pivotal and shifting movement of the rocker when an actuating button is operated. The pivotal movement, through the action of spring means, rapidly makes and breaks the contacts and the shifting movement occurs immediately after the contact engagement to provide wiping action for contact clearing. The stationary contacts comprise bifurcated members to provide double point contact, and the combined hammering and wiping action insures the double contact since the contact points are quickly worn to uniform height. The rocker contact is provided with a pin which engages a common pole contact, this contact also providing support for the rocker pin.

3,596,023

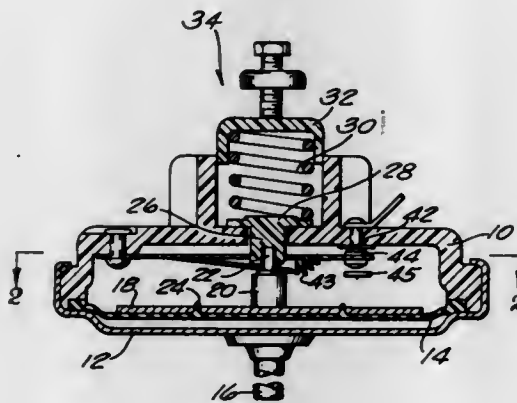
PRESSURE SWITCH

Kothe Erich, and William D. Gruhn, Jr., both of Addison, Ill., assignors to Controls Company of America, Melrose Park, Ill.

Filed Aug. 11, 1969, Ser. No. 848,854
Int. Cl. H01h 35/34

U.S. Cl. 200—83

5 Claims



In one modification the diaphragm pad or plate has a post engaging the spring seat which fits loosely in the housing to avoid interference. The spaced shoulders between the spring seat and the post provide the necessary lost motion connection to the switch actuating tongue which fits over and guides the post. In the other modification the post is guided by the tongue which fits in the notches on the post. The spring seat member is eliminated and the spring seats on the post. This design reduces the number of requisite parts and reduces friction impairing repeatability of the performance.

3,596,024

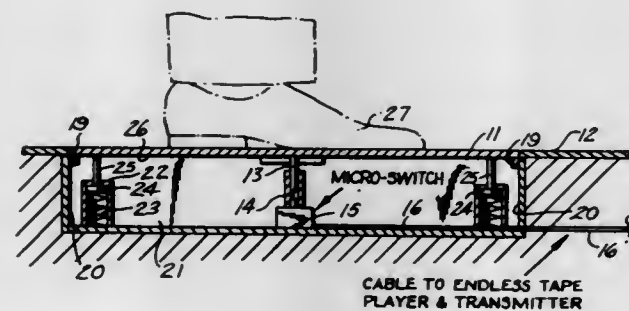
HOLDUP BURGLAR PREVENTION SYSTEM

Floyd Smith, 2261 Ship Yard Road, Chesapeake, Va., and Booker T. Morre, 317 Montclair Ave., Portsmouth, Va.

Filed Jan. 20, 1970, Ser. No. 4,219
Int. Cl. H01h 3/14

U.S. Cl. 200—86.5

3 Claims



A system for thwarting holdups and burglaries, having a plate connected to a switch which when stepped upon or otherwise moved will activate a prerecorded tape player, the tape player sending the name of the business, the number, street and section of the city through a transmitter which will emit a carrier wave through a receiver at a local police headquarters.

3,596,025

VACUUM-TYPE CIRCUIT INTERRUPTER WITH CONTACTS CONTAINING A REFRACTORY METAL
Joseph L. Talento, Media, Pa., assignor to General Electric Company

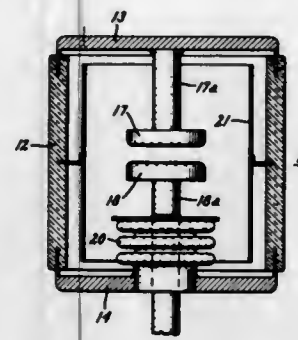
Filed Sept. 27, 1968, Ser. No. 763,116
Int. Cl. H01h 33/66

U.S. Cl. 200—144 B

5 Claims

Discloses a vacuum-type circuit interrupter having its contacts formed of a porous refractory metal matrix and an alloy

of copper and bismuth filling the pores of the matrix, the per-



centage of bismuth being less than 2 percent by weight of the copper-bismuth alloy.

3,596,026

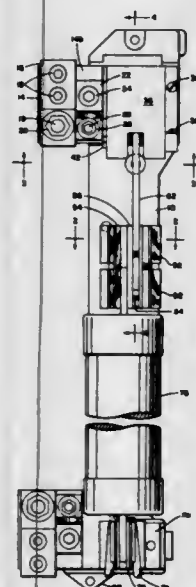
ARC SUPPRESSOR

Tadeusz J. Rys, Lexington, Ky., assignor to Square D Company, Park Ridge, Ill.

Filed May 9, 1969, Ser. No. 823,396
Int. Cl. H01h 33/10

U.S. Cl. 200—144

4 Claims



An arc chute or arc suppressor including a supporting casing in covering relationship with a pair of stationary contact jaws cooperable with an electrical switch blade, cold-molded arc-suppressive material supported in the casing forwardly of the contact jaws, and a plurality of generally U-shaped metal plates supported in spaced relationship forwardly of the contact jaws by the arc-suppressive material, the plate nearest the contact jaws being substantially completely covered on the surface thereof facing the contact jaws by the arc-suppressive material.

3,596,027

VACUUM CIRCUIT BREAKER CONTACTS CONSISTING ESSENTIALLY OF A COPPER MATRIX AND SOLID SOLUTION PARTICLES OF COPPER-TELLURIUM AND COPPER-SELENIUM

Isao Okutomi, Yokohama-shi; Kazuo Suzuki, Yokohama-shi; Hikohiro Mizutani, Yokohama-shi; Kenichiro Ando, Tokyo; Chiaki Hiruta, Yokohama-shi; Akira Nabae, Tokyo, and Tadahito Tsutsumi, Yokohama-shi, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

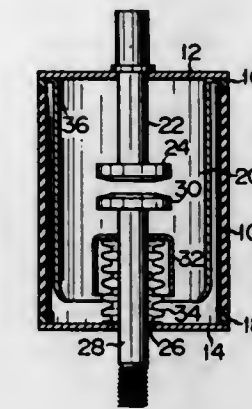
Filed July 24, 1969, Ser. No. 844,275
Claims priority, application Japan, July 30, 1968, 43/53384
Int. Cl. H01h 33/66

U.S. Cl. 200—144 B

2 Claims

A vacuum circuit breaker containing a pair of contact members relatively movable for contact or separation in

which at least one of the contact members is made of an alloy consisting of copper matrix and solid solution particles of a Cu_2Te - Cu_2Se system dispersed in said copper matrix,



the content of Se ranges between 0.1 and 5.0 percent, and that of Te ranges from 0.1 to 25.9 percent, their total content being 2.5 to 26 percent.

3,596,028

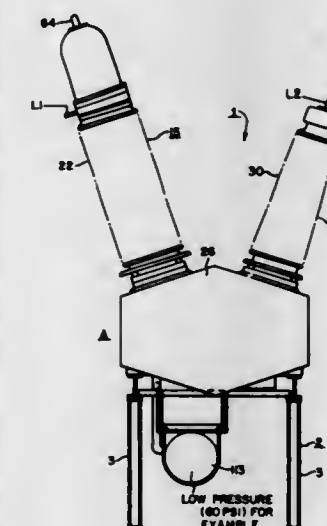
COMPRESSED-GAS CIRCUIT INTERRUPTER HAVING TWO COMPONENT CONTAINING LEGS UPSTANDING FROM A GROUNDED U-SHAPED HIGH PRESSURE TANK

Richard E. Kane, Monroeville, and Frank L. Reese, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 9, 1968, Ser. No. 782,365
Int. Cl. H01h 33/56, 33/74

U.S. Cl. 200—148 R

12 Claims



A compressed-gas circuit interrupter has a generally U-shape with interrupting elements, or terminal-bushing structures, disposed in the upstanding legs of the "U," depending upon the rating requirements; and a grounded high-pressure chamber constitutes the lower bend of the U-shaped circuit interrupter. The compressed-gas circuit interrupter is of the dual-pressure type in which the one or more pairs of contacts are separated in a high-pressure gaseous environment, and the high-pressure gas exhausts through one or both of the separable contacts themselves. Downstream blast valves control the continued exhaust of gas through the separable contact structure, and in the fully open-circuit position of the interrupter, the contact space contains high-pressure gas, resulting in reduced separation distance between the separated contacts.

For the lower ratings, a terminal bushing, preferably of the gaseous type, constitutes one of the legs of the "U" and the interrupting elements are disposed along the other leg of the U. For the higher ratings, both legs of the U may comprise one or more serially related interrupting elements to provide, where desired, a number of serially related arc-extinguishing units.

The movable contact structure is preferably actuated pneumatically by a piston structure disposed at the upper end of the arc-extinguishing side of the interrupter, which is controlled by a three-way tripping control valve initiated by an insulating operating rod extending down to ground potential, and mechanically connected to the other phase units of the circuit interrupter, a common valve actuator employed.

The legs of the U comprise an outer weatherproof insulating shell and an inner insulating tube, which may be under tension, surrounding the serially related arc-extinguishing units. As stated, the inner insulating tube contains high-pressure gas immediately surrounding the separable contact structure, so that high-pressure gas is immediately available at the contacts for the interrupting operation upon their separation.

3,596,029

PRESSURIZED GAS BLAST TYPE ELECTRICAL SWITCH HAVING BLAST VALVE REMOVABLE FOR SERVICING WITHOUT LOSS OF GAS

Dieter Floessel, Fislisbach, Switzerland, assignor to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland

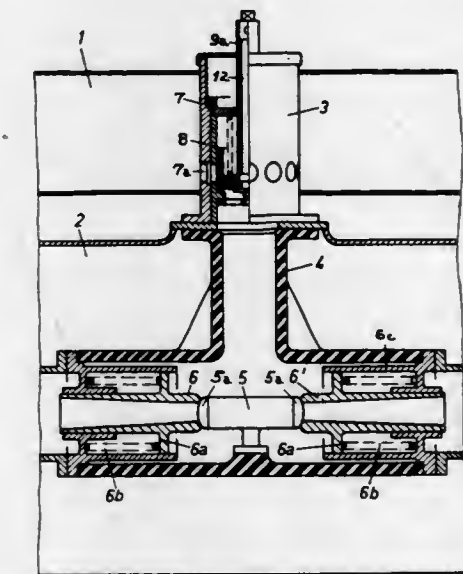
Filed July 15, 1969, Ser. No. 841,701

Claims priority, application Switzerland, July 30, 1968, 11527/68

Int. Cl. H01h 33/54

U.S. Cl. 200—148 R

6 Claims



An electrical switch of the type which utilizes a pressurized gas such as SF_6 working in a closed system for blasting the switch contacts with the gas in order to facilitate extinction of the arc includes high and low pressure gas tanks, the gas being stored in the high pressure tank and being delivered through a gas blast valve to a housing enclosing the switch contacts and which is located in the low-pressure tank. The gas after blasting the switch contacts flows from the switch contact housing into the low pressure tank. To facilitate servicing of the gas blast valve without loss of gas from either the high or low pressure tanks, the interior of the blast valve including the movable parts and seals is made accessible from the exterior of the tanks and provision is made for sealing off the two tanks from the interior of the blast valve.

3,596,030

COMPOSITE ELECTRIC ELEMENT OF SILVER-CADMIUM OXIDE ALLOY CONTACT

Akira Shibata, Tokyo, Japan, assignor to Chugai Electric Industrial Co., Ltd., Tokyo, Japan

Filed Apr. 14, 1969, Ser. No. 815,677

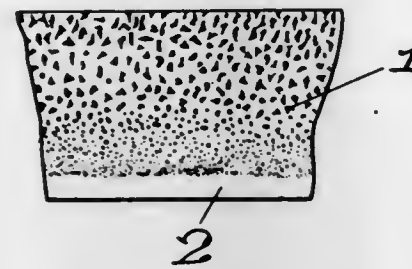
Int. Cl. H01h 1/02

U.S. Cl. 200—166 C

3 Claims

A composite electric contact element is disclosed comprising a contact material formed of an alloy of silver-cadmium oxide, the element having a contact face and an opposite

face composed of a silver layer with cadmium oxide particles distributed in between, such that the concentration of cadmi-



um oxide particles increases from a minimum at the contact face to a maximum towards the face with the silver layer.

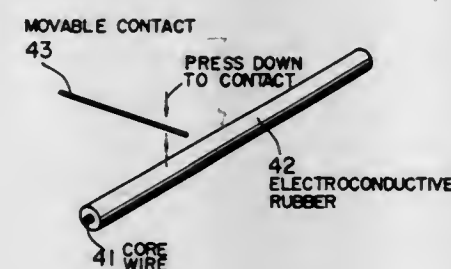
3,596,031

CONTACT MATERIAL FOR ELECTRONIC MUSICAL INSTRUMENTS AND THE METHOD FOR MANUFACTURING THE SAME

Yoshiaki Murakoshi, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-Ken, Japan
Continuation-in-part of application Ser. No. 612,253, Jan. 27, 1967, now abandoned, and a continuation-in-part of 612,254, Jan. 27, 1967, now abandoned. This application Aug. 5, 1969, Ser. No. 847,586
Int. Cl. H01h 3/00; H01b 1/06

U.S. Cl. 200-166

8 Claims



By mixing and dispersing a carbon black, a curing agent, and other compounding ingredients in an uncured rubber in the form of a solution of relatively low viscosity by agitating means which imparts substantially no shear-force to these materials and by evaporating off the solvent of the rubber solution, an electroconductive uncured rubber material of very uniform and reproducibly constant product quality can be produced.

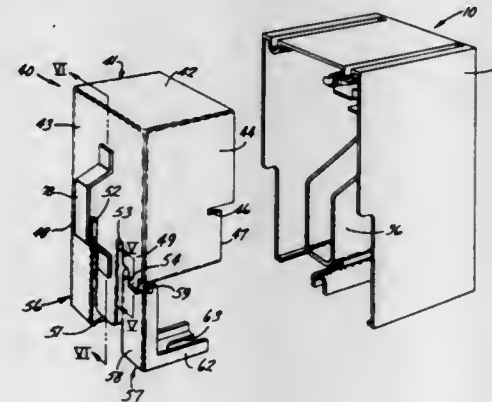
3,596,032

COVER FOR PAD-MOUNT TRANSFORMERS

John W. Roossinck, 7032 Pine Island Drive, Comstock Park, Mich.
Filed Oct. 20, 1969, Ser. No. 867,529
Int. Cl. H01h 9/02

U.S. Cl. 200-168 A

8 Claims



A protective cover particularly adapted for use with a pad-mounted cabinet containing high voltage load-breaking parts

of an underground residential or commercial electrical lighting system. The cover is of a nonconductive material and has a stationary flap and a pair of pivotal flaps which, when the cover is positioned within the cabinet, are adapted to cover the electrical terminals. By swinging one of the flaps into an upward position prior to installation of the cover within the cabinet, one of the terminals can be exposed to permit servicing of the line connected to the exposed terminal while the remaining terminals are covered and thus remain energized.

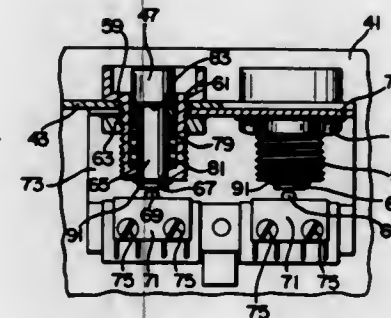
3,596,033

SWITCH DUST GUARD FOR RADIAL ARM SAW

John L. Wickham, Glen Arm, and George W. Cowman, Baltimore, both of Md., assignors to Black and Decker Manufacturing Company, Towson, Md.
Filed Aug. 27, 1969, Ser. No. 853,289
Int. Cl. H01h 9/04

U.S. Cl. 200-168 G

11 Claims



A radial arm saw including a base having an upstanding post supported thereon. An arm extends over a horizontal work table supported upon the base and has a carriage suspended therefrom for movement therealong. A motor-powered saw is fixed to the carriage and is adapted to cut workpieces on the table. The arm is adapted to be pivoted about a vertical axis and is vertically adjustable to vary the angle and depth of cut, respectively, on workpieces on the table. A control mechanism including a movable switchbox is electrically connected to the saw motor and carriage and is constructed to control operation of the saw and carriage. The switchbox has one or more pushbutton switches provided with novel means to prevent contamination thereof by dust, chips, and other foreign matter.

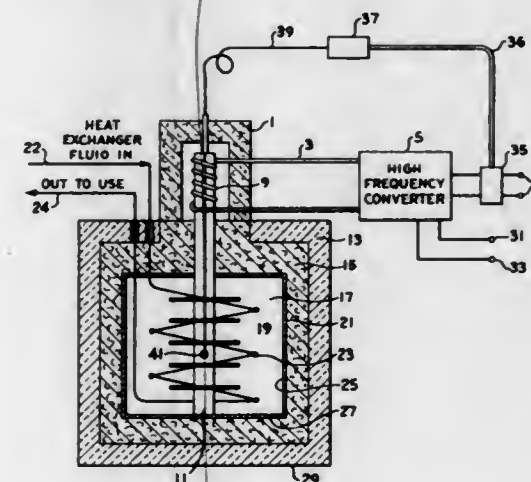
3,596,034

HEAT STORAGE

Matthew Mekjean, Niagara Falls, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.
Division of Ser. No. 757,012, Sept. 3, 1968, Patent No. 3,517,151 which is a continuation-in-part of Ser. No. 589,764, Oct. 26, 1966, Patent No. 3,450,249.
Filed Dec. 8, 1969, Ser. No. 882,389
Int. Cl. H05b 5/02

U.S. Cl. 219-10.41

5 Claims



A method for filling a metallic vessel with a fusible heat storage composition which comprises inductively heating said

vessel to a substantially uniform desired temperature, introducing said heat storage composition in the desired amount, and cooling the vessel uniformly by proper control of the induction heater to prevent the development of stress between said metal vessel and said heat storage composition which results from the contraction differential between said materials.

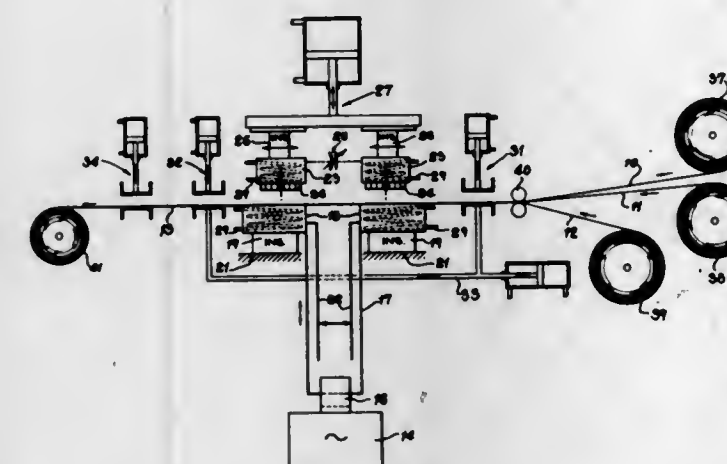
3,596,035

HIGH FREQUENCY DIELECTRIC HEATING APPARATUS

Raymond P. Meenen, Hawthorne, N.J., assignor to Mayflower Electronic Devices, Inc., Little Ferry, N.J.
Filed May 13, 1969, Ser. No. 824,076
Int. Cl. B23k 13/02; H05b 5/00

U.S. Cl. 219-10.53

8 Claims



A high frequency heating machine for laminating fabric material in which a heating electrode for each side of the material is divided into two parts and in which each of the four electrodes is preheated, the two electrodes on one side of the material dividing the load and having capacitors therebetween. Mechanism is provided for step-by-step passage of the material between the two opposing sets of electrodes in which the dies are spaced three times the effective width of one die and in which the stroke of the material for each step is twice the effective width of one die.

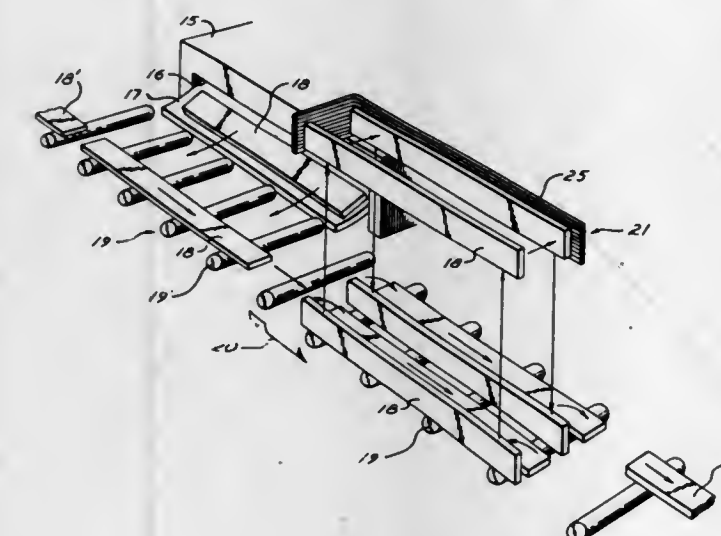
3,596,036

INDUCTION HEATER

Nicholas V. Ross, Youngstown, and Reuhl E. Jennings, Warren, both of Ohio, assignors to Ajax Magnethermic Corporation, Warren, Ohio
Filed Mar. 16, 1970, Ser. No. 19,656
Int. Cl. H05b 5/00, 9/06

U.S. Cl. 219-10.69

12 Claims



There is disclosed herein an induction heater having an induction coil disposed on a vertical axis and providing a

rectangular opening. Means are provided for sequentially inserting a plurality of elongated slabs into the coil adjacent to one side of the coil, each slab being disposed on one side edge in a vertical plane parallel with said one side of the coil, the thickness of the slab being disposed normal to said one side of the coil. Each slab is progressively advanced across the coil in the direction of its thickness to a position adjacent to the side of the coil opposite to said one side, at which position the slab is removed from said coil. Means are provided for applying electrical power to the coil whereby each slab emerges fully and uniformly heated.

3,596,037

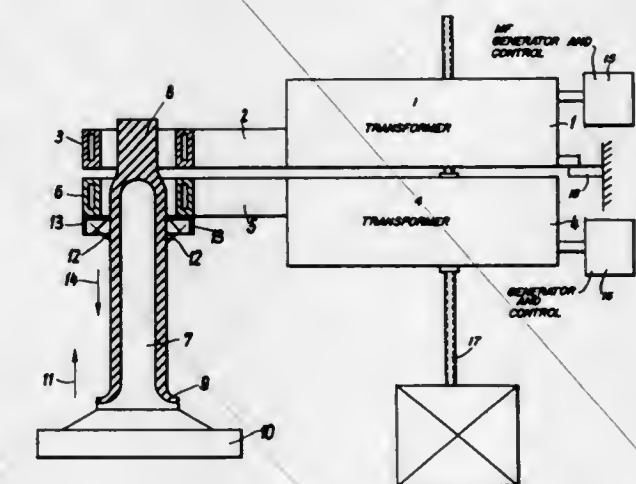
APPARATUS FOR INDUCTIVELY HEAT-TREATING STEEL WORKPIECES

Gerhard Seulln, and Friedhelm Reinke, both of Remscheid, Germany, assignors to AEG-Elotherm GmbH, Remscheid-Hasten, Germany
Filed Feb. 12, 1968, Ser. No. 704,892
Claims priority, application Germany, Apr. 29, 1967, A 55597

Int. Cl. H05b 5/00, 9/02

U.S. Cl. 219-10.79

3 Claims



Elongate workpieces of varying diameter along their length which are to be inductively heat treated to provide both surface-hardened zones and zones toughened all the way through, have low reverse bending and torsional resistance, due to induced notch effect. It has now been discovered that if the heat treatment is carried out in two stages, one being superimposed on the other, the notch effect is diminished or eliminated.

3,596,038

POWER SUPPLY AND AUTOMATIC CONTROL SYSTEM FOR GAP DISCHARGE APPARATUS AND THE LIKE

Terry O. Hockenberry, and Everard M. Williams, both of Pittsburgh, Pa., assignors to Everard M. Williams, Pittsburgh, Pa. and Terry O. Hockenberry, Fox Chapel, Pa., part interest to each
Division of Ser. No. 478,563, Aug. 10, 1965, Patent No. 3,456,087. Filed June 23, 1969, Ser. No. 835,602
Int. Cl. B23p 1/08

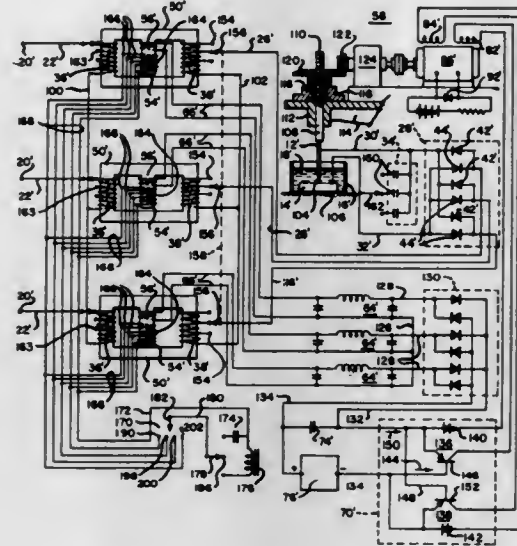
U.S. Cl. 219-69

11 Claims

We disclose a power supply for gap discharge apparatus and the like, said supply comprising energy storing means including a capacitor, circuit means for connecting said capacitor across an electrode tool and workpiece of said apparatus to form a discharge circuit for the capacitor, a rectifying circuit having its output connected across said capacitor to form a charging circuit for the capacitor, transformer means having core structure of the leakage leg type and having primary and secondary windings thereon spaced from said

leakage leg, circuit means for connecting the secondary output of said transformer means to the input of said rectifying

late material into the downstream half of the plasma through



circuit and for connecting the primary of said transformer means to a source of fluctuating potential.

3,596,039

TRIMMING THIN-FILM CAPACITORS BY SPARK EROSION

Michael Edmond, Munich, Germany, assignor to Sprague Electric Company, North Adams, Mass.

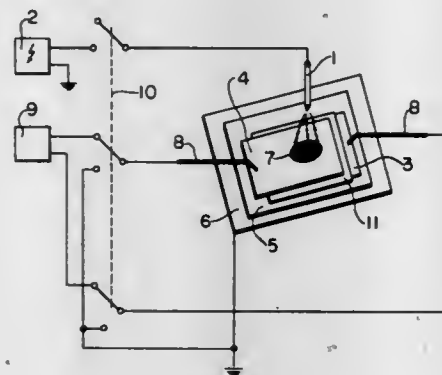
Filed July 14, 1969, Ser. No. 841,463

Claims priority, application Germany, July 19, 1968, P 17 64 699.0

Int. Cl. B23p 1/08

U.S. Cl. 219—69

7 Claims



Both electrodes of a thin film capacitor are shorted to ground. A high-voltage pulse is applied to a needle electrode that is separated from the electrodes a sufficient distance to permit formation of a spark which burns away a portion of both electrodes.

3,596,040

HEATING PARTICULATE MATERIAL

Peter Compton MacDonald, Gloucester, and Arthur Leonard Riley, Fairfield, both of, England, assignors to British Titan Products Company Limited, Durham, England

Filed July 10, 1968, Ser. No. 743,675

Claims priority, application Great Britain, July 11, 1967, 31826/67

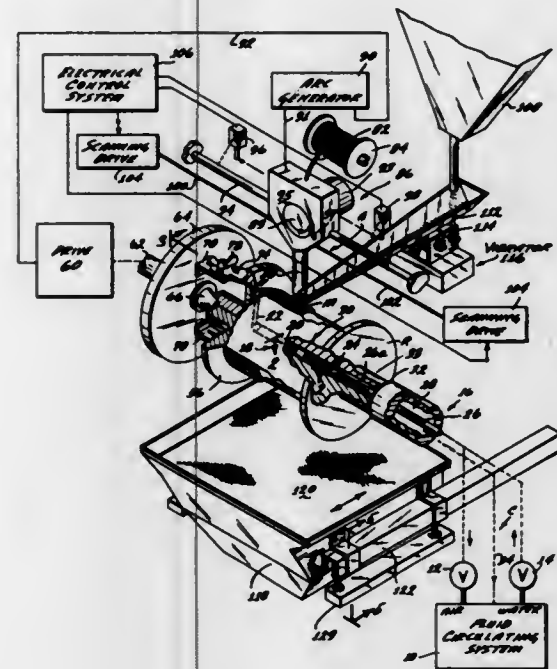
Int. Cl. H05b 5/00; B23k 9/04

U.S. Cl. 219—76

27 Claims

Heating particulate material by means of radiofrequency induced plasma in a stream of gas by introducing the particu-

A system for rebuilding worn tractor rollers is disclosed. The rollers are rebuilt without disassembly by applying weld metal while circulating a fluid coolant through the lubricating passages by means of a fluid injection system that utilizes a resiliently deformable pressure-controlled seal. A drive-dog mechanical arrangement incorporating a contact pin revolves the workpiece roller under an arc welding apparatus to which wire is fed, to deposit the metal for reconstruction. The arc welding apparatus is adjustable to accommodate deposition on the cylindrical portion of the roller as well as the flanges, and therefore may be moved through substantially a 90° angle. Granular flux is supplied to the arc, to accomplish submerged-arc welding. The flux is delivered by a vibrating trough and caught by a collector for reuse.



3,596,041

ROLLER REBUILDING SYSTEM

Larry D. Frus; John C. Lindgren, and Marion D. Woods, all of Whittier, Calif., assignors to Stoddy Company

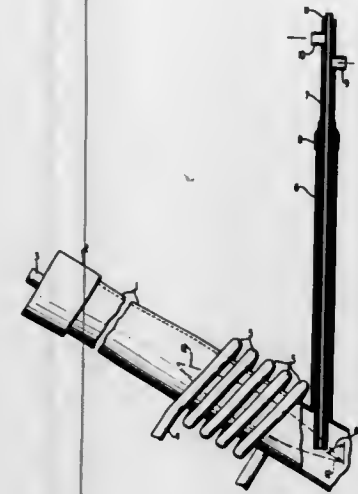
Filed July 31, 1969, Ser. No. 847,529

Int. Cl. B65d 9/02, 43/00

U.S. Cl. 219—76

4 Claims

a feed tube which terminates within the downstream half of the volume of plasma.



3,596,042

TABBING MACHINE

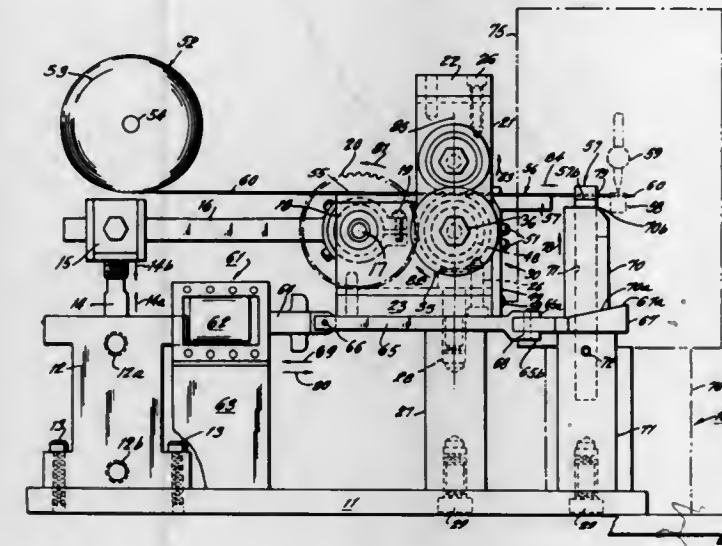
Jerome Vincent Volk, Union, N.J., assignor to Griffiths Electronics Inc., Linden, N.J.

Filed Apr. 14, 1969, Ser. No. 815,997

Int. Cl. B23k 11/00

U.S. Cl. 219—80

11 Claims U.S. Cl. 219—86



Apparatus for feeding, welding and cutting metallic ribbon which is extremely thin. The ribbon is advanced by automatic means so that a portion thereof is nested within a slot which forms one electrode of a welding device. The welding operation is performed and then the ribbon is cut to length, the welded parts are then removed and the cycle is repeated. The means for accurately advancing the ribbon comprises a pair of rotatably mounted metallic rollers aligned along a common axis. At least one of the roller assemblies is comprised of first and second concentrically mounted rollers spaced by resilient means. The true centers of the rollers are displaced by a predetermined amount so as to provide constant tension for the feeding operation even in the case where the rollers deviate from true round which may be caused by wearing as a result of continued use.

3,596,043

METHOD OF SEAM WELDING OVERLAPPING WORKPIECES

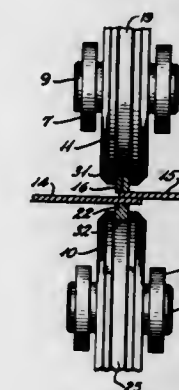
Anton J. Sporri, Tallapoosa, Ga., assignor to Southern Can Company, Tallapoosa, Ga.

Filed Apr. 11, 1969, Ser. No. 815,446

Int. Cl. B23k 11/06

U.S. Cl. 219—83

1 Claim



A continuous lap seam is welded at the extreme edge by passing it between a pair of roller electrode members each of which carries a continuous length of a wire electrode, the wire interengaging the rollers and having an outer work engaging surface which is substantially flat, thereby providing a welded seam entirely outwardly of the edge of at least one of the lapping portions.

3,596,044

THROUGH INSULATION WELDING SYSTEM

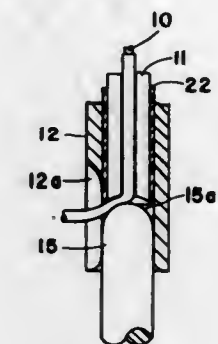
Leonard Katzin, Los Angeles, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Filed Mar. 3, 1969, Ser. No. 803,812

Int. Cl. B23k 9/28, 11/10

U.S. Cl. 219—86

11 Claims



A welding system comprising first and second concentric electrodes which re positioned on one side of a terminal, to which an insulated electrical wire is to be welded. The wire extends through the inner electrode. The two electrodes, forming an electrode assembly, are lowered onto the terminal with a force sufficient to rupture the insulation, when the wire is squeezed between a welding tip of the inner electrode and the terminal. The outer electrode serves to guide the assembly with respect to the terminal and to provide electrical contact therewith. Welding is achieved by providing a welding pulse between the two electrodes, when the outer electrode is in electrical contact with the terminal, and the latter is in electrical contact with the welding tip of the inner electrode through the electrical wire with the severed insulation.

3,596,045

MACHINING PROCESS USING RADIANT ENERGY
Karl-Heinz Steigerwald, Lochham; Dieter König, Munich, and Joachim Geissler, Vaterstetten, all of, Germany, assignors to K. H. Steigerwald GmbH

Filed Mar. 23, 1966, Ser. No. 536,617

Claims priority, application Germany, Mar. 30, 1965, St 23 592

Int. Cl. B23k 15/00, 27/00

U.S. Cl. 219—121 EB

6 Claims

A process using a beam of radiant energy, such as electron beams and laser beams, for removing material from a workpiece wherein the workpiece is made of a material which has a low degree of energy absorption for the kind of radiant energy used consists in finely distributing an auxiliary material having a high beam absorbing characteristic within the workpiece material in at least the portion thereof from which material by absorbing heat builds up vapor pressure which carries the adjacent molten material out of the work zone.

3,596,046

MANUFACTURE OF STEEL TUBES FROM STEEL STRIP BY ELECTRON BOMBARDMENT

Jacques Jean Lucien Valleins, Paris, and Bernard Max Eugene Begue, Pavillon-sous-Bols, both of, France, assignors to Vallourec Usines a Tubes de Lorraine-Escaut et Vallourec Reunies, Paris, France

Filed Jan. 22, 1969, Ser. No. 793,091

Claims priority, application Luxembourg, Jan. 23, 1968, 55,333

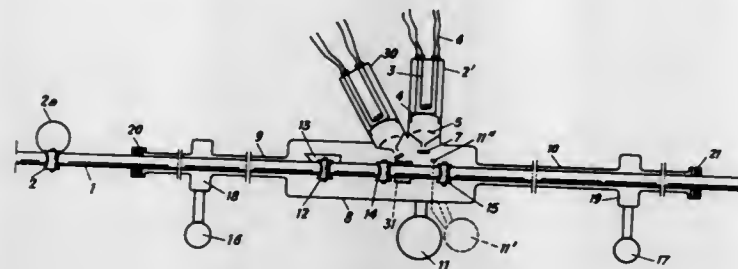
Int. Cl. B23k 15/00

U.S. Cl. 219—121

9 Claims

The invention relates to a process for the manufacture of steel tubes from steel strip by electron bombardment in vacuo. Vacuum is applied to one end of a tube, the other end

being open. The welding operation taking place at the end adjacent the application of vacuum. A sleeve is provided in-



side the tube to ensure a sufficient degree of vacuum at the welding position.

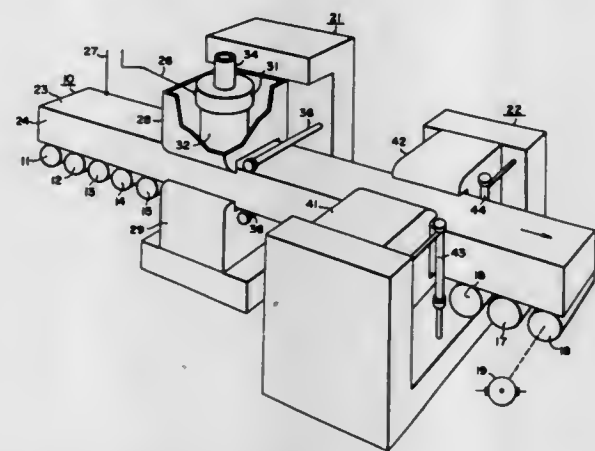
3,596,047

METHOD FOR REMOVING DEFECTS FROM SLABS AND BLOOMS OF STEEL AND OTHER METALS

Daniel A. Maniero, Pittsburgh; George A. Kemeny, Export, Pa., and Armin M. Bruning, Milwaukee, Wis., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa. Division of Ser. No. 439,832, Mar. 15, 1965, abandoned, which is a continuation of application Ser. No. 817,283, Apr. 15, 1969. Filed Feb. 24, 1969, Ser. No. 801,502 Int. Cl. B23k 9/08

U.S. Cl. 219-123

11 Claims



One or more electric arcs take place from fluid-cooled arcing surfaces at fixed positions along the path of movement of a slab which is to have defects removed therefrom, and magnetic fields generated in the electrodes cause the arcs to move substantially continuously in repetitive paths over the arcing surfaces and over the surfaces of the slab. The repetition rate of movement of the arcs is sufficiently large and the rate of movement of the slab is sufficiently small whereby the arc spot occurs at substantially every point on the slab surface. Additionally, means is provided for quickly cooling successive portions of the surface of the slab after said portions have been heated by the electric arc or arcs. In some embodiments all surfaces of the slab are heated during linear movement of the slab in one direction; in another embodiment, two surfaces of a slab generally rectangular in cross section are heated while the slab moves in one direction, the slab is thereafter turned over and moved back in the opposite direction during which later movement the other two surfaces of the slab are heated.

3,596,048

TRACKLESS AUTOMATIC WELDING MACHINE

Toyoo Maeda, Tokyo-to; Toshio Yada, Yokohama-shi, and Akira Yamaoka, Tokyo-to, all of, Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed Aug. 22, 1969, Ser. No. 852,228

Claims priority, application Japan, June 14, 1969, 44/47082

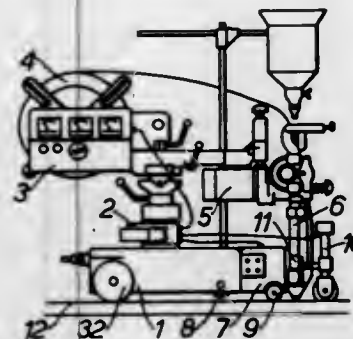
Int. Cl. B23k 9/12

U.S. Cl. 219-125 PL

4 Claims

An automatic welding machine advanced without the track guide having a sliding unit having a welding nozzle, which is

in turn connected to a welding line detector, and an automatic steering unit mounted upon a carriage so that the detector may move along a welding line or groove upon movement of the carriage which in turn is maintained in a



3,596,049

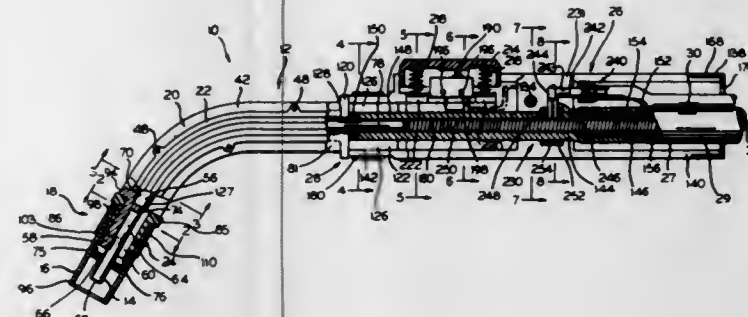
AIR-COOLED WELDING GUN

Ralph Ogden, 1304 Fisher St., Munster, Ind. Filed July 2, 1969, Ser. No. 838,419

Int. Cl. B23k 9/00

U.S. Cl. 219-136

8 Claims



The disclosure is directed to a welding gun for MIG welding in which the gas cup and contact tip of the nozzle are secured in place by a single-clamp-type device that permits ready replacement of both. The nozzle in turn is connected to the gun handle by a single-clamp device that permits ready replacement of the nozzle as a unit or ready change of positioning of same relative to the handle. The nozzle is arranged to provide for cooling of the gas tip through air fins on the nozzle that are in electrically insulating good heat transfer relation to the gas cup.

3,596,050

AUTOMATIC TORCH HEIGHT CONTROL

George H. Tikjian, South Orange, N.J., assignor to Union Carbide Corporation

Continuation of application Ser. No. 688,424, Dec. 6, 1967, now abandoned. This application May 5, 1970, Ser. No. 33,153

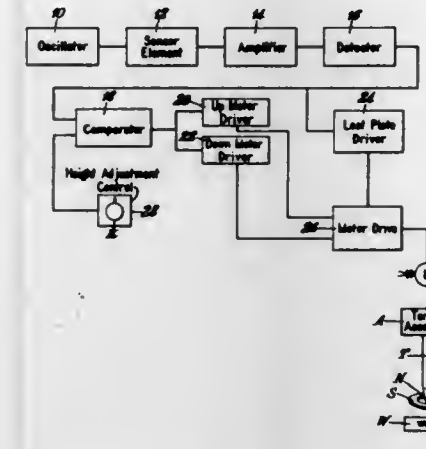
Int. Cl. B23k 9/10

U.S. Cl. 219-131

2 Claims

The height control apparatus of the present invention automatically maintains a desired spacing between a torch and the surface of a workpiece by detecting variations in capacitance between a plate attached to the torch and the

workpiece, and by comparing the variations with a reference signal which represents the desired spacing, the compared



signal output controlling torch-positioning means for returning the torch to the desired height.

3,596,051

METHOD AND APPARATUS FOR FORMING T-WELDS

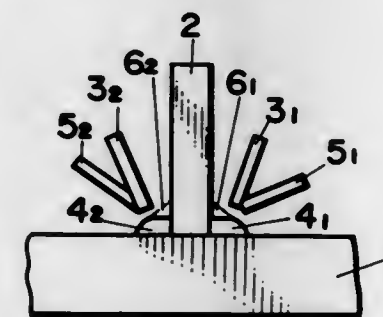
Hirokazu Nomura, Yokohama, Japan, assignor to Nippon Koran Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 20, 1970, Ser. No. 21,394

Int. Cl. B23k 9/00

U.S. Cl. 219-137

7 Claims



A method and apparatus for forming a T-weld between a pair of plates, one of which has an edge engaging a surface of the other to form with the surface a pair of elongated corners. Fillet welds are deposited in these corners to form the T-weld connection, and the fillet welds are deposited with a welding apparatus which includes at least one pair of leading electrodes situated at the weld-receiving corners in alignment with each other and one pair of trailing electrodes also situated in alignment with each other respectively at the weld-receiving corners and following the leading pair of electrodes at a given distance. The leading pair of electrodes are supplied with a welding current which is substantially less than, preferably one-half of, the welding current which is supplied to the trailing electrodes. Three-phase alternating current is preferably used for supplying the electrodes, and the current is supplied through a transformer which has the primary windings thereof connected in delta and the secondary windings connected into a star connection, the neutral junction of which is connected with one of the plates. The primary and secondary coils of at least one of the phases of the transformer are divided into a pair of primary and coacting secondary coils, and it is these secondary coils which are connected to the leading pair of electrodes, respectively.

3,596,052

WELDING ROD HOLDER ARRANGEMENT

Richard F. Smith, R.F.D. #1, Carrollton, Va.

Filed July 28, 1969, Ser. No. 845,339

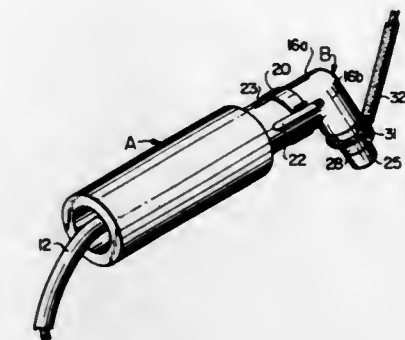
Int. Cl. B23k 9/28

U.S. Cl. 219-138

11 Claims

There is disclosed a welding rod holder arrangement including a welding rod receiving member of electrically con-

ductive material and having a welding rod receiving and contacting portion that is externally tapered so as to frictionally receive an electrically conductive loop on the end of a welding electrode or wire. The welding rod receiving member is slotted for air-cooling purposes and a slotted casing means of insulating material surrounds a substantial portion of said welding-rod-receiving member while leaving exposed a suffi-



3,596,053

CONSUMABLE WELDING ROD FOR WELDING CHROMIUM STEELS AND THE RESULTANT WELDS

Isamu Kameda, and Yoshimitsu Uto, both of Hiroshima, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of application Ser. No. 464,816, June 17, 1965, now Patent No. 3,476,989, which is a continuation-in-part of application Ser. No. 211,835, July 23, 1962. This application July 28, 1969, Ser. No. 845,273

Int. Cl. B23k 35/22

U.S. Cl. 219-146

14 Claims



The consumable welding rods contain titanium and niobium in amounts such that a weld formed by melting the rod contains titanium niobium in an amount corresponding to the expression $2Ti+Nb=(6-14)C$ wherein Ti, Nb and C are the proportion of titanium, niobium and carbon in said weld metal. The proportion of titanium and niobium in the welding rod is determined by estimating the total quantity of carbon in the weld metal, the quantities of carbon, titanium and niobium lost by oxidation during welding and the variations in the quantities of titanium and niobium in the weld metal resulting from the welding process.

3,596,054

WELDING WIRE

Igor Konstantinovich Pokhodnya, Pereulo K Mechnikova, 3, Kv. 21, and Valery Nikolaevich Shlepakov, Ulitsa Pushkinskaya, 45, Kv. 9, both of Kiev, U.S.S.R.

Filed Feb. 18, 1970, Ser. No. 12,464

Claims priority, application U.S.S.R., Mar. 24, 1969, 1313007

Int. Cl. B23k 35/22

U.S. Cl. 219-146

1 Claim

A welding wire, characterized in that its powder core enclosed in a steel sheath, includes (in percent of the core weight) 4-12 percent of alumina and 1-4 percent of sodium fluosilicate.

3,596,055

METHOD AND APPARATUS FOR PRODUCING DISPLAYS UTILIZING AN ELECTRONIC DISPLAY SYSTEM

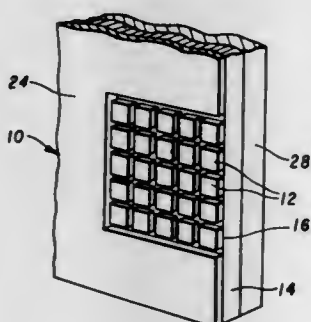
William A. Elston, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed May 8, 1969, Ser. No. 823,128

Int. Cl. H05b 1/00

U.S. Cl. 219-216

11 Claims



Disclosed herein is a thermal display system including a plurality of very small isolated semiconductor mesas or bodies, each of which contains a heater element so that when the heater element is energized a "hotspot" is formed at the top surface of the mesa to provide a localized dot of heat. By interposing an energy or heat transferable coating, such as carbon paper, for example, between the mesas and a display medium, which preferably is nonsensitized, and selectively energizing certain mesas to form selective hotspots, the heat produced thereby thermally transfers said transferable coating with the display medium, thereby to produce an information representation on the display medium.

3,596,056

ELECTRICAL HEATING DEVICE FOR FLUENT PRODUCTS

Alan Dillarstone, Highland Park, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

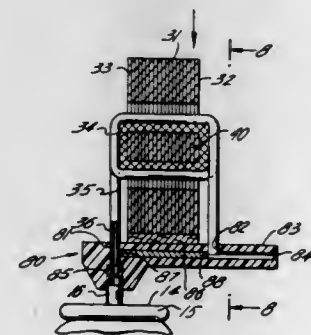
Division of Ser. No. 619,670, Mar. 1, 1967, Pat. No. 3,518,410.

Filed May 22, 1969, Ser. No. 847,756

Int. Cl. B67d 5/62; H05b 5/00, 1/00

U.S. Cl. 219-300

1 Claim



A heating device for rapidly elevating the temperature of a fluent material after the material is discharged from a pressurized container. The heating device comprises a stepdown

transformer having a tubular secondary winding for carrying and heating the fluent material. The secondary winding is positioned so that the material discharged from the container flows into the tubular secondary, is heated as it flows therethrough, and is discharged therefrom as a heated product ready for use. The transformer is mounted on a discharge block adapted for mating with a valve stem of the container. The arrangement is such that manually induced downward movement of the transformer and discharge block causes the discharge valve of the container to be opened to cause flow of material through the secondary and out a discharge spout.

3,596,057

ELECTRIC HEATING DEVICE

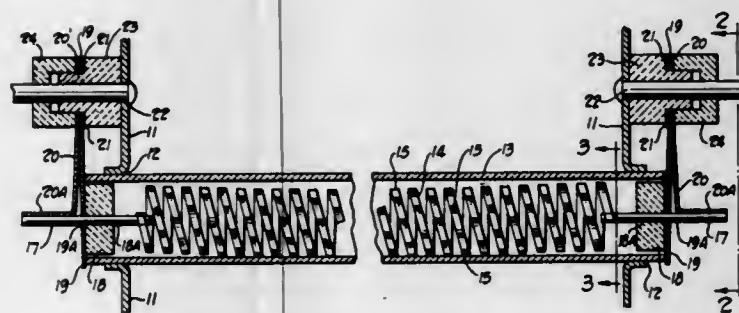
Robert L. Arntz, and Ronald E. Leger, both of Mansfield, Ohio, assignors to Dominion Electric Corporation, Mansfield, Ohio

Filed May 8, 1969, Ser. No. 823,005

Int. Cl. F24h 9/00

U.S. Cl. 219-354

4 Claims



An electric heating device in which a coil of corrugated metal ribbon forming the resistance element of the device is formed in a helix and mounted longitudinally in the bore of a tube of quartz, glass or the like, the helix being so wound that the undulations of the corrugations in adjacent loops of the ribbon are out of phase with each other to prevent telescoping of the adjacent loops. The metal of the resistance element has the characteristics of Kanthal and is an alloy containing iron, chromium, aluminum and tantalum. The metal is coated with an insulating film of oxide formed thereon by the heating of the helix in an oxidizing atmosphere while the corrugated metal ribbon is wound tightly around, and there restrained upon, a mandrel with the adjacent loops separated from each other. The heating in the oxidizing atmosphere leaves the film of insulating oxide film on the metal which electrically insulates adjacent loops from each other although in interengagement upon removal of the helix from the mandrel and the removal of the restraint on the helix. The heating also so anneals the metal ribbon that it resists the tendency to unwind from helix form and remains in the helical form.

3,596,058

BASEBOARD HEATER

Robert E. Steiner, Creve Coeur, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Nov. 29, 1968, Ser. No. 779,850

Int. Cl. F24h 9/08; H05b 1/00

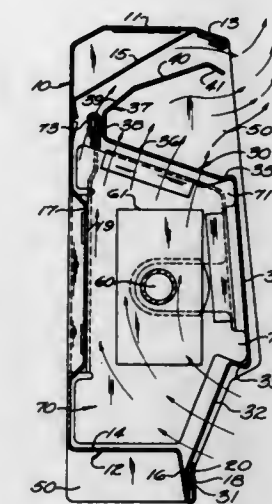
U.S. Cl. 219-367

5 Claims

A baseboard heater has a laterally narrow elongated finned electric heater positioned in a common airflow passage defined between the front wall and backwall of a baseboard convactor housing. The airflow passage extends past the heater from a common air inlet below the heater to a main hot air outlet above the heater. An auxiliary airflow passage is provided, communicating at one end with the common airflow passage behind and above the heater, and opening at its other end above the main hot air outlet and forwardly of the heater. The auxiliary airflow passage is defined between a baffle integral with the front wall and having a forwardly and downwardly directed mouth section and a wall behind the

baffle extending in forwardly and upwardly diverging relation to the baffle. A forwardly extending embossment, coexten-

electrical signals that represent the presence or absence by marks on the scanned document as evidenced by intensity variation induced by the passage of the laser beam therepast



sive in height and length with the heater is provided on the backwall to narrow the main airflow passage.

3,596,059

FOOD CONTAINER HEATING SYSTEM

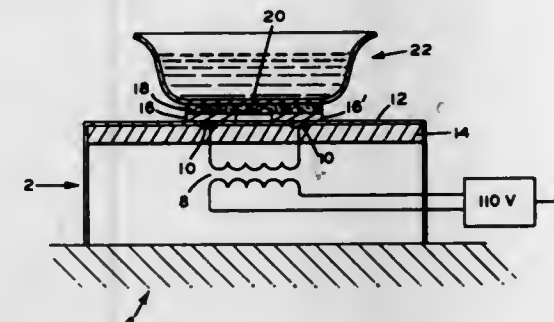
Nathaniel E. Hager, Jr., Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Filed Sept. 29, 1969, Ser. No. 861,622

Int. Cl. F27d 11/02

U.S. Cl. 219-432

3 Claims



The container-heating system comprises a three part structure consisting of a food container, a heater integral therewith, and a power supply receptacle for the heater. The power supply receptacle may use either a car electrical system or a transformer structure which converts 110 v. to 12 v. The heater is a special high-output heater which is fastened to the base of the food container. The food container with its heater is placed upon the power supply and the heater rapidly heats the food within the container.

3,596,060

OPTICAL SCANNING UNIT FOR MARK SENSING

Edward Camp Tibbals, Jr., and Trevor Temple, both of Boulder, Colo., assignors to Alexander, Inc., Mahwah, N.J.

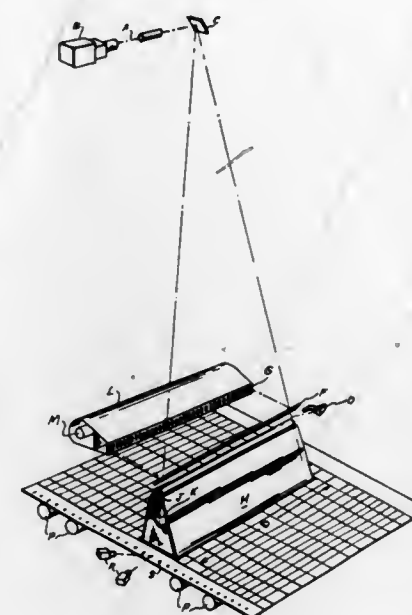
Filed May 4, 1967, Ser. No. 636,204

Int. Cl. G01n 21/30; G02b 5/12; G06k 7/00

U.S. Cl. 235-61.11 E

2 Claims

Optical-scanning system for a mark sensing unit wherein a laser beam is deflected through a predetermined arc to traverse a predetermined lineal distance on a record disposed chordally with respect thereto. A beam-splitting device disposed adjacent to the scanned surface directs a portion of the laser beam through an auxiliary clocking grid having a series of apertures sized and spaced in complementary accord with the format of the document being scanned. The varying intensity pattern produced by the passage of the split beam along the clocking grid is converted into a sequence of discrete electrical signals that is readily correlatable with other



3,596,061

DEVICE FOR AUTOMATICALLY POSITIONING RECORD SUPPORTS OF THE TICKET OR CARD TYPE IN A READING APPARATUS

Walter Gechele; Arnaldo Pasini; Bruno Piazza, and Francesco Serracchioli, all of Turin, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Turin, Italy

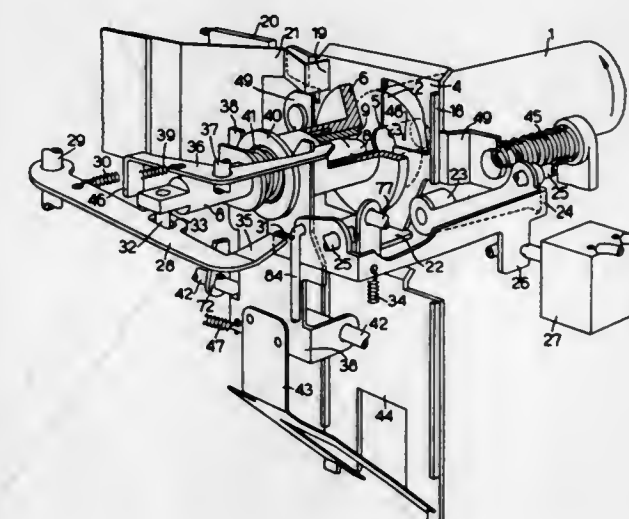
Filed Oct. 14, 1968, Ser. No. 767,405

Claims priority, application Italy, Oct. 31, 1967, 53560-A/67

Int. Cl. G06k 7/08; G11b 5/00, 25/04

U.S. Cl. 235-61.11 D

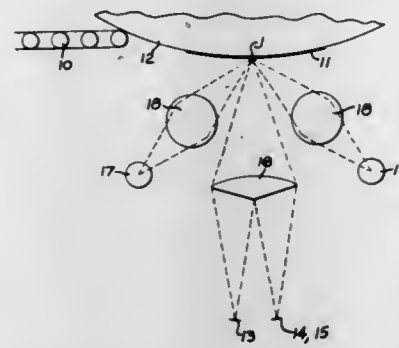
7 Claims



The record member is manually placed in the reading apparatus, after which a centering plunger is inserted into a hole in the record member. The record member, which has concentric rings of magnetic data recorded thereon, is then clamped against a nonmagnetic diaphragm positioned over a rotating reading head. After the reading head has read off the recorded data, the centering plunger is withdrawn and the clamping member released. A trap door beneath the record member opens; and if the member fails to fall by gravity, an ejector crank strikes the record member to remove it from the reading position. The mechanisms are automatically reset at the completion of one reading cycle for the next cycle of operation.

3,596,062

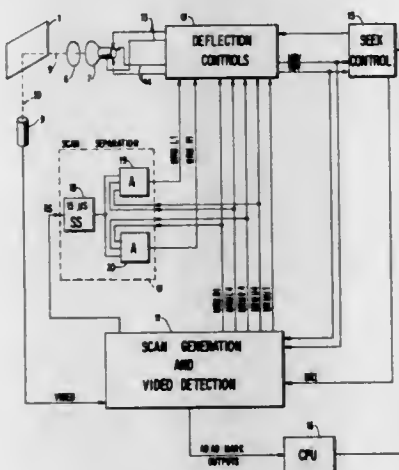
METHOD AND APPARATUS FOR DOCUMENT READING
 Leslie John Street, Bristol, and John Francis Cowles, Winterbourne, both of, England, assignors to Parnall & Sons, Limited, Birmingham, England
 Filed Oct. 21, 1968, Ser. No. 769,076
 Int. Cl. G06k 7/00; G01n 21/30
 U.S. Cl. 235—61.11 E 17 Claims



A method and apparatus for automatic reading of single-color printed documents bearing manually entered information in another color wherein transducer means is alternately conditioned in reading the document to provide an output representative of only information in the print color and subsequently or previously another output representative of only information in the other color.

3,596,063

APPARATUS FOR READING MARKS ON DOCUMENTS
 Terry W. Curtis, Robert D. Keillor, and Donald L. Mehaffey, all of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Jan. 13, 1969, Ser. No. 790,650
 Int. Cl. G06k 9/00
 U.S. Cl. 235—61.11 F 5 Claims

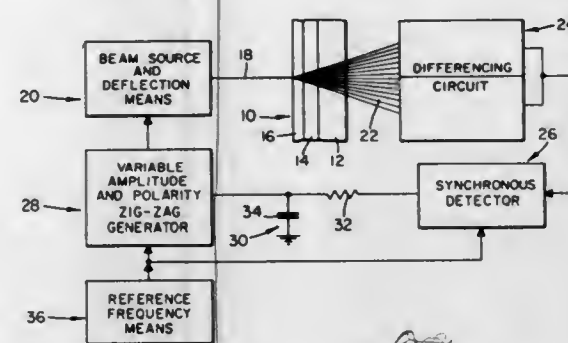


An apparatus and method for optically reading marks on a document. A first portion of each mark area is scanned during a first scan and a second portion of each mark area is scanned during a second scan. On the first scan, latches are set for positions where the video output is above a predetermined minimum. During the second scan, a second series of latches are set if the video output is above a predetermined minimum and the corresponding first scan latches are set. An output is provided only when the second latches are set.

3,596,064

ELECTRONIC LINE SKEW CORRECTOR
 Bob V. Markevitch, and David K. Fibush, both of Palo Alto, Calif., assignors to Ampex Corporation, Redwood City, Calif.
 Filed Sept. 15, 1969, Ser. No. 857,786
 Int. Cl. G06k 7/016 7 Claims
 U.S. Cl. 235—61.11
 Circuit for obtaining a wide-band line-tracking error signal prior to the dominant time constant of the line-tracking ser-

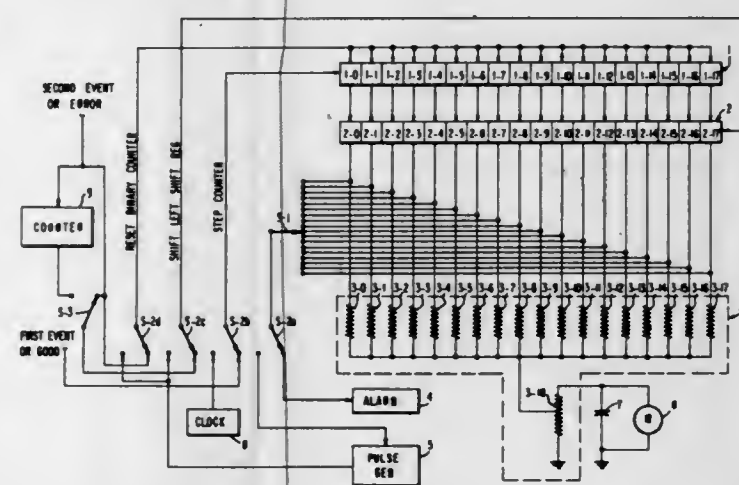
vo. A difference circuit introduces the line-tracking error signal, which includes a skew error signal, to a synchronous detector operating at the beam zigzag rate. The error signal recovered by the detector, is indicative of skew and is used to control a variable amplitude variable polarity zigzag



waveform which is, in turn, applied to the beam deflection system in a direction perpendicular to the tracked lines to thus correct for skew.
 The invention described herein was made in the course of a contract with the United States Department of the Army.

3,596,065

APPARATUS AND METHOD FOR RATE DETECTION
 Nicholas Lazarchick, Jr., Rockville; Alexander H. Frey, Jr., Gaithersburg; Eugene N. Schroeder, Bethesda, all of, Md. assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Nov. 7, 1968, Ser. No. 774,145
 Int. Cl. H03k 23/02
 U.S. Cl. 235—92 SH 5 Claims

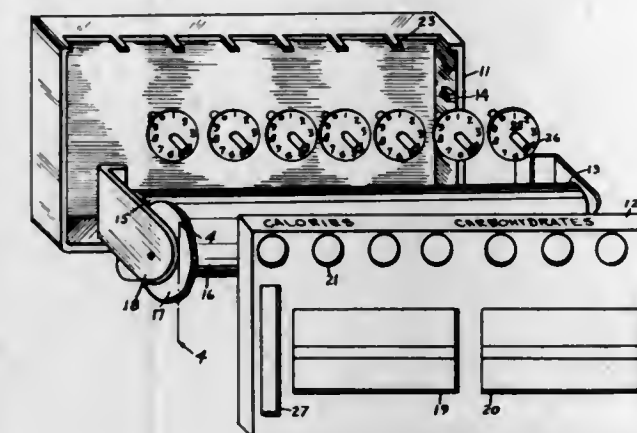


A method and apparatus for rate detection of the ratio of first events to second events in a stream of basic events where each event in the stream of basic events must either be a first event or second event. The method provides an indication of the average of the quantized log to the base two of the number of first events that occurs between the occurrence of second events. The apparatus comprises a binary counter, a shift register, a digital to analog converter alarm and metering logic.

3,596,066

DIET CALCULATING MACHINE
 Joseph Spiteri, 142 West 26th St., Erie, Pa., and George D. Baldwin, 1235 Pendergast Ave., Jamestown, N.Y.
 Filed June 27, 1969, Ser. No. 837,108
 Int. Cl. G06c 27/00 1 Claim
 U.S. Cl. 235—114
 This specification discloses a dial type device for recording information of the total calories and carbohydrates a person has consumed during a day. The device has a sheet having the caloric and carbohydrate content of various foods printed on it. The sheet is supported on two rollers. The rollers are

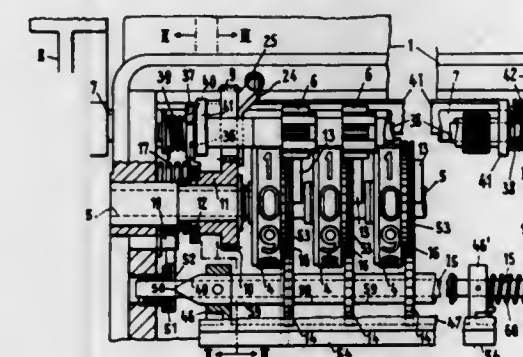
connected together through a wheel mechanism made of a knurled wheel which engages two sprockets, one attached to each roller. It has been discovered that while the wheels are, in effect, geared together, the sheet itself may be rolled onto one roller and unrolled from the other and it, and the sheet



itself, compensates for the greater rate of movement of the paper onto the ruller roll than onto the roll with less sheet on it. A plurality of numbered dials are supported behind windows to record the amount of calories and carbohydrates read from the chart.

3,596,067

COUNTER MECHANISM
 Werner Wähli, Bern-Bueimpliz, and Ernst Hofer, Spiegel near Bern, both of, Switzerland, assignors to W. Wähli A.G., Bern, Switzerland
 Filed Aug. 14, 1968, Ser. No. 752,677
 Claims priority, application Switzerland, Aug. 16, 1967, 11522/67
 Int. Cl. G06c 15/42
 U.S. Cl. 235—144 R 10 Claims



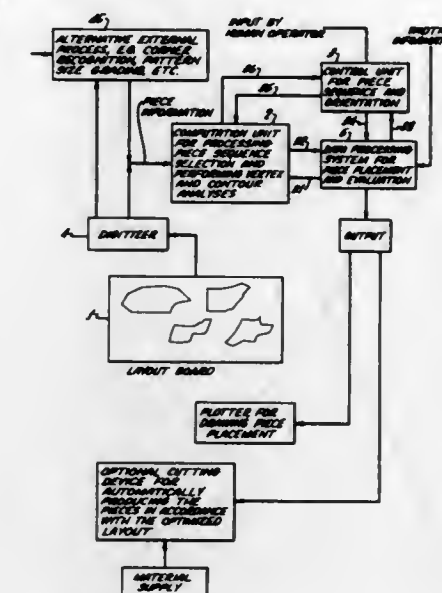
A counter mechanism which includes a set of side-by-side display counting wheels with cooperating actuating means arranged so they do not assume the position necessary for actuating the counter until the counting wheels have been completely reset.

3,596,068

SYSTEM FOR OPTIMIZING MATERIAL UTILIZATION
 Harold W. Doyle, Newport Beach, Calif., assignor to California Computer Products, Inc., Anaheim, Calif.
 Filed Dec. 30, 1968, Ser. No. 787,929
 Int. Cl. G06f 15/00 14 Claims
 U.S. Cl. 235—150

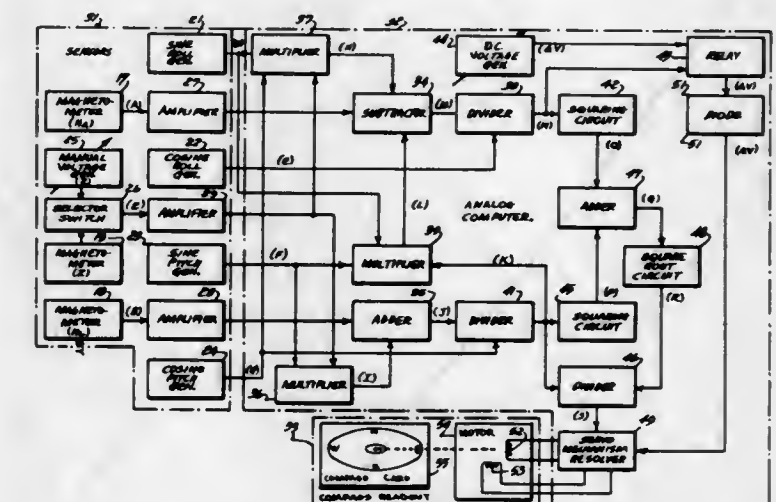
Patterns can be automatically arranged on the surface of a material in a manner which will require less material than that which is consumed by a competent human performing the same task. The simulated movement of each pattern piece about an already established marker boundary may be accomplished by data processing techniques. Once the contour of a piece outline and the boundary outline is known and the slopes of the vertex connecting segments determined, the displacing moves of the piece about the boundary may be

carried out in a nonoverlapping manner. In such a system it is only necessary to examine the trial marker dimension after



3,596,069

COMPUTER-STABILIZED MAGNETIC COMPASS
 Wayne E. Burt, 2603 Dade Ave., Panama City, Fla.
 Filed Feb. 13, 1969, Ser. No. 799,000
 Int. Cl. G06f 15/50; G06g 7/78
 U.S. Cl. 235—150.27 12 Claims



A magnetic compass for navigating a craft incorporates magnetometers for sensing the earth's horizontal and vertical magnetic flux, roll and pitch accelerometers for continuously sensing the attitude of the craft, an analog computer for compensating the magnetic flux sensed by said magnetometers for the roll and pitch of the craft, and a compass readout for either contiguously or remotely indicating the compensated heading of the craft relative to magnetic north.

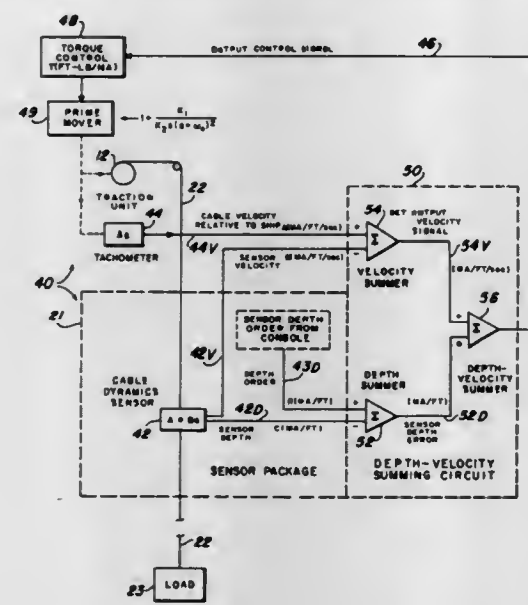
3,596,070

WINCH CONTROL SYSTEM FOR CONSTANT LOAD DEPTH

John M. McCool, Altadena; Shelby F. Sullivan, Arcadia; Robert H. Hearn, Altadena, and Michael S. Ball, Pasadena, all of, Calif., assignors to The United States of America as represented by the Secretary of the Navy
 Filed Dec. 8, 1969, Ser. No. 882,984
 Int. Cl. G06g 7/78 7 Claims
 U.S. Cl. 235—151

A winch control system for operating a winch stationed on a vessel, and for stabilizing a load, which is connected by a cable to a traction unit driven by a prime mover, at a con-

stant height above the sea floor irrespective of the vertical motion of the vessel due to wave action, thereby controlling the motion of the cable. A cable dynamics sensor, connectable to the cable between the traction unit and the load, generates output signals proportional (1) to its depth, and (2) to its velocity relative to the vessel. A tachometer, connectable to the traction unit, produces a signal which is proportional to the velocity of the cable relative to the vessel. A depth-velocity summing circuit, connected to the cable dynamics sensor, is adapted to be connected to a sensor



depth order signal, generated by a control console on the vessel, for summing the sensor depth and depth order signals, and is connected to the cable dynamics sensor and tachometer for summing the sensor velocity signal and the cable velocity signal. The two depth and two velocity signals, after being summed, produce an output control signal. A torque control, adapted to be connected from the output of the depth-velocity summing circuit to the prime mover, develops a torque signal proportional to the control signal, to cause the traction unit to null the control signal, thereby controlling the load position and velocity.

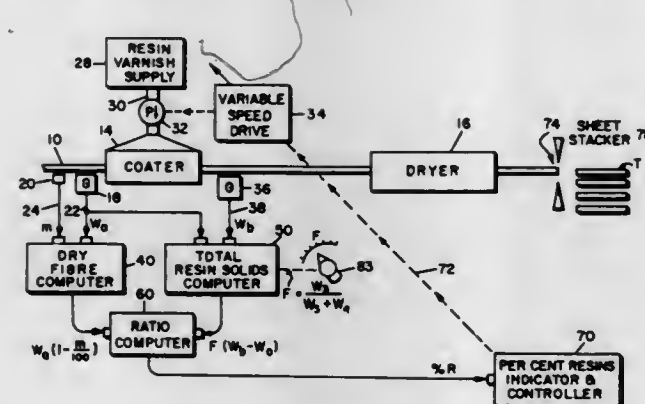
3,596,071 METHOD AND APPARATUS FOR A MATERIAL TREATER

George I. Doering, Columbus, Ohio, assignor to Industrial Nucleonics Corporation

Filed Mar. 11, 1965, Ser. No. 438,992
Int. Cl. G06g 7/58

U.S. Cl. 235-151.1

26 Claims



A material-treating process in which the percent weight of coating relative to the measured dry weight of a host material is computed. In application to resin-impregnating process, the percent volatiles in a sheet is computed by measuring the total weight of the dried sheet and computing the ratio of the weight of volatiles in the sheet to the measured total dried sheet weight. Radiation gauges are provided which respond to the weight per unit area of the sheet being measured and a dielectric measuring gauge that responds to the moisture content of the uncoated sheet.

3,596,072 ERROR-DETECTING CIRCUITRY IN ADDER SYSTEM

Shoji Iwamoto, Kokubunji-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

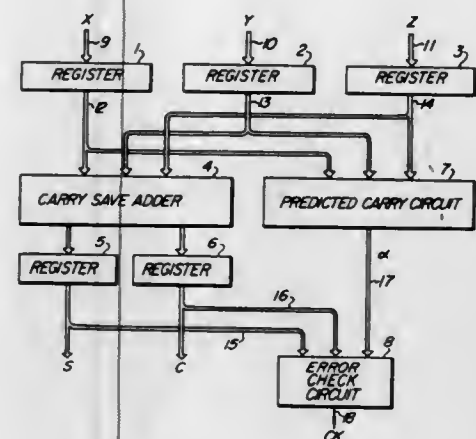
Filed May 23, 1969, Ser. No. 827,260

Claims priority, application Japan, May 24, 1968, 43/34742

Int. Cl. G06f 11/10

U.S. Cl. 235-153

14 Claims



Three signals representing augend and addend are supplied to a carry save adder and a predicted carry circuit which generates a predicted carry signal for each order when corresponding bits of said three signals are coincident. An error check signal is generated by an error check circuit which checks parity of sum and carry signals produced by said carry save adder and said predicted carry signal. By employing the predicted carry circuit, the number of circuit components for the error detection is greatly reduced, and hence the cost of the error detection is reduced correspondingly.

3,596,073 CONTROL SEQUENCE NECESSARY TO IMPLEMENT A GIVEN OPERATION

Akira Yokoyama, and Toshio Imai, both of Kawasaki-shi, Kanagawa-ken, Japan, assignors to The General Corp., Kanagawa-ken, Japan

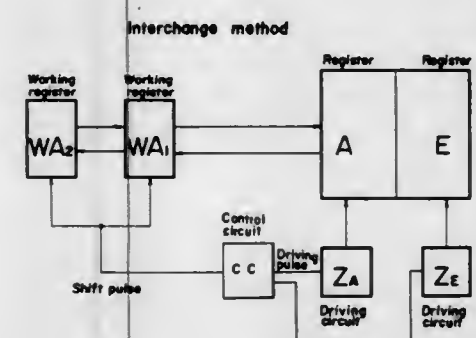
Filed July 22, 1968, Ser. No. 746,378

Claims priority, application Japan, July 22, 1967, 42-46897

Int. Cl. G06f 7/385

U.S. Cl. 235-156

9 Claims



A control sequence method for implementing an arithmetic operation of some fundamental operations performed by repeating and/or combining some or all of the steps of elementary operations.

3,596,074 SERIAL BY CHARACTER MULTIFUNCTIONAL MODULAR UNIT

Nicholas S. Mitrofanoff, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 12, 1969, Ser. No. 832,684

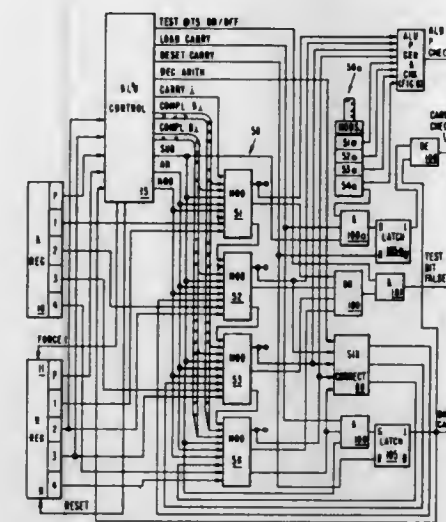
Int. Cl. G06f 7/50

U.S. Cl. 235-174

9 Claims

An arithmetic and logic unit consisting of a plurality of interconnected logic modules, each module operating as a subtractor in a manner that one operand is base data and the

other is a modifier and controlled to perform the functions of Binary Add and Subtract, Decimal Add and Subtract, Logi-



cal AND and OR, Exclusive OR, Set Bits On-Off, Test Bits On-Off, and passing either operand (Move Operand One, Move Operand Two).

3,596,075 BINARY ARITHMETIC UNIT

Jan Leonardus van Weelden, Apeldoornseweg, Beckbergen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

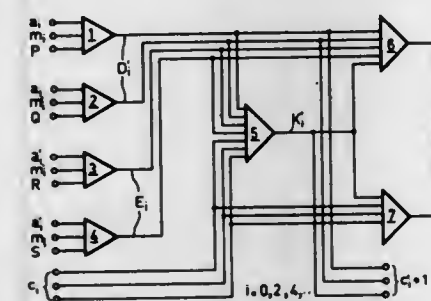
Filed May 31, 1968, Ser. No. 733,627

Claims priority, application Netherlands, June 1, 1967, 6707613

Int. Cl. G06f 7/385, 7/38

U.S. Cl. 235-175

4 Claims



An arithmetic unit wherein four input NAND elements each receive two bivalent input signals and one bivalent control signal. An intermediate NAND gate and two output NAND gates operating in conjunction with the input NAND gates combine the bivalent signals to perform 16 arithmetic functions.

3,596,076 CONVERTER CIRCUITRY

Rhoderick H. Zimmerman, Canoga Park, Calif., assignor to Paul E. Adams and Gary E. Lande, Trustees, Los Angeles, Calif.

Filed Aug. 5, 1968, Ser. No. 750,358

Int. Cl. G06g 7/26, 7/22

U.S. Cl. 235-197

9 Claims

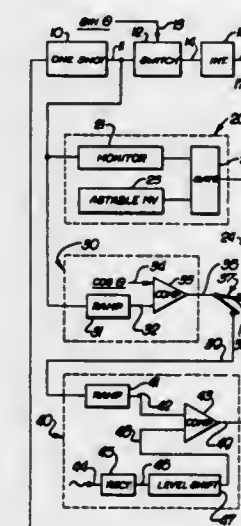
Converter for receiving input signals which are sine and cosine functions of an unknown angle θ , and for producing an output signal X which is virtually linear with θ as the latter varies over a range of 360° , including linearizing circuitry for producing a function signal segment virtually linear with θ over a first function quadrant from -45° to $+45^\circ$, based upon the relationship

$$X = \frac{\sin \theta}{1 + 1/2 \cos \theta}$$

and circuitry for substituting trigonometrically equivalent

888 O.G.—50

values for the sine and cosine input signals when θ lies outside the first function quadrant and combining circuitry for forming a continuous output signal over a plurality of function quadrants by adding to function signal segments of other function quadrants, a linking signal constituting the appropriate integral multiple of the difference in magnitude of the function signal segment between upper and lower function quadrant limits. The function signal segment for each quadrant is generated by integrating or averaging over a complete cycle a rectangular waveform having a constant on-time, an amplitude proportional to $\sin \theta$, and an off-time whose duration is proportional to $1/2 \cos \theta$. In order to correct for fluctuations of supply voltage, reference compensation



circuitry may be provided including means for increasing the duration of off-time by a small time increment having a nominal value corresponding to nominal supply voltage and varying from nominal in accordance with supply voltage fluctuations. The preferred form of circuitry includes a monostable multivibrator, or "one-shot," whose rectangular wave output determines the constant on-time of the cycle. During operation the one-shot is triggered by a feedback delay circuit providing the off-time above mentioned. At startup, to insure that the one-shot is triggered, a reset circuit including a monitor senses the output of the one-shot and, in the absence of an output signal therefrom, triggers the one-shot by applying to the one-shot the output of an astable or free-running multivibrator.

3,596,077 ROTARY SUPPORT

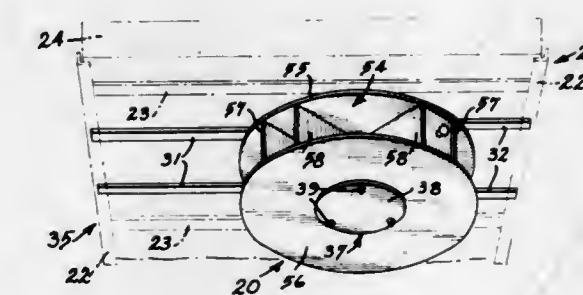
Matilda Marie Miazga, 6106 42nd Ave., Hyattsville, Md.

Filed Oct. 14, 1969, Ser. No. 866,245

Int. Cl. A47c 21/00; A47b 97/00, 46/00

U.S. Cl. 240-4

3 Claims



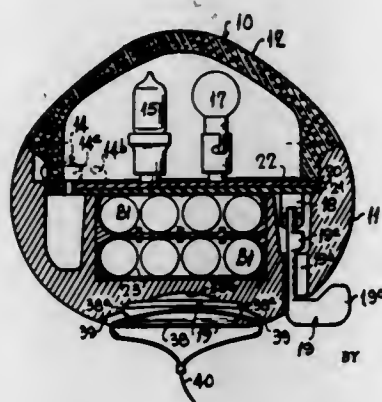
A rotary support or rack for holding and supporting articles in an out of the way position, such as below a bed, the rack including an adjustable means for permitting the device to be mounted below beds of different sizes or types, and wherein there is provided a support member, a hollow hub, and a wheel member.

3,596,078

PROTECTIVE EXPLORATORY PROJECTILE FOR LAW ENFORCEMENT MANEUVERSJohn C. Owens, 1611 17th St., Bedford, Ind.
Filed July 9, 1969, Ser. No. 840,239
Int. Cl. F21v 33/00

U.S. Cl. 240—6.4 R

7 Claims U.S. Cl. 240—7.1



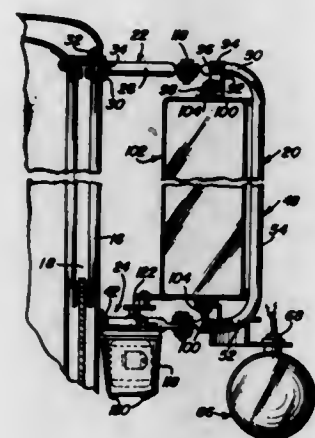
A protective exploratory signalling projectile adapted to be manually thrown within a darkened area from one location to another during law enforcement maneuvers. The projectile is provided with a light source, means for supplying energy to the source, trigger means operable to control the energy supply to the source, and time delay means for postponing the energy supply for a time interval immediately following the operation of the trigger whereby the triggered projectile may be thrown without illuminating the location of the party throwing it.

3,596,079

POWER CONTROL AND BACKUP LIGHT FOR VEHICLE REARVIEW MIRRORMartin C. Clark, 2321 Drake Place, and Verl T. Dady, 1205 S. Mitchell, both of Casper, Wyo.
Filed Feb. 20, 1969, Ser. No. 801,044
Int. Cl. B60q 1/02

U.S. Cl. 240—7.1

6 Claims

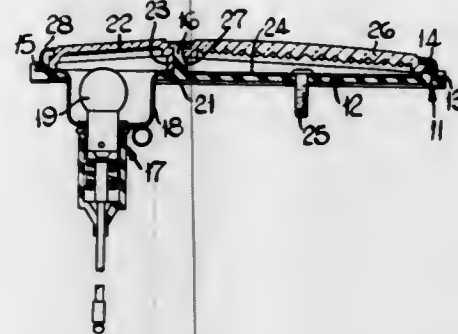


An assembly including upper and lower mounting portions secured to vertically spaced side portions of a vehicle above and below a window opening and further including a generally U-shaped frame consisting of generally parallel upper and lower horizontal legs interconnected at one pair of corresponding ends by means of an upstanding bight portion. The other pair of ends of the legs are oscillatably supported from the mounting portions for oscillation about aligned axes and a light and mirror are supported from the frame and a reversible motor is connected between one of the mounting portions and the frame for oscillating the latter.

3,596,080

COMBINED LAMP AND REFLECTOR UNITSRonald Albert Hayward, Solihull, England, assignor to Joseph Lucas Industries Limited, Birmingham, England
Filed Oct. 14, 1969, Ser. No. 866,252
Int. Cl. B60q 1/00

1 Claim



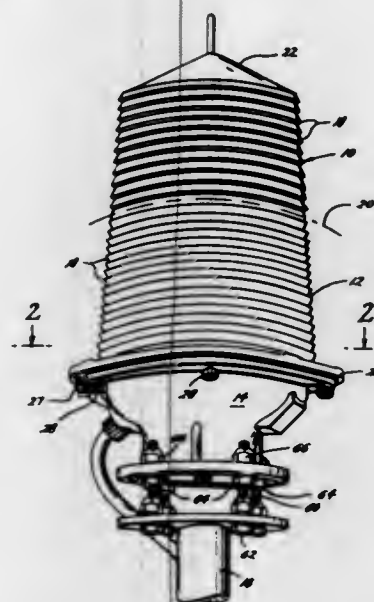
A combined lamp and reflector unit for use on a road vehicle has a resilient member with a base of generally rectangular form and an integral peripheral flange upstanding from the base. The second integral flange upstanding from the base and defines with the first flange a groove extending around the periphery of the base, and there is also a crosspiece integral with the resilient part and defining with the base and the second flange first and second rectangular compartments. In the first compartment is a bulb-supporting unit which extends through the base, and in the first compartment is a lens which is held in position by part of the second flange and the crosspiece. A backing plate is positioned within the second compartment, as is a reflector which is held in position by the remainder of the second flange and the crosspiece. Finally, a decorative bezel is trapped in the groove and obscures the second flange.

3,596,081

APPARATUS FOR LEVELING THE LENS OF A MARINE LANTERNPeter W. Higgins, Houston, Tex., assignor to Tideland Signal Corporation, Houston, Tex.
Filed May 5, 1969, Ser. No. 821,721
Int. Cl. B63b 45/04

U.S. Cl. 240—7.5

13 Claims



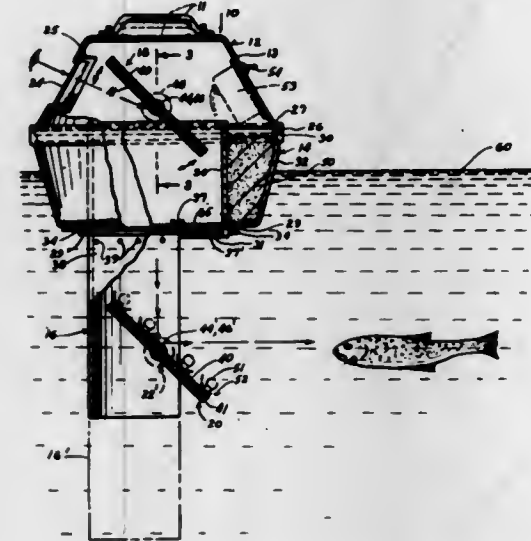
An apparatus for mounting the focal plane of the lens of a marine lantern in a horizontal plane by mounting two spirit levels directly to the lens approximately 90° apart to indicate the levelness of the lens, and providing a leveling adjustment between the lens and the lantern support to adjust and maintain the light from the lens in a horizontal direction. A marine lantern lens adjustment means having at least three threaded bolts connected between the support and the lantern base and two nuts on each bolt adjusting the level of and securing the base to the bolts.

3,596,082

HYDROSCOPERaymond Doret, and Michel Doret, both of 65-84 Booth St., Forest Hills, N.Y.
Filed Sept. 6, 1968, Ser. No. 757,830
Int. Cl. F21v 31/00

U.S. Cl. 240—26

3 Claims



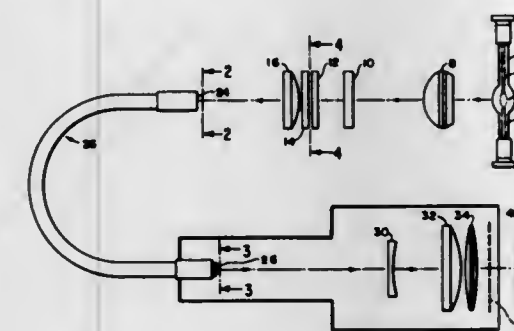
A device for viewing underwater objects, comprising a buoyant housing, a transparent sleeve extending through the housing and a pair of mirrors are adjustable parallel to one another in the top and bottom portions of the sleeve respectively. The bottom portion of the tube and part of the housing are adapted to be immersed in a body of water such as the sea, a river or lake. A slot is provided in the housing for viewing the underwater image shown on the upper mirror. The housing is formed with a chamber for ballast, such as sand, rocks and the like. The lower mirror may also be provided on its periphery with illuminating lights for better viewing.

3,596,083

APPARATUS FOR PRODUCING A UNIFORM LIGHT FIELDHoward B. Lovering, Bedford, Mass., assignor to G. C. A. Corporation, Bedford, Mass.
Filed Apr. 11, 1969, Ser. No. 815,470
Int. Cl. G02b 5/16; F21m 7/00

U.S. Cl. 240—41 R

6 Claims



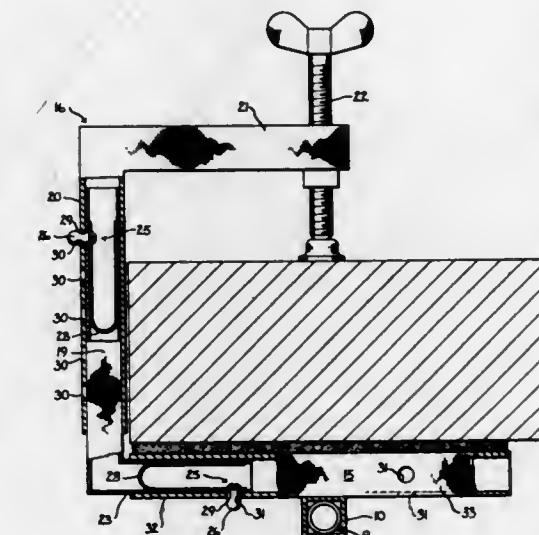
A projector for microreduction photographic apparatus in which light from an arc discharge source is collimated and filtered to pass only wavelengths to which photosensitive material is responsive and then focused upon the entrance face of a fiber optics bundle, the entrance face being contoured to match the configuration of the focused image. The fiber bundle has an exit face circular in cross section and the fibers are randomly dispersed so that fibers in any given area of the entrance face are dispersed throughout the total area of the circular exit face in order to provide a uniform light field, a condenser lens system directs the rays emitted from the exit face of the bundle uniformly upon the entrance pupil of a projection lens; thus the radiation from the nearly rectangular arc discharge is transformed at maximum efficiency into a uniform, collimated, narrow band source for the projection lens.

3,596,084

PORTABLE LIGHT FIXTUREDonald S. Henning, Thiensville, and William A. Wenman, Wauwatosa, both of, Wis., assignors to Phoenix Products Company, Inc., Milwaukee, Wis.
Filed Apr. 28, 1969, Ser. No. 819,793
Int. Cl. B25b 1/02; F21v 21/08

U.S. Cl. 240—52.1

5 Claims



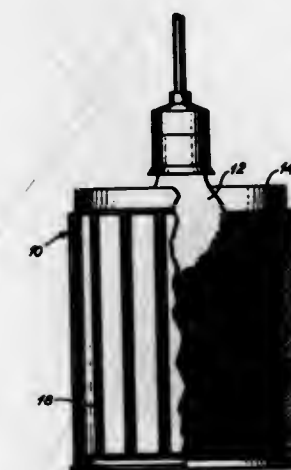
A light head mounted on a post a distance above a tubular crossbar of square cross section. The crossbar comprises the outer one of a pair of complementary arm forming members that are telescopically connected and together comprise one of the opposite arms of a C-clamp. The inner arm forming member is also of square cross section and it is releasably securable in either end portion of the outer member to dispose the C-clamp with its bight either crosswise or lengthwise of the post, at either side thereof. The bight of the C-clamp also comprises telescopically connected complementary bight forming members that provide for adjustment of the span of the clamp.

3,596,085

LIGHTING FIXTURESErnst Eberhardt Hansen, 17, Strandvejen, 6000 Kolding, Denmark
Filed Apr. 16, 1968, Ser. No. 721,758
Claims priority, application Denmark, Apr. 27, 1967, 2245
Int. Cl. F21v 1/00

U.S. Cl. 240—108

1 Claim



An indirect lighting fixture comprising an injection moulded tubular nontranslucent member having an internal light source at one end and screw threads formed about the interior thereof to reflect light from the source from the insides of the member and towards the light surface, the screw threads being formed during injection moulding of the member by a screw form core which is subsequently unscrewed from the member while the latter is held by the mould.

3,596,086

AUTOMATIC CONVEYOR BLOCK SYSTEM

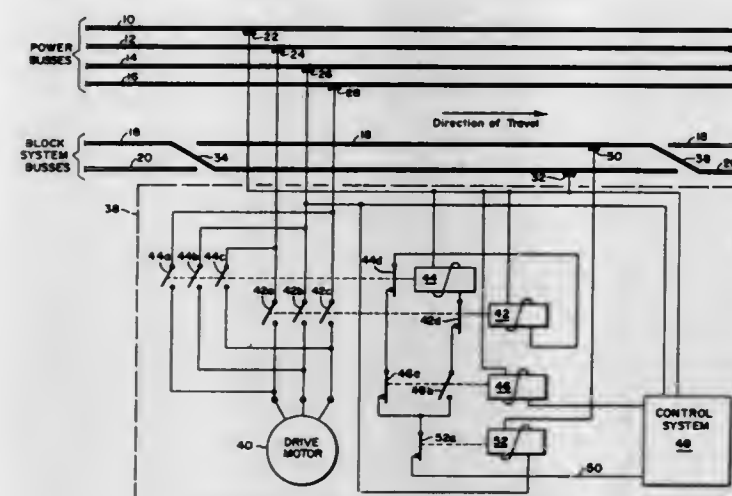
Guenther Etter, Sissach Ich, Switzerland, and William G. Pestalozzi, Carlisle, Mass., assignors to Sybron Corporation, Rochester, N.Y.

Filed May 5, 1969, Ser. No. 821,760

Int. Cl. B611 23/16

U.S. Cl. 246—66

3 Claims



A drive and automatic block system for use with electrically driven conveyors which move along a trackway in a single direction. Power is supplied to the conveyor drive motor through switching means mounted on the conveyor from a plurality of electrical buses mounted beside the trackway, the conveyor having brushes to engage the power buses. Two additional buses are provided beside the trackway. These are divided into electrically insulated sections of a length equal to a block section. A conveyor as it moves along the track supplies a ground signal to the block section which is in the uptrack direction from its present location. Additionally the second block bus in any section is continuously tested for electrical ground and if a ground signal is present, by reason of a conveyor being present in the next downtrack block, the ground signal will operate the conveyor switching means to remove power from the conveyor drive motor.

3,596,087

SPARK SOURCE MASS SPECTROMETERS AND SAMPLE INSERTION PROBE THEREFOR

John Stewart Heath, Sale, England, assignor to Associated Electrical Industries Limited, London, England

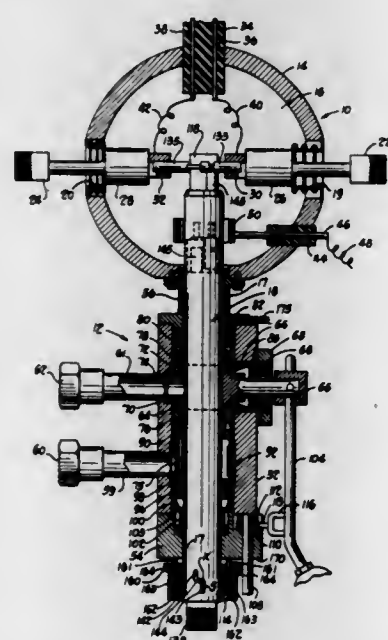
Filed Mar. 20, 1967, Ser. No. 624,592

Claims priority, application Great Britain, Mar. 21, 1966, 12,371/66

Int. Cl. H01j 39/34

U.S. Cl. 250—41.9

35 Claims



A mass spectrometer with an insertion probe for holding and inserting a sample through a vacuum lock. Means are

provided for cleaning the samples.

3,596,088

TIME-OF-FLIGHT MASS SEPARATOR HAVING A FLOWING GAS STREAM PERPENDICULAR TO AN ION DRIFT FIELD FOR INCREASED RESOLUTION

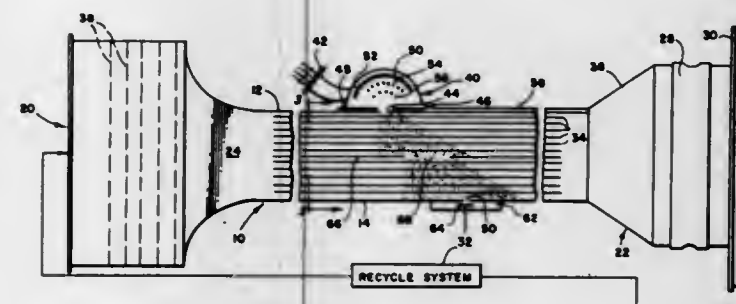
Martin J. Cohen, West Palm Beach; David I. Carroll, Lantana, and Roger F. Wernlund, Lake Worth, all of Fla., assignors to Franklin GNO Corporation, West Palm Beach, Fla.

Continuation-in-part of application Ser. No. 779,097, Nov. 26, 1968. This application Dec. 17, 1969, Ser. No. 885,664

Int. Cl. H01j 39/34; B01d 59/44

U.S. Cl. 250—41.9 TF

26 Claims



Apparatus and methods for sorting and detecting trace gases which undergo ion-molecule reactions. Positive or negative ions of the trace gas are formed by ion-molecule reactions between the molecules of the trace gas and primary ions from a reactant gas. The ions are inserted in a stream of gas while subjected to an electric drift field and follow paths dependent upon their mass, the field strength, and gas flow-velocity. The field strength may be varied to produce successive outputs corresponding to different ion species at a predetermined region of the gas flow duct. Alternatively, simultaneous outputs for different ion species may be provided at different regions of the duct. The apparatus may be calibrated automatically by a feedback loop responsive to a known ion species.

3,596,089

PALEOENVIRONMENTAL DETERMINATION BASED ON MINERAL AUTHIGENESIS

Roger L. Borst, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Jan. 16, 1970, Ser. No. 3,493

Int. Cl. H01j 37/26; G01n 23/20; H01j 39/100

U.S. Cl. 250—49.5 A

5 Claims

Subterranean sandy and silty sedimentary formations are examined to determine that mineral crystals, known to grow most favorably in alkaline, saline conditions that typify a marine depositional environment, are authigenic, i.e. formed in place, in the sedimentary formation. This indication of the nature of the depositional environment is useful for further exploration by geologists in seeking the presence of petroleum deposits.

3,596,090

PARTICLE BEAM APPARATUS HAVING AN IMAGING LENS WHICH IS PROVIDED WITH AN ASSOCIATED PHASE-DISPLACING FOIL

Walter Hoppe, Schillerstrasse 46, 8000 Munich 15, Germany

Filed Apr. 4, 1969, Ser. No. 813,629

Claims priority, application Switzerland, Apr. 16, 1968, 5,586/68

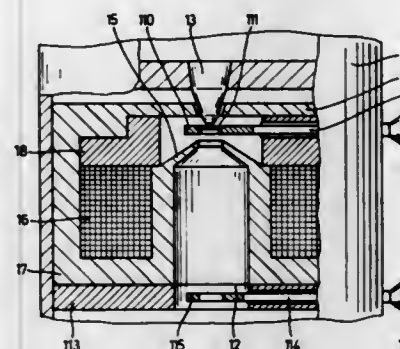
Int. Cl. H01l 37/26

U.S. Cl. 250—49.5 A

18 Claims

A particle beam device has a longitudinal axis and a beam-generating portion for issuing particle beams along the axis. A holder is provided for accommodating a specimen in the path of the beams and a particle beam imaging lens is disposed beyond the specimen locality coaxial with the axis. A foil is disposed in the lens in the path of the particle beams for shifting the respective phases of the latter and scattering

the incident particles of the beams in bunches in distinct directions. The beam particles scattered in at least one of the value of a mechanical property or properties of the fiber, the method comprising measuring the diffraction of X-rays



these directions are blocked by a diaphragm disposed beyond the foil.

3,596,091

INDUCED ELECTRON EMISSION SPECTROMETER HAVING A UNIPOTENTIAL SAMPLE CHAMBER

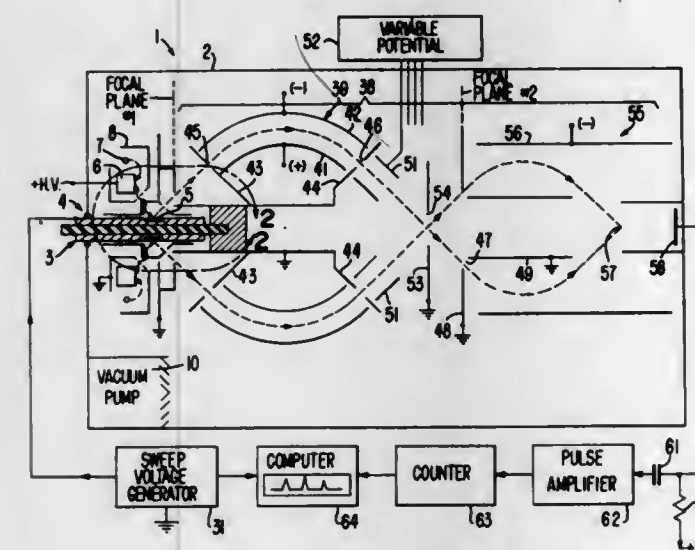
John C. Helmer, Menlo Park, and Norbert H. Weichert, Palo Alto, both of Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed May 19, 1969, Ser. No. 825,680

Int. Cl. H01j 37/26

U.S. Cl. 250—49.5

7 Claims



An induced electron emission spectrometer is disclosed which includes a conductive sample enclosure operable at a potential independent of the potential applied to the spectrometer slit defining electrode of the spectrometer. The sample enclosure includes a wall portion made of a metallic foil to define an X-ray window through which the sample is irradiated with X-rays to induce electron emission from the sample.

3,596,092

X-RAY DIFFRACTION METHOD FOR DETERMINING THE VALUE OF A MECHANICAL PROPERTY OR PROPERTIES OF A FIBER

John Raymond Marjoram, Derby, England, assignor to Rolls-Royce Limited, Derby, England

Filed May 6, 1969, Ser. No. 822,263

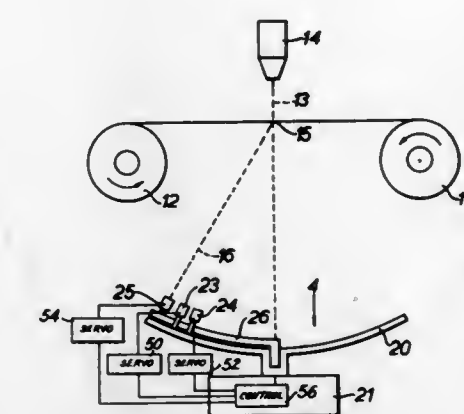
Claims priority, application Great Britain, May 10, 1968, 22299/68

Int. Cl. G01n 23/20

U.S. Cl. 250—51.5

6 Claims

The invention concerns a method of examining a fiber which has crystallites in a preferred orientation to determine



which have passed transversely through the fiber, and deducing therefrom the value of the said property or properties.

3,596,093

SELECTIVE ADDRESSING MACHINE FOR PREPARING A LIST OF SELECTED ADDRESSES FROM A GROUP OF MASTER CARDS

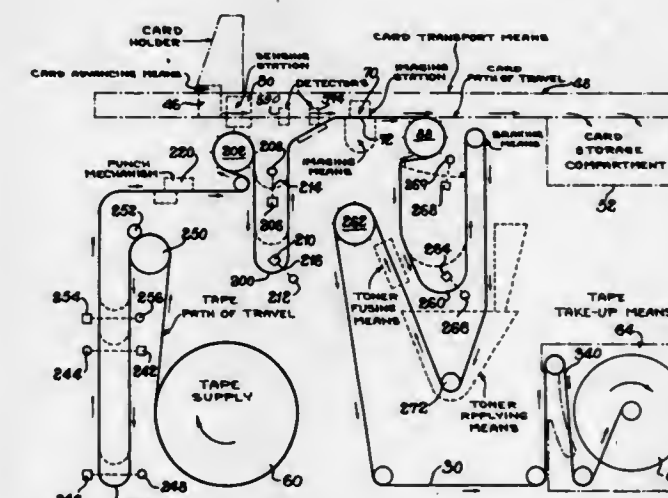
William D. Boatman, Fridley; Jerome M. Short, Burnsville, Minn., and Elden L. Johnson, Jr., Denver, Colo., assignors to Dymo Industries, Inc., Emeryville, Calif.

Filed Sept. 12, 1968, Ser. No. 759,533

Int. Cl. B30b 15/30

U.S. Cl. 250—65

38 Claims



A machine for preparing a list of selected addresses on an elongate master tape from a group of master cards each carrying a visible address and machine information pertaining to the address, the machine having an imaging station, a mechanism for sequentially advancing each of the group of master cards to the imaging station, a mechanism for advancing the master tape in sequential fixed increments to the imaging station, imaging means at the imaging station, a device for sensing machine information on each advanced master card for selecting at least some of the master cards from the advancing master cards and operating the imaging means only when a selected master card is at the imaging station to establish upon the master tape an image of the address carried by the selected master card. Each selected master card is momentarily halted at the imaging station with the address carried thereby juxtaposed with a stationary increment of the master tape and the master tape is advanced from the imaging station after each operation of the imaging means. Also disclosed is a novel arrangement for the advancement of tape through the machine and a novel arrange-

ment for the advancement and sorting of the cards passing through the machine.

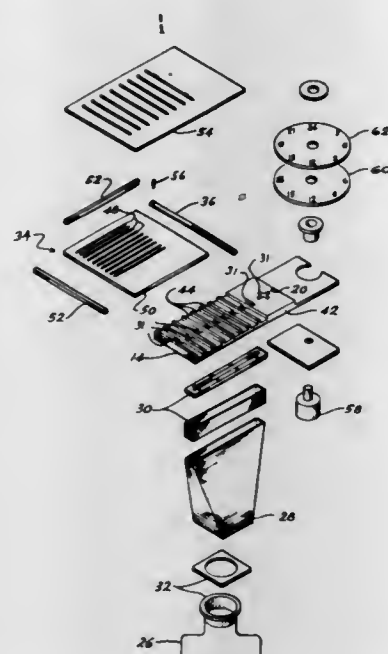
3,596,094

SYSTEM AND METHOD FOR CODING EXPOSED X-RAY FILMS

Leonard Corso, 142 Cowneck Road, and Theodore F. Coles, 28 North Bayless Ave., both of Port Washington, N.Y.
Filed May 7, 1969, Ser. No. 822,654
Int. Cl. G03b 41/16

U.S. Cl. 250-65

3 Claims



A system and method for providing identifying indicia on exposed X-ray films with there being apparatus for exposing a confined elongated portion of the film to a source of X-ray and providing within the line of sight of this source indicia opaque to X-rays. These indicia are contained on members that are laterally adjustable relative to the confined elongated portion of the film thereby facilitating changing the indicia as desired so as to give the desired identification on the developed negative. After thus exposing this confined portion of the film, the film is removed from this apparatus and this portion is masked from X-rays. The principal X-ray is then taken and thereafter the film is developed to produce a negative that bears the desired subject and the identifying indicia.

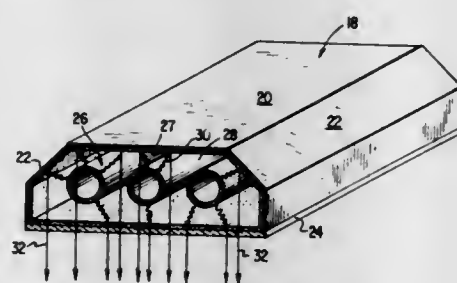
3,596,095

OPTICALLY STIMULATED FLUORESCENT LIGHTING SYSTEM

Sam L. Leach, 32653 Seagate Drive, Palos Verdes Peninsula, Calif.
Continuation-in-part of application Ser. No. 738,018, June 18, 1968, now abandoned. This application Dec. 23, 1968, Ser. No. 786,041
Int. Cl. G01n 21/38

U.S. Cl. 250-71 R

18 Claims



A novel fluorescent lighting system is disclosed wherein gas discharge radiation is utilized to excite luminescence of inorganic solids suspended in a medium of organically activated polymers, physically displaced from the normal relative position with respect to the excitation wave front radiation.

tion. A unique blend of gases are utilized within the discharge tube and particular activators are utilized in a novel combination with the phosphor materials such that the luminescent mechanism within the phosphors is optically stimulated thus greatly increasing the efficiency of the light-producing process.

3,596,096

DUAL TEMPERATURE APPARATUS FOR TESTING INFRARED RADIATION DETECTORS

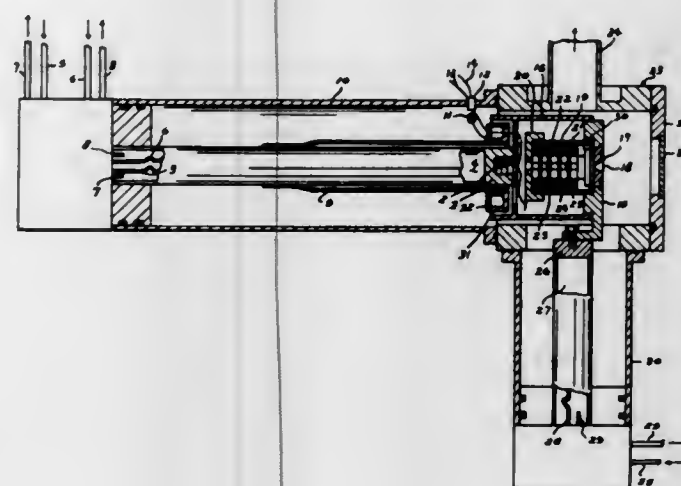
Toivo Koehler, Cambridge, Mass., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Mar. 13, 1970, Ser. No. 19,363

Int. Cl. G01j 5/20

U.S. Cl. 250-83.3 H

2 Claims



A device for independently adjusting the temperature of an infrared detector and the temperature of a background shield surrounding the detector so that the detector performance characteristics can be correlated with its temperature and the temperature of the background in which it operates. The temperatures are established by two independently adjustable cryogenic tip dewars, one of which is attached to the detector and the other of which is attached to the background shield. The background shield and detector are enclosed in an evacuated container which has an infrared transmitting window through which infrared radiation enters the test apparatus.

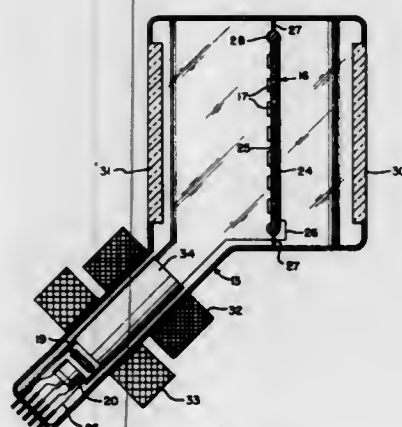
3,596,097

INFRARED DETECTION AND IMAGING APPARATUS EMPLOYING QUENCHABLE LUMINESCENT PHOSPHORS

Jean J. Robillard, 46 Rue de Montgeron, 91 Brunoy, France
Filed Mar. 21, 1969, Ser. No. 809,266
Int. Cl. H01j 31/49

U.S. Cl. 250-83.3 HP

10 Claims



Infrared detection and imaging apparatus are disclosed based on the change in the dielectric constant of an infrared

quenchable luminescent phosphor (and thus the capacity of a capacitive element) when exposed to infrared radiation. A mosaic of capacitive elements located in an image plane is scanned by an electron beam to produce an electrical signal representing an infrared radiation distribution pattern. This change in dielectric constant occurs at significantly lower energy levels than the actual visible quenching level of the phosphor. Local infrared detectors as well as infrared image detection apparatus may be constructed based on changes in capacitance when such phosphor is used as the dielectric material.

3,596,098

INFRARED RADIATOR SOURCE CONTAINING A CHARGE OF PYROTECHNIC INCANDESCENT MATERIAL

Gunter Stetter, Munich, Germany, assignor to Bolkow Gesellschaft mit beschränkter Haftung, Ottobrunn near Munich, Germany

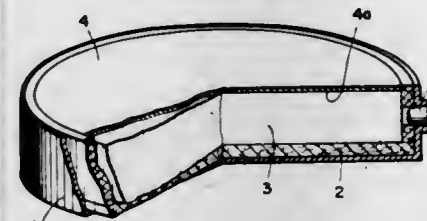
Continuation of application Ser. No. 570,511, Aug. 5, 1966, now abandoned. This application Aug. 25, 1969, Ser. No. 852,994

Filed Mar. 13, 1970, Ser. No. 19,363

Int. Cl. H01j 35/00

U.S. Cl. 250-85

9 Claims



An infrared radiator comprises a light weight container such as a cylinder which is filled with a pyrotechnic material capable of emitting radiation energy immediately after ignition and without noticeable gas development. The cylinder is closed at one end by a metal plate such as a thin steel disc having very little heat capacity of its own and having an exposed surface providing a radiation surface or emitting surface and an opposite surface facing toward the interior of the container which is in direct heat contact with the pyrotechnic radiator.

3,596,099

SELECTION OF SAMPLES, PARTICULARLY IN SCINTILLATION COUNTERS

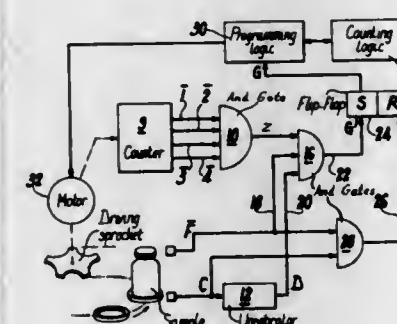
Edward W. Thomas, Rockaway, N.J., assignor to Inter-technique S.A., Plaisir, France

Filed June 4, 1968, Ser. No. 734,426

Int. Cl. G01t 1/20

U.S. Cl. 250-106

8 Claims



A liquid scintillation spectrometer includes an endless conveyor having M successive compartments adapted to receive samples. A sample detector located at the working position is associated with a compartment counter and a counting logic so that a group of samples located in successive compartments is counted only if the first sample of the group is in a compartment numbered $x \cdot N + 1$ (where $N=10$ for instance

and x is any whole number) and the preceding compartment $x \cdot N$ is empty. All sample groups which do not fulfill that condition are bypassed.

3,596,100

LINEAR OUTPUT TORQUE METER UTILIZING LIGHT SENSING

Robert William Hollick, Yeovil, England, assignor to British Hovercraft Corporation Limited, Yeovil, England
Filed Feb. 19, 1969, Ser. No. 800,583

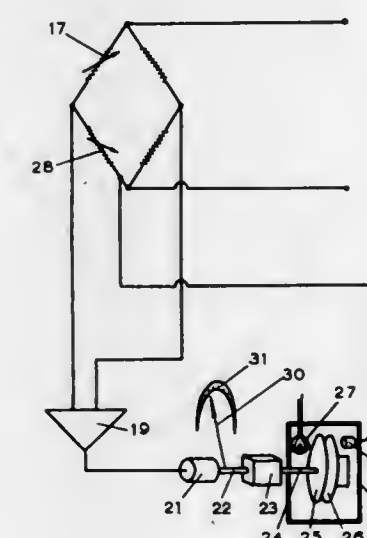
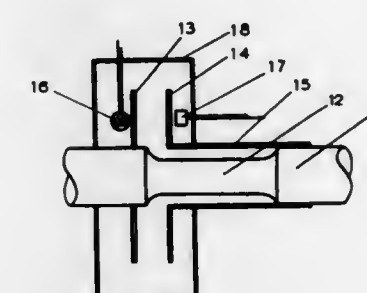
Claims priority, application Great Britain, Apr. 8, 1968,

16,779/1968

Int. Cl. G01j 1/36

U.S. Cl. 250-204

9 Claims



An apparatus for measuring torque in either a stationary or rotating shaft. Two light-polarizing screens are mounted on a shaft transmitting a torque in such a manner that the twist in the shaft caused by the torque causes a relative rotatory movement between the screens. Light from a light source passes through the screens to a light-sensing device which produces a signal according to the amount of light it receives. The relative rotatory movement of the screens caused by the applied torque causes a variation in the amount of light passing to the light-sensing device so that the signal produced indicates the amount of torque.

The use of light to measure twist means an absence of drag and hence the ability to measure very small torques.

3,596,101

OPTICAL SYSTEMS FOR AUTOMATIC FOCUSING APPARATUS

Atsushi Someya, Tokyo, and Masayuki Miyasaka, Fujisawa-shi, both of Japan, assignors to Canon Inc., Tokyo, Japan
Filed Nov. 5, 1969, Ser. No. 874,229

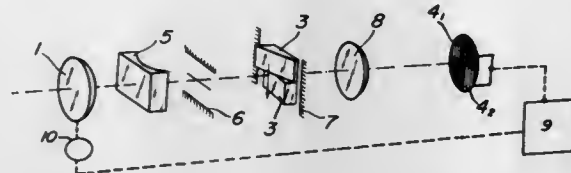
Int. Cl. G01j 1/36

U.S. Cl. 250-204

5 Claims

Improvement of an apparatus to form an image of an object by an objective lens onto photoelectric element surfaces

and to effect the function of automatic focusing utilizing the means for breaking a circuit to actuate a stopwatch or the like used in athletic events. Still, more specifically, this invention relates to the use of an electronic source such as a



difference between the outputs of photoelectric element when the image is in focus and when the image is defocused.

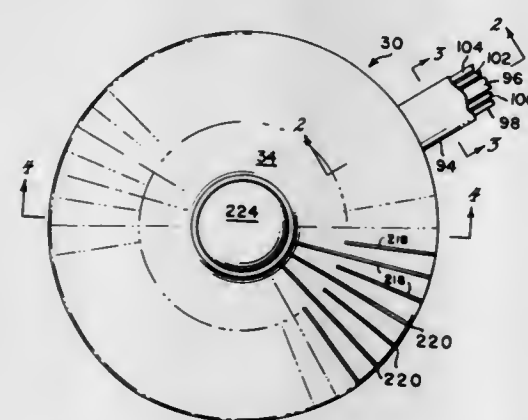
3,596,102 FOOT CONTROL USING ROTATABLE COVER PLATE FOR DENTAL EQUIPMENT

Gregory W. Brooks, Havertown, Pa., assignor to Star Dental Manufacturing Co., Inc., a/k/a Star Dental Manufacturing Company, Inc., and Star Dental Mfg. Co., Inc., Philadelphia, Pa.

Filed Feb. 12, 1969, Ser. No. 798,671
Int. Cl. A61c 19/00

U.S. Cl. 250-215

28 Claims



A foot control for dental equipment wherein an electric handpiece and an air-driven handpiece can be controlled by a single foot control. The foot control is actuated by a rotatable cover plate which can be rotated at any position on its surface. The electrical portion of the foot control can be used for driving an electric handpiece in a forward and a reverse direction without the necessity of moving hand-operated switches. All switching is automatically controlled through the rotation of the dentist's foot. The speed of the electric handpiece is controlled by rotating the cover of the foot control, and the electrical controls have no contacting parts for varying the speed.

3,596,103 MULTIPLE TIMING APPARATUS FOR TRACK EVENTS AND THE LIKE

Klon E. Matthews, St. John, Kans., and James H. Hood, 713 N. Main, St. John, Kans.

Filed Nov. 18, 1968, Ser. No. 776,402
Int. Cl. A63k 1/00; G06m 7/00

U.S. Cl. 250-221

13 Claims

This invention is a multiple timing apparatus operable through the use of electronic beams to record individual times of various items such as normally found in track running events. This invention is a multiple timing apparatus including a support frame; amplifier device mounted upon the support frame; a photocell assembly mounted within the supporting surface in cooperating alignment with the amplifier device; a control panel operably connected to the photocell assembly and the amplifier device; and a control panel operably connected to the photocell assembly and the amplifier device to automatically record various points at which the respective photocell beams are broken. Other embodiments of this invention concern the use of mechanical

photocell or ultrasonic beam or a mechanical means whereupon the breaking of the same operates to actuate a timing mechanism to accurately record the time at which such beam or mechanical structure was broken.

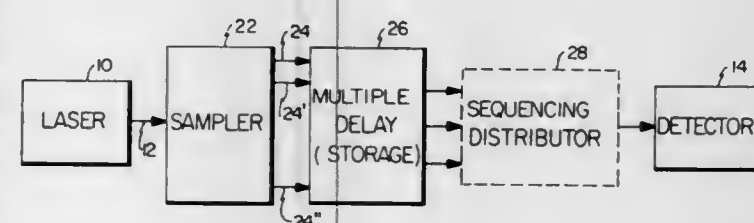
3,596,104 METHOD AND APPARATUS FOR ANALYZING TRAVELING LIGHT WAVES

James Dale Macomber, Baton Rouge, La., assignors to the United States of America as represented by the Secretary of Health, Education, and Welfare

Filed Feb. 10, 1969, Ser. No. 798,078
Int. Cl. G02b 5/14; H01j 39/12

U.S. Cl. 250-227

2 Claims



A method and apparatus for analyzing traveling light waves is disclosed, the method and apparatus serving to decrease the effective rise time of information-containing modulations on a short duration light pulse whereby detection of the modulations is enhanced. The instant invention serves to initially sample the intensity of the light pulse at a plurality of different points along the spatially distributed waveform thereof. Separate signals are generated representative of each sampled intensity and each separate signal is stored for a respectively different time duration. The stored signals are then sequentially monitored by an electronic detection device. In effect, then, the instant invention comprises a real-time light sampler utilizing spatial chopping techniques so as to effectively increase the temporal resolution and decrease the effective rise time of modulations on the light pulse such that very rapid (e.g., nonlinear) optical phenomenon can be observed.

3,596,105 CONFIGURATION FOR OPTIMUMIZATION OF STARTER-GENERATOR DESIGN

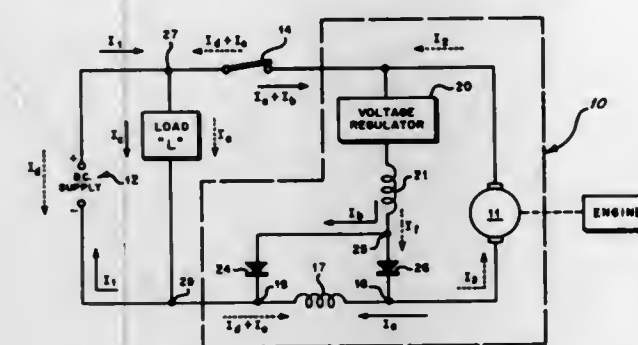
Joseph D. Segrest, Cherry Hill, N.J., assignor to The United States of America as represented by the Secretary of the Navy

Filed Sept. 23, 1969, Ser. No. 860,286

Int. Cl. H02k 23/52

U.S. Cl. 290-46

10 Claims



A self-excited compound type DC starter-generator with automatic switching from long shunt excitation to short shunt excitation when the starter-generator changes its operation from that of a motor to that of a generator. A shunt field winding is connected by a pair of diodes to two different junctions on a serially connected armature winding and series field winding. The diodes have biases of opposite polarity applied that permit current flow through only one of the two diodes at a time. When the starter-generator changes from motor to generator operation the bias on the diodes is reversed causing current flow in the opposite diode.

3,596,106 SOLID-STATE EMERGENCY POWER SUPPLY

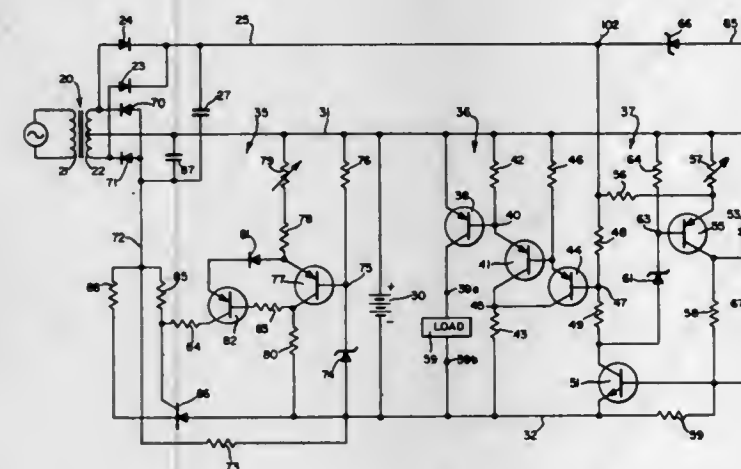
William J. Raddl, Philadelphia, Pa., assignor to ESB Incorporated

Filed Apr. 16, 1969, Ser. No. 816,620

Int. Cl. H02j 9/00

U.S. Cl. 307-66

14 Claims



An emergency power supply is described comprising a switch and a low-level dropout circuit. The switch comprises a power transistor which provides power to the load from the battery and is driven by an amplifier. The low-level dropout supply circuit is a complementary bistable multivibrator which turns the switch off in going from a "conductive" state to a "nonconductive" state when the battery voltage drops to a predetermined level. There is also provided a delay-on timer which keeps the emergency lamp on for a selected period of time after external power restoration. In addition, a solid-state charger is provided to maintain a properly charged battery.

3,596,107 SIGNAL SELECTOR

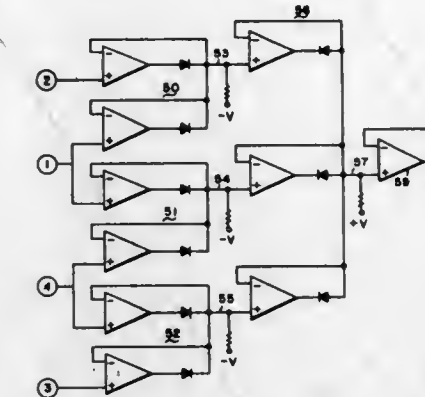
Richard L. Kittrell, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa

Filed July 9, 1969, Ser. No. 840,273

Int. Cl. G06g 11/08; H03k 19/30

U.S. Cl. 307-204

11 Claims



A signal selecting means to which a plurality of signals of variable amplitude and sign are applied and which develops an output signal corresponding in magnitude and sign to preselected ones, depending on algebraic rank, of the mid-value applied signals, exclusive of the most algebraically positive and negative ones of the input signals. The output signal magnitude is controlled by a predetermined permutation of midvalue selections and in a manner that obviates transients on the output line as control is transferred to the various ones of the midvalue input signals.

3,596,108 FET LOGIC GATE CIRCUITS

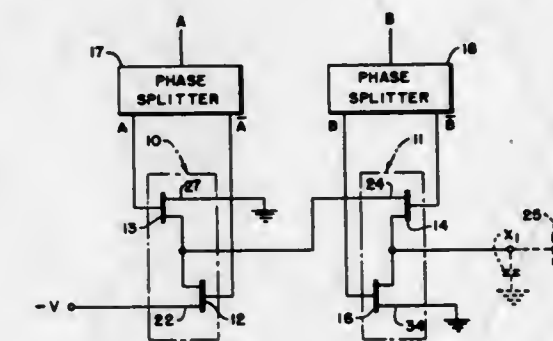
Richard H. Heeren, Palatine, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Oct. 27, 1969, Ser. No. 874,086

Int. Cl. H03k 19/08

U.S. Cl. 307-205

10 Claims



A gate circuit includes field effect transistors interconnected to provide an output signal of a first type whenever all input signals are of predetermined types, and to provide an output of a second type whenever any input signal is other than one of the predetermined types, wherein the only current required by the circuit is that supplied by the output of the circuit to a load which is driven by the circuit. Preferably, the circuit includes a plurality of logic-steering field effect transistors connected with their controlled electrodes in series such that an input signal is connected to an output load device, such as a capacitor, only if all of the logic-steering transistors have been turned ON. A ground return transistor is provided for each logic-steering transistor and operates to provide a ground at the output of the logic-steering transistor if an improper input signal is received. Binary data signals, or inversions thereof, are connected to the gates of the transistors in desired patterns to operate the load device only on a proper combination of input signals.

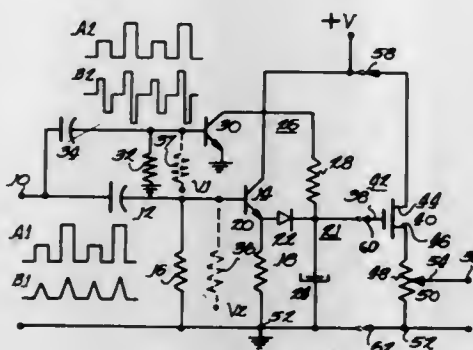
3,596,109

PEAK DETECTION CIRCUIT

Harry Lee Marshall, Fort Wayne, Ind., assignor to The Magnavox Company, Fort Wayne, Ind.
Filed Feb. 19, 1969, Ser. No. 800,485
Int. Cl. H03k 5/20

U.S. Cl. 307—235

6 Claims



A peak detector circuit having an output proportional to the most recently assumed peak value of an amplitude varying input signal is disclosed. In the described embodiment the circuit includes an input stage, a diode-storage capacitor series combination, a variable impedance path across the capacitor, and an output stage. The impedance of the variable impedance path is controlled by the form of the input signal and is such that when no input signal is applied it has a relatively high value but when an input pulse is applied it has a relatively low value for at least part of the duration of that pulse.

3,596,110

WIDE BAND SWITCHING CROSSPOINT SYSTEM

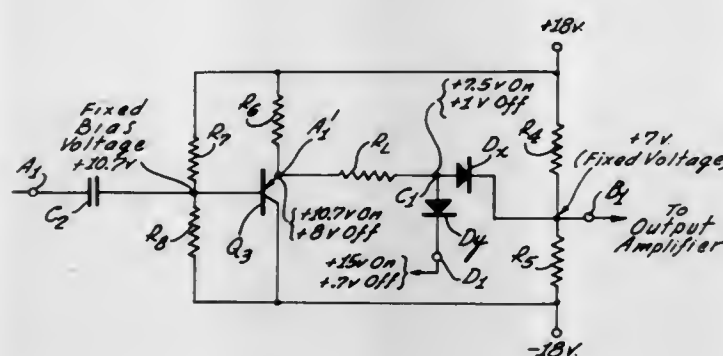
Robert E. Hinze, Winnipeg, Manitoba, Canada, assignor to Viscount Electronics Limited, Vancouver, British Columbia, Canada

Filed Jan. 6, 1969, Ser. No. 789,253

Int. Cl. H03k 7/00

U.S. Cl. 307—241

2 Claims



Electronic switching circuitry is provided for particular use in a cross-point switching system and which is capable of switching wide band signals, such as television signals, computer data signals, telemetry signals, and the like, between multiple input and output channels, and of achieving the switching operations with a minimum of crosstalk between the channels, and with maximum signal-to-noise ratio throughout the switching system. Although the switching circuitry of the invention will be described herein in conjunction with such a cross-point switching system, it will be appreciated as the description proceeds, that it has general applications, for switching signals extending, for example, from 0—40 MHz. in frequency, and wherever high signal-to-noise ratio is desired with a minimum of interchannel crosstalk.

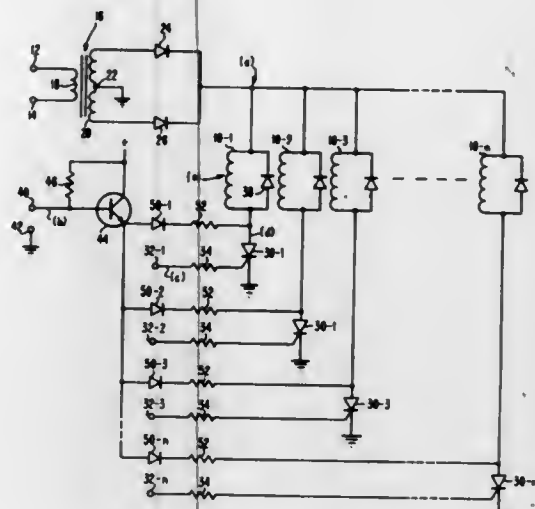
3,596,111

SOLENOID ENERGIZING CIRCUITRY

Jerome Danforth Harr, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 13, 1969, Ser. No. 833,047
Int. Cl. H03k 17/06, 17/72

U.S. Cl. 307—252 Q

2 Claims



Varying unidirectional voltage energizing circuitry for electric devices, solenoids for example, to be energized selectively with maintained silicon controlled rectifiers (SCR) and the like is embodied with smaller, less expensive, lighter and more reliable than conventional filtered direct current circuit embodiments. Full (or half) wave rectified sine wave voltage is applied across a series connected solenoid and SCR device or a parallel arranged multiple of solenoids and SCR devices connected in series. Conventional electric gating pulses are applied to the gate electrodes of the SCR devices for initiating conduction in the conventional manner. Fall of energizing potential below the voltage level corresponding to minimum holding current is rendered ineffective to extinguish conduction by a transistor and series resistor maintaining a small current flow through the SCR device(s) until the value of energizing potential again rises above the voltage level of minimum holding current. The series resistor defines the maintaining holding current. Diodes are interposed between the combinations of series connected solenoid and SCR devices to isolate them one from another permitting energization of the solenoids at differing times and for differing time periods.

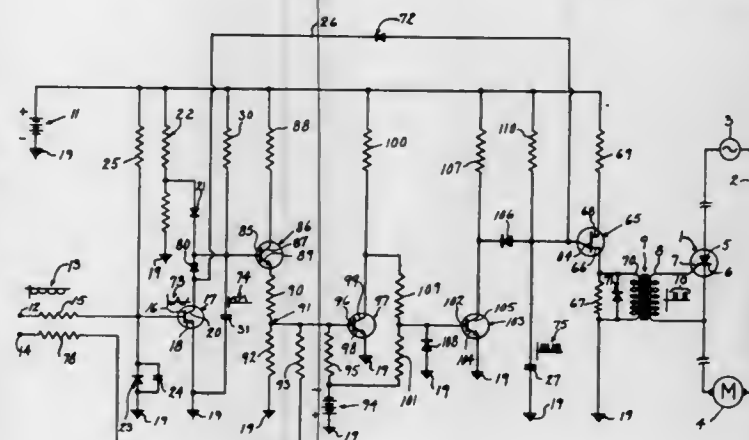
3,596,112

NOISE-ISOLATED TRIGGER SIGNAL GENERATOR FOR MOTOR CONTROL

Terrance D. Nelson, Milwaukee, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis.
Filed Dec. 17, 1969, Ser. No. 885,895
Int. Cl. H03k 17/00

U.S. Cl. 307—252 J

6 Claims



A trigger signal is generated from a DC power supply responsive to a full wave rectified synchronizing signal in

phase with the motor current and a varying DC control signal. The synchronizing signal is fed to a base of an NPN transistor to periodically discharge a storage capacitor. The control signal is fed to a base of another NPN transistor in a transistor switching circuit which is also connected to the storage capacitor, which in one embodiment operates between an oscillator capacitor and the power supply, and which in the other embodiment operates in a shunt path around the oscillator capacitor. A transformer couples the trigger signal from the oscillator.

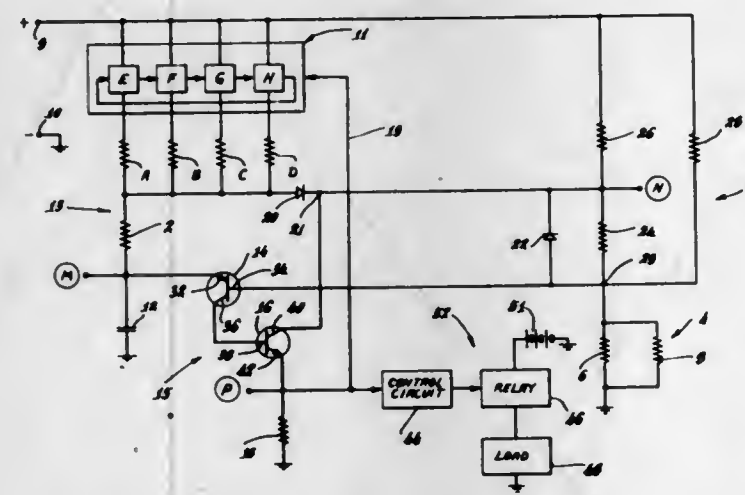
3,596,113

PULSE GENERATING AND TIMING CIRCUIT FOR PROVIDING ACCURATELY TIMED REPETITION OF SEQUENCE OF PULSES

Robert L. Seidler, 6 Plymouth Road, Summit, N.J.
Filed Apr. 4, 1969, Ser. No. 813,681
Int. Cl. H03k 1/18

U.S. Cl. 307—265

9 Claims



A pulse generating and timing circuit which can be employed in applications requiring reliable, accurately timed, pulses, such as for producing a predetermined signal sequence desirable for use in aids to navigation such as marine signal buoys and beacons and a method of timing same in manufacture, providing stable accurate repetition of the desired signal sequence in spite of changes in ambient conditions over wide ranges. Ratios of the time durations between the respective pulses producing the lengths of the respective signals of the sequence can be accurately predetermined and thereafter the method of adjusting the value of one resistor combination can simultaneously and proportionately adjust the time durations of all signals in the sequence, thus substantially reducing production time and labor and the number of different inventoried resistors required for production.

3,596,114

HALL EFFECT CONTACTLESS SWITCH WITH PREBIASED SCHMITT TRIGGER

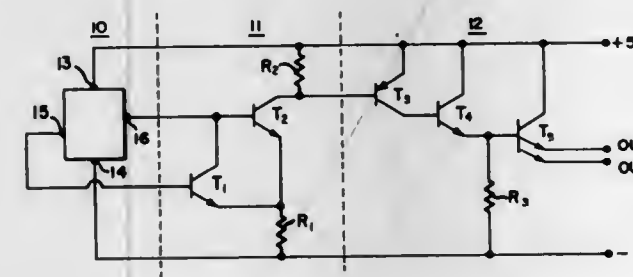
Joseph T. Maupin, and Everett A. Vorthmann, both of Freeport, Ill., assignors to Honeywell, Inc., Minneapolis, Minn.

Filed Nov. 25, 1969, Ser. No. 879,684

Int. Cl. H01v 5/00; H01l 19/00

U.S. Cl. 307—278

4 Claims



A contactless switch in monolithic semiconductor body wherein a Hall effect element having offset Hall Contacts is

integrated with a bistable circuit element of the Schmitt trigger-type, thus providing prebias for the Schmitt trigger. In the preferred form, an amplifier circuit is also included in the same body.

3,596,115

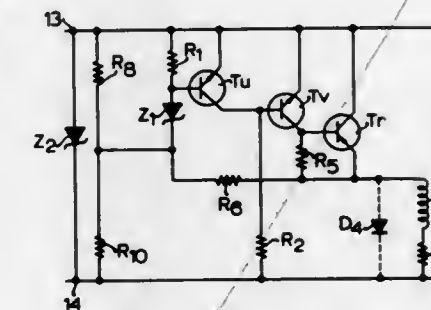
INTEGRATED MONOLITHIC SEMICONDUCTOR VOLTAGE REGULATOR ARRANGEMENT

Gerhard Conzelmann, Leinfelden-Unterach, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Apr. 24, 1969, Ser. No. 819,048
Claims priority, application Germany, Apr. 27, 1968, P 17 64 234.1

U.S. Cl. 307—303

Int. Cl. H01l 19/00

6 Claims



A monolithic semiconductor voltage regulator in which a lightly doped epitaxial layer is grown on a relatively heavily doped substrate. The electrical resistance of the epitaxial layer is high compared to that of the substrate. Power transistors and preamplifying transistors are formed within the monolithic semiconductor chip through isolation diffusion through the epitaxial layers. A first diffusion is then applied to the epitaxial layer within the isolation zone, and a second diffusion is applied within said first diffusion. The power transistor and the auxiliary transistors are structured so that they are complementary transistors. The power transistor may be formed as a substrate transistor and connected in common collector circuit. The doping substance for the substrate has a diffusion coefficient which is substantially lower than the diffusion coefficient of the doping substance used for the epitaxial layer.

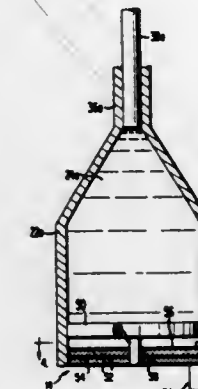
3,596,116

PIEZOELECTRIC-FLUID ELECTROMECHANICAL TRANSDUCER

Richard S. Walton, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.
Division of Ser. No. 724,144, Apr. 25, 1968, Pat. No. 3,509,714.
Filed July 23, 1969, Ser. No. 855,793
Int. Cl. H01v 7/00

U.S. Cl. 310—8.6

1 Claim



The transducer has a fluid chamber mounting a piezoelectric element at one end and a piston slidably mounted in a reduced diameter portion of the chamber opposite the element. A timebase, including a high frequency oscillator and a frequency divider, applies an electrical signal across the

piezoelectric element whereby the element moves to displace the fluid in the chamber thereby driving the piston outwardly against the bias of a spring. The piston is coupled to the gear train of a timepiece. The timed electrical signal is thus converted to an incremental mechanical movement which is amplified by the fluid system to provide timed indexing of the gear train.

3,596,117

LINEAR INDUCTION MHD GENERATOR

Egon Andresen, Darmstadt, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany

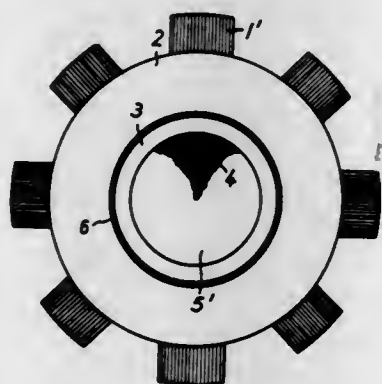
Filed Mar. 3, 1970, Ser. No. 16,012

Claims priority, application Germany, Mar. 5, 1969, G 69 09 713

Int. Cl. H02m 4/02

U.S. Cl. 310-11

1 Claim



A linear induction MHD generator having an annular flow channel and an inner core formed of a plurality of axially extending iron wires grouped so that the core has a circular cross section.

3,596,118

COIL AND CORE ASSEMBLY FOR AN ELECTRIC TOOL OR THE LIKE

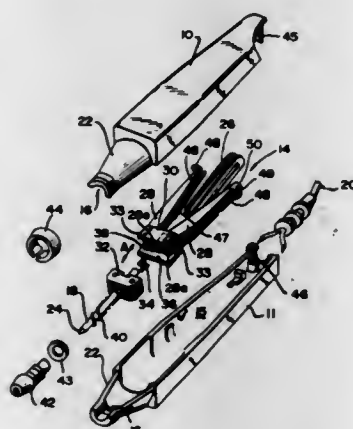
DhuAine J. Davis, Wheaton, Ill., assignor to Hermetic Coil Co. Inc.

Division of Ser. No. 669,870, Sept. 22, 1967, which is a division of application Ser. No. 615,102, Feb. 10, 1967, Pat. No. 3,375,380. Filed Apr. 15, 1970, Ser. No. 28,875

Int. Cl. H02k 33/00

U.S. Cl. 310-17

5 Claims



An electric tool in which an elongate casing defines a handle portion for the tool with an interior cavity and an opening at one end leading to the cavity. An elongate electromagnet

is mounted in the cavity and an armature is mounted in the casing adjacent the opening for vibratory movement relative to the electromagnet. An etching rod extends through the opening and is secured to the vibrating armature. A spring biased adjusting collar is threaded into the opening and exposed exteriorly of the casing for grasping to adjust the displacement of the etching rod. The core of the electromagnet comprises two pieces with a coil therebetween and hinged at adjacent end for pivotal movement toward and away from the coil. A hinge member for the two piece core guides the armature and also guides the etching rod.

3,596,119

ELECTRIC STEPPING MOTOR

Herbert Goldmann, Zug, Switzerland, assignor to Landis & GYR, Zug, Switzerland

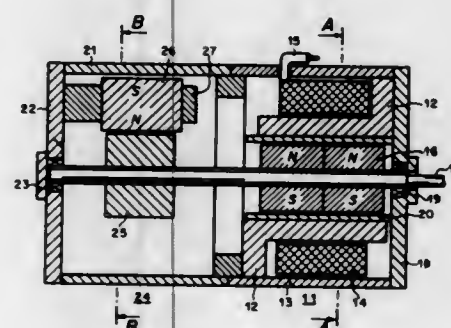
Filed Nov. 13, 1969, Ser. No. 876,267

Claims priority, application Switzerland, Nov. 27, 1968, 17667/68

Int. Cl. H02k 37/00

U.S. Cl. 310-49

5 Claims



An electric stepping motor having a drive motor for rotating the motor shaft through 0-π electrical degrees in response to an applied current pulse and an energy storage system connected to the motor shaft for opposing the rotation of the shaft through less than 0-π electrical degrees and for assisting the rotation of the shaft through greater than π-2π electrical degrees.

3,596,120

OIL COOLED GENERATOR

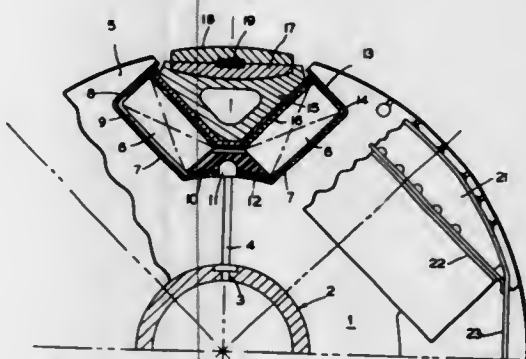
Frederick M. Potter, Little Silver, N.J., assignor to The Bendix Corporation

Filed Nov. 10, 1969, Ser. No. 875,236

Int. Cl. H02k 9/19

U.S. Cl. 310-61

6 Claims



An oil cooled generator which utilizes oil flowing in channels between the pole body and the rotor field windings in intimate contact with the inner edge of the rotor field windings.

3,596,121

ELECTRIC INDUCTION MOTOR

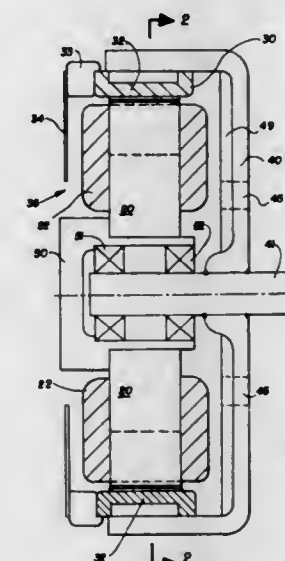
Sheldon S. L. Chang, Setauket, N.Y., assignor to Robbins & Myers, Inc., Springfield, Ohio

Filed Sept. 10, 1969, Ser. No. 856,715

Int. Cl. H02k 17/00

U.S. Cl. 310-166

5 Claims



An induction motor capable of being operated single phase, polyphase, capacitor run, shaded pole, etc., having an inner wound member constituting a primary and an outer squirrel cage member. Either the inner or outer member may be the stator. The outer member is provided with a supporting member of magnetic material which not only gives mechanical support to the outer member but also serves as a substantial part of the return magnetic path making it possible to reduce the depths below slot of the outer member drastically, and the eddy current and hysteresis loss of the supporting member add to the induced currents in the squirrel cage to produce additional induction motor torque so that the physical size of the squirrel cage can be substantially reduced.

3,596,122

"INSIDE OUT" DYNAMO ELECTRIC MACHINES

Charles G. Stewart, Solihull, England, assignor to Girling Limited, Birmingham, England

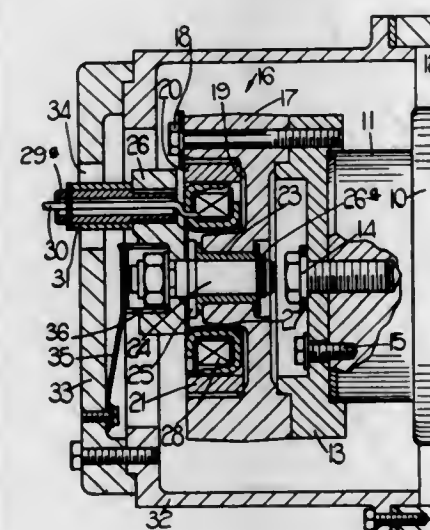
Filed Jan. 31, 1969, Ser. No. 796,316

Claims priority, application Great Britain, Feb. 2, 1968, 5,371

Int. Cl. H02k 7/00

U.S. Cl. 310-67

11 Claims



A dynamo electric machine comprising a rotor structure and a stator structure the rotor structure being adapted to be

secured to a shaft the speed of which is to be measured, a bearing supported by the rotor structure and the stator structure being carried by said bearing and a pin and slot connection between the stator structure and a fixed member whereby as the shaft rotates relative angular movement will take place between the rotor and stator structure.

3,596,123

ANODE STRUCTURE FOR A MAGNETICALLY CONFINED GLOW DISCHARGE GETTER ION PUMP

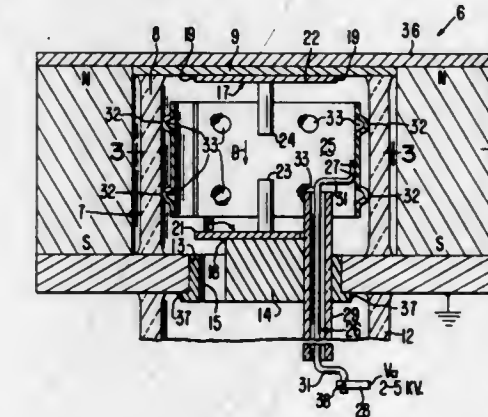
Nathan D. Levin, Los Altos Hills, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Sept. 18, 1969, Ser. No. 859,004

Int. Cl. H01j 6/17

U.S. Cl. 313-7

7 Claims



A magnetically confined glow discharge getter ion pump is disclosed. The pump includes a pump housing containing an anode electrode having a glow discharge passageway therethrough and with a pair of cathode electrodes disposed on opposite sides of the anode for establishing the glow discharge. The anode structure is formed by a collapsible coiled sheet metal spring member which is collapsed for insertion into the pump housing through a constricted access passageway and then allowed to expand into place within the housing due to the spring action of the collapsible anode structure.

3,596,124

GAS HEATER FOR THE PRODUCTION OF GASEOUS PLASMA

Denis Cleaver, Thornton-in-Cleveland, and Arthur Leonard Riley, Stockton-on-Tees, both of, England, assignors to British Titan Products Company Limited, Billingham, Teesside, Great Britain

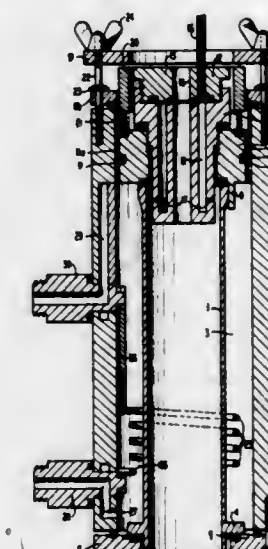
Filed Oct. 16, 1968, Ser. No. 768,081

Claims priority, application Great Britain, Jan. 16, 1968, 2435

Int. Cl. H01j 7/26, 61/28

U.S. Cl. 313-22

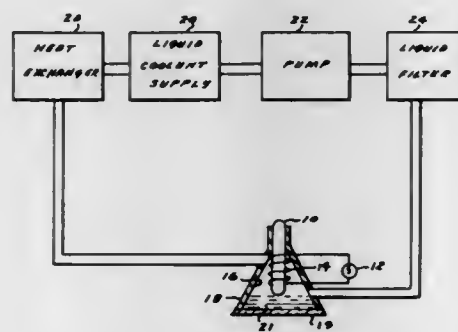
8 Claims



Apparatus for the production of a gaseous plasma in a gas stream by means of an oscillatory electric current in which

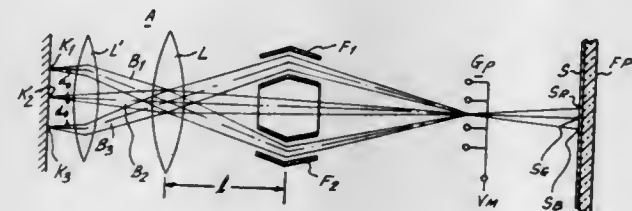
the gas-confining tube is positioned within a sheath and retained within the sheath by means of an annular retaining member secured to the sheath and having helical springs between the retaining member and the end of the tube to permit expansion and contraction of the tube as it is heated or cooled.

3,596,125
LIQUID COOLED RADIATION SOURCE WITH FILTER
 Wayne A. Seigel, 603 Hodapp Ave., Dayton, Ohio
 Filed June 9, 1969, Ser. No. 831,693
 Int. Cl. H01j 5/16, 7/26, 6/140
 U.S. Cl. 313-22 2 Claims



This invention relates to a liquid cooled radiation source wherein a silicon coolant is made to flow through a chamber at least partially enclosing the radiation source to remove the heat produced by the radiation source. A dye is added to the liquid coolant to act as a filter to remove undesired wavelengths of radiation from the beam leaving the radiation source.

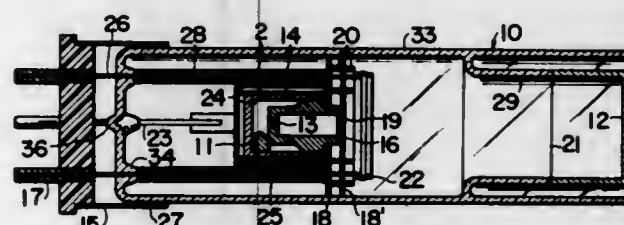
3,596,126
CATHODE-RAY TUBE WITH PARALLEL SLIT GRID STRUCTURE ADJACENT COLOR DISPLAY SCREEN
 Susumu Yoshida; Akio Ohgoshi, Tokyo; Senri Miyaoka, Kanagawa-ken, and Yoshiharu Katagiri, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan
 Continuation-in-part of application Ser. No. 697,414, Jan. 12, 1968, now Patent No. 3,448,316, dated June 3, 1969. This application June 2, 1969, Ser. No. 829,295
 Int. Cl. H01j 29/56, 29/80, 29/06
 U.S. Cl. 313-86 2 Claims



A color picture tube or other cathode-ray tubes in which a plurality of electron beams emanating from one or more cathodes are made to converge substantially at the optical center of an electrostatic focusing lens which focuses the beams on an electron receiving screen. When beams are focused on the electron receiving screen are all to converge at a common point on such screen an electrostatic or magnetic deflection device acts on those beams which diverge after passing through the lenslike focusing system. A grid is positioned adjacent the electron receiving screen of the tube in order to sharply focus the electron beams on the electron receiving screen. The support for the grid structure is

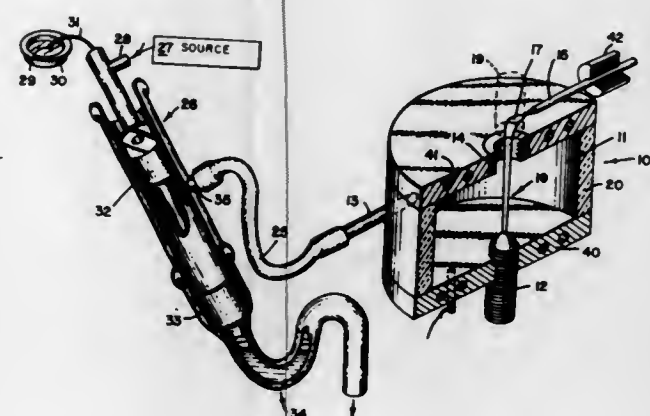
stressed to compensate for any expansion of the grid wires due to heating. The support has a pair of opposed parallel arms with the grid wires attached to and extending transversely between the arms and a pair of braces supporting the arms at the bessel point, the braces being stressed in a direction substantially parallel to the direction of the grid wires so that as the grid wires expand due to heat, the braces will expand a corresponding amount to maintain a substantially constant tension on the grid wires.

3,596,127
GLOW DISCHARGE LAMPS FOR USE IN SPECTROSCOPIC ANALYZERS
 Kazuo Yasuda, and Hiroshi Okagaki, both of Katsuta-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Filed May 15, 1969, Ser. No. 824,971
 Claims priority, application Japan, May 15, 1968, 32213/68
 Int. Cl. H01j 6/104
 U.S. Cl. 313-209 7 Claims



A glow discharge lamp provided with an anode and a cathode which comprises a first cylindrical cup member and a second cylindrical cup member having a smaller outer diameter than that of the first cylindrical cup member and being inserted vaportightly into the first cylindrical cup member with a space therebetween for accommodating a lump of a low-melting-point metal, the hollows of the two cup members are communicated with each other by means of a through hole having a predetermined diameter such that an amount of vapor of the low-melting-point metal may be controlled in the hollow of the second cylindrical cup member, whereby the lump is heated by electron discharge caused between the anode and the cathode and effectively vaporized so that the desirable amount of the vapor flows into the second cylindrical cup member.

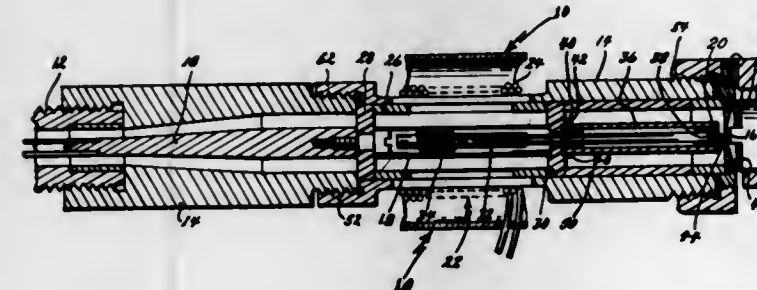
3,596,128
EXCITATION SOURCE FOR SPECTROSCOPIC ANALYSIS
 William G. Elliott, Lincoln, Mass., assignor to SpectraMetrics, Incorporated, Burlington, Mass.
 Filed May 1, 1969, Ser. No. 820,788
 Int. Cl. H01j 6/188
 U.S. Cl. 313-231 18 Claims



A plasma jet generator is composed of a swirl chamber, an anode within the swirl chamber, means for tangentially introducing a premixed atomized sample and an ionizing carrier

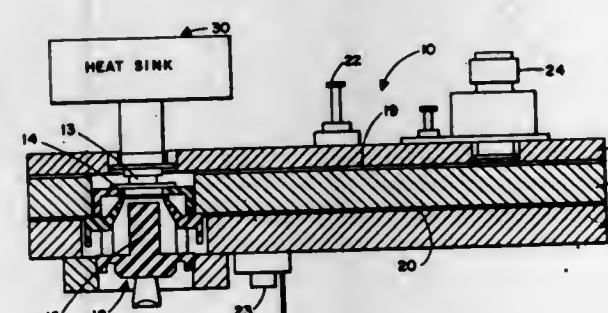
er gas into the chamber, an exit port for the generated plasma flame located opposite the anode, which exit port preferably has an electrically neutral border surrounding the port, and a cathode outside the chamber, offset from the plasma column and located at an angle to the axis of the anode so that the ionized gas is deflected to the cathode permitting spectrometric observation of any portion of the flame without interference from the ionized gas.

3,596,129
COAXIAL TRANSMISSION LINE FED ELECTRON GUN
 Ivan Cindrich, Southfield, Mich.
 Filed Jan. 28, 1970, Ser. No. 6,634
 Int. Cl. H01j 1/02, 23/16, 29/48, 29/96; H05b 41/24
 U.S. Cl. 315-3 1 Claim



An electron-gun structure for wide bandwidth applications having a coaxial line input where the center conductor is the cathode heater and is provided with an internal transformer, the outer conductor is used to carry the signal to a modulating grid mounted near the cathode.

3,596,130
STRIP TRANSMISSION LINE OSCILLATOR
 Melvin D. Clark, Box 11602, Albuquerque, N. Mex.
 Filed Dec. 23, 1968, Ser. No. 786,335
 Int. Cl. H01j 7/46, 17/80
 U.S. Cl. 315-39 7 Claims

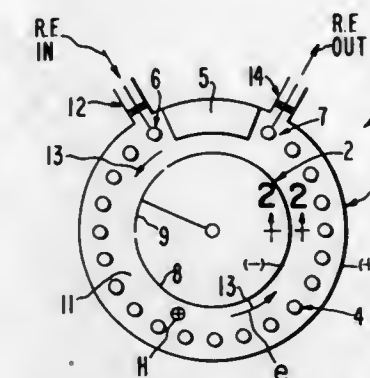


An improved strip transmission line oscillator, having an adjustable plate transmission line to match the characteristics of the particular tube used in the oscillator to achieve optimum output of the oscillator, and a heat sink attached to the anode of the oscillator, and a new and improved method for assembling the oscillator.

3,596,131
CATHODE SECONDARY EMITTER FOR CROSSED-FIELD TUBES
 Andrew S. Wilczek, Old Bridge, N.J., assignor to Varian Associates, Palo Alto, Calif.
 Filed May 29, 1969, Ser. No. 828,903
 Int. Cl. H01j 25/34
 U.S. Cl. 315-39.3 5 Claims

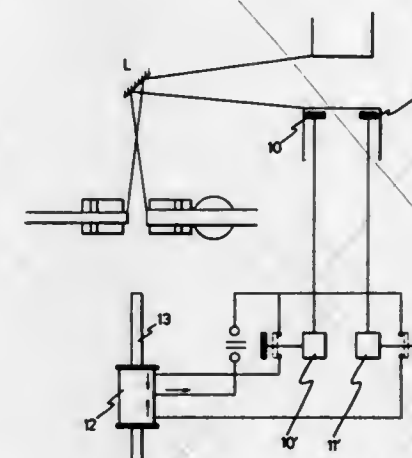
In a crossed-field tube of the type employing a cathode secondary emitter, the secondary emission surface is corrugated with the corrugations being elongated generally in the direction of the secondary electron stream to increase the ef-

fective secondary electron emissive surface area of the cathode and to increase the secondary electron emission



yield from the surface, whereby the current loading on the cathode is decreased in use.

3,596,132
PHOTOELECTRIC DEVICE FOR AUTOMATICALLY CORRECTING THE CARBONS OF PROJECTORS
 Jose Tomas Barrientos Luque, San Marcos, No.23, Priego De Cordoba, Spain
 Filed Mar. 11, 1969, Ser. No. 806,241
 Claims priority, application Spain, Mar. 12, 1968, 136,950
 Int. Cl. H05b 31/18, 41/38
 U.S. Cl. 315-151 6 Claims

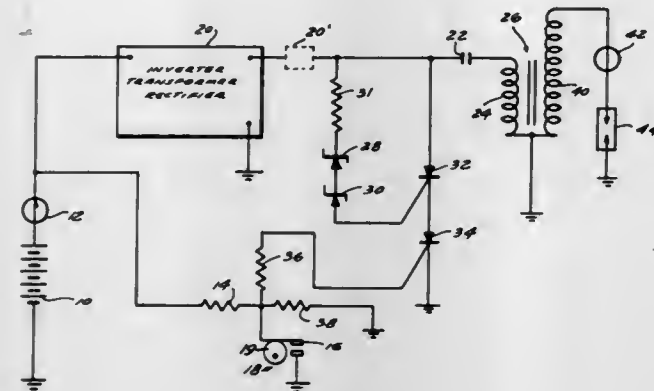


Photoelectric device for the automatic correction of the lamp carbons of projectors. A lamp has two photoelectric cells and an appropriately diaphragmed lens located laterally of the lamp in front of the arc of light and spaced so as not to be damaged by the heat. The amplified image from the carbons is projected onto the two photoelectric cells which are sensitive to the light of the arc. Two photoelectric relays are provided acting independently, one for the positive carbon and one for the negative carbon, so that they send the respective effects of their sensitivity to each one of the two photoelectric cells. An electromagnet having a solenoid is activated by the relays located in the advancing speed variator of the carbons, comprising means for correcting the mal-formed crater caused by combustion in the positive carbon and the negative carbon. A guiding support for the negative carbon maintains such carbon in an exact position in relation to the positive carbon. The negative carbon carrier is slightly movable in its vertical position as well as in its horizontal position, so that the advancing of the negative carbon may be done without difficulty.

3,596,133
SOLID-STATE MULTISPARK IGNITION
 Glenn B. Warren, 1361 Myron St., Schenectady, N.Y., and William R. Scholtz, 207 Wyman St., Scotia, N.Y.
 Filed Sept. 30, 1969, Ser. No. 862,167
 Int. Cl. H05b 37/02, 41/36
 U.S. Cl. 315-209 SC 1 Claim

A solid-state circuit providing a succession of similar short voltage rise time sparks for automotive engine ignition pur-

poses during the period the timing breaker of the ignition an indicator or control mechanism, the signals change because of incipient breakdowns in insulation in the equip-



system is open to replace the single spark per ignition of conventional automotive ignition systems.

3,596,134

APPARATUS FOR DISCHARGING ELECTROSTATIC ENERGY

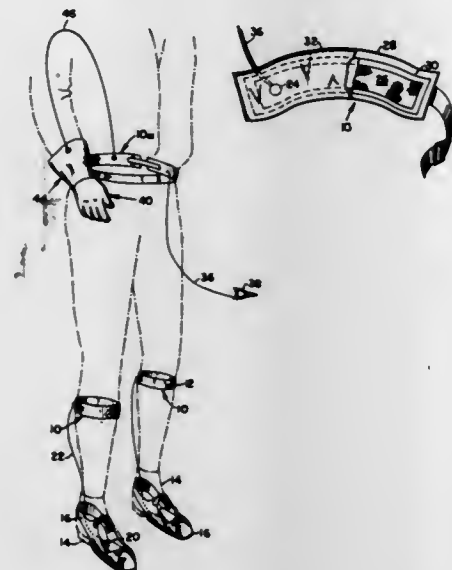
Frederick D. Burke, 1612 Morton St., Alameda, Calif.

Filed Oct. 8, 1968, Ser. No. 775,984

Int. Cl. A61m 1/14; H05f 3/00; A41d 19/00

U.S. Cl. 317-2 B

9 Claims



An apparatus adapted to be worn by persons working in an electrostatic field for eliminating the discomfort and ill effects of discharges of electrical energy through the person. It comprises one or more bands in the form of wearable garters or a belt, each having a flexible conductive element that will conform to the body shape and thus lie close to the skin so that electrical discharges will occur a relatively large body area rather than at a small area or point contact thereon. The garters and belt are each connected by flexible leads to conductor devices for contacting grounded structures, such as foot sandals, gloves or bonding devices at the ends of the leads.

3,596,135

METHOD AND APPARATUS FOR DETECTION OF BREAKDOWN OF INSULATION IN ELECTRICAL EQUIPMENT

Andrew Stenger, Jr., and James S. Hall, both of St. Petersburg, Fla.

Continuation-in-part of application Ser. No. 290,124, June 24, 1963, now Patent No. 3,296,494. This application Nov. 7, 1966, Ser. No. 592,452

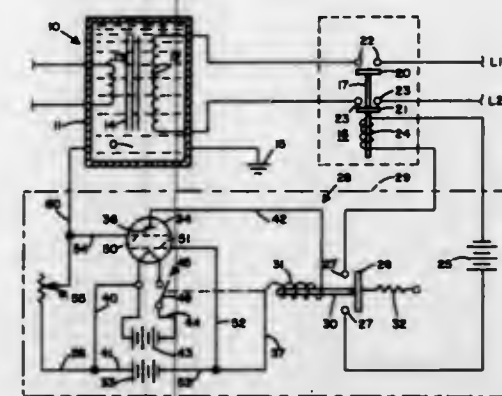
Int. Cl. H02h 7/16, 7/26

U.S. Cl. 317-14

11 Claims

An electromagnetic sensing device is adapted to respond to electromagnetic signals generated in electrical equipment such as transformers, and to amplify the signals for actuating

ment thereby causing a change in the indicator or control mechanism which results in shutting down the equipment prior to a major breakdown of insulation.



3,596,136

OPTICAL SEMICONDUCTOR DEVICE WITH GLASS DOME

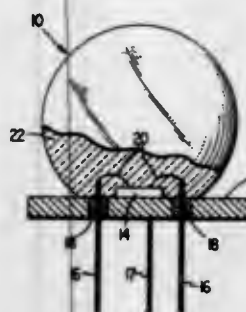
Albert George Fischer, Trenton, N.J., assignor to RCA Corporation

Filed May 13, 1969, Ser. No. 824,146

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

6 Claims



An optical semiconductor device including an electroluminescent diode mounted on a support so that radiation from the diode is emitted away from the support. A glass dome is mounted on the support and covers the diode so as to be in intimate contact with the diode. The radiation emitted from the diode passes through the glass dome so as to improve the external emission efficiency of the device.

The optical semiconductor device is made by mounting the electroluminescent diode on a support and then forming a glass dome over the diode with the glass dome being in intimate contact with and fused to the diode. The glass dome may be formed by placing a preformed glass bead on a heated diode and support subassembly, or by melting a glass in a mold cavity and placing the diode and support subassembly onto the soft glass while in the mold.

3,596,137

POLYPHASE CONTROL DEVICE

Andrew F. Kirsch, Edison, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 4, 1969, Ser. No. 830,464

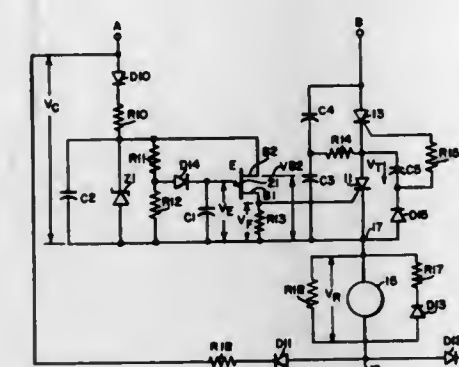
Int. Cl. H02h 3/26

U.S. Cl. 317-47

4 Claims

A reverse phase and single phase detecting device utilizes a silicon controlled rectifier connected with its main current path between at least two of the phases of the polyphase source to be monitored. The control electrode of the SCR receives its energization from a firing circuit connected to a third phase of the polyphase source. Under normal operating conditions the firing signal is delivered early enough in the interval when the SCR is forward biased that sufficient current is passed through the current path to operate a translating device. Under reverse phase or single phase conditions

the SCR does not fire until late in the interval when the SCR is forward biased or it does not fire at all so that the detector is not activated. Preferably the firing circuit comprises a pulse generator adjusted to deliver a triggering pulse through the control electrode of the SCR at an instant which provides a greater separation in the response of the device between



normal conditions and reverse or single phase conditions. A second SCR can be placed in series with the first with its control electrode receiving its firing signal from a sample and hold circuit connected across the primary SCR so that the translating device will not be operated should the primary SCR fail as a short circuit.

3,596,138

INTERBOARD FEED-THRU FOR JOINING PRINTED AND INTEGRATED CIRCUITS

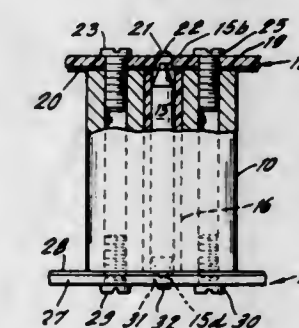
Sanford S. Lehrfeld, Hightstown, N.J., assignor to Tek-Wave, Inc., Princeton, N.J.

Filed Aug. 25, 1969, Ser. No. 852,752

Int. Cl. H05k 1/04

U.S. Cl. 317-101

10 Claims



A feed-thru device making it possible to stack integrated circuits and/or printed circuit boards in closely spaced parallel fashion and providing means for joining components and/or terminals from one adjacent board to the next. The feed-thru is comprised of a solid conductive body for threadably engaging suitable mounting hardware to rigidly join adjacent boards in closely spaced parallel fashion. The conductive body further acts as part of a coaxial circuit in conjunction with a center conductor electrically isolated from the conductive body by a suitable insulating sleeve, which center conductor further functions as a pin or terminal for connection with the printed circuit terminal element at both ends of the center conductor or pin. The configuration of the pin provides excellent impedance matching between each printed circuit through the coaxial configuration. The mounting hardware is so arranged as to provide excellent mode suppression at microwave frequencies.

IMPROVED ELECTRONIC COMPONENT ASSEMBLY CYLINDRICAL SHELL HOUSING WITH INNER PERIPHERAL RADIATING FIN CIRCUIT BOARD FASTENER MEANS

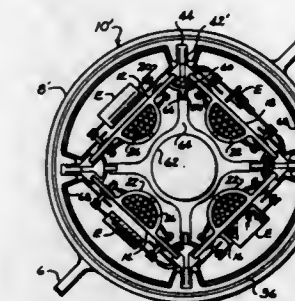
Ronald A. Walsh, 191 Plymouth Lane, Apt. A., Glen Burnie, Md.

Filed Oct. 22, 1969, Ser. No. 870,518

Int. Cl. H05k 5/06

U.S. Cl. 317-101 R

10 Claims



Demountable assembly and packaging means and method securing rectangular circuit boards in axially symmetrical tubular configuration in a cylindrical housing without the use of conventional attachment hardware, are described, including longitudinal grooves inside the housing with mountings fixed radially inwardly from the grooves, the inner ends of the mountings protruding between and receiving the edges of adjacent component boards, and the component boards and mountings having integral lay-in wireways permitting unfolding the assembly on removal from the housing without necessity for unwiring; the end closure of the housing is provided with inwardly detachable connectors receiving leads from the component boards to facilitate mounting and demounting; an axial spider having radial legs tightening the assembly of mountings and component boards is optionally provided.

3,596,140

DEMOUNTABLE PERIPHERAL-CONTACT ELECTRONIC CIRCUIT BOARD ASSEMBLY

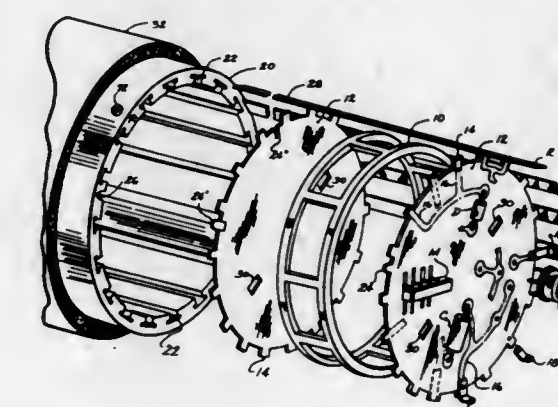
Ronald A. Walsh, 191 Plymouth Lane, Apt. A., Glen Burnie, Md.

Continuation-in-part of application Ser. No. 870,518, Oct. 22, 1969. This application Dec. 1, 1969, Ser. No. 881,122

Int. Cl. H05k 1/07, 5/06

U.S. Cl. 317-101 DH

8 Claims



A demountable peripheral-contact electronic circuit-board assembly including an electrically insulative tubular housing having slots in the inner wall parallel to the housing, the housing accommodating an aligned array of parallel-spaced substantially disc-shaped circuit boards having contacts protruding into the slots in the housing, and removable conductive rails in the housing slots for interconnecting the circuit boards through the protruding contacts. The conductive rails are provided selectively with insulated areas to isolate particular circuit-board contacts where required. An exterior hermetic enclosure protects and cushions the assembly and provides for exterior electrical connection through an interi-

type semiconductor substrate containing N⁺ buried layers therein is divided into a plurality of electrically isolated portions by N⁺ type regions which are formed by diffusing a donor impurity into the surface of said P-type semiconductor layer towards the N⁺ type buried layers, the divided P-type semiconductor portions forming individually diodes and transistors with the N⁺ type regions connected to said buried layers as their structural elements.

3,596,150

MONOLITHIC TRANSISTOR CIRCUIT

Gottfried Berthold, Ludwigsburg-Ossweil; Hans Linstedt, Stuttgart, and Gunter Matthai, Schwieberdingen, all of, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

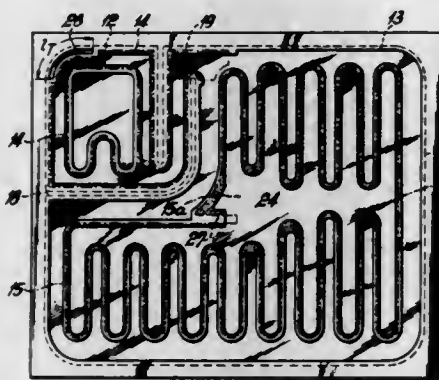
Filed May 28, 1969, Ser. No. 828,613

Claims priority, application Germany, June 8, 1968, P 17 64 455.2

Int. Cl. H011 19/00

U.S. Cl. 317-235 R

10 Claims



A semiconductor body of collector material has a first and second base region diffused into the collector material, and a first and second emitter region diffused into the base regions. A narrow channel of base material connects the two base regions. A metallic coating connects the first emitter region with the second base region. This metallic coating extends over the connecting channel and is situated directly on the surface of the semiconductor body. The first emitter region may be extended into the second base region directly under the metal coating which connects the first emitter with the second base.

3,596,151

CONSTANT SENSITIVITY PHOTOCONDUCTOR DETECTOR WITH A TIN OXIDE-SEMICONDUCTOR RECTIFYING JUNCTION

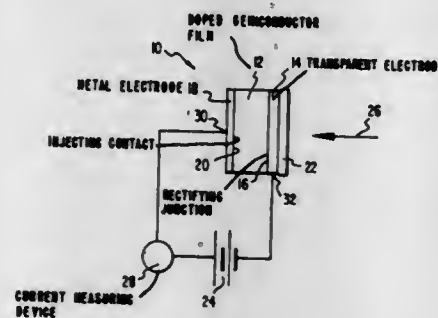
Graeme W. Eldridge, Cambridge, and Fred Chernow, Burlington, both of, Mass., assignors to Electro-Tec Corporation

Filed June 10, 1966, Ser. No. 556,653

Int. Cl. H011 11/00

U.S. Cl. 317-235 R

3 Claims



A photoconductor cell having substantially flat response to light intensities over a large portion of the visible spectrum is

disclosed. The photoconductor cell comprises a sandwich construction of a heavily doped semiconductor film, a transparent electrode forming a rectifying junction with the front face of the semiconductor film, and a metal back electrode forming an injecting contact with the back face of the semiconductor film.

3,596,152

CAPACITOR WITH LAMINAR ELECTRODE

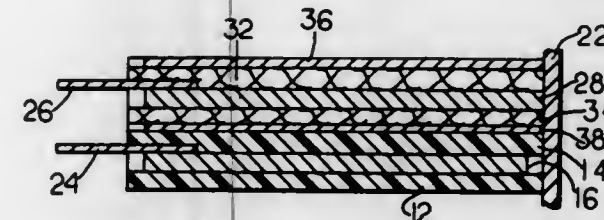
William M. Allison, Williamstown, Mass., and Atlee Vail, Stamford, Vt., assignors to Sprague Electric Company, North Adams, Mass.

Filed Jan. 12, 1970, Ser. No. 2,228

Int. Cl. H01g 3/195

U.S. Cl. 317-258

5 Claims



The convolutedly wound capacitor includes at least one laminar electrode wherein a metal foil is sandwiched between metallized insulative material and in connection along one edge of the conductive surface coatings thereof.

3,596,153

POSITIONAL CONTROL SYSTEM FOR A MACHINE TOOL

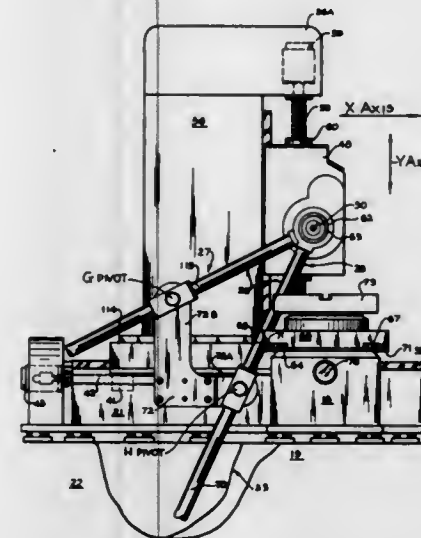
Wallace E. Brainard, New Berlin, and Edward E. Kirkham, Brookfield, both of, Wis., assignors to Kearney & Trecker Corporation, West Allis, Wis.

Filed Aug. 26, 1968, Ser. No. 755,206

Int. Cl. G05b 19/100

U.S. Cl. 318-574

16 Claims



This invention relates to a vector measurement system for controlling positional movement of a machine tool spindle along two mutually perpendicular axes respectively perpendicular to the axis of spindle rotation. The spindle is journaled in a spindlehead vertically movable on a column that is horizontally movable on a supporting base. Separate power translators are respectively connected to effect horizontal column movement and vertical spindlehead movement in accordance with separate feedback error control signals. A pair of separate lineal measuring instruments which are pivotally secured at one end to the spindle, extend in angularly diverging directions and are pivotally secured at their opposite outer ends to spaced apart portions of the support base. A positional control system responsive to vector measurements from both diagonally disposed, pivotally interconnected

lineal measuring transducers provides separate feedback error control signals for indicating the spindle position along its respective horizontal and vertical axes. Predetermined digital input command signals actuate the separate power translators for moving the tool spindle horizontally and vertically to a position determined by positional error feedback signals from the vector measurement control system. In a similar manner, error feedback signals from the vector measurement control system operate to control bodily movement of the tool spindle along only one axis of movement. During each single axis movement, rectilinear positional measurement signals from both pivotally interconnected vector measuring transducers are connected to provide orthogonal positional error control signals.

ture circuits of a pair of motors while the armature of the separate exciter is coupled to the fields of the motors to reduce the load unbalance between the motors.

3,596,156

CONTROL SYSTEMS FOR CRANES

Anthony Walter Davey, Long Wharton, Hathern, England, assignor to Herbert Morris Limited, Loughborough, England

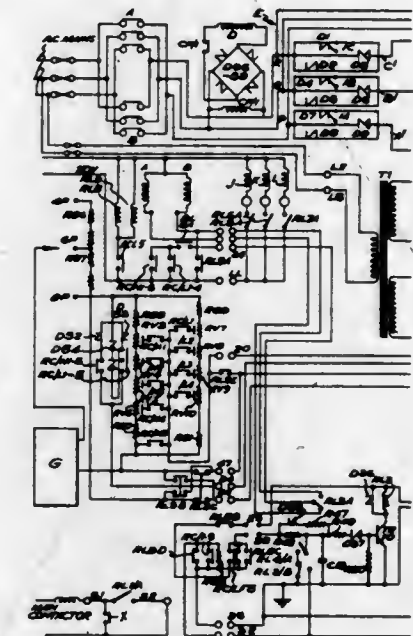
Filed July 15, 1968, Ser. No. 744,961

Claims priority, application Great Britain, July 21, 1967, 33622/67

Int. Cl. H02p 1/40

U.S. Cl. 318-203

5 Claims



A control system for an electric crane or hoist motor supplied through thyristor circuitry wherein the lifting and lowering speed and travel is controlled by sawtooth voltage generators which adjust the firing angle of the thyristors, the sawtooth waveform being applied to the trigger electrodes of the thyristors.

3,596,157

OSCILLATOR ENERGIZED MOTOR CONTROL CIRCUIT

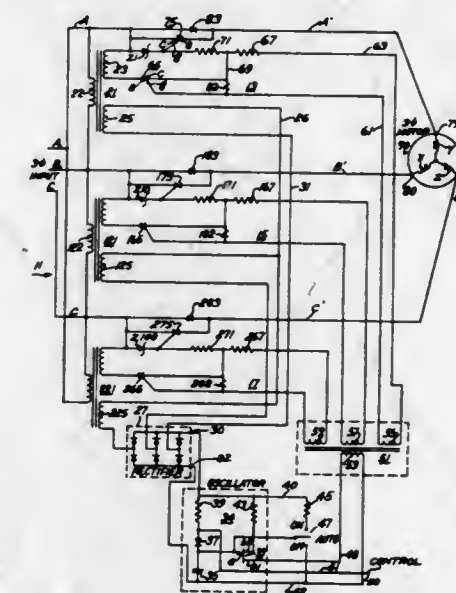
Richard Zechlin, Beloit, Wis., assignor to Fairbanks Morse Inc., New York, N.Y.

Filed Dec. 8, 1967, Ser. No. 689,077

Int. Cl. H02p 5/40

U.S. Cl. 318-227

3 Claims



3,596,154

ELECTRICALLY OPERATED DIFFERENTIALLY VARIABLE DUAL MOTOR DRIVE SYSTEM

David Gurwicz, and Albert E. Sloan, both of Durham, England, assignors to Ransomes Sims & Jefferies Limited, Ipswich, Suffolk, England and Sevcon Engineering Limited, Durham, England

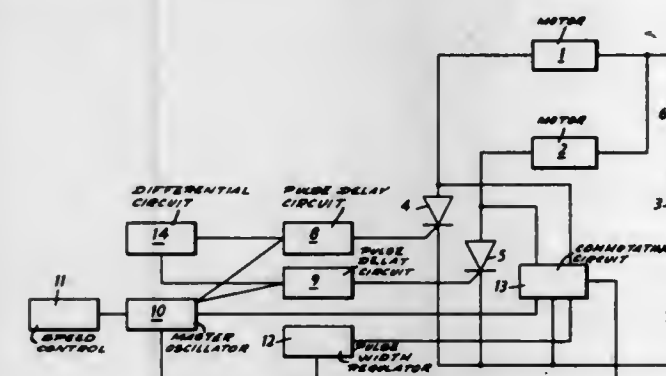
Filed Feb. 4, 1969, Ser. No. 796,382

Claims priority, application Great Britain, Feb. 6, 1968, 5,924/68

Int. Cl. B61c 15/08; H02p 5/46

U.S. Cl. 318-52

11 Claims



A drive system with two DC electric motors which are each pulse controlled, a master oscillator for supplying pulses to operate the pulse control of each motor and means for varying, for at least one of the motors, the period in a given time of conduction of that motor so as to render different the mean power supplied to each motor.

3,596,155

LOAD-BALANCING CIRCUIT FOR PARALLEL DC MOTORS

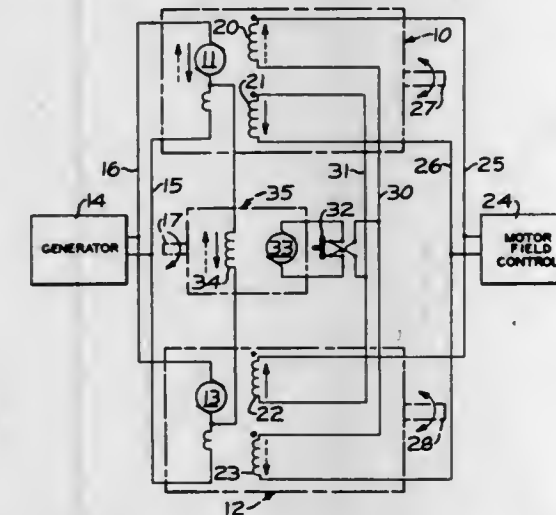
James T. Huxtable, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Sept. 24, 1969, Ser. No. 860,654

Int. Cl. H02p 5/46

U.S. Cl. 318-100

6 Claims

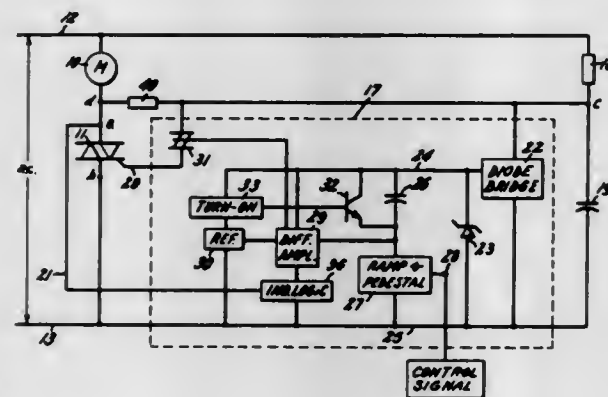


A load-balancing system for paralleled DC motors wherein the field of a separate exciter is connected between the arma-

An electronic circuit is disclosed for controlling the starting and stopping of a motor. A polyphase source of alternat-

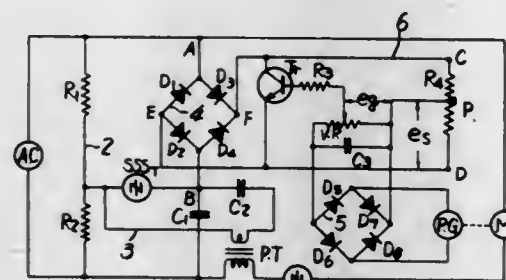
ing current is coupled to a plurality of transformers to provide a rectified DC input to an astable oscillator circuit. The output from the oscillator is coupled to a pulse transformer to control the operation of a plurality of pilot SCRs which function to energize a polyphase motor in accordance with the continuous output from the oscillator. The motor may be controlled in an AUTO mode such that a control signal (which may be generated by a suitable photosensor) provides a sufficient emitter bias on the unijunction transistor of the oscillator circuit to selectively terminate the output to the pulse transformer thereby removing the bias on the SCRs and shutting down the motor.

3,596,158
STABILIZING PHASE CONTROLLED AC INDUCTION MOTORS
Donald L. Watrous, Liverpool, N.Y., assignor to General Electric Company
Filed Aug. 9, 1968, Ser. No. 751,489
Int. Cl. H02p 5/40
U.S. Cl. 318-227 8 Claims



An adjustable speed capacitor run or polyphase AC induction motor energized by phase controlled voltage is stabilized by an AC phase control circuit whose timing is referenced to the zero crossing of the capacitor voltage in an RC circuit and supplies gating signals to a thyristor in series with the motor, characterized by a degenerative feedback circuit comprising an impedance element connected to modify the capacitor voltage in such manner that the cessation of thyristor conduction modulates the timing of the next gating signal.

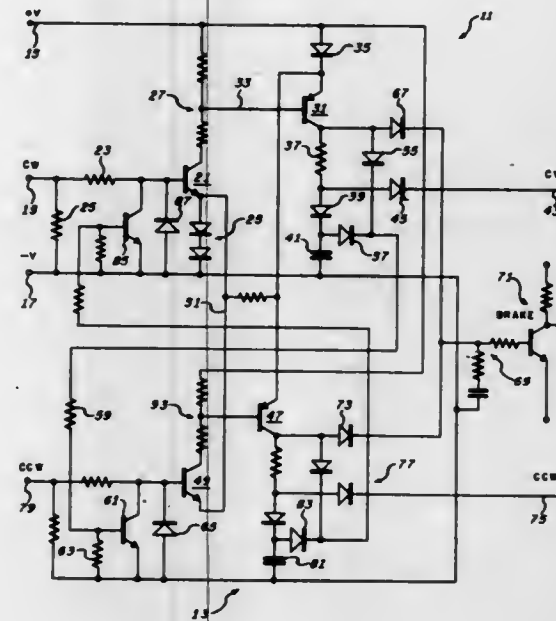
3,596,159
SPEED CONTROL CIRCUIT FOR A SINGLE-PHASE MOTOR, USING A THYRISTOR
Kenzi Kato, Tokyo, Japan, assignor to Janome Swing Machine Co., Ltd., Tokyo, Japan
Filed Mar. 20, 1969, Ser. No. 808,813
Claims priority, application Japan, Mar. 22, 1968, 43/18190
Int. Cl. H02p 5/40
U.S. Cl. 318-227 5 Claims



The present motor speed control circuit uses a thyristor and a single phase of the ignition circuit is automatically

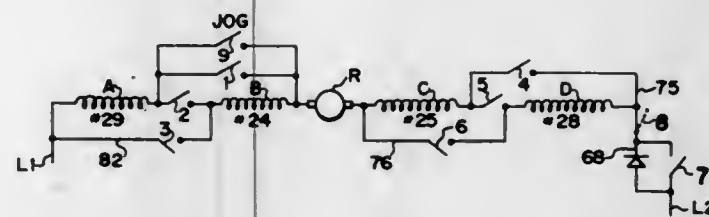
changed in response to changes in the speed of the motor due to load changes thereby stabilizing the speed of the motor to a given speed.

3,596,160
INTERLOCKING DIRECTIONAL CONTROL AND BRAKING CIRCUIT FOR BRUSHLESS DC MOTOR
Rodney G. Rakes, Charlottesville, Va., assignor to Sperry Rand Corporation
Filed Oct. 1, 1969, Ser. No. 862,736
Int. Cl. H02p 1/22
U.S. Cl. 318-258 8 Claims



A control circuit for a reversible brushless DC motor (BDCM) includes first and second channels to supply clockwise and counterclockwise command signals to the motor in response to corresponding directional input signals. The two channels are interlocked so that a command signal in one channel disables the other channel. Each channel also includes means to delay the formation of a command signal for a predetermined time and a braking circuit coupled to each channel for providing a braking signal in the absence of a command signal.

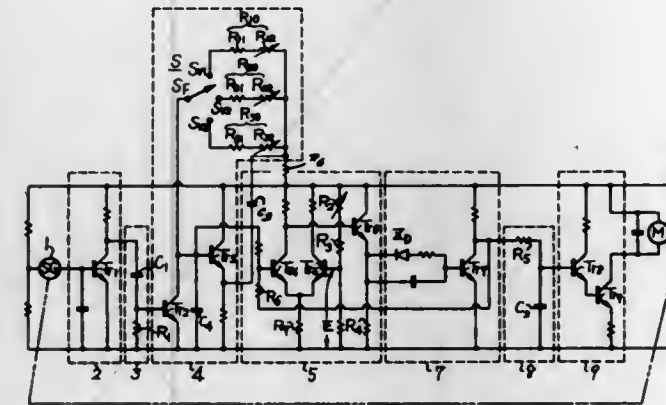
3,596,161
UNIVERSAL MOTOR SPEED CONTROL CIRCUITS
Roy L. Swanke, Newington, and Gordon H. Raymond, Southington, both of, Conn., assignors to Dynamics Corporation of America, New York, N.Y.
Filed Apr. 7, 1969, Ser. No. 813,957
Int. Cl. H02p 7/12
U.S. Cl. 318-305 23 Claims



A speed controllable universal motor circuit having multiple independent field coils of different impedances permuted by switches which interconnect them and are actuated by individually operable pushbuttons of a slider permutation switch to provide a maximum number of possible predeter-

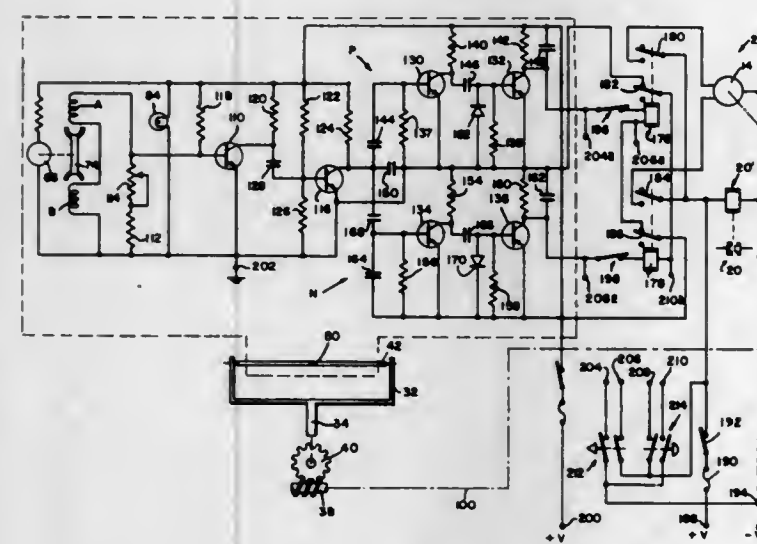
mined circuit patterns for the field coils, with a minimum number of switches and of field coils for significantly different speeds at any one or more of which the motor may be energized continuously or intermittently by an additional pushbutton through one or more of the speed permutations that is provided when a stop switch is actuated.

3,596,162
SPEED CONTROL SYSTEM WITH COMPARISON OF A SAWTOOTH WAVE WITH A REFERENCE LEVEL
Jun Takayama, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed May 7, 1969, Ser. No. 822,640
Claims priority, application Japan, May 13, 1968, 43/39190
Int. Cl. H02p 5/16
U.S. Cl. 318-341 7 Claims



A speed control system comprising means for producing a sawtooth wave signal of a frequency corresponding to a frequency-modulated signal relating to the revolution of a rotary member, means for controlling the revolving speed of the rotary member with the sawtooth wave signal and a circuit for changing the inclination of the sawtooth wave.

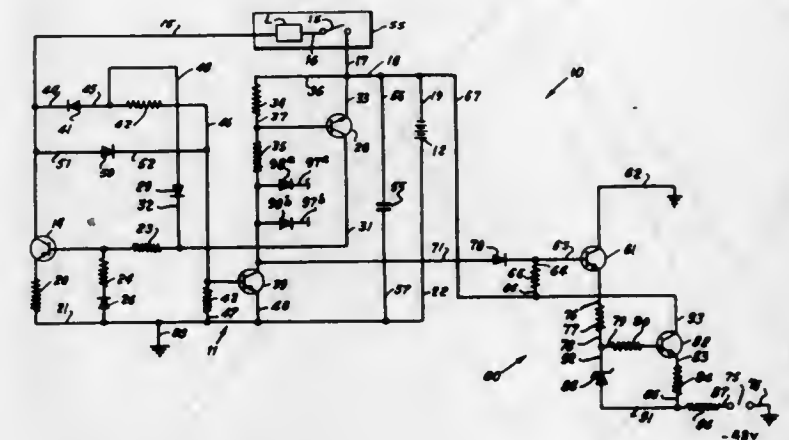
3,596,163
AUTO PILOT FOR BOATS
Glenn R. Barrett, Box 85, Edinburg, Ind.
Filed June 4, 1969, Ser. No. 830,416
Int. Cl. G05d 1/00; B63h 25/02
U.S. Cl. 318-588 20 Claims



For use in controlling a bidirectional steering motor, an autopilot system comprising a rotatable, highly permeable bar and a pair of coils diametrically oppositely disposed about the path of rotation of the bar. The coils are connected in series and an amplifier is used operably to connect the coils to first and second switch means. The first switch means drives

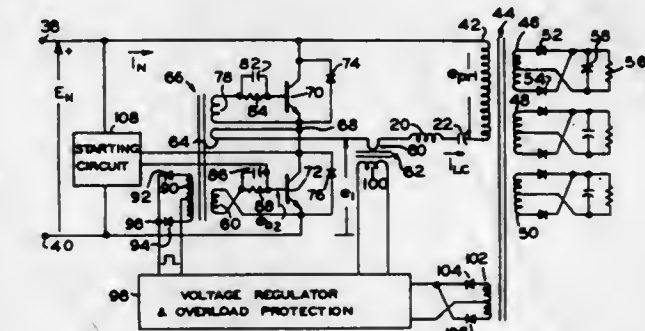
the steering motor in one direction and the second switch means drives the motor in the opposite direction. Negative pulses provided by the coils are amplified to operate the first switch means and positive pulses provided by the coils are amplified to operate the second switch means. The coils are mounted on a platform and, preferably, means is provided for driving the platform about the rotational axis of the bar to move the coils toward a position providing a null output.

3,596,164
TELEPHONE CONTROL CIRCUIT
Donald L. Bise, Tustin, and Ronald J. Surprenant, Anaheim, both of, Calif., assignors to The Okonite Company, Ramsey, N.J.
Filed Sept. 17, 1969, Ser. No. 858,637
Int. Cl. H02j 9/00
U.S. Cl. 320-9 5 Claims



A control circuit for use at a subscriber station end signal converter having a high impedance constant current generator for producing voice transmission direct current and for controlling operation of other components of the signal converter. The control circuit also includes a trickle charge circuit for charging a battery of the subscriber station end signal converter, the control circuit allowing operation of the trickle charge circuit only during periods of nonoperation of the telephone set at the subscriber station.

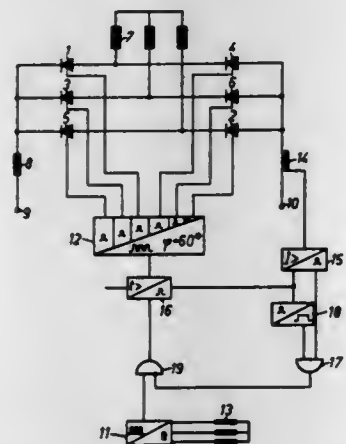
3,596,165
CONVERTER CIRCUIT HAVING A CONTROLLED OUTPUT
Roland E. Andrews, Portland, Oreg., assignor to Tektronix Inc., Beaverton, Oreg.
Filed July 24, 1969, Ser. No. 844,371
Int. Cl. H02m 3/28
U.S. Cl. 321-2 14 Claims



An LC resonant circuit is alternately connected from DC input terminals to a winding on an output transformer via a pair of alternately operating switching transistors which turn on in synchronism with the resonant frequency of the LC circuit. Switching is accomplished when current flow through each transistor is substantially zero. The transistors are kept

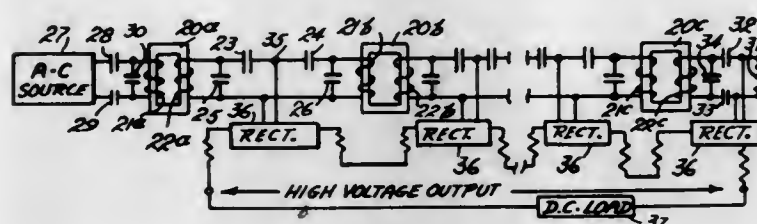
off for a selected period of time during each cycle of the LC circuit waveform, dependent upon a DC output voltage derived via rectification means from another winding on the output transformer. The frequency of operation of the circuit is responsive to the DC output voltage level for regulating the same.

3,596,166
CONVERTER ARRANGEMENT FOR ALTERNATING AND DIRECT CURRENT OPERATION
 Werner Faust, Wettingen, Switzerland, and Jurgen Langer, Waldhut, Germany, assignors to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland
 Filed June 3, 1969, Ser. No. 829,979
 Claims priority, application Sweden, June 10, 1968, 8598/68
 Int. Cl. H02m 1/18
 U.S. Cl. 321—5 4 Claims



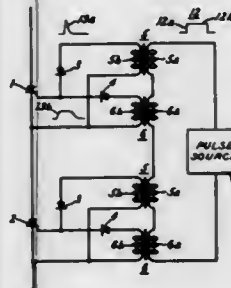
A converter arrangement is provided which can be set to operate both as an inverter and as a rectifier and wherein the converter elements are constituted by thyristors which are liable to damage by sharply rising voltages thereon brought about by overcurrent conditions when the converter is operating as a rectifier. To protect the converter elements against damage in such event, means are provided for changing over the operating mode of the converter from rectifier to inverter operation and to also cut off the converter operation completely after a predetermined time delay if the overcurrent condition persists.

3,596,167
CASCADE TRANSFORMER HIGH VOLTAGE GENERATOR
 Harold A. Enge, Winchester, Mass., assignor to Deltaray Corporation, Winchester, Mass.
 Filed Aug. 14, 1969, Ser. No. 850,051
 Int. Cl. H02m 7/00
 U.S. Cl. 321—15 12 Claims



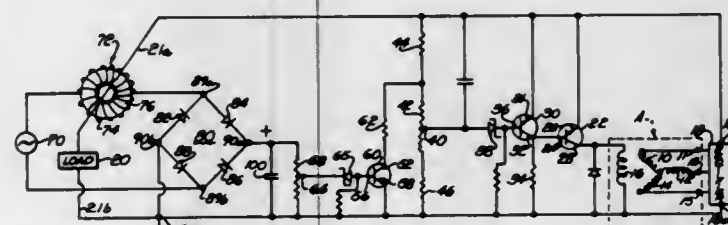
A cascade transformer configuration for generating high DC voltages wherein a preferred embodiment uses nonmagnetic core transformer units, the secondary coils of which are capacitively coupled to the primary coils of adjacent units. The capacitance values are selected so as to provide resonance conditions so that rectifier-multiplier chains connected to each pair of capacitively coupled coils produce DC voltages with the least loss of power. Each pair of capacitively coupled coils can be formed as an integral deck unit and such deck units stacked in a column with their rectified voltages connected in series to produce a high DC voltage output having a uniform DC voltage gradient along the column.

3,596,168
THYRISTOR-TRIGGERING ARRANGEMENT USING DUAL PULSE TRANSFORMERS HAVING DISSIMILAR CHARACTERISTICS
 Jurgen Hengsberger, Berlin, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
 Continuation-in-part of Ser. No. 699,620, Jan. 22, 1968, abandoned. Filed Apr. 17, 1970, Ser. No. 29,541
 Claims priority, application Germany, Jan. 27, 1967, L 55 597
 Int. Cl. H02m 7/00; H03k 17/00
 U.S. Cl. 321—27 R 8 Claims



To promote simultaneous firing of series-connected thyristors, each is controlled by two pulse transformers in series. The first transformer efficiently transmits the initial part of a control pulse having a very steep wave front, and the second transformer efficiently transmits the relatively long body of the pulse.

3,596,169
REGULATING CIRCUIT EMPLOYING A SATURABLE REACTOR
 Marion L. Snedeker, Cleveland, Ohio, assignor to Victoreen Leece Neville, Inc., Cleveland, Ohio
 Filed Oct. 16, 1969, Ser. No. 866,954
 Int. Cl. H02p 9/30
 U.S. Cl. 322—27 12 Claims

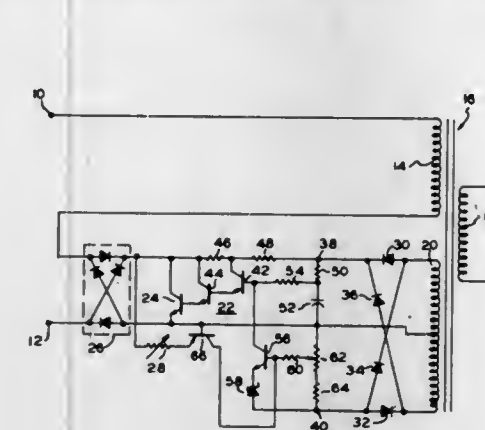


A circuit having a toroidal saturable reactor with a winding on a core which is magnetically coupled to a conductor through which a direct-current load current is flowing for limiting the load current to a predetermined value. A winding on the saturable reactor is connected in series with an oscillator and a rectifying device is coupled to the series combination of the oscillator and the winding to develop a direct-current control voltage which is dependent on the load current. The control voltage from the rectifying device controls a circuit which in turn controls the current that is supplied to the field winding of a direct-current generator, or an alternating-current alternator which is coupled to a rectifier, thereby controlling the direct-current generator or alternator-rectifier so as to limit the load current to a predetermined value.

3,596,170
CIRCUIT FOR REGULATING PEAK VALUES OF AN AC WAVE
 Hiro Moriyasu, Portland, and Hideki Iwata, Beaverton, both of, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.
 Filed Sept. 12, 1969, Ser. No. 857,365
 Int. Cl. G05f 1/44
 U.S. Cl. 323—17 11 Claims

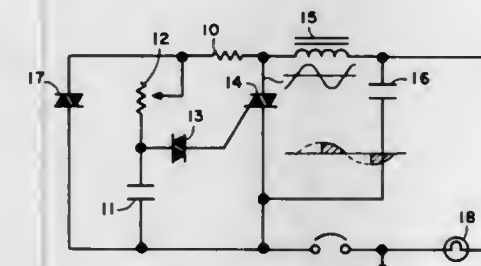
A peak-to-peak regulator is coupled in series between an AC power source and the primary of an AC transformer.

Another winding on the same transformer is employed to detect when peak values of the AC wave exceed a predetermined value, and negative feedback in response thereto increases the impedance of the regulator. Positive feedback



generation because of the overall high speed of response of the circuit.

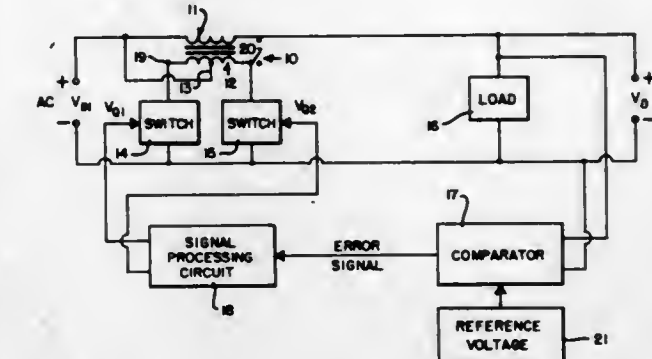
3,596,171
MASTER SLAVE POWER VARYING CONTROL SYSTEM
 Roland O. Hildebrand, P.O. Box 173, Carrollton, Tex.
 Filed Jan. 20, 1970, Ser. No. 4,203
 Int. Cl. H05b 39/04; G05f 1/00
 U.S. Cl. 323—24 16 Claims



An electronic master-slave system is used for dimming a remote lighting arrangement. The master system limits the time duration that an alternating current power signal is applied to a master lighting system. In response to the passage of the time limited power signal to the master system, a trigger circuit activates a gate for varying the time that positive and negative components of an alternating current signal are passed to a slave lighting system, with the master and slave systems being operated synchronously.

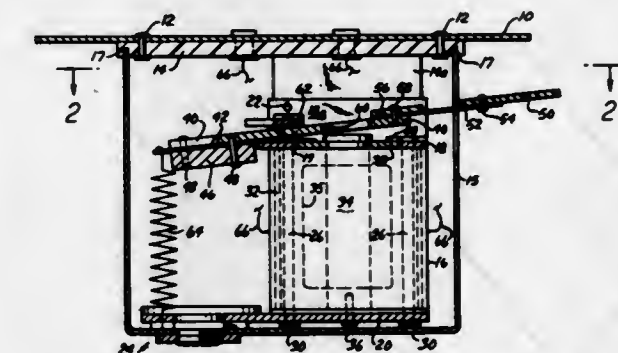
3,596,172
BUCK-BOOST PULSE-WIDTH-MODULATED LINE REGULATOR
 Gerald S. Harrison, Plainview, N.Y., assignor to Lear Siegler, Inc., Melville, N.Y.
 Filed June 27, 1969, Ser. No. 837,044
 Int. Cl. G05f 1/30
 U.S. Cl. 323—45 5 Claims

An AC regulator controls the voltage applied to a load by using pulse-width-modulated correction signals. Any deviation of load voltage from that desired is sensed and converted to pulse-width-modulated signals. These signals switch alternate halves of a secondary winding of a transformer connected in a buck-boost arrangement. The net voltage applied to the secondary winding is a function of the pulse-width modulation and a net correction voltage is coupled to the pri-



generation because of the overall high speed of response of the circuit.

3,596,173
POSITION SENSING SYSTEM EFFECTIVE TO PRODUCE AN OUTPUT SIGNAL AS FUNCTION OF INDUCTANCE
 Arthur M. Cohen, Westport, Conn., assignor to Electric Regulator Corporation, Norwalk, Conn.
 Filed Jan. 15, 1970, Ser. No. 2,993
 Int. Cl. H01f 27/06
 U.S. Cl. 323—90 9 Claims

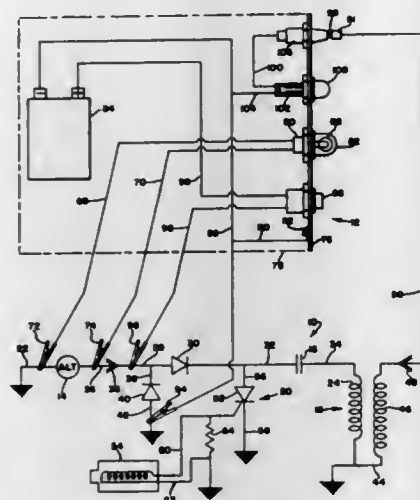


A sensing or control system, effective to sense the position of a mechanical element and produce an electrical signal in accordance with said position, includes a magnetic member adapted to be moved in response to the movement of the mechanical element into magnetic engagement with a magnetic core received within and extending from an induction coil, thereby to change the inductance of said coil. The signal producing means comprises an electrical circuit incorporating said inductance coil and effective to compare a voltage responsive to the inductance of said coil with a reference voltage and calibrated to null the signal at a desired position of said mechanical element.

3,596,174
TESTING APPARATUS FOR INTERNAL COMBUSTION ENGINE IGNITION SYSTEM
 La Vern Bernard Hovenga, Davenport, Iowa, assignor to Deere & Company, Moline, Ill.
 Filed Aug. 7, 1969, Ser. No. 848,149
 Int. Cl. G01m 15/00
 U.S. Cl. 324—17 6 Claims

A portable ignition tester for isolating ignition problems to the alternator output or the solid state capacitor discharge ignition. The alternator test circuit is applied directly across the alternator terminals and consists of an incandescent light bulb which will glow when the alternator is operated at cranking speed if the alternator output is high enough to operate the ignition system. The ignition test circuit consists of a transistor battery, a switch, and a neon bulb. The battery replaces the alternator as a voltage source and momentary

closing of the switch charges the ignition capacitor for one firing. With the neon bulb connected to the high voltage



spark plug wire, discharging the capacitor will fire the neon bulb once if the ignition is working properly.

3,596,175

ELECTRICAL MEASURING APPARATUS FOR PROVIDING AN OUTPUT SIGNAL AT AN OUTPUT BRANCH CHARACTERISTIC OF THE RELATIONSHIP OF IMPEDANCES PRESENTED AT FIRST AND SECOND SIDE BRANCHES AT THE FREQUENCY OF ENERGY APPLIED AT AN INPUT BRANCH

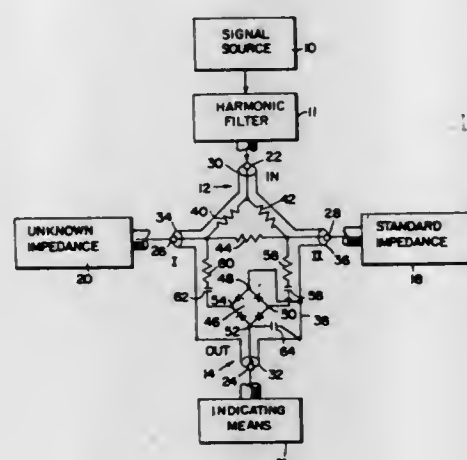
Andrew Alford, Winchester, Mass.

Continuation-in-part of application Ser. No. 391,337, Aug. 21, 1964, now abandoned. This application Aug. 23, 1968, Ser. No. 756,734

Int. Cl. G01r 27/04

U.S. Cl. 324—58 A

4 Claims



A radio frequency signal source delivers a signal to an input branch through a harmonic filter to provide an output signal on an output branch indicated by indicating means representative of the difference in impedance between a standard impedance connected to one side branch and an unknown impedance connected to the other side branch. A pair of equal resistances connect the high terminal of the input branch to the respective high terminals of the respective side branches. A higher resistor interconnects the high terminals of the side branches so that when the side branches are terminated in their characteristic impedance, typically 50 ohms, the impedance presented at the input branch is substantially equal to the input branch characteristic impedance, typically 50 ohms. Means including isolating resistors and a bridge circuit couples the side branch high terminals to the output branch high terminal, all four branches having low, or grounded terminals, that are interconnected.

3,596,176 ELECTRONIC CAPACITIVE MOISTURE INDICATOR INCLUDING OSCILLATOR POSITIVE FEEDBACK MEANS

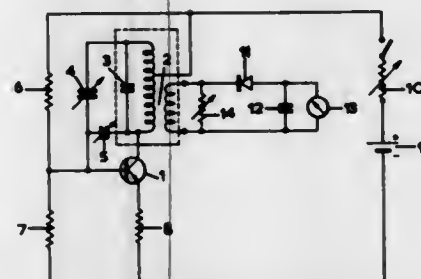
Robert Ronald Laupman, Wijchen, Netherlands, assignor to N.V. AUOCO, Wijchen, Netherlands
Filed July 5, 1967, Ser. No. 651,263

Claims priority, application Netherlands, July 8, 1966, 6609627

Int. Cl. G01r 27/26

U.S. Cl. 324—61

9 Claims



Electronic capacitive moisture indicator, comprising a transistor oscillator system including a measuring capacitor and a source of energy, a measuring system and a suitable envelope, characterized in that said measuring capacitor is formed as a plate-type capacitor and is included in the oscillator feedback, whereby the alternating voltage of the oscillator varies in dependence on the capacity of the measuring capacitor, and that said measuring capacitor is so dimensioned that said alternating voltage approaches zero in the absence of an object to be measured, that the maximum capacity between the measuring system and the transistor oscillator without the capacitor plates on the one hand, and the mass of the object to be measured or part thereof, including the user, on the other hand, is no more than about 5 to 10 picofarad, that said envelope is so dimensioned that the maximum capacity during the measurement by the user can be varied by no more than about 2 to 5 picofarad when said envelope is approached or contacted, and that said source of energy is a battery.

3,596,177

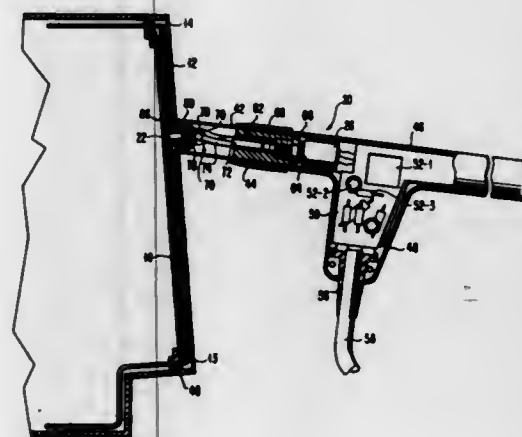
ENERGY FIELD PROBE OF CONSISTENT ATTITUDE CAPABLE OF MOVING WITH THREE DEGREES OF FREEDOM

Emanuel Victor Butera, Capitola, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed May 8, 1969, Ser. No. 823,088

Int. Cl. G01r 31/02

U.S. Cl. 324—72

8 Claims



The accuracy of data obtained by coordinate determining systems associated with graphical displays is increased by an energy field probe of consistent attitude. An energy transducing device is arranged in a protruding truncated cone portion of a carrier mounted in an elongated barrel for movement in

two degrees of freedom. The transducing device in the carrier then assumes a predetermined attitude with respect to the display coordinate determining system with little regard to the angle of attack of the barrel of the probe. The contact surface of the probe is slightly concave for insuring positive positioning on curved display surfaces such as the face of a cathode-ray tube. A laterally flexible switch rod member has a head of generally rectangular configuration mating in a recess in the carrier of complementary configuration restraining the carrier from rotating about the longitudinal axis of the barrel for preventing the fouling and breaking of electric conductors and centering the carrier in the barrel when the probe is idle. The switch rod operates a momentary push-pull electric switch which permits the carrier to move in a third degree of freedom and provide an indication that the probe is operative. The probe is applicable to both the sensing and the injecting of audio and radiofrequency electromagnetic and acoustic energy in correspondingly based coordinate determining systems. It is also applicable to a probe having an electrode for sensing the strength of an electrostatic field and to probes having one or more luminous energy sensors such as used in CRT display and optical projection systems. A pistol-griplike body depending from the barrel serves as a duct for electric leads to the associated apparatus and also carries electric amplifying circuit components and the like. Luminous energy pattern sensing probes have the photoresponsive devices arranged with respect to this depending body so that the probe is automatically oriented for the pattern within permissible tolerances. Combinations of luminous energy and electromagnetic energy and electrostatic energy transducers are suggested.

3,596,178

DEVICE FOR MEASURING ELECTRICAL QUANTITIES WITH ADJUSTABLE MAXIMUM AND MINIMUM THRESHOLD LIMITATION

Anatoly Grigorovich Sklyaruk, ulitsa, 4 proezd Krupskoi, 2, kv. 36, and Viktor Yakovlevich Shaeich, ulitsa Kommunarov, 290, kv. 28, both of Krasnodar, U.S.S.R.

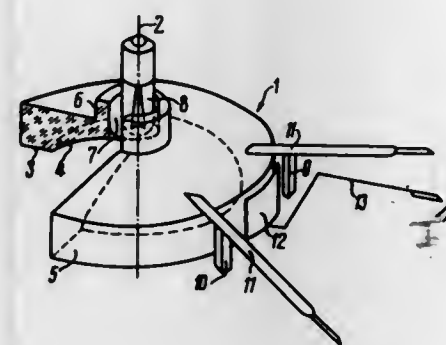
Filed Apr. 2, 1969, Ser. No. 812,751

Claims priority, application U.S.S.R., Nov. 18, 1966, 1114306

Int. Cl. G01r 31/00

U.S. Cl. 324—96

6 Claims



A device for measuring electrical quantities with adjustable maximum and minimum threshold limitation comprises an electrical meter movement with a flag secured to a moving part which flag intercepts the luminous flux from a light source aligned with the axis of the moving part, a light conductor made of material whose refraction factor differs from that of air, and light sensitive elements sensing the luminous flux passing through the light conductor, the sensitive elements being adapted to be displaced when setting a prescribed threshold limitation. The light conductor is made in the form of a stepped biconcave lens with an optical axis coinciding with the axis of the moving part, the steps of the lens being formed by concentric surfaces limiting the lateral faces of the lens and remote from the optical axis by different radii. The step of smaller radius has a recess accommodating a light source, while the step of larger radius is provided with a concave surface for complete internal reflection of the luminous flux of the light source.

3,596,179

DETECTION OF PEAK AND/OR TROUGH POINTS OF A VARIABLE ELECTRIC CURRENT

Colin Edward Hunter, Luton, England, assignor to George Kent Limited, Luton, England

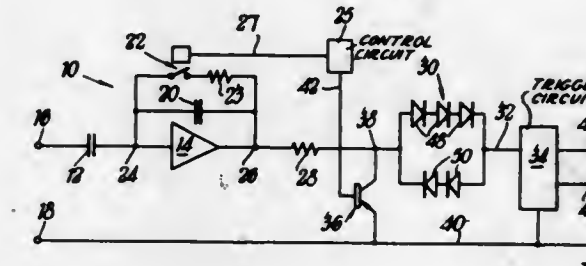
Filed Oct. 30, 1968, Ser. No. 771,753

Claims priority, application Great Britain, Nov. 6, 1967, 50420/67

Int. Cl. G01r 19/16, 1/00

U.S. Cl. 324—103 P

8 Claims



A method and apparatus are disclosed for detecting peak and/or trough points of a variable voltage signal in which the signal is applied through a capacitor to an amplifier and the amplifier output is divided into separated pulses by a switch recurrently operable to provide 100 percent feedback across the amplifier. A trigger circuit responsive to the pulses gives an output with a polarity indicating the direction of change of the variable voltage signal. A second switch can be operated recurrently by the means controlling the first switch to select only the final portion of each pulse for application to the trigger circuit.

3,596,180

METHOD AND APPARATUS FOR AUTOMATICALLY ARRANGING, TRANSPORTING, AND MEASURING, AND/OR TESTING A PLURALITY OF SEMICONDUCTOR DEVICES

Alfons Schmitt, Talheim, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm Danube, Germany

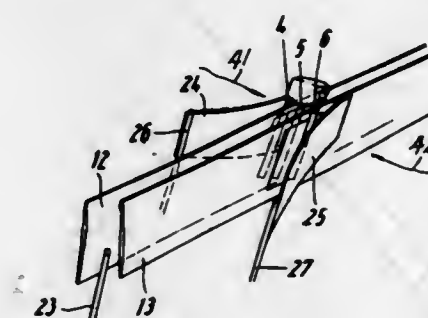
Filed Apr. 8, 1968, Ser. No. 719,642

Claims priority, application Germany, Apr. 8, 1967, T33677

Int. Cl. G01r 31/22, 15/12

U.S. Cl. 324—158 T

11 Claims



A method and apparatus for arranging and measuring and/or testing characteristics of subminiature semiconductors. The semiconductors are fed onto and lined up, one behind the other, on tracks which extend parallel with respect to each other. Electrode leads extending from the semiconductors are disposed between the tracks, thus provided. At predetermined locations along the tracks electrical contact means are provided which electrically connect the semiconductor electrode leads to measuring and/or testing instruments.

3,596,181

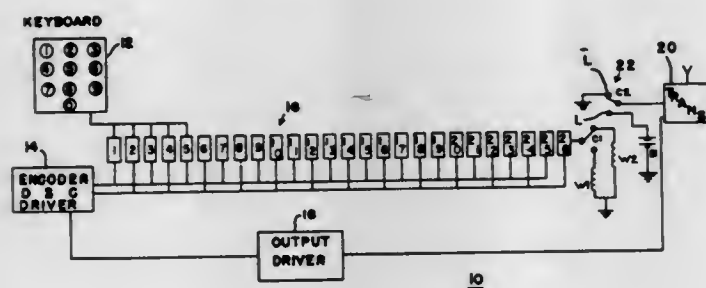
SELECTIVE SIGNALLING SYSTEM

Edward Camp Dowling, Harrisburg; Earl Wilbert Eshenauer, Jr., Steelton; Robert Earl Jones, Camp Hill, and Michael Joseph Yaccino, Mechanicsburg, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Continuation-in-part of application Ser. No. 531,864, Mar. 4, 1966, now abandoned. This application July 15, 1966, Ser. No. 565,624

Int. Cl. H04b 1/00

U.S. Cl. 325—55

11 Claims



The disclosure relates to a central station having an encoder which is operable to selectively call any one of a plurality of individual remote stations by the transmission of a unique code which is comprised of a series of time intervals occupied by the presence or absence of a signal level. The encoder includes an input such as a keyboard to first develop the particular code to be transmitted in terms of a two-out-of-five bit position representation for each character of the transmitted message. The encoder also includes a register to temporarily store a combination of generated characters and then to automatically add tag and stop characters and translate the composite message into the previously mentioned signal mode for transmission. The encoder circuit transmits a given composite signal at an appropriate time relative to the availability of signalling channels. The code transmitted is of pulses or signals of long length relative to the typical pulse or signal length of noise. Each receiver station includes means for receiving the transmitted composite message, translating such into a code which may be serially decoded in a register decoder set up for serial comparison of each bit of such translated code. The decoder is operated to progressively and serially compare each bit of the translated code and advance a bit as long as each received code bit is correct with respect to the assigned station code. The decoder operates to destroy the advancing bit upon the receipt of an incorrect code bit. In the event of the proper code the decoder is made to produce an output in the form of some audible, visual indication or command function. The detector may include a number of parallel decoder paths for a receipt of a plurality of codes each representing a separate command function. The receivers for a given system may be made identical with variations in code assignment being provided by a novel code plug assembly.

3,596,182

MULTIPATH DELAY AND CORRELATION BANDWIDTH ANALYZER

Ronald R. Menard, Whiteboro, N.Y., assignor to The United States of America as represented by the Secretary of the Air Force

Filed May 15, 1969, Ser. No. 824,892

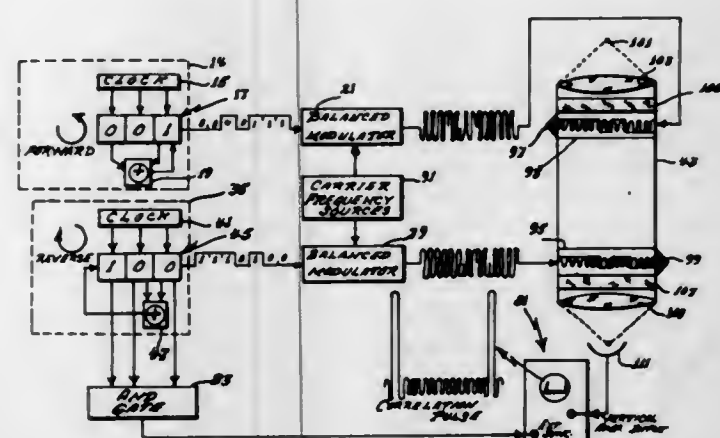
Int. Cl. H04b 1/00

U.S. Cl. 325—67

5 Claims

Multipath delay is analyzed by generating and transmitting a pseudorandom signal and at the receiver the reverse replica

of the transmitted signal is also generated. The two signals are correlated in an optical correlator where they are passed



through ultrasonic modulators while collimated light passes through them and the output is read out on an oscilloscope.

3,596,183

MULTIBAND TUNING CONTROL SYSTEM WITH PROGRAMMABLE ELECTRONIC SWITCHING

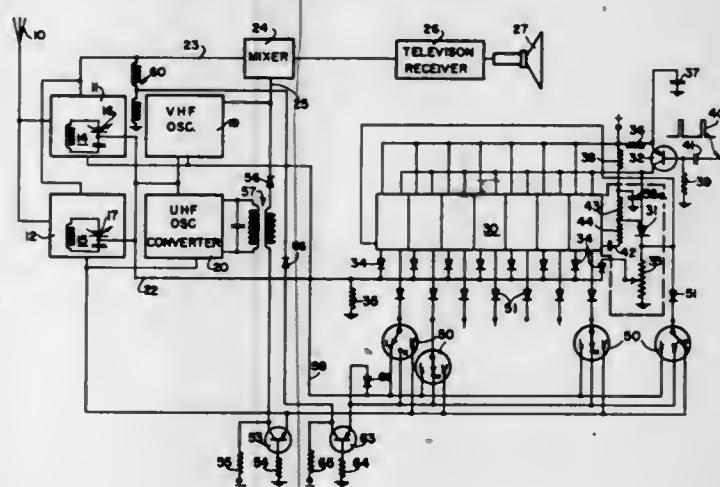
Rolf E. Spies, Lyons, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Apr. 18, 1969, Ser. No. 817,379

Int. Cl. H03j 5/24

U.S. Cl. 325—465

6 Claims



Tuning of a television receiver capable of receiving signals in the UHF and VHF bands of frequencies is controlled by an electronic ring counter circuit, the outputs of which are supplied through manually settable switches for selecting either the UHF or the high or low portions of the VHF bands. The band is selected by supplying a DC operating potential to the tuning circuit for the desired band through the switch connected to an energized stage of the ring counter. Each of the tuners is tuned to selected channels by a varactor diode tuning circuit, and the DC tuning voltage for the varactor diodes also is obtained from the energized stage of the ring counter, but is supplied through an adjustable potentiometer for each stage. Thus, any one of the stages of the counter may be adjusted to tune the receiver to any of the desired UHF or VHF channels by proper setting of the switch and the potentiometer for that stage of the counter. Provision is made for stepping the counter to the stage which is set to correspond to the desired band and channel within that band in order to effect electronic selection of the channel which is to be received.

3,596,184

SQUELCH CIRCUIT WITH SQUELCH TAIL ELIMINATION

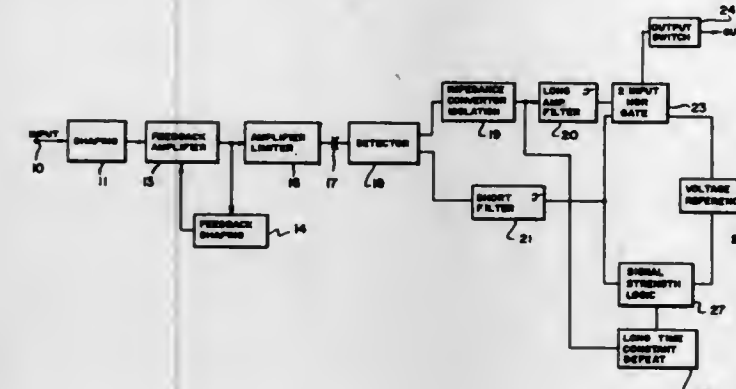
George M. Hanus, Norridge, and Alfred R. Lucas, Northbrook, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Aug. 15, 1969, Ser. No. 850,447

Int. Cl. H04b 1/10

U.S. Cl. 325—478

10 Claims



An integrated circuit includes, on a single chip, a noise-detection circuit and a squelch filter circuit having a short time constant ripple filter and a long time constant ripple filter. The noise detector includes a differential feedback amplifier with external circuitry for controlling the gain and frequency shaping of the amplifier in a feedback circuit. A high-impedance cascaded emitter-follower circuit of opposite conductivity transistors couples the noise detector to the ripple filters, with the long time constant ripple filter being responsive to signals just above the squelch threshold in order to provide maximum sensitivity and smooth operation. At strong signal levels, where such a long time constant ripple filter is not necessary, the circuit is switched to a short time constant filter by a signal level detection circuit. If the signal drops to a low signal level relatively slowly, the circuit switches back to the long time constant filter; but if the signal drops rapidly, as for example, where the transmitter ceases transmission, only the short time constant filter is operative and the turnoff of the squelch circuit is very rapid, thereby eliminating the noise burst or "squelch tail."

3,596,185

TRANSFER FUNCTION GENERATOR FOR PROVIDING A COMPLEX WAVE FORM OF DESIRED CHARACTERISTICS

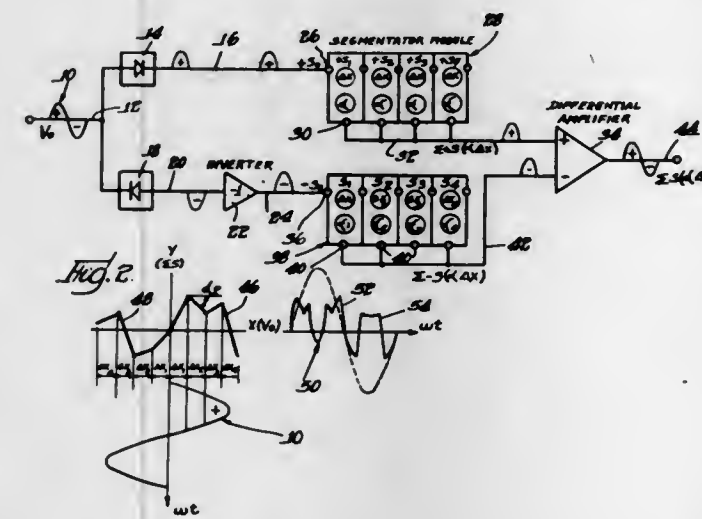
Eric Gschwandtner, North Tonawanda, N.Y., assignor to The Wurlitzer Company, Chicago, Ill.

Filed Oct. 17, 1968, Ser. No. 768,237

Int. Cl. H03k 5/08

U.S. Cl. 328—28

10 Claims



A sine wave is split into positive and negative-going portions, the latter of which is inverted. Both half waves are now

positive-going, and both are applied to a respective series of segmentator modules. These modules slice the sinusoidal half waves into strata of adjustable amplitude, and each linearly amplifies a respective stratum of variable gain. The outputs of the segmentators are combined in a differential amplifier to provide a complex wave form of desired characteristics.

3,596,186

DEVICE FOR COUNTING IMPULSES

Jean Claude Berney, Lausanne, Switzerland, assignor to Bernard Golay S. A., Lausanne, Switzerland

Filed Nov. 19, 1968, Ser. No. 777,052

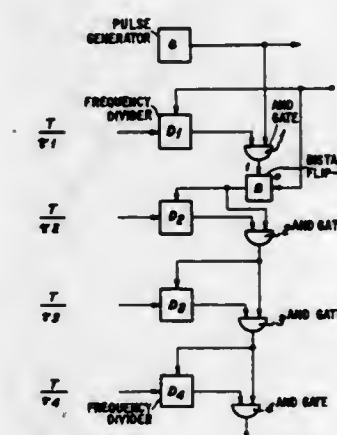
Claims priority, application Switzerland, Nov. 28, 1967,

16710/67

Int. Cl. H03k 21/00

U.S. Cl. 328—39

6 Claims



This disclosure concerns a device for counting impulses which has a generator of reference signals emitted with a given period of repetition, at least one dephasing device delivering a periodic signal with a period equal to the reference period and whose phase is modified progressively by the impulses to be counted which are applied thereto and a comparison signal for the phase of the reference signal and the phase delivered by the dephaser, the difference in phase being proportional to the number of impulses counted.

3,596,187

PULSE CODE GENERATOR

William J. Thompson, 5363 Van Nuys Place, San Diego, Calif.

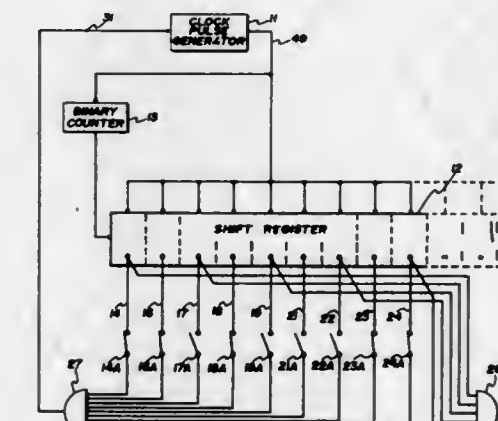
Continuation-in-part of application Ser. No. 684,265, Nov. 20, 1967, now abandoned. This application Nov. 26, 1969,

Ser. No. 880,313

Int. Cl. H03k 1/18

U.S. Cl. 328—63

1 Claim



A pulse code generator for generating morse code logic having a voltage-controlled clock pulse generator, the output of which is coupled as a shift pulse to a digital shift register

and through a binary counter to the signal input of the digital shift register, each stage of the digital shift register having an output which can be selectively coupled to an output OR gate and to a feedback OR gate; the output of the feedback OR gate being coupled to the controlled input of the voltage-controlled clock pulse generator to control the voltage-controlled clock pulse generator's offtime or ontime by the presence or absence of a pulse at the control input; the code generated is determined by which stages of the digital shift register are coupled to the feedback OR gate and to the output OR gate.

3,596,188

FOUR-PHASE DIGITAL CLOCK

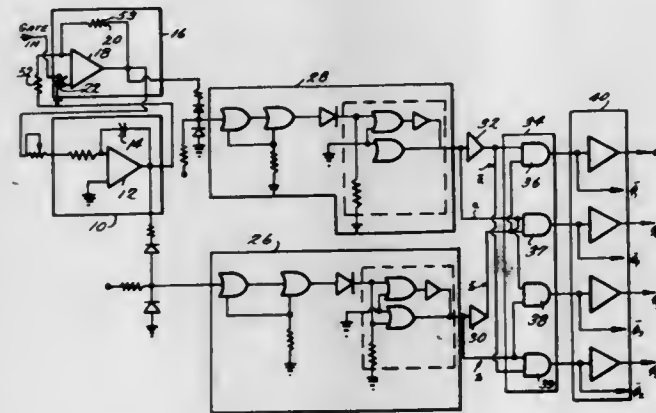
John A. Hasse, Bloomington, Minn., assignor to Control Data Corporation, Minneapolis, Minn.

Filed Dec. 3, 1969, Ser. No. 881,905

Int. Cl. H03k 1/00, 19/20

U.S. Cl. 328-62

9 Claims



A four-phase digital clock for use in digital systems whereby an oscillator means simultaneously provides a first triangular waveshape output signal and a second substantially square waveshape output signal in a quadrature with respect to one another and including logic means coupled to the outputs of the oscillator means for providing the four-phase digital clock signal. The oscillator includes a Miller integrator connected in series with a high gain positive feedback amplifier the output of which is fed back to the input of the integrator. The four clock pulses are derived by sensing the positive-going high gain amplifier output, sensing the negative-going high gain amplifier output, sensing the zero crossing integrator output (positive-going), and sensing the zero crossing integrator output (negative-going).

3,596,189

NONCONTACT SHAFT SYNCHRONIZER

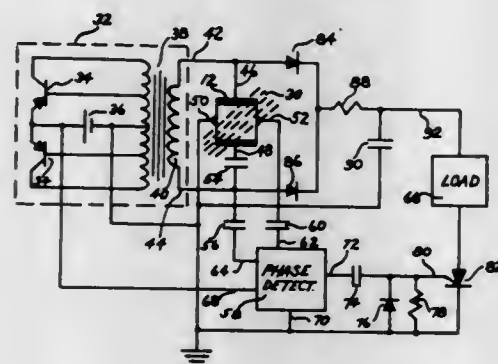
Frank K. Luteran, 1848 N. Walcott Drive, Jackson, Mich.

Filed Feb. 18, 1969, Ser. No. 800,188

Int. Cl. H03k 17/00; G01p 3/12

U.S. Cl. 328-72

12 Claims



This invention relates to a noncontacting shaft position indicator utilizing the responsive properties of a magnetosensitive device. Shaft position is determined from the variation of

the intensity and direction of the magnetic flux linking a rotor on the shaft and a fixed stator. The varying magnetic flux phase and amplitude modulates the high frequency input signal of a magnetosensitive device interposed in the flux path. The phase modulation information is utilized to generate a trigger pulse which is in synchronism with the instantaneous shaft position. Electrical means are provided to further shape the magnetic field to provide a means of retarding or advancing the generation of the trigger pulse in relation to the instantaneous shaft position.

3,596,190

DETECTION OF THE RATE OF CHANGE OF AN ELECTRIC VOLTAGE

Richard Carlisle Marshall, Harpenden, England, assignor to George Kent Limited, London, England

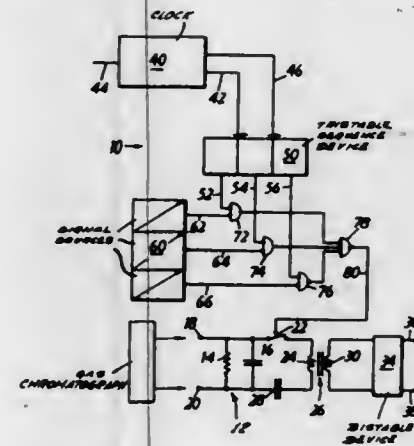
Filed Feb. 21, 1968, Ser. No. 707,106

Claims priority, application Great Britain, Feb. 27, 1967, 9280/67

Int. Cl. H03k 5/00, 17/00

U.S. Cl. 328-151

7 Claims



A device for detecting the slope of a variable electric signal by periodically sampling the signal, which may be obtained for example from a gas chromatograph is operated so that the sampling frequency is varied in a predetermined way with time in accordance with the expected variation of the signal. The slope detecting device can thus be operated with optimum sensitivity and speed of response over an entire chromatograph spectrum. Control of the device can be effected by apparatus providing a control signal of a frequency varied in steps or continuously.

3,596,191

SAMPLING CIRCUIT

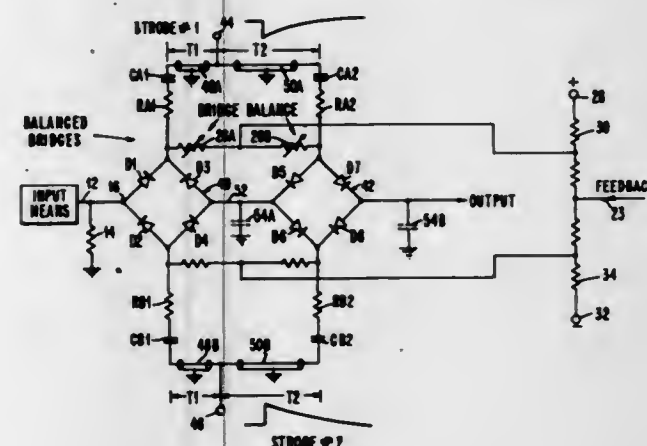
Paul E. Stuckert, Katonah, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1969, Ser. No. 837,789

Int. Cl. H04b 1/04

U.S. Cl. 328-151

7 Claims



A sequential gate sampling circuit is shown as used in a sampling oscilloscope. Sampling is achieved by sequentially

actuating two gates from a common source of strobe pulses. Prior to the initiation of a sampling operation, a first of the gates is quiescently closed and a second of the gates is quiescently open. At the beginning of a sampling operation, a pair of strobe pulses rise very quickly and divide along transmission lines of unequal length, switching the first gate to the open state and subsequently switching the second gate to the closed state. The sampling time duration is created by the difference in time between the opening of the first bridge and the closing of the second bridge. This time duration is controlled by the difference in length of the transmission lines allowing operation of the gates during the onset of the strobe pulses.

3,596,192

NONLINEAR LOW-PASS FILTER

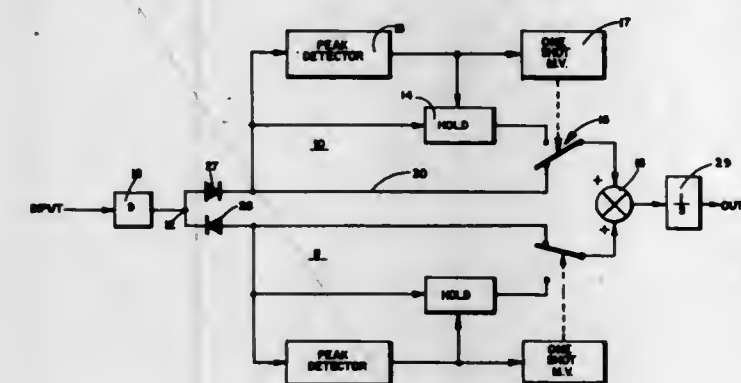
Charles L. Lutes, Anaheim, Calif., assignor to North American Rockwell Corporation

Filed Feb. 13, 1969, Ser. No. 799,038

Int. Cl. H03k 17/00

U.S. Cl. 328-165

12 Claims



A low-pass filter, the frequency response of which demonstrating substantially no attenuation at frequencies below a preselected break frequency and having substantially zero volts per volt gain at frequencies above the break frequency. First and second oppositely poled unipolarly conductive signalling channels are output coupled to respective inputs of a summing integrator for alternatively coupling an output of a peak-detected, sampled-and-held output of a differentiator to an input of the integrator. The time interval of the coupling of the peak-detected, sampled-and-held differentiator output corresponds to the break frequency of the filter.

3,596,193

SWEEP OSCILLATOR WITH INTENSITY FREQUENCY MARKER

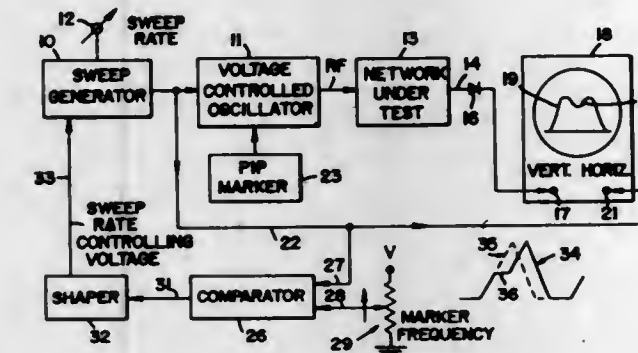
Duane Edmond Dunwoodie, Los Alto, Calif., assignor to Wiltron Company, Palo Alto, Calif.

Filed Mar. 27, 1968, Ser. No. 716,400

Int. Cl. H03k 4/12

U.S. Cl. 328-185

4 Claims



A sweep oscillator for use in conjunction with a cathode-ray oscilloscope provides an oscilloscope trace of a frequency response characteristic of a network under test. An intensified marker portion for identifying the frequency of a par-

ticular point on the trace is provided by slowing the electron beam at that point by modifying the sweep rate of the oscillator. A comparator compares the sweep voltage to a preset DC voltage and operates on the sweep voltage to reduce its rate or slope at the marker spot desired. The voltage output of the comparator is shaped to cause the length of the marker on the trace to remain at a constant percentage of the total sweep time.

3,596,194

ELECTRONIC SIGNAL CONVERTER

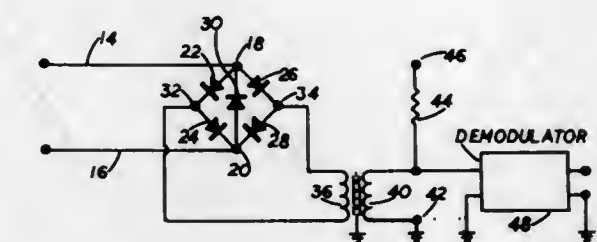
William A. Dambrackas, Trevoet, Pa., assignor to Ultronic Systems Corp.

Filed Feb. 20, 1970, Ser. No. 13,258

Int. Cl. H03d 3/10

U.S. Cl. 329-104

2 Claims



Apparatus used in transforming standard neutral or bipolar teletypelike signals as received from a telephone line into corresponding signals at different power levels for use with electronic equipment. The apparatus displays a variable impedance having first and second sharply different values which are attained as the received signal changes state. A demodulator coupled to the apparatus and responsive to the different impedance values produces the desired corresponding signals at desired power levels for use in the equipment.

3,596,195

REVERSING PROPORTIONAL PROCESS CONTROLLER

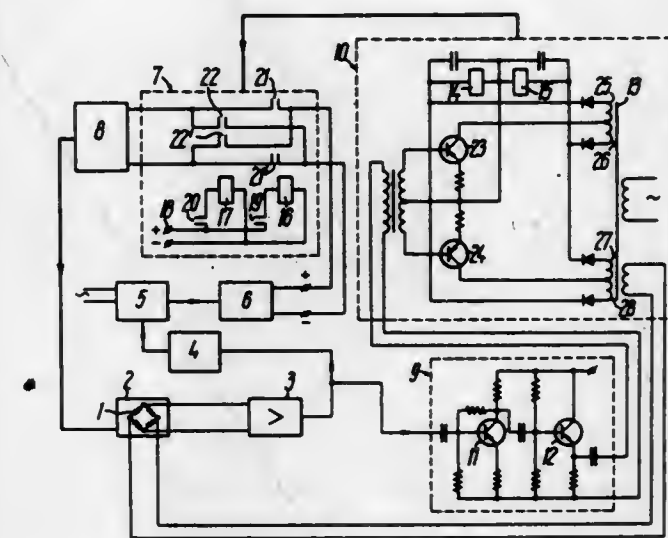
Nikolai Mikhailovich Shirshov; Vladimir Gavrilovich Karpova; Viktor Dmitrievich Leonov, and Vyacheslav Viktorovich Chernyavsky, all of Leningrad, U.S.S.R., assignors to Spetsialnoe Konstruktorskoe Bjuro Poluprovodnikovykh Priborov, Leningrad, U.S.S.R.

Filed Sept. 18, 1968, Ser. No. 760,416

Int. Cl. H03f 1/00

U.S. Cl. 330-1 A

2 Claims



A reversing proportional process controller is disclosed which is based on the adjustment of the current of a load.

The controller comprises a bridge circuit with a controlled variable transmitter placed in one arm thereof, the bridge circuit being connected to a control signal amplifier, in turn connected to an auxiliary amplifier. A phase sensing unit is connected to the auxiliary amplifier and controls the operation of a switching unit which is connected to the control signal amplifier via a final control element which is constituted as a series combination of a magnetic amplifier and a power rectifier. The switching unit controls current flow to the load in order to rebalance the bridge circuit.

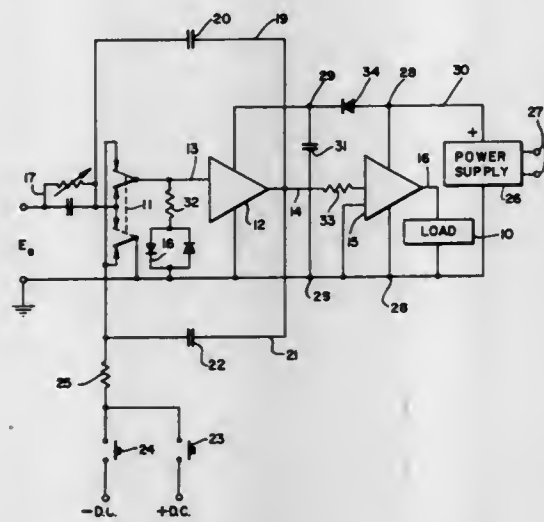
3,596,196

ELECTRONIC PROCESS CONTROLLER WITH TRANSIENT POWER INTERRUPTION PROTECTION
John E. Riley, Saugus, Mass., assignor to General Electric Company

Filed May 16, 1969, Ser. No. 825,172
Int. Cl. H03f 1/14

U.S. Cl. 330-11

2 Claims



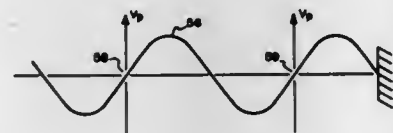
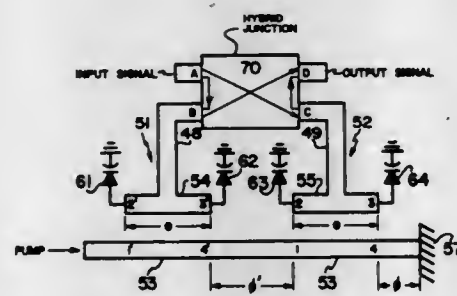
An electronic process controller with transient power interruption protection provided by a voltage-maintaining capacitor connected across the power supply terminals of the voltage amplifier. A blocking diode, in series with the power supply circuit, prevents discharge of the voltage-maintaining capacitor through the power supply circuit during a power outage.

3,596,197

BALANCED PARAMETRIC AMPLIFIERS
Paul Chorney, Providence, R.I., assignor to Microwave Associates, Inc., Burlington, Mass.
Filed Mar. 25, 1969, Ser. No. 810,295
Int. Cl. H03f 7/04

U.S. Cl. 330-4.9

8 Claims



Examples are described of a balanced parametric amplifier employing two loosely-coupled strip conductors, one of

which is fed signals via a strip conductor connected at its center. Varactors are connected from each end of the signal-side strip to a ground plane, which completes the idler circuit. The pump standing wave is adjusted to place a null at the signal point and to apply equal amplitude, opposite-phase pump voltages to the varactors.

3,596,198

VOLUME CONTROLLER

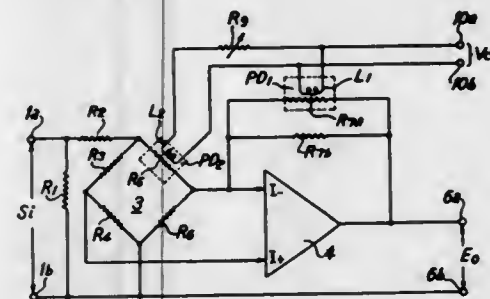
Shigeru Niki, Takanobu Hashimoto, and Michio Yoshioka, all of Tokyo-to, Japan, assignors to Kokusai Denki Kabushiki Kaisha, Tokyo-to, Japan

Filed Nov. 1, 1968, Ser. No. 772,660

Claims priority, application Japan, July 9, 1968, 43/47512
Int. Cl. H03f 17/00, 1/36

U.S. Cl. 330-59

3 Claims



A volume controller for controlling the voltage of at least one signal transmitted in a signal path in matching with the characteristic impedance of the signal path, where the signal is branched to two differential outputs by a branch circuit comprising a bridge circuit of four resistance-arms to amplify the difference between the two differential outputs in a difference amplifier which has a feedback circuit comprising a variable resistor connected between the output of the difference amplifier and one of two inputs of the difference amplifier. The voltage of the output of the difference amplifier can be controlled within an extremely wide level range in response to control of the control means which gangs the variable resistor of the feedback circuit and variable one of the four resistor-arms of the bridge circuit.

3,596,199

TRANSISTORIZED AMPLIFIERS AND PROTECTIVE CIRCUITS THEREFOR

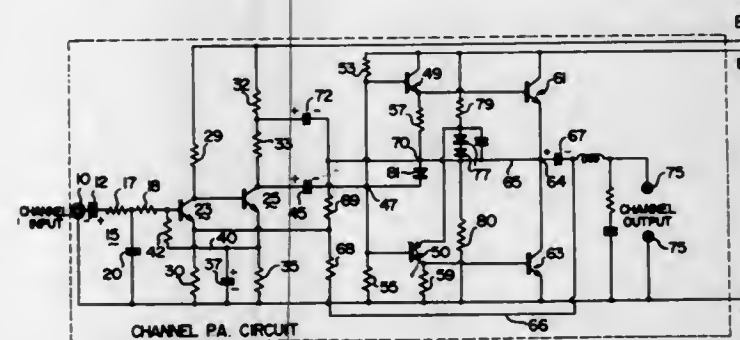
David Hafler, Merion Station, Pa., assignor to Dynaco, Inc., Philadelphia, Pa.

Filed Sept. 9, 1966, Ser. No. 578,408

Int. Cl. H03f 21/00

U.S. Cl. 330-207 P

9 Claims



A protective circuit for a transistor amplifier having a driver stage and an output stage. The driver stage has a pair of series connected transistors in class B configuration and operates as a phase inverter in response to audio signal applied to a common input point to supply balanced oppositely phased signals to the output stage, the latter comprising a pair of series connected class B transistors having input cir-

cuits responsive respectively to the oppositely phased signals to supply a substantial replica of the input audio signal to a load connected to the junction of their output circuits. The overall amplifier has unity voltage gain, but provides a power gain with transition from high impedance source to low impedance load. A normally conductive electronic switch in a negative feedback path from output load point to output circuits of driver stage transistors is rendered nonconductive to open the feedback path and thereby prevent continuance of output DC level shifts normally mirroring input DC level shifts which would otherwise lead to self-destructive current multiplication, in the event of overdrive. A further normally nonconductive electronic switch in a path between output load point and input signal point of the overall amplifier is rendered conductive, in that event, to cut off audio signal through the amplifier.

3,596,200

SIMULTANEOUS COMPLEMENTARY OUTPUT PULSE GENERATOR

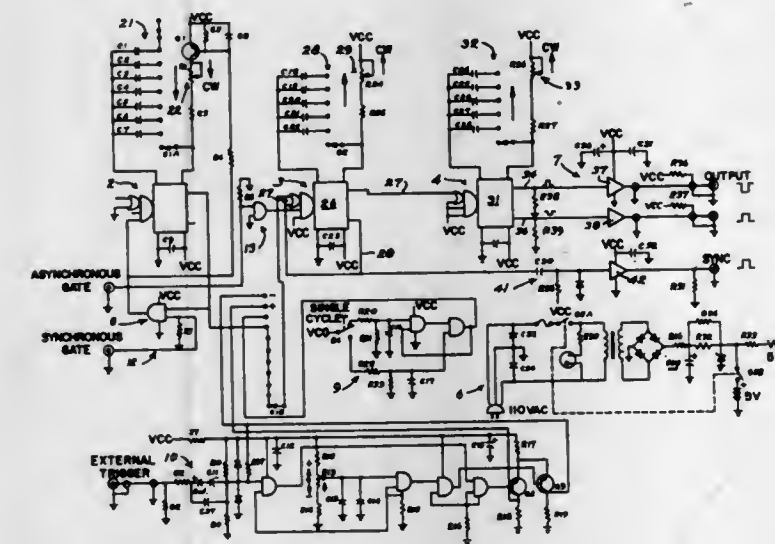
Delbert C. Fausey, Jr., San Jose, and Russell W. Ralphs, Concord, both of, Calif., assignors to International Water and Control Systems, Ltd., Montego Bay, Jamaica

Filed June 24, 1969, Ser. No. 836,045

Int. Cl. H03k 1/14, 1/16, 1/18

U.S. Cl. 331-75

31 Claims



Presented is a pulse generator that is selectively operable from an AC or a DC source of power. The pulse generator produces a pair of complementary DC coupled outputs. Pulse amplitude is continuously adjustable up to 10 volts, as are pulse width, from 50 nanoseconds to 20 milliseconds, and repetition rate from 1 hertz to 10 megahertz. Rise and fall times are typically 6 nanoseconds when the pulse generator feeds into a 50 ohm load. The pulse generator can feed almost any digital system; it directly drives resistor-transistor, diode-transistor and transistor-transistor logic circuits. From the viewpoint of organization, the apparatus comprises an oscillator, the output from which is connected to a delay control circuit, the output of which is divided into positive and negative going pulses channeled into a pair of output branch circuits. One branch feeds a width control circuit while the other branch feeds a differentiating network, the latter network functioning to provide a reference pulse for comparison with the complementary outputs from an amplifier connected to the two complementary output channels emanating from the width control circuit.

3,596,201

FREQUENCY STABILIZED LASER
Arthur N. Chester, Murray Hill, N.J., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed June 8, 1970, Ser. No. 048,817

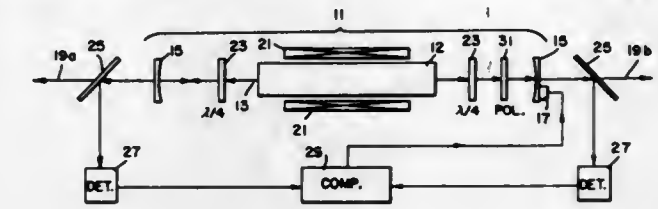
Int. Cl. H01s 3/00

U.S. Cl. 331-94.5

3 Claims

A frequency stabilized laser is disclosed in which active laser material exhibiting Zeeman effects is disposed in a reso-

nant laser cavity to which an axial magnetic field is applied for producing Zeeman-splitting, and in which a feedback error signal is applied to adjust the frequency of laser oscillation. Optical means, including quarter-wave plates, are disposed in the laser cavity for insuring that the laser energy propagating in the laser material in a first axial direction is



polarized in a first circular polarization sense only, as measured with respect to the direction of the applied magnetic field, and for insuring that the laser energy propagating in the laser material in the opposite axial direction is polarized in the opposite circular polarization sense only, as measured with respect to the direction of the magnetic field.

3,596,202

CARBON DIOXIDE LASER OPERATING UPON A VIBRATIONAL-ROTATIONAL TRANSITION

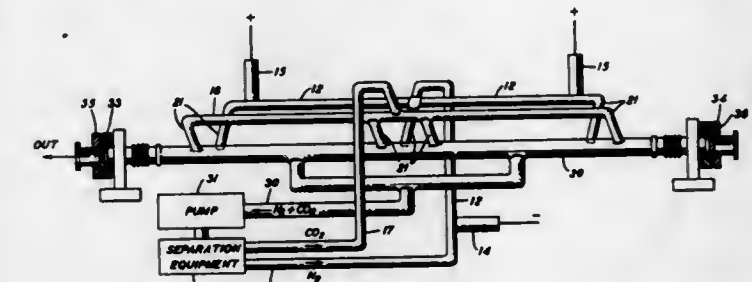
Chandra K. N. Patel, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation-in-part of application Ser. No. 409,682, Nov. 9, 1964, now abandoned, Continuation-in-part of application Ser. No. 474,546, July 26, 1965, now abandoned, Continuation-in-part of application Ser. No. 495,844, Oct. 14, 1965, now abandoned. This application Mar. 28, 1969, Ser. No. 814,510

Int. Cl. H01p 3/22

U.S. Cl. 331-94.5

3 Claims



There is disclosed a laser providing emission of coherent radiation near 10 microns in the far infrared and utilizing transitions between vibrational-rotational levels in carbon dioxide. Also disclosed are beneficial effects from addition of oxygen, water vapor and helium to various forms of such a laser.

3,596,203

PLURAL TRANSISTOR HIGH FREQUENCY OSCILLATOR

Kazuo Sakamoto, and Ryoji Tamura, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Jan. 2, 1969, Ser. No. 788,577

Claims priority, application Japan, Jan. 4, 1968, 43/423

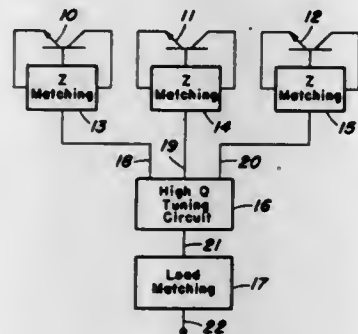
Int. Cl. H03b 5/18

U.S. Cl. 331-96

11 Claims

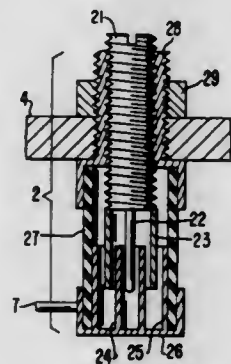
Oscillator apparatus is provided in accordance with the teachings of this invention wherein the total output power as well as the power consumed thereby is equally divided among a plurality of transistor means. The resulting transistorized oscillator apparatus is particularly well adapted for high frequency, high power applications because high frequency transistor means may be appropriately utilized therein without exceeding the rated collector dissipation of such transistor means. According to one embodiment of the present invention, oscillator apparatus is described wherein a plurality of transistors are individually coupled to high Q tuned circuit means through a plurality of impedance

matching means interposed between the inputs to said high Q tuned circuit means and each of said plurality of transistor means. The output of the oscillator apparatus may then be made available to a load through load matching circuit means connected to said high Q tuned circuit means. The loaded Q of the high Q tuned circuit means is selected to be sufficiently above that exhibited by said impedance matching means and said load matching circuit means so that the



frequency of said oscillator means determines the oscillation frequency of said oscillator apparatus and maintains the reactive portion of the overall impedance thereof at a constant value whereby said impedance matching means may be independently adjusted to match the impedance of its respective transistor means to the impedance of high Q tuned circuit means without adversely affecting any of the other transistor means present therein.

3,596,204
TUNABLE COAXIAL CAVITY SEMICONDUCTOR
NEGATIVE RESISTANCE OSCILLATOR
Arthur B. Vane, Menlo Park, Calif., assignor to Varian Associates, Palo Alto, Calif.
Filed July 2, 1969, Ser. No. 838,627
Int. Cl. H03b 7/14
U.S. Cl. 331-101
4 Claims

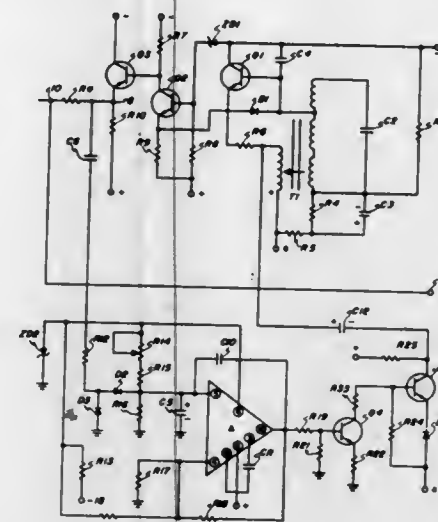


A microwave oscillator circuit is disclosed which employs a series connection of a lumped element capacitor and a semiconductor device capable of exhibiting negative resistance. The capacitance of the capacitor is series resonated with its self inductance to form the principal frequency determinative element of the resonance circuit, whereby broadband tuning is achieved with a relatively simple and thus inexpensive resonator circuit.

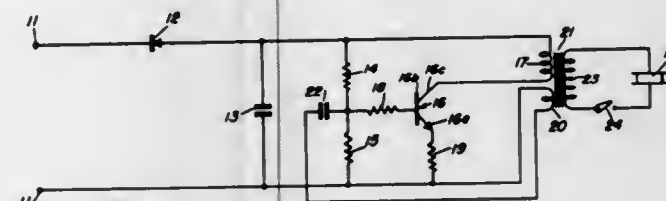
3,596,205
LEVEL REGULATOR FOR AN OSCILLATOR
Morris Ribner, Chicago, Ill., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Aug. 15, 1969, Ser. No. 850,556
Int. Cl. H03b 3/02
U.S. Cl. 331-109
7 Claims

The amplitude level of an oscillator employing a transformer winding as a tank circuit is controlled by varying the gain in the tank circuit. This variation in gain is directly regulated by a transistor circuit connected in parallel with the input winding of the transformer. The level of conduction of the transistor, in turn, is determined by a feedback loop which interconnects the output of the oscillator and the

transistor. Variations within the loop determining the level at which a stabilized amplitude is to exist are produced by vary-

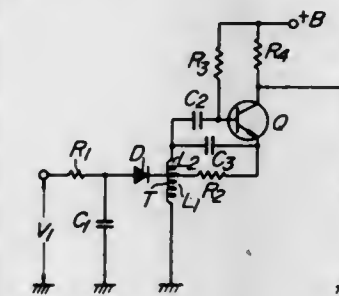


3,596,206
TRANSISTOR OSCILLATOR INCLUDING ULTRASONIC
GENERATOR CRYSTAL
Walter J. Loria, 420 E. 86th St., New York, N.Y., and Jerome Subre, 2370 Seneca Road, Scotch Plains, N.J.
Filed Nov. 6, 1969, Ser. No. 874,543
Int. Cl. B01f 1/102; H03b 5/36; H04r 17/10
U.S. Cl. 331-116 R
15 Claims



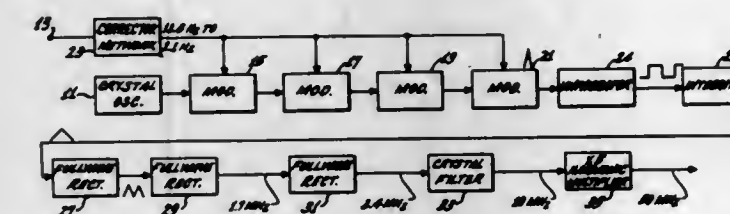
Ultrasonic oscillators having electronic transducers and excitation circuits for the transducers in which the transducers can be disconnected from the oscillator without causing damage. The excitation circuit comprises a primary and a secondary circuit, in which the primary circuit is adapted to be energized with AC and is provided with a rectifier therein for producing a source of pulsating DC for energizing the oscillator system. The primary circuit includes a transistor having a collector-emitter circuit connected through the primary winding of a transformer across the pulsating DC source and having its base connected to a voltage divider, also across the pulsating DC source, such that the transistor is biased nearly to cutoff. A feedback circuit is provided having a coil inductively coupled to the transformer primary and electrically connected to the transistor emitter and through a blocking capacitor to the transistor base. The primary winding and feedback coil are wound with numbers of turns to resonate at a frequency higher than the operating range of the transistor. A secondary circuit comprising a transformer secondary winding connected across the transducer is wound inductively coupled to the primary winding and to the feedback coil such that when introduced into the oscillator circuit physically or by closure of the transducer circuit connection thereto it tunes the oscillator to the resonant frequency of the transducer, which is within the operating range of the transistor. This provides for inherently making the oscillator operative when the secondary is introduced and making it quiescent, i.e., nonoscillatory, when the secondary circuit is removed physically or electrically.

3,596,207
VOLTAGE CONTROL OSCILLATOR
Hiroyuki Nabeyama, Higashikoganei-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Jan. 27, 1970, Ser. No. 6,220
Claims priority, application Japan, Feb. 15, 1969, 44/11236
Int. Cl. H03b 5/12
U.S. Cl. 331-117 R
3 Claims



A voltage control oscillator adapted so that the oscillation frequency thereof can be controlled by use of a variable DC voltage, wherein a signal is positively fed from the emitter of a transistor constituting the oscillator back to the base thereof through a transformer and capacitor, a diode connected to said capacitor, and the aforementioned variable DC voltage is imparted to said transformer through said diode, thereby controlling the nonconducting period of said transistor.

3,596,208
SAWTOOTH FREQUENCY MODULATION SYSTEM
INCLUDING A WAVESHAPING FREQUENCY
MULTIPLIER CHAIN
David Lessing Yezley, Pittsburgh, Pa., assignor to RCA Corporation
Filed July 8, 1969, Ser. No. 839,978
Int. Cl. H03c 3/00
U.S. Cl. 332-9 R
10 Claims

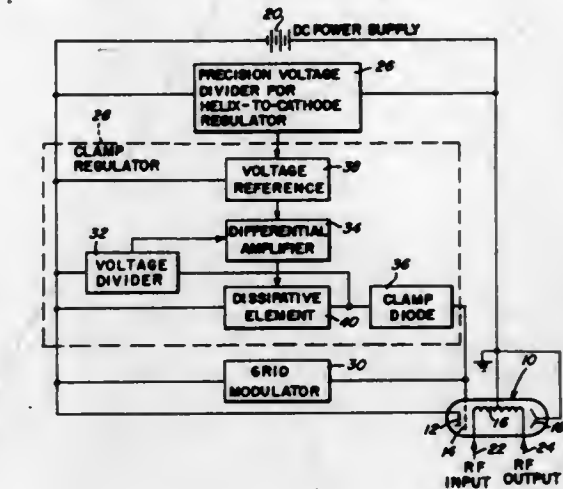


A modulation system includes a serrasoid modulator to provide a relatively high phase-shift capability and a broadband, upturned frequency multiplier chain to achieve the required amount of frequency deviation when operating at the commercial broadcasting frequencies.

3,596,209
SIDELobe SUPPRESSION BY PHASE CANCELLATION
IN TRAVELING WAVE DEVICES
Dennis J. Picard, Maynard, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed Aug. 1, 1969, Ser. No. 846,760
Int. Cl. H03c 3/34
U.S. Cl. 332-18
6 Claims

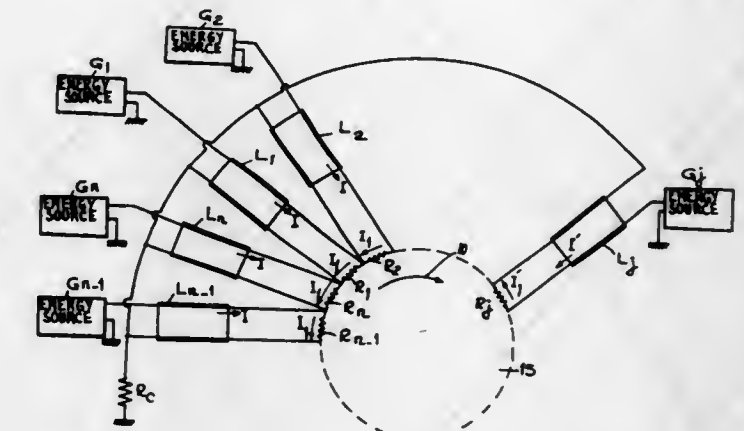
A circuit arrangement is disclosed for substantial reduction of spurious sideband noise levels in radio frequency signals by coupling a fraction of the power supply voltage ripple directly to a modulating or control electrode of an electron beam interaction type device for the generation or amplification of radiofrequency electromagnetic energy signals. The introduction of the modulating ripple voltage variations on the applicable electrode has a significant effect on cancellation of the original spurious phase modulation of the radiofrequency signals. Such phase modulation, particularly

in traveling wave type devices, is believed to result in the generation of the undesired noise signals, particularly at the



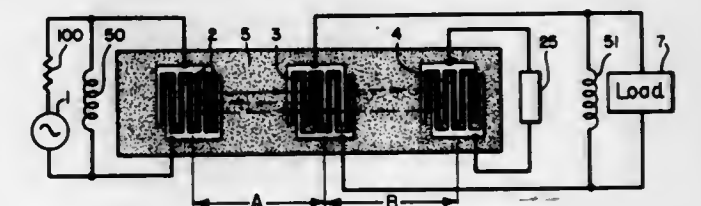
sideband level, by reason of voltage fluctuations in the power supply for the cathode and helix electrodes.

3,596,210
N-INPUT APERIODIC HYBRID COUPLER
Alberto Pimentel, Paris, France, assignor to Thomson-CSF
Filed July 2, 1969, Ser. No. 838,400
Claims priority, application France, July 10, 1968, 158,569
Int. Cl. H01p 5/12
U.S. Cl. 333-8
8 Claims



An aperiodic coupler having any number of inputs and comprising the same number of two-wire lines, each associated with a high permeability magnetic core. Its insertion loss is negligible and it has substantial decoupling between any two inputs.

3,596,211
SURFACE-WAVE FILTER REFLECTION
CANCELLATION
Fleming Dias, Chicago, and Adrian J. De Vries, Elmhurst, both of, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.
Filed Nov. 6, 1967, Ser. No. 680,654
Int. Cl. H03h 9/00
U.S. Cl. 333-72
10 Claims



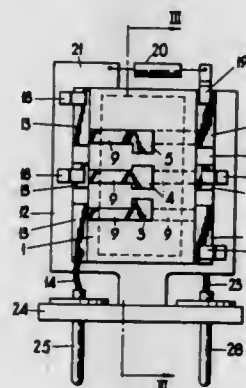
Undesired time-delayed and reduced-amplitude output signal components or "ghosts," due to reflected surface

waves arriving at the output transducer of an acousto-electric surface-wave filter, are inhibited or cancelled by providing an additional transducer suitably located to reflect compensating surface waves which arrive at either the input transducer or the output transducer in appropriate amplitude and phase to nullify the effect of the undesired surface waves. The amplitude of the compensating surface waves is controlled by the configuration of the additional transducer and the magnitude of its associated external load impedance.

3,596,212 ELECTRICAL BAND-PASS FILTER EMPLOYING MONOLITHIC CRYSTALS

John Francis Werner, Pinner, and Arthur Joseph Dyer, Watford, both of, England, assignors to The General Electric and English Electric Companies Limited, London, England
Filed Nov. 6, 1969, Ser. No. 874,629
Claims priority, application Great Britain, Nov. 19, 1968, 54,791/68

U.S. Cl. 333—72 Int. Cl. H03h 7/10 10 Claims



An electrical band-pass filter comprising two quartz slabs each slab having at least two pairs of electrodes each of which pairs sandwiches a portion of the slab to form a mechanical resonator. The resonators are coupled together in a series, adjacent resonators on the same slab being coupled together mechanically, via the material of the slab, and adjacent resonators on different slabs being coupled together electrically, via a capacitor. The construction is effectively a monolithic crystal filter which has been divided into two halves. This reduces mechanical coupling between the input and output of the filter, and thus improves the stop-band performance of the filter. The slabs have different thicknesses and different electrode geometries, thus ensuring that unwanted resonances in the two slabs are at different frequencies. The slabs are mounted back-to-back on a conducting screen which electrically shields the slabs from each other. The filter is designed as a whole to have a Chebyshev-type response.

3,596,213 FILTER UNIT HAVING A CIRCUMFERENTIAL ELECTROSTATIC SHIELD

Walter F. England, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.
Filed Dec. 18, 1968, Ser. No. 784,716
Int. Cl. H03h 7/04; H01g 3/17

U.S. Cl. 333—79 9 Claims



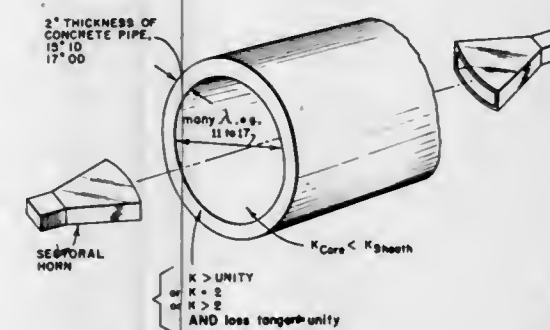
The unit includes an extended foil capacitance section made up of at least a pair of electrodes convolutely wound in

a capacitance relation with dielectric spacing material therebetween. A lead extends through the section in connection to one electrode, and the other electrode volutely extends beyond the one electrode to provide an electrostatic shield for the unit.

3,596,214 ELECTROMAGNETIC WAVEGUIDE

Jerome Ira Glaser, 227 Coolidge Avenue, Watertown, Mass., and Lan J. Chu, Whitcomb Avenue, Littleton, Mass.
Filed Mar. 29, 1968, Ser. No. 717,447
Int. Cl. H01p 3/12, 3/16

U.S. Cl. 333—95 R 5 Claims

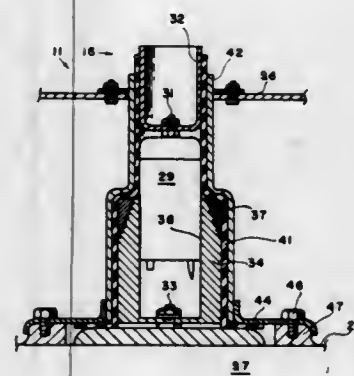


This disclosure deals with a novel electromagnetic waveguide particularly adapted for the transmission of a range of waves from submillimeter through optical wavelengths having a finite-conductivity tube of dielectric constant greater than unity surrounding a medium of lesser dielectric constant and of cross dimension of a value preferably very much greater than the wavelength of the waves propagated along the waveguide.

3,596,215 COAXIALLY MOUNTED IGNITRON

Gamon B. Hayward, P.O. Box 609, Del Mar, Calif.
Filed Dec. 15, 1969, Ser. No. 885,197
Int. Cl. H01p 1/10; H01r 17/18; H02q 15/02

U.S. Cl. 333—975 1 Claim



A coaxially mounted ignitron for coupling capacitors to a coaxial transmission line system in parallel relationship.

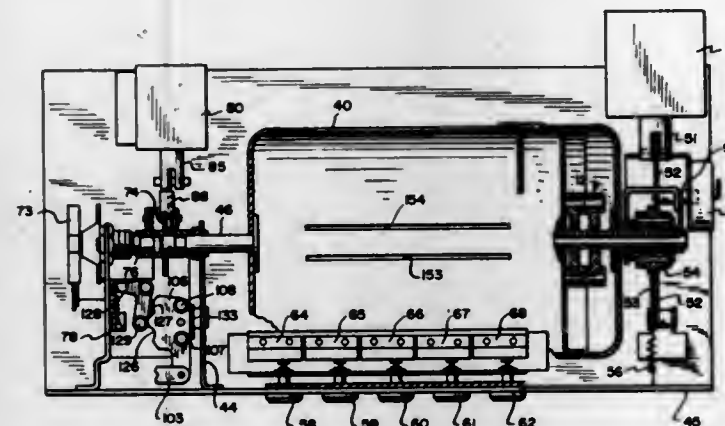
3,596,216 TUNER MECHANISM

Raymond I. Walsh, Prospect Heights, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Aug. 7, 1969, Ser. No. 848,237
Int. Cl. H03j 5/06, 5/08

U.S. Cl. 334—7 18 Claims

A pushbutton tuning mechanism for an AM-FM radio receiver includes a cylindrical turret capable of being rotated about a central longitudinal axis to a selected one of several discrete positions, with a linear potentiometer for the AM band and a linear potentiometer for the FM band being mounted for rotation with the turret at each of the positions. Selection of an AM-FM switch engages a clutch mechanism with the drive means for the potentiometers at the selected

position to effect tuning of the radio receiver accordingly. A plurality of pushbuttons are provided, and the depression of a pushbutton causes the turret to be rotated to the position

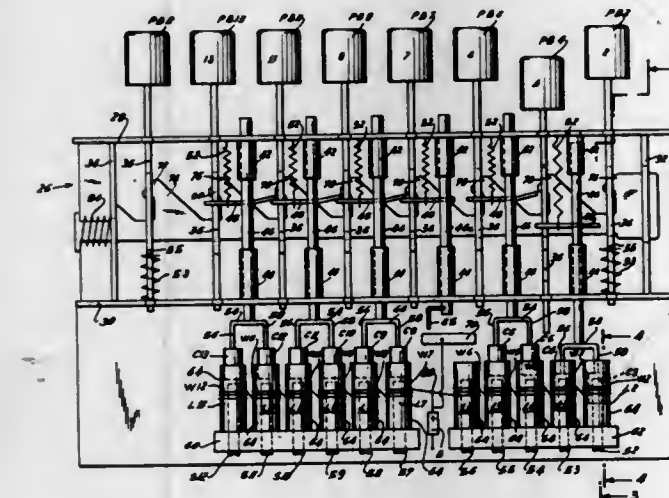


corresponding to that pushbutton, so that the two potentiometers (AM and FM) associated with that position control the tuning of the radio receiver.

3,596,217 CONTACTLESS VHF TUNER

John Chesney, Roselle Park, and Vincent P. Friberg, Leonia, both of, N.J., assignors to General Instrument Corporation, Newark, N.J.
Filed Aug. 13, 1969, Ser. No. 849,628
Int. Cl. H03j 5/08, 5/32, 3/20

U.S. Cl. 334—7 20 Claims



A tuner comprises a plurality of core-tuned inductors connected in series resonant circuit relationship with a capacitor. A tuning element such as a brass cup is operatively associated with each inductor and is movable between a first position, where it is remote from its associated inductor, to a second position where it is interposed between the inductor core and winding. In that first position the tuning element preferably is of no substantial influence on its associated inductor and in that second position, the tuning element preferably substantially removes that inductor from operative tuning relation with the capacitor.

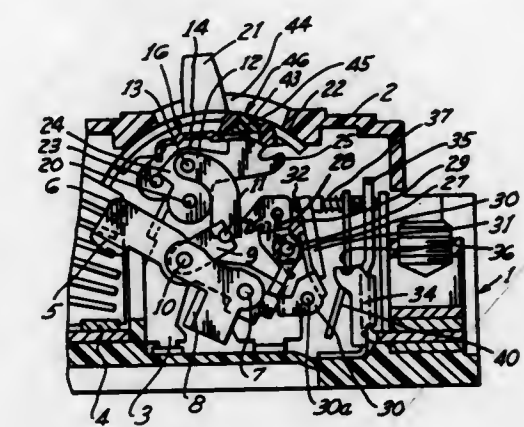
3,596,218 CIRCUIT BREAKER WITH TRIP INDICATOR

Beryl W. Layton, Cedar Rapids, Iowa, assignor to Square D Company, Park Ridge, Ill.
Filed Nov. 14, 1969, Ser. No. 876,747
Int. Cl. H01h 73/12

U.S. Cl. 335—17 8 Claims

The circuit breaker includes a contact making and breaking assembly mounted in a housing and having a trip

mechanism with a trip lever carrying an indicator. The housing has an opening through which the handle of a manual operator extends. The handle has a dust shield which underlies the opening and which has a window with a lens therein. The lens is exposed for viewing from the exterior of the housing when the operator handle is in ON and TRIPPED positions,

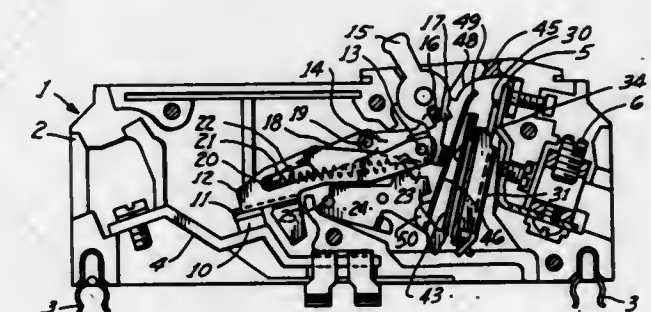


respectively. Upon tripping of the trip mechanism, the trip lever is moved so as to dispose the indicator close to, and in alignment with, the lens and window for indicating the tripped condition. The lens and operator are suitably notched for permitting passage of the indicator into and out of alignment with the window.

3,596,219 CIRCUIT BREAKER WITH TRIP INDICATOR

Kenneth W. Erickson, Cedar Rapids, Iowa, assignor to Square D Company, Park Ridge, Ill.
Filed Nov. 25, 1969, Ser. No. 879,733
Int. Cl. H01h 71/04

U.S. Cl. 335—17 7 Claims



The circuit breaker has a trip lever which normally is latched by a latch mechanism in an untripped position wherein it maintains the contacts in condition to be opened and closed by a manual operator. The latch mechanism releases the trip lever only upon the occurrence of abnormal current conditions whereupon the contacts are opened and the trip lever is returned to a tripped position. An indicator strip of flexible, nonconducting material having an indicating portion at its outer end is carried by the trip lever. The strip is pushed thereby endwise so that the outer end of the strip engages an interior wall of the housing of the circuit breaker and is guided therealong into alignment with a window in the wall, as the lever moves to tripped position, thereby indicating the tripped condition of the circuit breaker. The indicator strip flexes during its movement to and from trip indicating position to facilitate its proper movement.

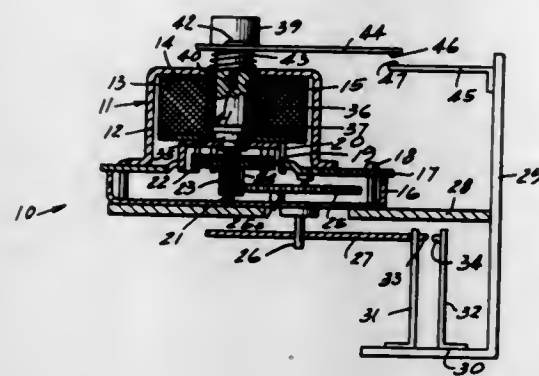
3,596,220 COMMON COIL RELAY AND TIMER

James I. Czech, Stevensville, and Donald E. Janke, Benton Harbor, both of, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.
Filed July 14, 1969, Ser. No. 842,090
Int. Cl. H01h 51/18

U.S. Cl. 335—68 8 Claims

A common coil device in a dryer control circuit usable as an electromagnetic device for developing functions of both a

motor and a relay. The relay function is utilized as a circuit continuity function which is normally provided as a shunt to recesses. If the movable member is a rotatable disc the guiding means comprises a plurality of calibrated balls interposed



3,596,221

RELAY WITH SPRING ACTUATED ELECTRICAL CONTACT

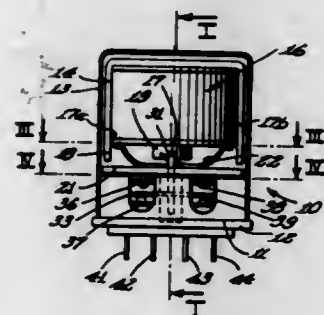
Anthony N. Grotz, Joliet; Robert L. Lee, Pontiac, and Donald J. Fumagalli, Joliet, all of, Ill., assignors to Liberty Leasing Co., Inc., Shorewood, Ill.

Filed Oct. 2, 1969, Ser. No. 863,042

Int. Cl. H01h 1/50

U.S. Cl. 335-185

9 Claims



3,596,222

PRECISION ELECTRIC TRANSDUCER FOR POSITION MEASURING ON MACHINE TOOLS

Elio Pagella, Torino, Italy, assignor to Ing. C. Olivetti & Co., S.p.A., Ivrea, Turin, Italy

Filed Sept. 9, 1969, Ser. No. 856,298

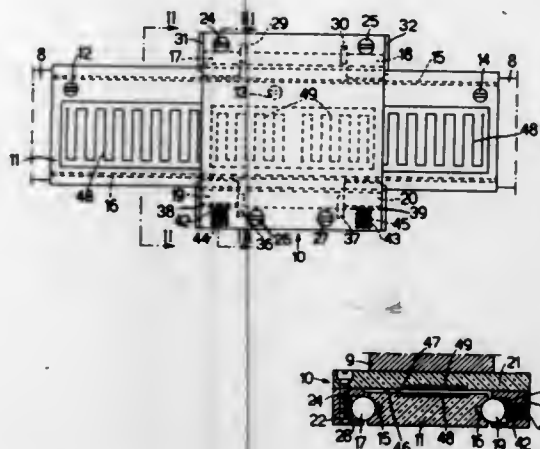
Claims priority, application Italy, Oct. 9, 1968, 53410/68

Int. Cl. H01f 21/04

U.S. Cl. 336-129

5 Claims

A machine tool position measuring precision transducer or detector comprises a pair of electrical windings secured to a pair of relatively movable members, which are mutually coupled through precision guiding means to maintain the airgap between the windings constant along the facing planes. If the movable member is a slide the guiding means comprises a C-shaped section having a pair of opposite recesses facing a pair of grooves of a guide, a plurality of calibrated cylindrical sliding blocks being interposed between the grooves and the



3,596,223

MINIATURE VARIABLE RESISTANCE CONTROL

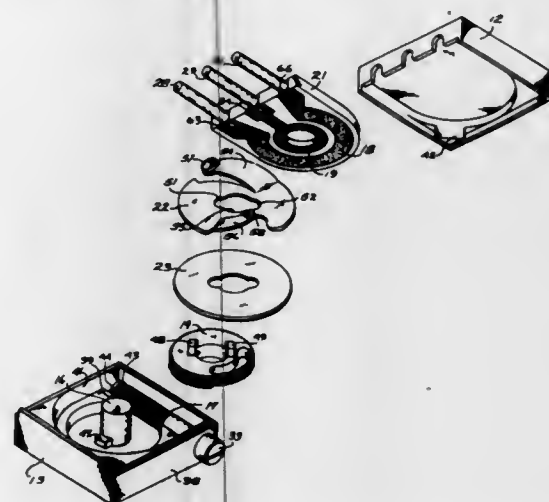
Ronald L. Stuckey, and Stanley O. Bender, both of Berne, Ind., assignors to CTS Corporation, Elkhart, Ind.

Filed Dec. 23, 1968, Ser. No. 786,319

Int. Cl. H01c 9/02

U.S. Cl. 338-174

14 Claims



A contactor and lead screw driven gear are positioned on a spindle within a housing. Ears on the gear extend along the spindle and interfit with notches in the contact. A seat in the housing fits in a groove formed in the tail end of the lead screw, the screw head compresses a sealing member against a continuous bearing surface on the housing, a spacer limits lead screw movement away from the seat. A bulkhead compartmentalizes the control and inhibits movement of debris and foreign particles into the electrical section of the control. Pullout strength of lead wire terminals anchored in a ceramic base is increased by sandwiching a segment of the terminals between the base and a housing wall.

3,596,224

APPARATUS FOR IMITATING GREAT VALUES OF ELECTRIC RESISTANCE

Anatoly Mironovich Chernov, Buelachenko 19, kv. 24, and Vladimir Dmitrievich Kibenko, Kuznechny pereulok, 97, kv. 12, both of Kishinev, U.S.S.R.

Filed Jan. 14, 1970, Ser. No. 2,805

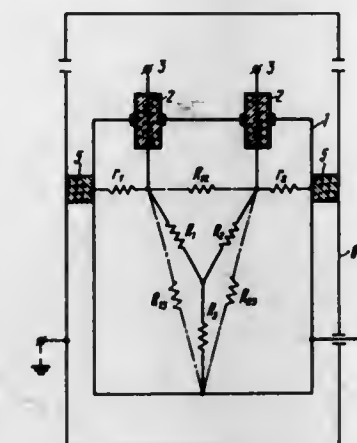
Int. Cl. H01c 1/02

U.S. Cl. 338-320

2 Claims

An apparatus for imitating a great value of electric resistance is disclosed, which can be connected to an instru-

ment to be tested, having a set of input terminals of any kind, this apparatus comprising at least three resistors connected into a star circuit and mounted inside an electrically conductive housing, this apparatus further comprising an auxiliary housing disposed inside the main one, the auxiliary housing includes a closed electrically conductive body receiving said at least three resistors therein; that one of the radii of the



star circuit, which has the electric resistance lower than that of the other radii, is connected to the body of the auxiliary housing; the apparatus further comprises at least three outgoing electrical conductors one of these conductors is electrically connected with the body of the auxiliary housing and the other two conductors extend through separate insulating members mounted on the body of the auxiliary housing.

3,596,225

PIGTAIL ROTARY JOINT

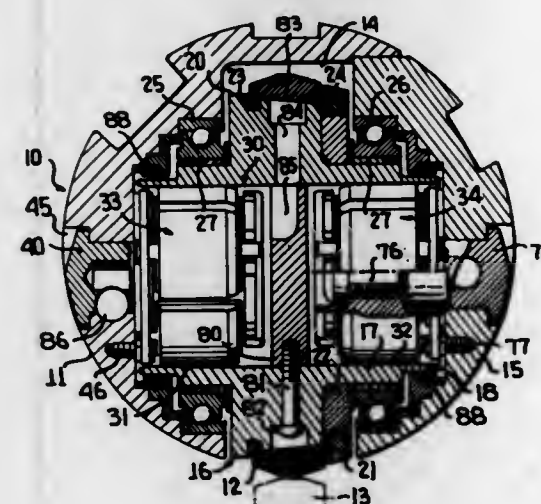
John T. Cary, Markham, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed July 15, 1969, Ser. No. 841,812

Int. Cl. H01r 39/00

U.S. Cl. 339-5

7 Claims



A rotary joint for transferring high amperage electrical energy between a stationary member and a rotary member and particularly relates to a coupling member fixedly carried by the fixed member and having brushes engaged with an internal cylindrical surface on the rotary member. A principal feature of the rotary joint is that the brushes are permanently, yet flexibly, connected to a stationary hub of the coupling member, whereby the only relative moving surfaces are those of the brushes and the internal cylindrical surface and wherein any misalignment or eccentricity between the rotating member and the coupling member is readily accommodated for by the shifting of the brushes.

3,596,226

ELECTRICAL POWER TRACK AND SHOE

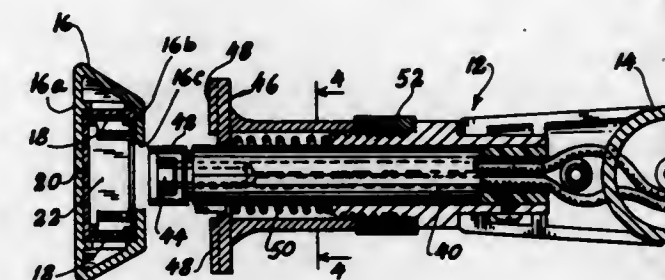
Jack A. Meltzer, 3398 Fairway Road, Oceanside, N.Y.

Filed Aug. 1, 1969, Ser. No. 846,903

Int. Cl. H01r 9/00, 3/06

U.S. Cl. 339-21 R

6 Claims



A track for wall mounting comprises two plane-parallel conductors extending the length of the track. A shoe for engagement with the track embodies a narrow elongated extension having pickup contacts at opposite ends thereof adapted for engagement with the track conductors upon rotation of the extension after fitting into the track. A spring-urged locking plate engages the track opening to prevent further rotation of the contact extension. The track enclosure and the locking plate may be conductors to provide a third line for grounded systems.

3,596,227

LAMP RECEPTACLE

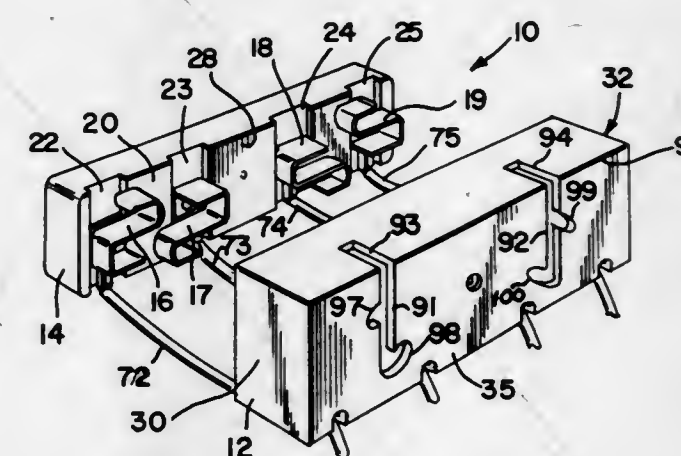
Gerald J. Shea, Buffalo Grove, and Hans Ege, Des Plaines, both of, Ill., assignors to Underwriters Safety Device Co., Chicago, Ill.

Filed Nov. 15, 1968, Ser. No. 776,178

Int. Cl. H01r 33/08

U.S. Cl. 339-53

1 Claim



A lamp receptacle for use in a lamp socket assembly adapted to receive at least two elongated lamps each of which has two end pins at each end, one side of the receptacle having first and second slots therein, each of the slots being adapted to receive the two end pins at one end of one of the lamps, each of the slots having at least one slot extension connected to the slot and extending to a point spaced from the slot, each of the slot extensions being adapted to receive and hold one of the end pins received in each of the slots when, after the end pins have been inserted into the first and second slots respectively, each lamp is moved in a different direction to place the end pins into the respective slot extensions, and the slot extension of the first slot extends in one direction and the slot extension of the second slot extends in a generally opposite direction. Preferably, the slot extensions are arcuate so that the lamps are rotated in opposite directions to rotate the end pins into the arcuate slot extensions. Also, preferably, end pin retaining means are provided adjacent each slot extension to retain the respective end pins in the slot extension and, if desired, to electrically

connect the end pins to a source of electric energy when the end pins of each lamp are inserted in the receptacle. The invention also includes a resilient clip comprising a base portion, a spring arm connected at one end to the base portion, and a detent connected to the other end of the spring arm.

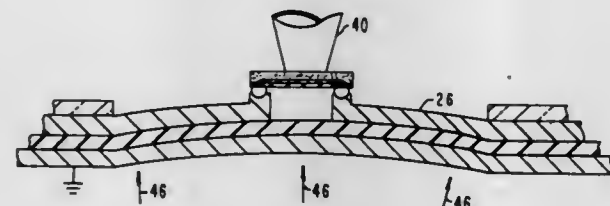
3,596,228

FLUID ACTUATED CONTACTOR

Frank W. Reed, Jr., Jeffersonville, and William J. Ryan, Jericho, both of, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 29, 1969, Ser. No. 828,905
Int. Cl. H01r 13/48

U.S. Cl. 339—59

12 Claims



A constant impedance or impedance matched fluid actuated contactor for electrical components, especially integrated circuit semiconductor chips, is provided. The contactor has a flexible dielectric membrane, on one side of which is a resilient, electrically conductive ground plane. On the other side of the dielectric membrane is a plurality of electrically conductive lines adapted to contact the electrical component. The membrane is mounted on a pressure chamber, and a pressurized fluid is utilized to move the dielectric membrane and the electrically conductive lines carried thereon into contacting engagement with the electrical component.

3,596,229

ELECTRICAL CONNECTOR

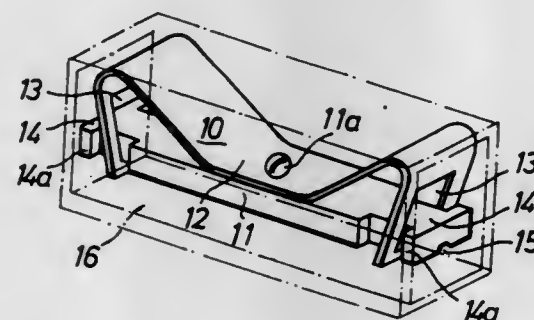
Wolfgang Hohorst, Minden, Westphalia, Germany, assignor to WAGO Kontakttechnik G.m.b.H., Minden, Westphalia, Germany

Filed Apr. 28, 1969, Ser. No. 819,575

Int. Cl. H01r 13/48

U.S. Cl. 339—61 R

16 Claims



A screwless connecting terminal for electric leads comprising at least one bent clamping spring defining an aperture at one end, a terminal housing in which said clamping spring is located, and a contact plate associated with said clamping spring, characterized by the feature that said clamping spring engages by said aperture a reduced part of said contact plate and is kept under tension thereby.

3,596,230

CONNECTOR WITH LOAD SHARING CONTACTS
Mario E. Ecker, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 15, 1969, Ser. No. 866,560

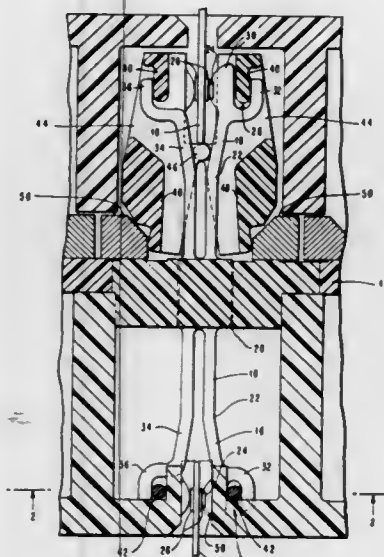
Int. Cl. H01r 13/62

U.S. Cl. 339—74

7 Claims

This specification describes a connector which has a plurality of flexible U-shaped elements each with one arm of the

U forming a contact carrying member for making electrical connections to lands on circuit boards inserted into the U and the other arm of the U forming a helper member for aiding in exerting the contact force on the lands. The position of the contact carrying members and the helper members is alternated from one side of the circuit board to the other so that the contacts engage lands on both sides of the circuit



board. On each side of the circuit board, the members are positioned against the board while the helper members are spaced away from the board so that helper members and contact members form channels between them on both sides of the board. These channels each contain a floating force member which transfers a portion of the force exerted on the contact carrying members by the lands to the helper members.

3,596,231

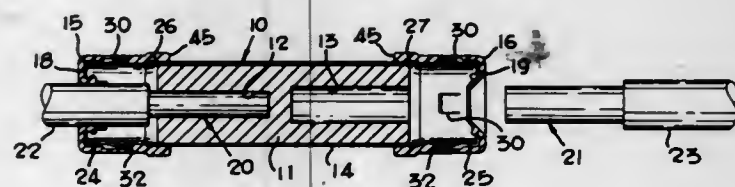
INSULATED ELECTRICAL CONNECTOR SLEEVE
Vernon L. Melton, Overland, Mo., assignor to International Telephone & Telegraph Corporation, New York, N.Y.

Filed Nov. 12, 1968, Ser. No. 774,810

Int. Cl. H01r 11/08

U.S. Cl. 339—96

3 Claims



The connector includes a cylindrical socketed body embracingly retained within an insulated sleeve, the sleeve including overhanging portions extending beyond each end of the body. Cylindrical end caps are provided which overfit and embrace the sleeve at each end, the sleeve including a groove latchable onto resilient lugs on the sleeve. Each end cap includes a sealing ring portion on its inner surface which engages the sleeve when the end caps are snapped into place. The end caps include a reinforcing ring defining a push out or rupturable portion which seals the conductor relative to the end cap.

3,596,232

ELECTRICAL CONNECTORS

Joseph Medley, 6, Llantarnam Close, Cwmbran, Monmouthshire, Wales

Filed Dec. 23, 1968, Ser. No. 786,314

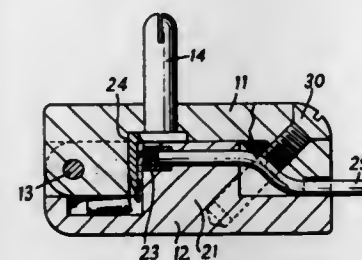
Claims priority, application Great Britain, Dec. 29, 1967,

59058/67

Int. Cl. H01r 11/20

U.S. Cl. 339—99

12 Claims



A plug has a cover hinged to a base. Terminals are provided with cutting tools which are mounted on the base.

Channels in a block support wires with their ends projecting from a face of the block. When the cover and base are brought together about the hinge the cutting tool moves in front of the face stripping insulation from the ends of the wires and clamping them against the face.

3,596,233

ELECTRICAL SOCKET WITH SNAP-IN RETAINING MEANS

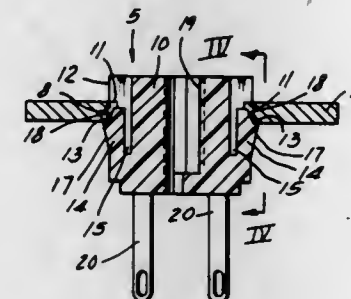
Albert P. De Vito, Niles, Ill., assignor to Alcon Metal Products, Inc., Chicago, Ill.

Filed July 31, 1969, Ser. No. 846,487

Int. Cl. H01r 13/48

U.S. Cl. 339—128

2 Claims



For snap-in retention on a supporting panel an electrical socket body casting has a fixed stop shoulder to engage one side of the panel at a hole through which the body is inserted, and one or more locking shoulders oppose the stop shoulder in panel receiving spaced relation on a respective snap finger cast integrally in one piece with the body and spaced from the adjacent portion of the body to enable flexing of the finger toward the body upon deflection by an edge defining the hole during mounting of the socket and until the finger has cleared through the hole and flexes away from the body to move the locking shoulder into locking position, and having access to said finger through the stop shoulder.

3,596,234

FEMALE CONTACT ASSEMBLIES

Joseph A. Saplenza, Norwood, and Robert J. Butler, Malden, both of, Mass., assignors to Connector Technology Corporation, North Billerica, Mass.

Filed Nov. 12, 1968, Ser. No. 774,774

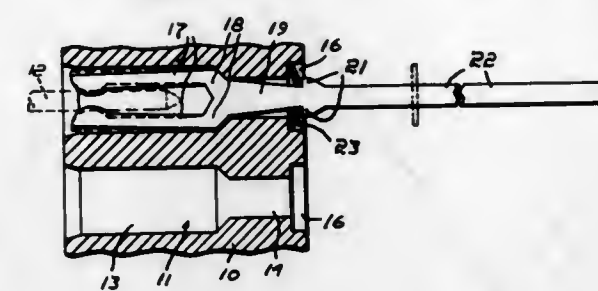
Int. Cl. H01r 9/00

U.S. Cl. 339—214

2 Claims

A female contact assembly is disclosed comprising a housing member having passages extending therethrough with

each passage having a socket portion opening through one face of the housing member. Each female contact has a fork part at one end, a shank, and an intermediate portion and is inserted through a passage to bottom its fork in the socket



3,596,235

ELECTRICAL CONTACT ELEMENT AND AN ELECTRICAL CONNECTOR ASSEMBLY COMPRISING THE CONTACT ELEMENT

Lucas Gerardus Christinus Teurlings, Frederik Hendriklaan, Netherlands, assignor to AMP Incorporated, Harrisburg, Pa.

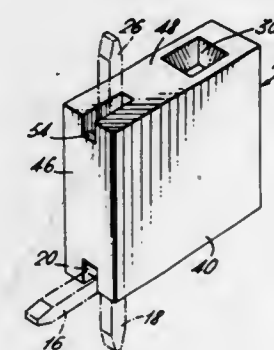
Filed Aug. 12, 1969, Ser. No. 849,402

Claims priority, application Netherlands, Aug. 22, 1968, 68-11958

Int. Cl. H01r 9/08; H05k 1/00

U.S. Cl. 339—217 R

14 Claims



The tines of a uniplanar sheet metal fork receptacle for a tab or post are rectangularly bent so that the effective lever length of each arm exceeds the length or height of a housing in which the receptacle is disposed. The tendency of the housing dimensions to restrict the range of tab and post shapes and sizes that the receptacle can accommodate is thus reduced.

3,596,236

DEFORMABLE ELECTRICAL CONNECTOR FOR CLAMPING CONDUCTORS

Bernard Edward Shlesinger, Jr., 3906 Bruce Lane, Annandale, Va.

Filed Apr. 3, 1969, Ser. No. 812,988

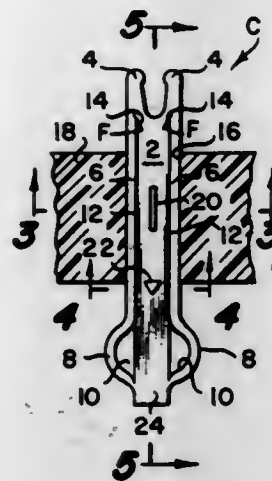
Int. Cl. H01r 5/08, 7/20

U.S. Cl. 339—266 R

38 Claims

A deformable electrical connection for clamping conductors and the like comprising a body member having a pair of normally rigid nonmovable spaced opposed jaws formed therein and in which at least one of the jaws is deformable in a direction towards the other of the jaws. The body member

supports a lever against one of the jaws for applying a closing force to the one jaw to deform it in the direction of the other defective. The circuit arrangements comprise first and second semiconductor bilateral switches, a gate circuit and a



jaw when the closing force is applied to the one jaw to thereby permanently clamp a conductor between the jaws.

3,596,237

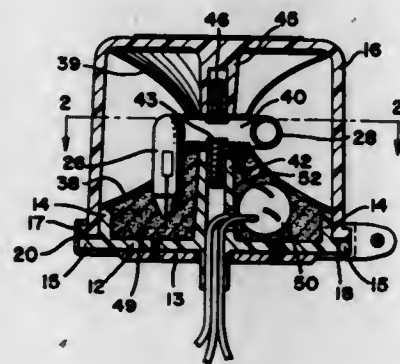
STROBOSCOPIC ANTI-COLLISION BEACON

Hugh Philip Barber, Jr., Springfield, and Paul H. Greenlee, Urbana, both of, Ohio, assignors to Grimes Manufacturing Co., Urbana, Ohio

Filed June 18, 1969, Ser. No. 834,401
Int. Cl. F21g 3/00

U.S. Cl. 340-25

4 Claims



An anticollision stroboscopic aircraft beacon employs an annular flash tube lamp and a circularly continuous reflector. The reflector is divided into separate upper and lower portions. The lower reflector portion is positioned in close proximity to the lamp and forms the ionizing electrode for the lamp. The reflector portions form a parabola in section, and the lamp is located at the focus of the parabola to direct the light outwardly with the most intense portion of the pattern in a horizontal plane covering 360°. A gap or space between the upper and lower portions of the reflector permits light from the back side of the lamp to pass through the gap and contribute to the output intensity on the opposite side.

3,596,238

FAIL-SAFE WALK-DON'T WALK SIGNAL

Gregory Siklos, Bronx, N.Y., assignor to The Marbellite Company, Inc., Brooklyn, N.Y.

Filed Aug. 8, 1968, Ser. No. 751,130
Int. Cl. G08g 1/097

U.S. Cl. 340-46

8 Claims

Fail-safe electrical circuit arrangements are provided which are particularly useful in connection with Walk-Don't Walk pedestrian traffic control signals to prevent a Walk light from being actuated should the Don't light indication be

Don't and a Walk light. If voltage is applied to both lights and the Don't light does not operate, the switches prevent the illumination of the Walk light.

3,596,239

TRAFFIC SIGNAL CONTROL SYSTEM

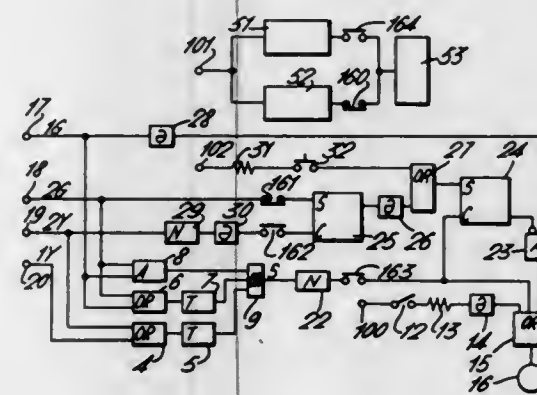
Kimio Hata, and Yoshinori Maruta, both of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Vkyo-Ku, Kyoto, Japan

Filed Dec. 9, 1968, Ser. No. 782,065

Claims priority, application Japan, Dec. 12, 1967, 42-79,645
Int. Cl. G08g 1/097

U.S. Cl. 340-46

4 Claims



A system is provided for controlling the operation of traffic control systems at an intersection in the event of certain malfunctions in signal operation. A normally operative traffic signal controller is continuously monitored and in the event of malfunction, a malfunction signal is produced which causes deactivation of the normally operative signal controller and causes a normally inoperative controller to assume operation of the signals for a predetermined period of time, after which the normally operative controller is reactivated. However, if the malfunction signal recurs within the first operation cycle after reactivation of the normally operative controller, then it is again deactivated and the reactivation means is disabled.

3,596,240

ALARM CIRCUIT

Carl E. Atkins, Montclair, and Edward Lennon, North Arlington, both of, N.J., assignors to Wagner Electric Corporation

Filed Apr. 11, 1968, Ser. No. 720,556

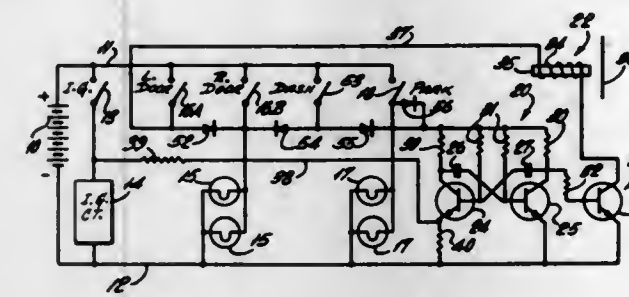
Int. Cl. B60q 5/00; G08b 3/10

U.S. Cl. 340-52 D

2 Claims

An alarm circuit for passenger vehicles sets off an audible signal only when the ignition switch is open, the parking lamps are turned on, and the door switch is closed (door open). The circuit may include a free running multivibrator in which case there are no make and break contacts to

produce a spark. The alarm may be arranged to operate only when the left door is opened. Other auxiliary facilities such as a radio set, a heater, or air conditioning motor may be added to the parking lamps to sound the alarm.



3,596,241

SIGNALLING APPARATUS AND METHOD FOR CAR WASHES AND THE LIKE

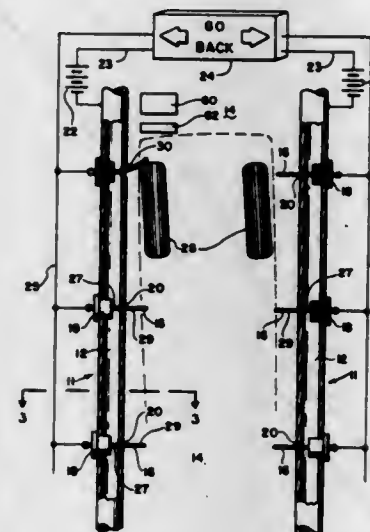
Maurice Migneault, 69 Bowers St., Nashua, N.H.

Filed Feb. 4, 1969, Ser. No. 796,340

Int. Cl. B60s 13/00

U.S. Cl. 340-61

7 Claims



Indicating guiding and signalling means, useful in conjunction with a vehicular pathway, for indicating to the driver how to maneuver the vehicle to center it in the pathway. More particularly, the indicating means is comprised of a continuous elongated conducting means along each side of said pathway and a series of individually actuatable, movable, switch contacts successively placed therealong, which movable switch contacts can detect the malpositioning of a vehicle's wheels but will not react to trivial contact with the vehicle. The most advantageous embodiments of the invention allow a quick and easy replacement of damaged resilient switch contact arms and do not depend on the mass of the vehicle for activating the signalling means.

3,596,242

SPEED WARNING SYSTEM

Thomas W. Skweres, Lisle, Ill., assignor to Ross and White Company, Wheeling, Ill.

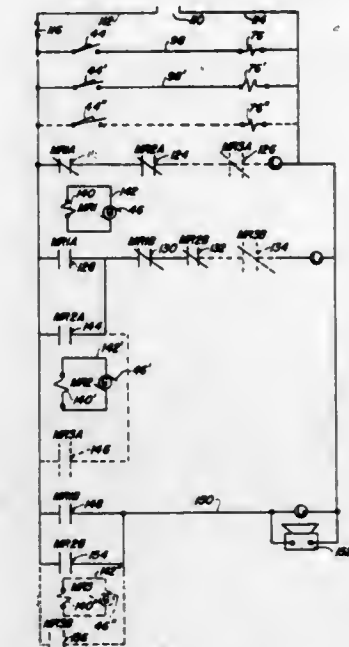
Filed Jan. 14, 1969, Ser. No. 790,982

Int. Cl. B60q 1/00

U.S. Cl. 340-62

7 Claims

The disclosure describes a signal system for drive-through plural-station wash racks and the like providing progressive visible or audible signals relative to the speed of the vehicle so that the driver is alerted to control the vehicle speed within optimum or recommended values for greatest washing efficiency of the rack. In one embodiment a green light indicates to the driver that the vehicle is progressing from sta-



3,596,243

TWO-UNIT ANTITHEFT DEVICE

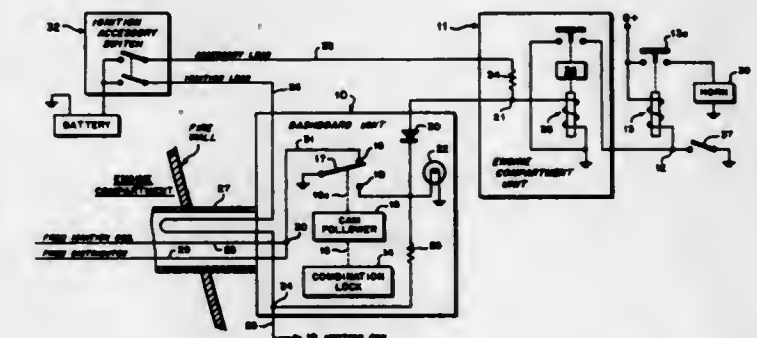
Stephen W. Leibholz, Rydal, Pa., assignor to Analytics Incorporated

Filed Mar. 28, 1969, Ser. No. 811,472

Int. Cl. B60r 25/00; G08b 13/00

U.S. Cl. 340-64

8 Claims



An electronic anti-theft device for an automobile including a dashboard unit and an engine compartment unit. The dashboard unit is equipped with a combination lock mechanism which in the undialed position is operative to short out both the automobile ignition coil and the distributor. The dashboard unit also includes an armored cable which houses a folded over ignition wire and wires from both the distributor and ignition coil. The engine compartment unit includes three separate but related embodiments, each of which includes means for enabling the automobile horn to provide an audible alarm as long as the combination lock is not correctly dialed or an attempt is made to disable the dashboard unit and to steal the automobile.

3,596,244

STOP AND TURN LIGHT SIGNALING SYSTEM

Bernhardt J. Litke, 219 East Blair St., Lyons, Kans.

Filed Mar. 21, 1968, Ser. No. 714,818

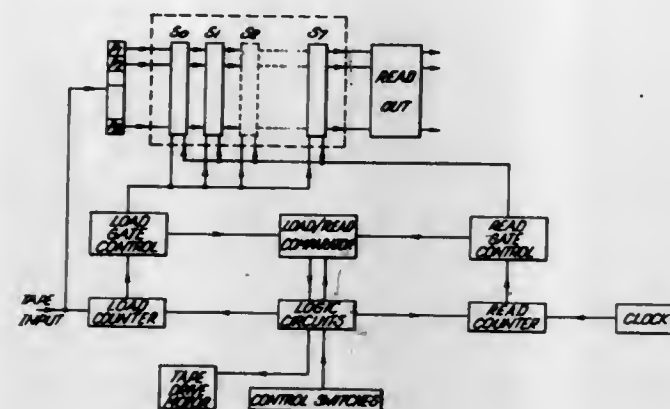
Int. Cl. B60q 1/38, 1/44

U.S. Cl. 340-67

7 Claims

A visual signaling system for use on motor vehicles to signal stops and turns made by the vehicle. The system is electrical circuitry which includes a battery, and further includes a brake pedal stop light switch, and a turn signal flasher connected in series with the battery, and in parallel

commands or signals which are sent to the equipment under test at predetermined intervals to initiate and control certain test sequences. The time interval between two commands



may be critical to the test sequence and therefore the tape is read into a memory bank from which the characters can be read out at fixed time intervals which are independent of tape speed.

3,596,253

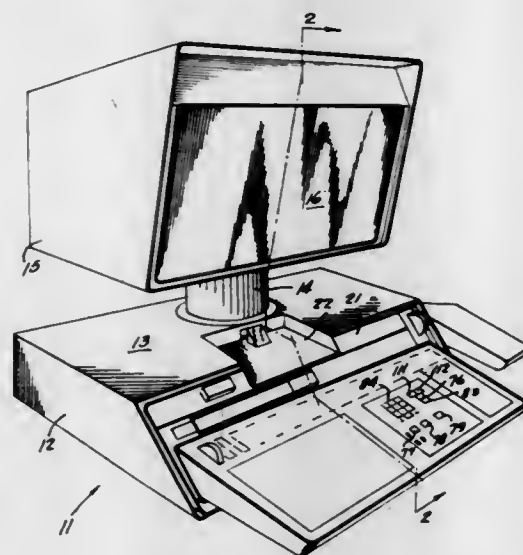
TWO-STAGE RETRIEVAL MICROFILM READER

Robert W. Ruth, and Bennett S. Le Bow, both of Washington, D.C., assignors to DSI Systems, Inc., Rockville, Md.
Filed Apr. 8, 1969, Ser. No. 814,235

Int. Cl. G11b 13/00; G03b 23/00

U.S. Cl. 340-172.5

7 Claims

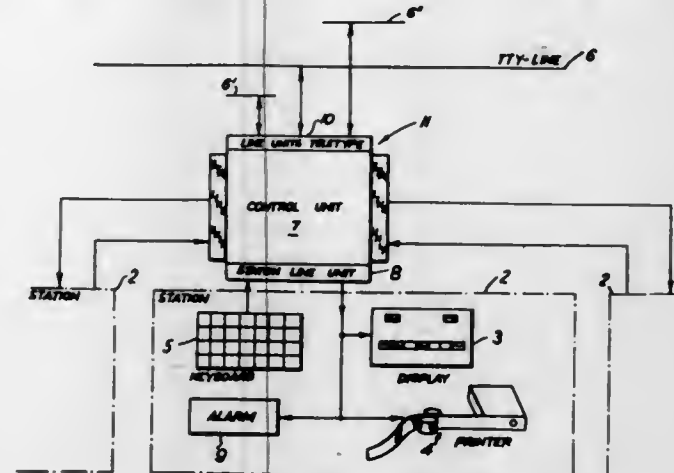


A microfilm reader of the cartridge type utilizing spots on the film frames of the cartridge in cooperation with photosensitive detectors to monitor the movement of the frames. The photosensitive detectors control the drive mechanism of the cartridge in a manner such that the mechanism may be operated in accordance with a coded input signal corresponding to a particular film frame desired to be viewed. The input signal may be applied either locally from a keyboard, or from a remote source. The signal is coded to correspond to the desired film frame number. The microfilm reader is provided with circuits to compare the input signal data with data derived from the previous movement of the film frames and to then drive the film to the frame corresponding to the input signal data. The microfilm reader may be set to operate either in the above mode, or in an incremental mode wherein the film is moved in either a forward direction or a reverse direction in increments of a selected definite number of film frames.

3,596,254
DATA PROCESSING WITH CONTROLLED INPUT
Wilbur H. Highleyman, Mountain Lakes; Anthony V. Deja, Towaco; Willard A. Dix, Chester; Joseph P. Shaw, Ringwood, and Edmund R. Niedzwiecki, Haledon, all of N.J., assignors to Data Trends, Inc., Parsippany, N.J.
Filed Apr. 30, 1969, Ser. No. 820,362
Int. Cl. G06f 3/04

U.S. Cl. 340-172.5

53 Claims



Disclosed herein is a data processing system for generating and organizing input data according to a predetermined format and for coupling the resultant message to a transmission network. The illustrative system employs one or more input terminal stations, each equipped with data and function keyboards, format guidance indicators, a local hard copy printer and an alarm system. The system also includes a control unit constituting a digital computer which controls the overall system including message transmission, coordination of the stations, and the operations at each station such that (a) the operator is directed to follow a predetermined format defined by the operations of the format guidance indicators, (b) the functions produced by key manipulation are controlled, (c) the message to be transmitted is printed for visual verification before transmission, and (d) departures from the format actuate an alarm system and preclude message transmission. The system also includes line units which interface the control unit with the stations and with the transmission network.

3,596,255

DISPLAY BLANKING APPARATUS

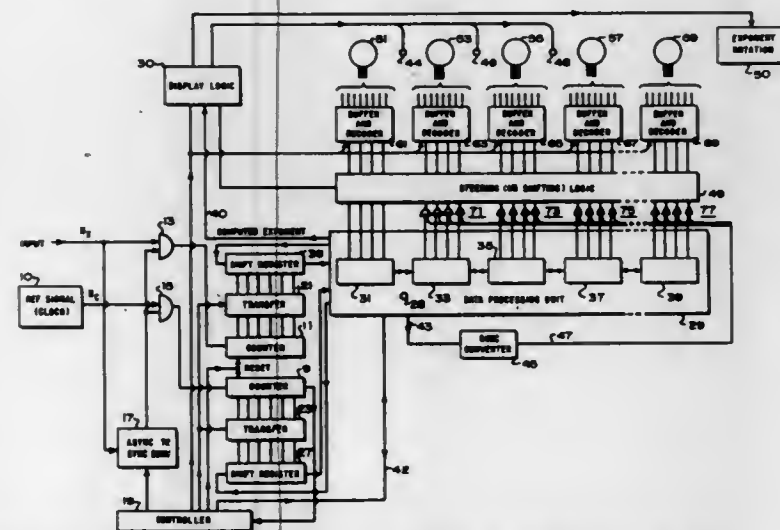
Gilbert A. Reeser, Sunnyvale, and Gary B. Gordon, Cupertino, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed July 9, 1969, Ser. No. 840,244

Int. Cl. G06f 3/14

U.S. Cl. 340-172.5

3 Claims



The frequency of an unknown signal is displayed as the arithmetic combination of counts taken during a gate period

of clock pulses and of pulses of the unknown frequency. The arithmetic combination of the counts typically provides a display quantity to a number of significant digits that exceeds the accuracy with which the counts are taken. Logic circuitry detects and blanks the significant display digits to the right of a decimal point which exceed the basic accuracy of the measurements.

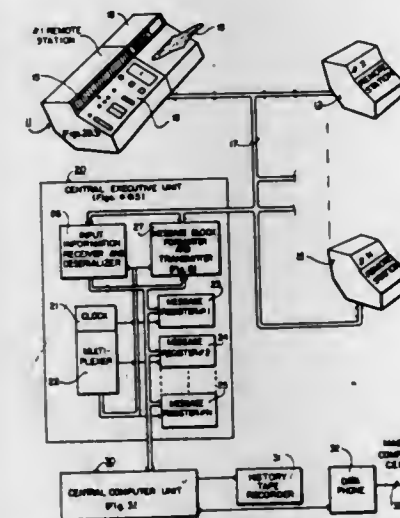
3,596,256

TRANSACTION COMPUTER SYSTEM HAVING MULTIPLE ACCESS STATIONS

Norman Alpert, Scarsdale, N.Y.; Marvin Felcheck, Monsey, N.Y., and Wallace Kirschner, Trumbull, Conn., assignors to Pitney Bowes-Alperx, Inc., Danbury, Conn.
Filed Aug. 8, 1969, Ser. No. 848,466
Int. Cl. G06f 15/02, 15/24

U.S. Cl. 340-172.5

20 Claims



A time-sharing system for entering into a central data processing unit information relating to transactions separately conducted at multiple remote access stations, and for processing and storing portions of this input information and returning portions of the processed data as messages to the remote stations, part of which data is displayed and/or printed. The returned messages also include indications to the operator of the remote station as to the next step that he should perform toward completing entry of the transaction. Each remote station is polled and enabled to transmit information to the central unit during a time slot in each complete cycle of time slots, but every remote station has its display refreshed with processed display data transmitted during every time slot to every remote station from the central unit, the display data always being composed into message blocks at the central unit prior to transmission thereof to the remote units. The time slots are brief and the rate at which the remote units are polled is very high as compared with the rate at which an operator can physically enter one input character, and therefore each remote unit when polled transmits to the central unit during its time slot only a single encoded data character and/or encoded program instruction, and the computer processes this fragmentary information accumulated during successive time slots, and over the succession of a large number of time-slot cycles it assembles and associates the complete data relating to the diverse transactions being simultaneously performed at many access stations. The drawings and specification provide an illustrative embodiment in which the remote stations are sales-point retail registers operated by clerks delivering sales data to a store's central processing unit and receiving back messages for displaying and printing out sales slip information.

3,596,257

METHOD AND APPARATUS FOR ALLOCATING SMALL MEMORY SPACES TO A COMPUTER PROGRAM

Rajani Manibhai Patel, Arcadia, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Sept. 17, 1969, Ser. No. 858,748

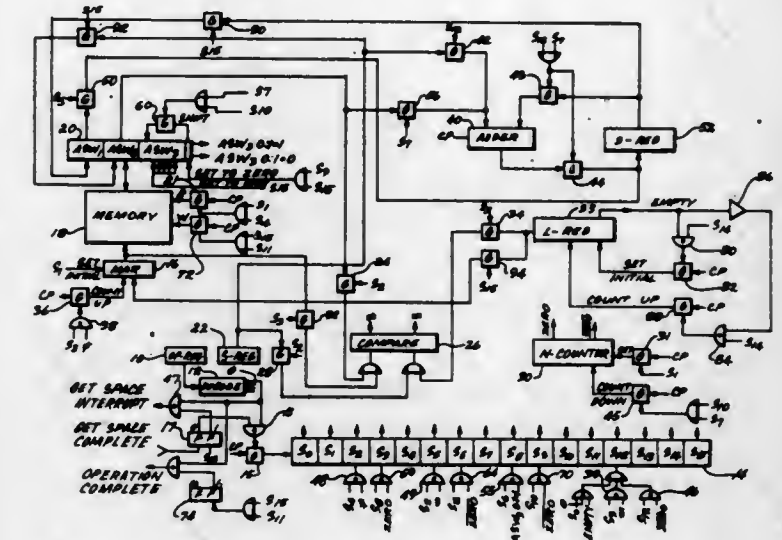
Int. Cl. G06f 9/06

U.S. Cl. 340-172.5

12 Claims

An arrangement for allocation of small spaces in an addressable memory for use by a computer program. Blocks of

memory are each subdivided into a predetermined number of equal areas. The base address of a block, the size of the subdivided areas in the block, and the availability status of each area in the block are specified in a status word associated with the block. Each block has its own status word stored in



memory Whenever a particular size are a is needed in memory, the status words are examined to locate a block having an area of the required size available. If no area of the required size is available, a new block is established and a status word defining the new block is loaded into memory.

3,596,258

EXPANDED SEARCH METHOD AND SYSTEM IN TRAINED PROCESSORS

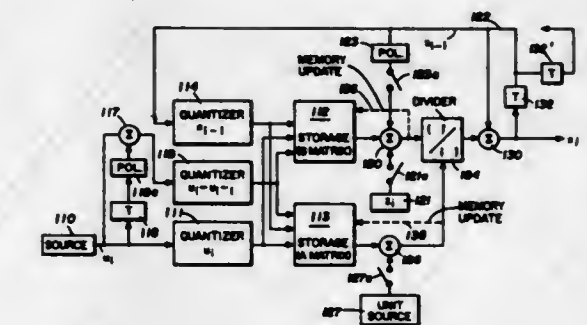
William C. Choate, and Michael K. Masten, both of Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 30, 1969, Ser. No. 889,241

Int. Cl. G06f 7/02

U.S. Cl. 340-172.5

10 Claims



Operation of a trained processor beyond an untrained point where successive time sampled sets of level dependent signals stored in a tree storage array at successive memory locations along with a trained response for each set at a subsequent memory location form a data base to locate and extract a trained response to subsequent sets encountered following completion of training. A test set forming an untrained point is sequentially compared with each trained set stored in memory to establish and store a difference function relative to each trained set. Logic means selects as the trained response for the untrained point the trained response from those trained responses for which the trained sets have the same minimal difference function and which satisfies a predetermined decision criteria.

3,596,259

DELAY SYSTEM OF SAMPLED SIGNALS USING A CIRCULATING MEMORY

Hiroichi Teramura, Tokyo-to; Naohiko Hattori, Tokyo-to, and Sumitoshi Ando, Ohmiya-shi, Saitama-ken, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan

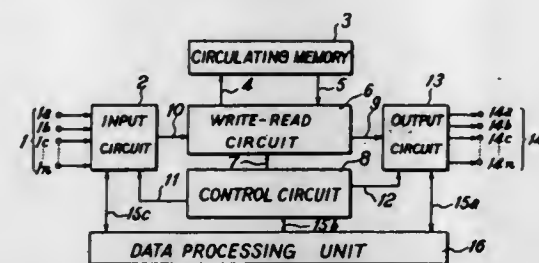
Filed Dec. 17, 1968, Ser. No. 784,428

Claims priority, application Japan, Dec. 18, 1967, 42/80602

Int. Cl. G11c 21/00

U.S. Cl. 340-173

4 Claims



A system for delaying sampled signals including a circulating memory having a delay circuit in which the delay time unit is designed T_d ; a sampling circuit for producing a sampling pulse train having a period T_s , wherein T_d and T_s are each equal to an integer-multiple of the duration of the sampled signal circulating in the circulating memory, and the delay time unit T_d is not equal to an integer-multiple of the sampling period T_s ; a read-right circuit for entering and withdrawing sampled pulses to and from the memory; an output circuit for receiving signals readout of the memory; and a control timing circuit for generating pulses to operate these various circuits. The sampled signals which are delayed by the circulating memory are derived from the circulating memory at least at predetermined times at each of which an integer-multiple of the delay time unit T_s and an integer-multiple of the sampled period T_s coincide with each other. The sampled signals delayed may be derived from the circulating memory at each of the predetermined times only, or at plural times a predetermined period from one of the predetermined times and the just succeeding one of the predetermined times.

3,596,260

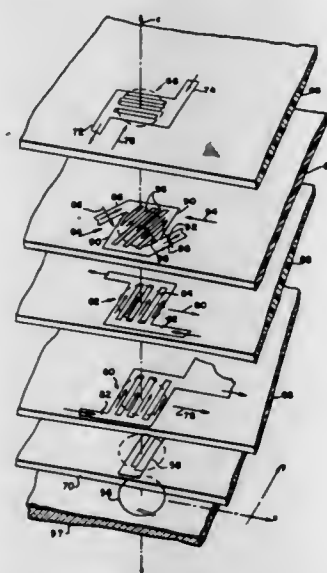
MAGNETIC STORAGE DEVICE

Charles D. Olson, Saint Paul, Minn.; Arthur V. Pohm, Ames, Iowa, and Sidney M. Rubens, Saint Paul, Minn., assignors to Sperry Rand Corporation, New York, N.Y. Continuation of application Ser. No. 20,195, Apr. 5, 1960, now abandoned, which is a division of application Ser. No. 626,945, Dec. 7, 1956, now Patent No. 3,030,612, dated Apr. 17, 1962. This application Mar. 20, 1964, Ser. No. 353,623

Int. Cl. G11c 11/14

U.S. Cl. 340-174

27 Claims



A magnetic storage device including a thin layer of magnetic material and first, second and third conductors which

are inductively coupled to the layer. The first and second conductors intersect at parallel portions which define a memory area in the plane of the layer while the third conductor picks up signals induced therein by a change of magnetization of the memory area when it is affected by the first and second conductors.

3,596,261

SINGLE WALL DOMAIN SWITCHING ARRANGEMENT

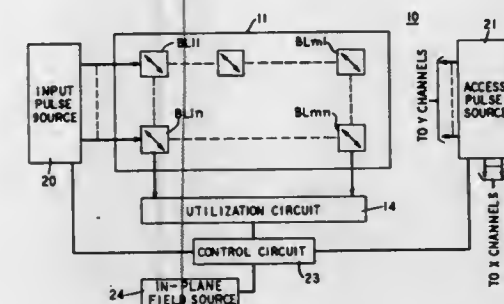
Anthony J. Perneski, Martinsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 17, 1969, Ser. No. 877,087

Int. Cl. G11c 11/14, 11/42, 21/00

U.S. Cl. 340-174 TF

7 Claims



A single wall domain propagation arrangement wherein magnetically soft overlays define propagation channels in a sheet of magnetic material in response to a reorienting in-plane field is adapted herein for providing a "coincident-domain" memory. The overlay at each bit location of the memory is structured to serve the function of a latching switch. A domain pattern advanced along one of coordinate domain propagation accessing channels is rerouted to the coordinate channel when the associated switch is closed.

3,596,262

TELEMETRY MEASURING APPARATUS

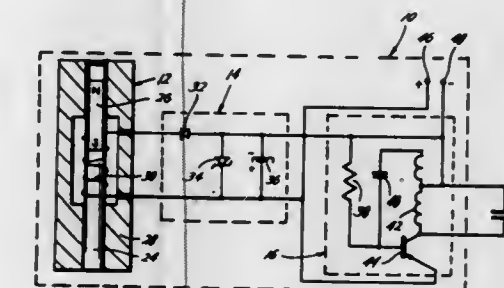
William L. Rollwitz, and Harvey S. Benson, both of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed Jan. 8, 1968, Ser. No. 696,370

Int. Cl. G08c 19/10, 19/38

U.S. Cl. 340-200

10 Claims



An electrical measuring and telemetry apparatus for monitoring physical conditions of objects. A magnetic power generator having parts movable in response to the motion of an object to generate electrical power and in which the condition of the object such as temperature, stress, strain or pressure is measured by an electrical transducer to vary the signal output from a transmitter which receives the generated power and transmits electrical signals in response to the condition being measured. A temperature measuring apparatus having a power source, an electrical transmitter having a tank circuit for transmitting electrical signals whose frequency is controlled by the tank circuit, and a temperature sensitive capacitor positioned adjacent the object and electrically connected in the tank circuit thereby varying the transmitted signals in proportion to the temperature of the object. A power generator having a coil and magnet movable relative

to each other to generate electrical power in response to the motion of the object. A power generator having first and second members one of which is fixed and the second of which moves relative to the fixed member, the first member being a circular toothed disc and the second member including two soft iron pieces having a pickup coil wound thereon and a permanent magnet positioned between the soft iron pieces whereby a voltage is generated in the coil when the coil moves relative to the toothed disc. A magnetic power generator for providing a power source in response to rotating, oscillating, or reciprocating movement of an object.

3,596,263

ICING CONDITION DETECTING APPARATUS

Michael F. Ciemochowski, Warren, Mich., assignor to Holley Carburetor Company, Warren, Mich.

Filed Sept. 23, 1968, Ser. No. 761,556

Int. Cl. G08b 21/00

U.S. Cl. 340-234

8 Claims



An icing condition detecting apparatus, by means of transducers, compares the temperature of a monitored surface against the temperature of an established reference temperature and further compares dew point against the temperature of said monitored surface in order to determine if such psychrometric parameters indicate the existence of conditions conducive to frost or ice formation on said monitored surface.

3,596,264

MULTICHANNEL FROST ICE AND SNOW DETECTING DEVICE

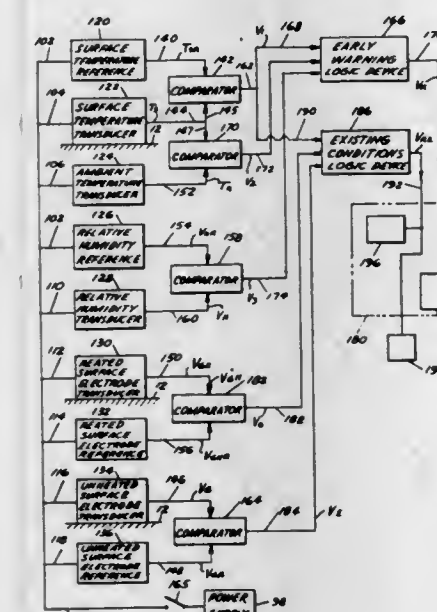
Michael F. Ciemochowski, Warren, Mich., assignor to Holley Carburetor Company, Warren, Mich.

Filed Mar. 13, 1969, Ser. No. 806,882

Int. Cl. G08b 21/00

U.S. Cl. 340-234

12 Claims



A device for both anticipating and detecting the formation and presence of frost, ice or snow on a particular surface employs signal-producing sensing means to sense the temperature of the surface, the temperature of the atmosphere, the atmospheric humidity, as well as the presence of either free water, frost, ice or snow. The signals produced in response thereto are compared to certain established reference values

indicative of freezing temperature, a predetermined difference between atmospheric temperature and surface temperature, a preselected relative humidity as well as relative electrical conductivity of free water, frost, ice or snow in order to logically determine if the formation of frost or ice is anticipated and in accordance with such determination create an appropriate first output response and to in accordance with the same signals logically determine whether it is merely free water which is being sensed or if it is actually frost, ice or snow and in accordance with such a determination create an appropriate second output response.

3,596,265

TAMPER-PROOF SHOPLIFTING ALARM

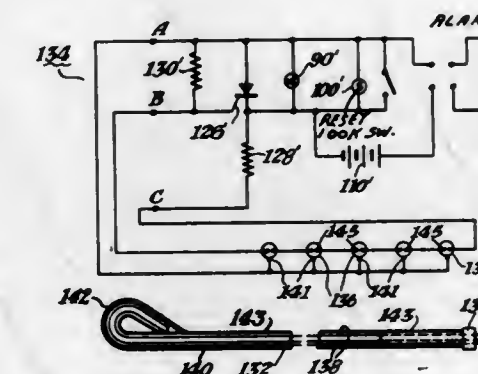
Percy A. Garland, 559 Shaw Ave., McKeesport, Pa.

Filed June 17, 1968, Ser. No. 737,567

Int. Cl. G08b 21/00

U.S. Cl. 340-280

10 Claims



I disclose a shoplifting alarm comprising a housing, a plurality of circuit jacks mounted on a wall of said housing, a number of loop segments attachable to said jacks for completing an alarm circuit including alarm means and being contained within said housing, means at the other end of each of said loops for securing said loops to articles of displayed merchandise, and means for preventing substantial separation of said loop segments from said housing.

3,596,266

NUMERICAL CONTROL SYSTEM AND METHOD

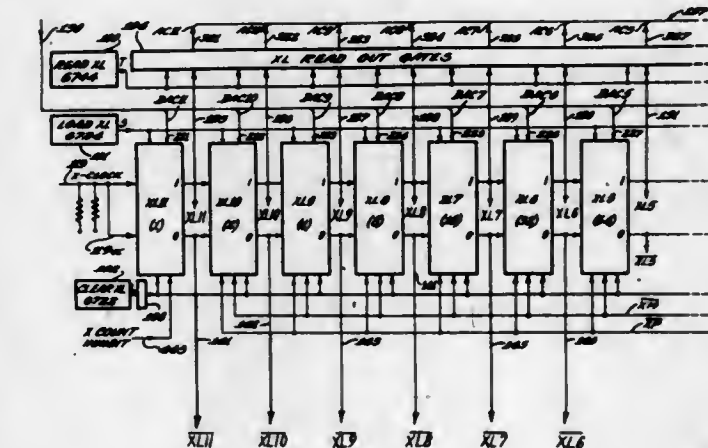
Kenneth Leonard Slawson, Depew, and Robert Joseph Kellner, Cheektowaga, both of N.Y., assignors to Houdaille Industries, Inc., Buffalo, N.Y.

Filed July 12, 1968, Ser. No. 744,490

Int. Cl. H03k 13/02

U.S. Cl. 340-347

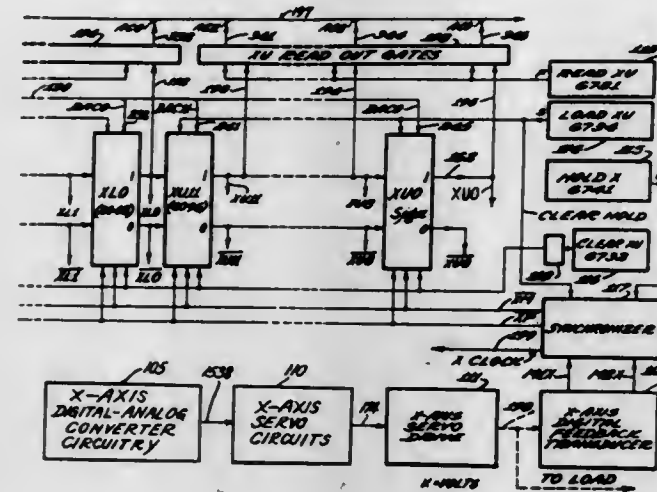
4 Claims



A control system having a stored program digital computer for transmitting commands to digital servos for a punch press

with digital to analog converter circuitry providing for a digitally selected null zone, digital control of the slope of the

variable reference phase voltage derived from a fixed phase voltage, varying the variable phase voltage by means of a stepped phase divider and phase shifter till the input and



analog error vs. count function for optimum slow down, and digital sensing of the null condition.

3,596,267

DIGITAL CODE CONVERTER FOR CONVERTING A DELTA MODULATION CODE TO A DIFFERENT PERMUTATION CODE

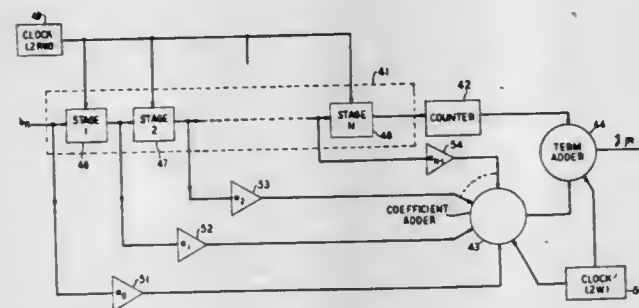
David J. Goodman, Keyport, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Jan. 28, 1969, Ser. No. 794,494

Int. Cl. H03k 13/32; G06f 5/00

U.S. Cl. 340—347 DD

7 Claims



A delta modulation to other permutation code signal converter comprises a shift register and up-down counter in series. The counter produces a permutation code output indicative of the running history of the delta modulation input, while the shift register, through weighted coefficient multipliers, produces correction signals to reduce the noise content of the counter output.

3,596,268

PHASE TO DIGIT OR DIGIT TO PHASE CONVERTER

Ernest Howbrook, Cheadle Hulme, England, assignor to National Research Development Corporation

Filed Feb. 18, 1969, Ser. No. 800,055

Claims priority, application Great Britain, Feb. 22, 1968, 8557/68

Int. Cl. H03k 13/02

U.S. Cl. 340—347 AD

10 Claims

A digit to phase converter comprising a binary input word, means for storing the bits of the word in a store, a decoder for the bits to translate them into one or more markings on output wires, a phase divider connected to some of the output wires to translate the marking thereon into a voltage of a selected phase step, and a phase shifter connected to the output of the divider to shift the said output phase by a smaller amount than each phase step.

The invention can also be embodied in a converter operating to translate an input phase voltage into a binary code by comparing the input voltage in a phase discriminator with a

reference phases coincide, registering the phase divider and phase shifter steps in a counter, encoding the counter position, and storing the binary result until required to transmission or recorded.

3,596,269

STRUCTURAL DEFECT MONITORING DEVICE

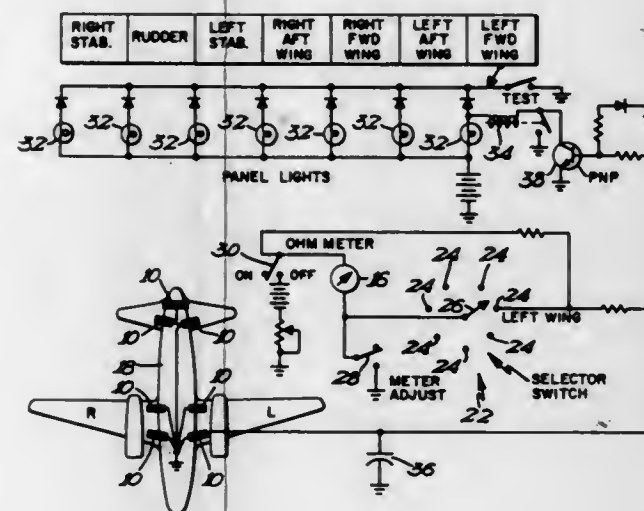
Richard H. Laska, Rosemount, Minn. 55068

Filed Oct. 25, 1968, Ser. No. 770,531

Int. Cl. G08b 21/00

U.S. Cl. 340—421

10 Claims



This invention relates to a system for a detecting and monitoring structural defects in mechanical structures such as the skin of an aircraft. The system comprises a group of elongated conductive tapes of known electrical resistance bonded to the aircraft skin but insulated from it at a point which has a history or likelihood of failure. One end of the group of tapes is electrically grounded while the other is electrically connected to a resistance comparing or measuring device, as for example, an ohmmeter. A visual or audible warning device is provided in the form of a light or buzzer including a solenoid holding circuit to hold it on once energized. Thus when a crack or tear occurs in the aircraft skin the warning light or buzzer is energized and a reading of the ohmmeter shows the extent of damage by the degree of resistance change.

3,596,270

MICROWAVE ABSORBING WALL ELEMENT

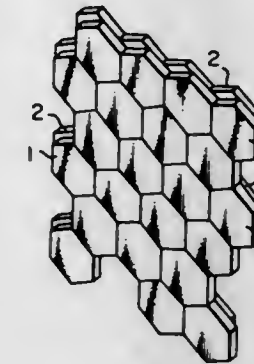
Sakae Fukui, 234, Higashi Okubo 2-chome, Shinjuku-ku, Tokyo, Japan

Continuation-in-part of application Ser. No. 699,522, Jan. 22, 1968, now abandoned. This application Sept. 24, 1969, Ser. No. 865,231

Int. Cl. H01q 17/00

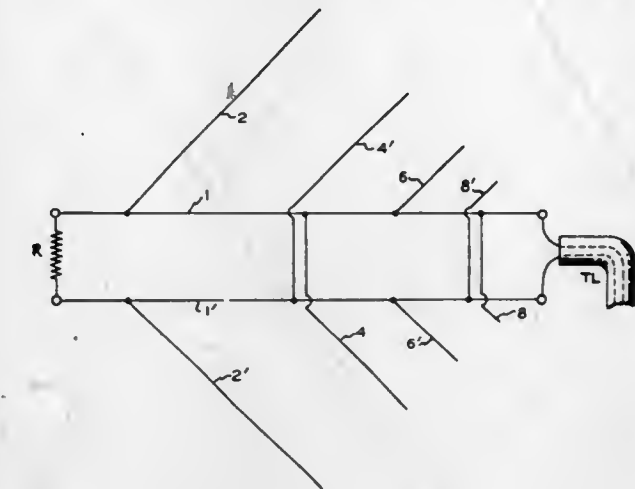
U.S. Cl. 343—18 A

3 Claims



A microwave absorbing wall element to be used, for example, in an anechoic chamber, which element comprising a polygonal ferrite material plate formed to have complementary stepped edges in section at its periphery, and a conductive plate lined on the back surface of the ferrite material plate. As the elements are butted together with each other, the stepped edges of adjacent butted elements will engage with each other so as to block joint slits along each periphery.

tive antenna dipole elements and the like for operation over a multifrequency range, wherein use is made of resistance connected at a critical location across the nonradiating trans-



3,596,271

MICROWAVE ANTENNA HAVING AN UNDULATING CONDUCTOR WITH VARIABLE PITCH AND AMPLITUDE

Michael Frank Cosslett, Maldon, Essex; Robert Frost, Wells, Somerset, and Kenneth Owen Rossiter, Wells, Somerset all of, England, assignors to Electric & Musical Industries Limited, Hayes, Middlesex, England

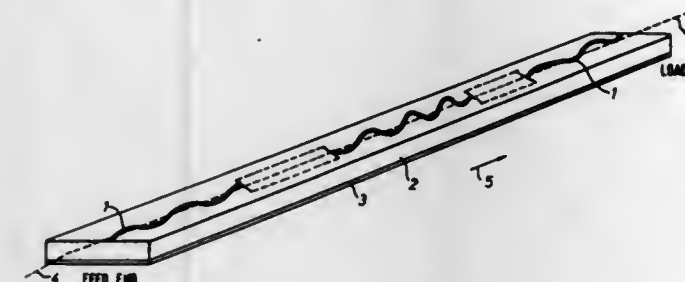
Filed May 6, 1969, Ser. No. 822,143

Claims priority, application Great Britain, May 9, 1968, 22,140/68

Int. Cl. H01q 1/36

U.S. Cl. 343—731

3 Claims



The antenna array disclosed comprises an undulatory conductor which is capable of transmission and reception of energy, in which the amplitude and pitch of the undulations are progressively altered along the array to produce an array having directional characteristics, and a main lobe to side lobe ratio, which are those of a Dolph-Tchebycheff array. The undulations are circularly arcuate and blended into one another and the conductor is etched from one copper layer of a strip of low loss copper clad laminate, the other layer of which forms a ground plane.

mission line section for enabling the reduction of secondary lobes and interference in antenna reception or equivalent problems in antenna transmission.

3,596,272

MULTIELEMENT RADIO-FREQUENCY ANTENNA STRUCTURE HAVING HELICALLY COILED CONDUCTIVE ELEMENTS

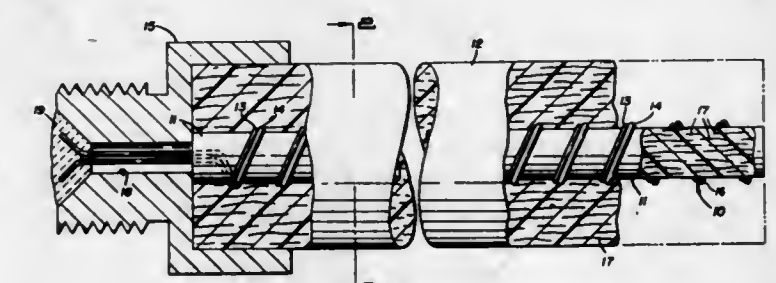
Richard J. Francis, and Clara A. Francis, both of 11855 Broad St., Pataskala, Ohio

Filed Sept. 25, 1967, Ser. No. 670,142

Int. Cl. H01q 1/38, 1/40, 9/32

U.S. Cl. 343—873

9 Claims



A multielement antenna structure is provided which may be fabricated with a predetermined characteristic impedance for impedance matching purposes. The several elements comprise elongated electrical conductors formed in a helix and encased in a supporting body formed from a hardenable resin matrix. A broadband frequency characteristic is obtained through appropriate selection of conductor diameters that will result in resonance of the several conductors at different respective frequencies within the design frequency band.

3,596,274

PROCESS AND APPARATUS FOR TESTING FILAMENTARY WEBS

Eberhard P. E. Heringhaus, Pfungstadt, Germany, assignor to Uniroyal Englebert Deutschland AG, Aachen, Germany

Filed Feb. 5, 1970, Ser. No. 8,844

Claims priority, application Germany, Feb. 7, 1969, P 19 05 994.0

Int. Cl. G01n 21/32; G01d 5/26

U.S. Cl. 346—1

6 Claims

The quality of filamentary multistrand webs of sheet material, such as weftless tire cord fabric, is determined by moving the web longitudinally of itself over a full width elongated light source while scanning a photoelectric transducer reciprocally across the opposite surface of the web to provide an output which varies in accordance with transmitted light density variations. A marking pen of a strip chart recorder is

3,596,272

SECONDARY LOBE AND GHOST-REDUCTION ANTENNA TRANSMISSION-LINE SYSTEM

Isaac S. Blonder, Claycourt, N.J., assignor to Blonder-Tongue Laboratories, Inc., Newark, N.J.

Filed June 24, 1969, Ser. No. 835,979

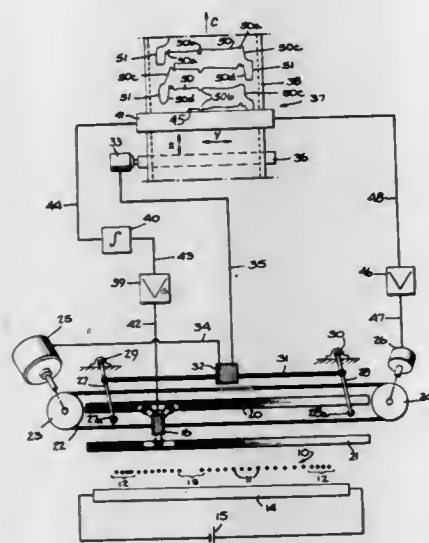
Int. Cl. H01q 11/10

U.S. Cl. 343—792.5

4 Claims

This disclosure deals with a novel antenna apparatus embodying a nonradiating transmission line section feeding ac-

reciprocally traversed across the chart in synchronism with the traversing movements of the transducer, and the chart is longitudinally advanced stepwise for a predetermined short distance each time the transducer reverses direction. The output of the transducer is integrated to eliminate the influence of single strands entering and leaving the field of view of the transducer, and the integrated signals are used to control the displacements of the pen in the longitudinal



direction of the chart. The result is a graphic picture of the web which may be used as a permanent record of its quality and characteristics.

The foregoing abstract is not to be taken either as a complete exposition or as a limitation of the present invention, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be had to the following detailed description and the accompanying drawings as well as to the claims.

3,596,275

FLUID DROPLET RECORDER

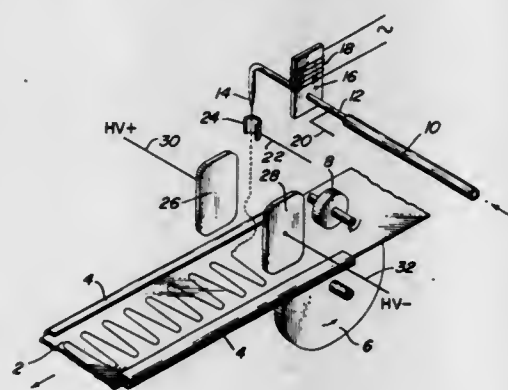
Richard G. Sweet, C/O Minneapolis-Honeywell Regulator Co., Philadelphia Division, Wayne & Wendrim Avenues, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 298,996, July 31, 1963, now abandoned. This application Mar. 25, 1964, Ser. No. 354,659

Int. Cl. G01d 15/18

U.S. Cl. 346-1

33 Claims



A direct writing signal recording system which writes on a record medium by projecting a stream of writing fluid in the form of a succession of uniformly spaced droplets. The droplets are charged electrostatically in accordance with instantaneous signal values and then deflected electrostatically in accordance with the charges carried by the droplets. Droplets may be directed to intercepting means whereby droplets so directed are not deposited on the record medium.

3,596,276
INK JET PRINTER WITH DROPLET PHASE CONTROL MEANS

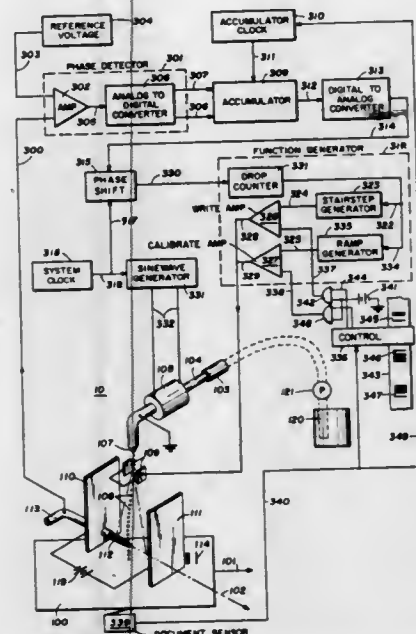
Kenneth T. Lovelady, and Robert B. McJohnson, both of Dallas, Tex., assignors to Recognition Equipment Incorporated, Dallas, Tex.

Filed Feb. 10, 1969, Ser. No. 798,052

Int. Cl. G01d 18/00

U.S. Cl. 346-1

6 Claims



A charging voltage applied to ink droplets discharged from the nozzle of an ink-jet printer is controlled by varying the phase of the charging voltage placed upon a droplet in dependence upon the time-phase relationship between the droplet and the charging voltage.

3,596,277

CONTROL CIRCUIT FOR TIME CLOCK AND MASTER COUNTER

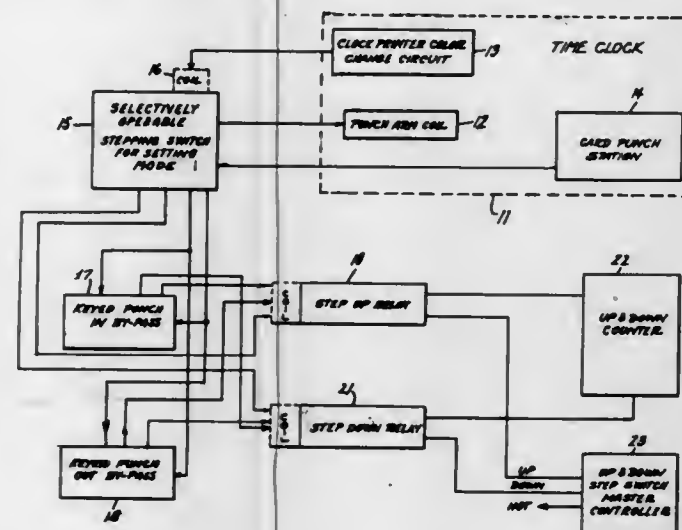
David A. De Witt, and Ralph W. De Witt, both of 68 Spring Ave., Latham, N.Y.

Filed Jan. 31, 1968, Ser. No. 705,262

Int. Cl. G07c 1/00

U.S. Cl. 346-14 R

27 Claims



A master time clock system is described which employs a card-actuated time recording mechanism for producing punch-in or punch-out printed time records on an actuating card inserted in the time recording mechanism. According to the invention, selectively operable stepping switch means are provided for selectively placing the time recording mechanism in a punch-in, a punch-out or no-punch mode of operation, and time operated control means are provided for selectively actuating the stepping switch means at predetermined times to place the system in a selected one of its operating modes. In addition, ancillary, bypass, punch-in and punch-out means are coupled to and control the time recording mechanism for punching-in and punching-out workers at

other than the predetermined punch-in and punch-out times at the discretion of a supervisor irrespective of the operating mode in which the time recoding mechanism has been placed by the time operated control means. The system also includes a reversible counter coupled to and controlled by the punch-in and punch-out time recording mechanism of the time clock for deriving an accurate count of the total number of people working at any given time during a work day. A master accumulated time counter controller is also coupled to and controlled by the punch-in and punch-out time recording mechanism of the time clock for deriving an accurate count of the total accumulated time of the total number of people working in the facility during a prescribed work period up to a given time of readout.

3,596,278

RECORDING PAPER INDICATING MECHANISM
Masanori Kobayashi, Tokyo, Japan, assignor to Kabushiki, Tokyo, Japan

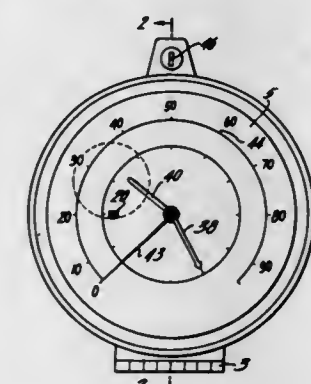
Filed Nov. 15, 1968, Ser. No. 776,061

Claims priority, application Japan, Nov. 17, 1967, 42/73856

Int. Cl. G01d 18/00

U.S. Cl. 346-17

7 Claims



Mechanism for visually indicating the amount of the unused or unrecorded portion of the recording paper utilized in a tachograph to record measurements taken by the tachograph and for indicating when the recording paper should be replaced.

3,596,279

SPEED RECORDER OF VOLTMETER TYPE FOR MOTOR VEHICLES

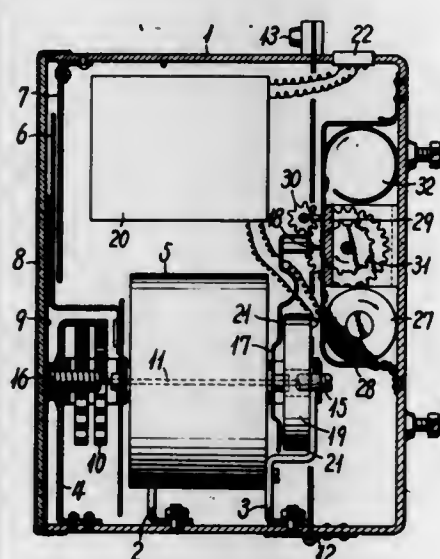
Taisuke Uchiyama, Tokyo, Japan, assignor to Kabushiki Kaisha Daiki Sersakusho, Neyagawa, Osaka Pref, Japan

Filed Mar. 26, 1969, Ser. No. 810,731

Claims priority, application Japan, Mar. 28, 1968, 43-19722
Int. Cl. G01d 9/16; G01p 1/06

U.S. Cl. 346-17

2 Claims



A speed recorder for a motor vehicle is provided with a voltmeter operated by the voltage proportional to the speed

of the motor vehicle. On the rotary shaft of the voltmeter is mounted a recording needle of dotting type. By means of an annular electromagnet which is actuated by a multivibrator, the supporting member of the needle is vibrated so that the needle may perform a recording operation when swung integrally with a pointer of the voltmeter.

3,596,280

DATA RETRIEVAL RECORDER

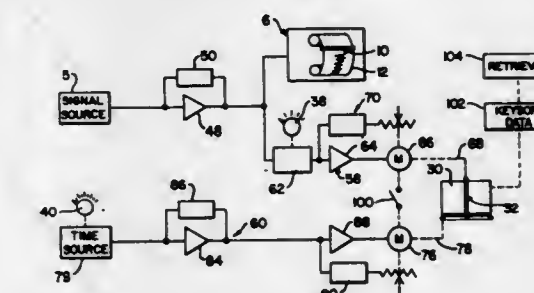
Donald N. Campbell; Miles Schwartz, and Kenneth K. Konrad, all of Lewisburg, W. Va., assignors to The Bendix Corporation

Filed Oct. 21, 1968, Ser. No. 769,352

Int. Cl. G01d 9/26

U.S. Cl. 346-30

5 Claims



There is disclosed a novel recorder and recording system described as applied to recording data from a source such as a gas chromatograph. Normal recording of the data in such an illustrative application is accomplished using a conventional strip chart recorder having a constant feed rate of "X" inches per minute. In this disclosure a recorder is used having a record card of predetermined coordinate height and length, representing time, and signal amplitude. This recorder is equipped with a variable time scale adjustment wherein data of practically any time duration may be placed within the predetermined time coordinate length. Mechanical search and retrieval indicia representative of the recorded data is placed on the recorder record card for ready retrieval from a file collection of such cards at any later time.

3,596,281

FUEL TEST RECORDER

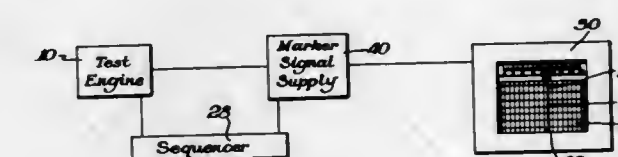
Eugene H. Lombardi, Port Chester, N.Y., assignor to Ethyl Corporation, New York City, N.Y.

Filed Feb. 17, 1969, Ser. No. 799,615

Int. Cl. G01d 9/32

U.S. Cl. 346-34

1 Claim



Trace indicator such as chart recorder is arranged to automatically make different mutually distinguishable types of traces under the influence of a special marker signal, to indicate two different types of measurements are being made. A single pen on a chart recorder is in this way used to simultaneously make a trace of test results on different gasolines and identify the individual gasolines.

3,596,282

MARKING MECHANISM INCLUDING A THIN-EDGED WHEEL STYLUS FOR ELECTROSENSITIVE RECORDER

Jerry A. Stegenga, Coral Gables, Fla., assignor to Milgo Electronic Corporation, Miami, Fla.

Filed Feb. 20, 1968, Ser. No. 706,906

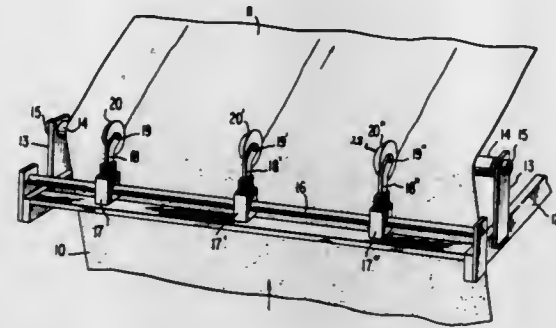
Int. Cl. G01d 15/06, 9/10

U.S. Cl. 346-74 ES

5 Claims

This invention provides a sturdy mechanism to replace a fine wire stylus for recording data points or a continuous line

on a coated moving strip as it passes over a backing element, comprising a thin-edged wheel mounted for free rotation about an axis combined with a linear backing element over which the strip is transported. Advancement of the strip over a thin backing element rotates the wheel to provide a con-



tinuously changing point of contact on the wheel and is especially useful with electrosensitive papers and certain types of pressure-sensitive papers. A fine line comparable to the best fine wire stylus practice is achieved, and the wheel stylus has greatly increased rigidity, durability and service life.

3,596,283

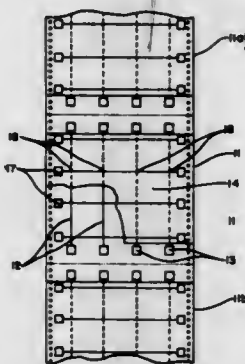
DEVICE FOR THE VISUAL PRESENTATION OF ELECTRONIC INTELLIGENCE

Michael F. Baumann, Reading, and Thomas S. Loane, Wyomissing, both of, Pa., assignors to Wyomissing Corporation

Continuation-in-part of application Ser. No. 738,171, June 19, 1968, now abandoned. This application Feb. 4, 1969, Ser. No. 796,455

Int. Cl. G01d 15/06, 15/02; G11b 9/00
U.S. Cl. 346—74 E

1 Claim



A system for recording information onto a sheet of material is provided by forming a plurality of closely spaced electrical junctions that are normally nonconductive but that selectively may be raised to a conductive state. The passage of current through the junctions is effective to alter certain properties of the junction such as electrical, mechanical or chemical, and enable the recording or retrieval of information.

The junctions are defined by a series of linear conductors located in a first plane, a second series of linear conductors angularly oriented to the first conductors located in a second plane parallel to the first plane, and a material having different electrical properties, preferably a dielectric material, positioned between the first and second planes.

Pressure forces generated variously by mechanical, chemical or electromagnetic energy are utilized to program the junctions.

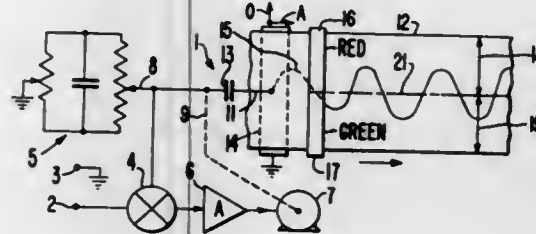
3,596,284 ELECTROGRAPHIC APPARATUS EMPLOYING PLURAL INKERS OF DIFFERENT COLORS FOR SEPARATING SIGNAL LEVELS OR CHANNELS ACCORDING TO COLOR

Renn Zaphiropoulos, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Continuation of application Ser. No. 612,540, Jan. 30, 1967, now abandoned. This application Nov. 20, 1969, Ser. No. 871,706

Int. Cl. G01d 15/06, 9/10; G03g 13/10
U.S. Cl. 346—74

4 Claims



An electrographic recorder is described which lays down a line of electrostatic charge on a charge retentive surface of a strip of electrographic recording paper. In one embodiment, the transverse position of the line charge image on the recording strip is representative of the amplitude of the signal being recorded. Plural inkers each dispensing a different color of charged pigment are arranged to ink charge images within separate strip-shaped zones of the recording strip. Thus, the inked electrostatic image will have a color dependent upon the amplitude range it happens to correspond to at any position taken longitudinally along the strip. The transverse position of the boundary between different colors is adjustable by sliding or pivoting the inkers, whereby the different colored amplitude ranges are made adjustable. In a second and third embodiment a multichannel recorder or printer is described wherein the signals corresponding to the different channels are each recorded in their own separate strip-shaped zone of the recording paper. Each separate recording zone has its own separate inker with pigment of a different color than that of its neighbors.

3,596,285

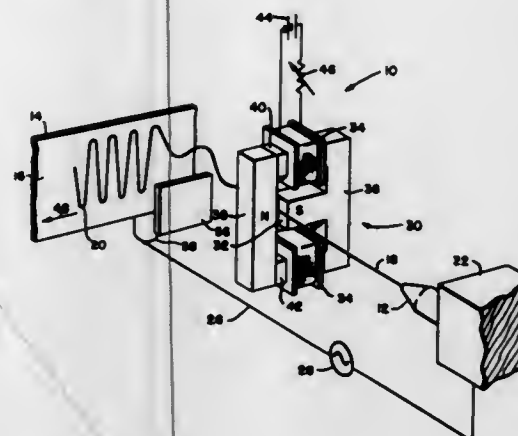
LIQUID METAL RECORDER

Johannes F. Gottwald, Park Ridge, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed July 11, 1969, Ser. No. 840,947
Int. Cl. G01d 15/18

U.S. Cl. 346—75

6 Claims



An uninterrupted stream or continuous liquid bridge of an electrically conductive ink is propelled under pressure against a carrier for marking thereon. Symbol formation is effected through the agency of magnetic deflection resulting from interaction of a pair of magnetic flux fields of relative variable intensities. A first of the flux fields is induced about the ink stream by passing a current through it as it travels across the span between the nozzle from which it has been ejected to the carrier; and the second field is disposed about

the first. In a preferred embodiment, the ink is an electrical conductor, being a metal or metallic composition with a melting point, such that it will flow at printing temperature but will solidify as it contacts the carrier. By providing an impervious or impermeable endless carrier, for example, of metal fabrication a formed symbol may be removed therefrom to enable reuse of the carrier and metal salvage.

3,596,286

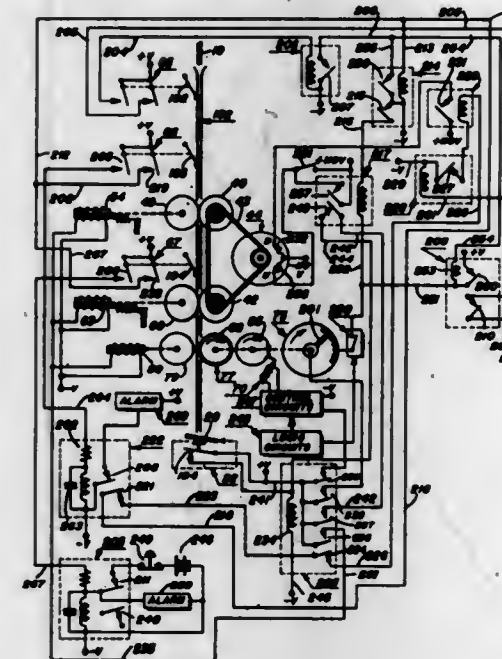
PUNCHING TIME RECORDER

James T. Collz, New Providence; Carl A. Inpyn, Kinnelon, and Robert R. Meola, Parsippany, all of, N.J., assignors to Calculagraph Company, Township of East Hanover, N.J.

Filed July 31, 1969, Ser. No. 846,509
Int. Cl. G07c 1/08

U.S. Cl. 346—86

39 Claims



A time recorder for punching employee arrival and departure times into a data processing card, which apparatus comprises a card positioner, a photoelectric card reader, a time generator, logic circuits and a punching mechanism. The card positioner aligns the card to the current day and time period, the card reader reads into the logic circuits employee work shift and lunch period identification which has been prepunched in the card, and the time generator introduces

into the logic circuits current time information. Upon compiling such information, the logic circuits make a decision and cause actuation of the punching mechanism, after which the card positioner ejects the card.

3,596,287

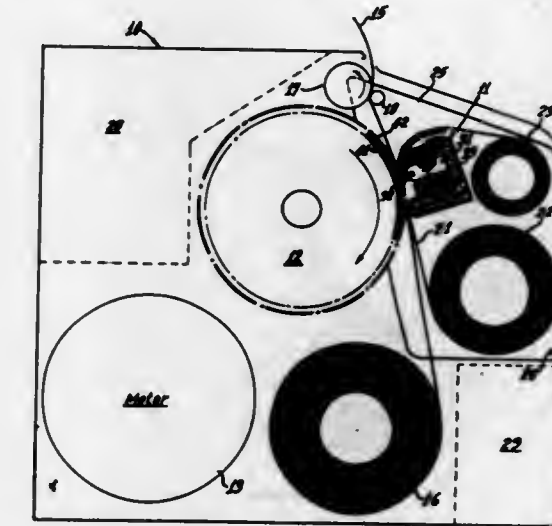
ELECTROMAGNETIC SIGNAL RECORDER OF THE PRESSER BAR TYPE

Austin G. Cooley, Reno, Nev., assignor to Litton Systems Inc., Beverly Hills, Calif.

Filed June 26, 1969, Ser. No. 836,817
Int. Cl. G01d 15/00

U.S. Cl. 346—101

10 Claims



A signal recorder provided with a print or presser marking bar for marking a record sheet or blank backed up by a rotating member supporting a helical anvil. The signals to be recorded such as facsimile signals are impressed upon an electromagnetic structure adjacent the presser bar, the magnetic structure embodying U-shaped cores so oriented that the magnetic flux which controls the bar, constituting an armature for the electromagnets, has forward and return paths to the rotating helix member which pass through the body of the bar. The pressure between the presser bar and the helix when the electromagnetic structure is energized by a signal marks the recording blank. The presser bar may be formed with alternate sections of different magnetic characteristics to provide flux paths of higher permeability at the poles of the signal-responsive magnets.

DESIGNS

JULY 27, 1971

221,272 TOOTHBRUSH

Constance K. Splaine, 69 Elm St., Danvers, Mass. 01923
Filed Jan. 27, 1970, Ser. No. 21,107
Term of patent 7 years
Int. Cl. D4—02
U.S. Cl. D4—24



221,273 WIRECUTTERS

Frank R. Brown, Adams Drive, Bethel, Conn. 06801
Filed Apr. 23, 1970, Ser. No. 22,597
Term of patent 14 years
Int. Cl. D8—02
U.S. Cl. D8—58

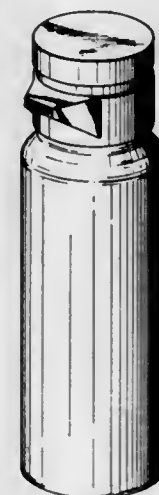


221,274 LUGGAGE LATCH

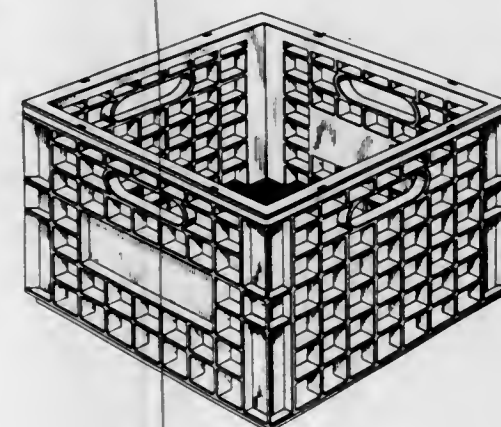
William J. Bouton, Jr., South Norwalk, Conn., assignor to
The Excelsior Hardware Company, Stamford, Conn.
Filed May 5, 1970, Ser. No. 22,823
Term of patent 14 years
Int. Cl. D8—03
U.S. Cl. D8—122



221,275
DISPENSING CONTAINER FOR LIQUIDS
Peter B. Hebblethwaite, Ashford, England, assignor to
Graviner (Colnbrook) Limited, London, England
Filed Apr. 15, 1970, Ser. No. 22,433
Term of patent 14 years
Int. Cl. D9—01
U.S. Cl. D9—9



221,276
CRATE FOR MATERIAL HANDLING
Houston Rehrig, 3730 E. 26th St.,
Los Angeles, Calif. 90023
Filed Feb. 19, 1970, Ser. No. 21,503
Term of patent 14 years
Int. Cl. D9—05
U.S. Cl. D9—177



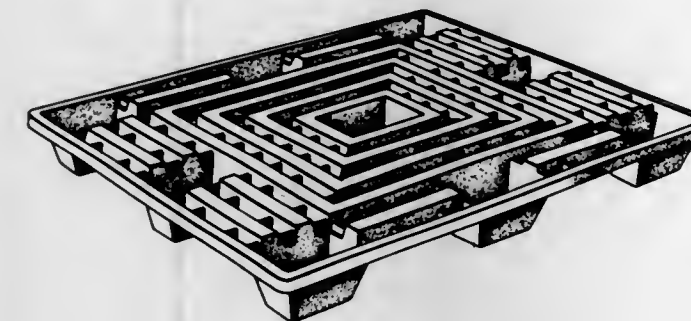
JULY 27, 1971

U. S. PATENT OFFICE

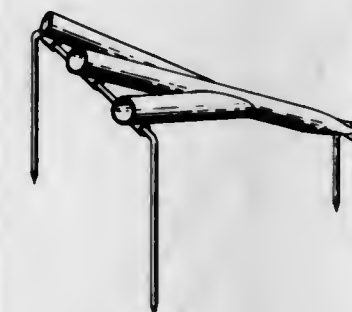
1401

221,277 PALLET

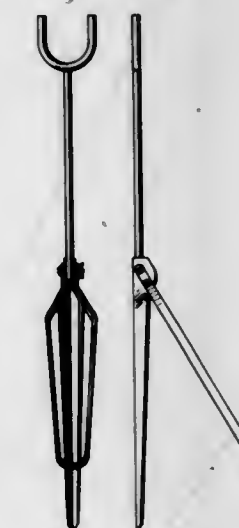
Thomas P. Wharton, Neenah, Wis., assignor to
Menasha Corporation, Neenah, Wis.
Filed Aug. 13, 1970, Ser. No. 24,478
Term of patent 14 years
Int. Cl. D12—14
U.S. Cl. D14—3



221,278
FINISHING POLE ANCHOR
Travis R. Wright, 80 Miller Ave., Dayton, Ohio 45427
Filed Apr. 24, 1970, Ser. No. 22,619
Term of patent 14 years
Int. Cl. D22—08
U.S. Cl. D22—22



221,279
FISHING POLE HOLDER
Harold Erickson, 1455 McAllister Ave.,
Sacramento, Calif. 95822
Filed May 25, 1970, Ser. No. 23,136
Term of patent 14 years
Int. Cl. D22—08
U.S. Cl. D22—22

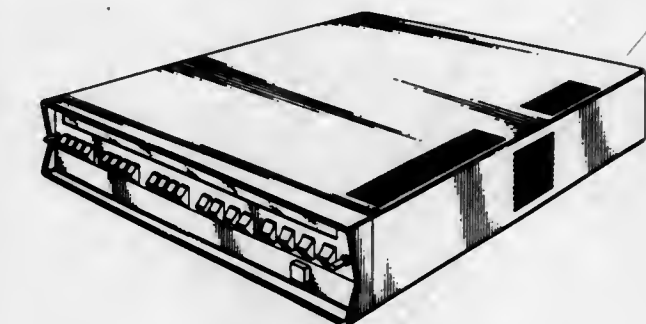


221,280 FISH LURE

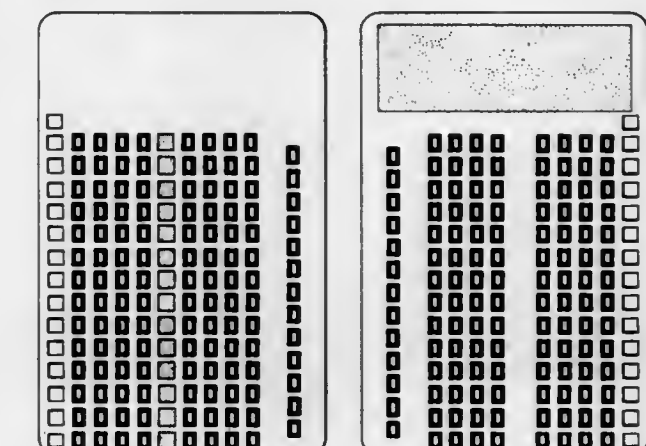
Clarence S. Turbeville and Ike J. Walker, Gainesville,
Tex., assignors to Bomber Bait Company, Gainesville,
Tex.
Filed Nov. 17, 1969, Ser. No. 20,154
Term of patent 14 years
Int. Cl. D22—07
U.S. Cl. D22—28



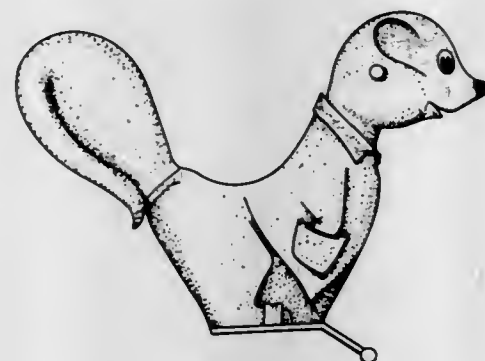
221,281
DIGITAL COMPUTER
Richard F. Gonzales, Anaheim, Calif., assignor to
Monitor Data Corporation, Irvine, Calif.
Filed May 1, 1970, Ser. No. 22,772
Term of patent 7 years
Int. Cl. D14—02
U.S. Cl. D26—5



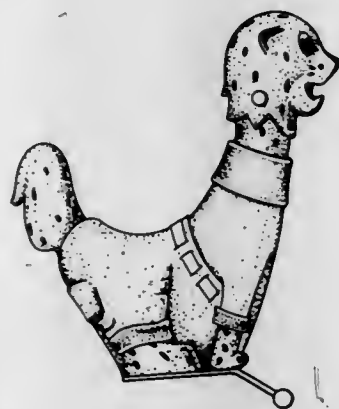
221,282
DATA RECORD CARD FOR RECORD CARD
CONTROLLED APPARATUS
Daniel L. Miller and Terry B. Prince, Indianapolis, Ind.,
assignors to Bell Telephone Laboratories, Incorporated,
Murray Hill and Berkeley Heights, N.J.
Continuation-in-part of design application Ser. No.
17,767, June 4, 1969, which is a continuation-in-part of
design application Ser. No. 11,273, Apr. 3, 1968, both
abandoned. This application Jan. 19, 1970, Ser. No.
20,995
Term of patent 14 years
Int. Cl. D14—02
U.S. Cl. D26—14



221,283
ANIMAL FIGURE SEAT FOR PLAYGROUND APPARATUS
 Steven A. Henning and Philip G. Miller, Anderson, Ind., assignors to American Playground Device Co., Anderson, Ind.
 Filed Apr. 23, 1970, Ser. No. 22,593
 Term of patent 14 years
 Int. Cl. D21-04
 U.S. Cl. D34-15



221,284
ANIMAL FIGURE SEAT FOR PLAYGROUND APPARATUS
 Steven A. Henning and Philip G. Miller, Anderson, Ind., assignors to American Playground Device Co., Anderson, Ind.
 Filed Apr. 23, 1970, Ser. No. 22,612
 Term of patent 14 years
 Int. Cl. D21-04
 U.S. Cl. 34-15



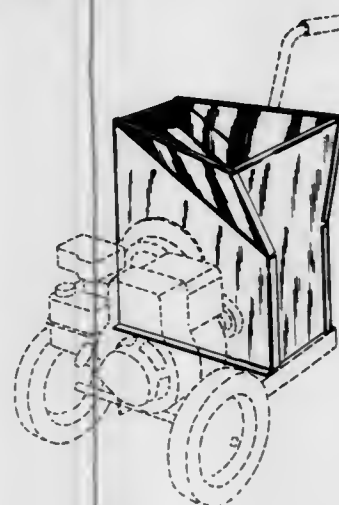
221,285
ANIMAL FIGURE SEAT FOR PLAYGROUND APPARATUS
 Steven A. Henning and Philip G. Miller, Anderson, Ind., assignors to American Playground Device Co., Anderson, Ind.
 Filed Apr. 23, 1970, Ser. No. 22,613
 Term of patent 14 years
 Int. Cl. D21-04
 U.S. Cl. D34-15



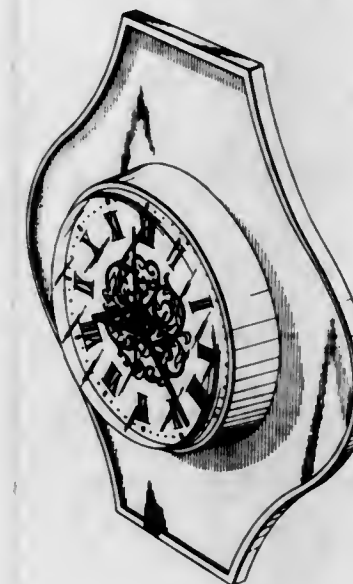
221,286
DRINKING VESSEL
 John W. Kern, Jr., 733 Coral Tree Drive, West Covina, Calif. 91790, and Frank R. Morgan, 528 S. Barrance, Covina, Calif. 91722
 Filed May 21, 1970, Ser. No. 23,081
 Term of patent 7 years
 Int. Cl. D7-01
 U.S. Cl. D36-8



221,287
COMBINED COMPOSTER HOPPER AND CHOPPER HOUSING
 Edward W. Eaters, Fredonia, Wis., assignor to Gilson Bros. Co., Plymouth, Wis.
 Filed Nov. 28, 1969, Ser. No. 20,305
 Term of patent 14 years
 Int. Cl. D15-03
 U.S. Cl. D40-1



221,288
CLOCK OR SIMILAR ARTICLE
 Arthur M. Felske, Westport, Conn., assignor to General Electric Company
 Filed July 17, 1970, Ser. No. 23,994
 Term of patent 14 years
 Int. Cl. D10-01
 U.S. Cl. D42-7



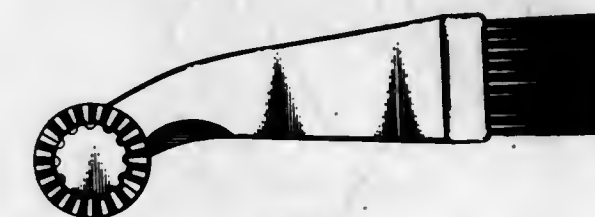
221,289
CHRONOGRAPH
 Egbert VanHaften, Closter, N.J., assignor to Bulova Watch Company, Inc., New York, N.Y.
 Filed Nov. 20, 1969, Ser. No. 20,203
 Term of patent 14 years
 Int. Cl. D10-02
 U.S. Cl. D42-8



221,290
DISH
 Karl Wiedemann, 519 Fireside Lane, Cherry Hill, N.J. 08034
 Filed May 25, 1970, Ser. No. 23,205
 Term of patent 14 years
 Int. Cl. D7-01
 U.S. Cl. D44-15



221,291
COMBINED PASTRY BRUSH, CRIMPING WHEEL AND EDGE CUTTER
 Herbert G. Futter, Whately, Mass., assignor to Kellogg Brush Manufacturing Co., Easthampton, Mass.
 Filed Aug. 29, 1969, Ser. No. 18,923
 Term of patent 14 years
 Int. Cl. D7-99
 U.S. Cl. D44-29



221,292
WATCH BAND
 Yuen Sang Poon, 36 Kam Wah St., Victoria, Hong Kong
 Filed Feb. 25, 1970, Ser. No. 21,626
 Term of patent 14 years
 Int. Cl. D11-01
 U.S. Cl. D45-4



221,293
WATCH BAND
 Yuen Sang Poon, 36 Kam Wah St., Victoria, Hong Kong
 Filed Feb. 25, 1970, Ser. No. 21,627
 Term of patent 14 years
 Int. Cl. D11-01
 U.S. Cl. D45-4

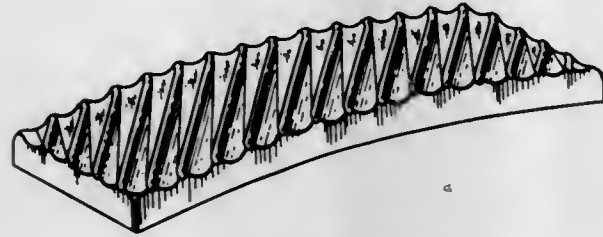


221,294
WATCH BAND
 Yuen Sang Poon, 36 Kam Wah St., Victoria, Hong Kong
 Filed Feb. 25, 1970, Ser. No. 21,628
 Term of patent 14 years
 Int. Cl. D11-01
 U.S. Cl. D45-4



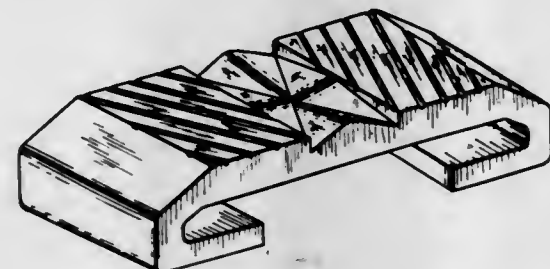
221,295
LINK CHAIN FOR A BRACELET OR
SIMILAR ARTICLE
 Yuen Sang Poon, 36 Kam Wah St., Hong Kong
 Filed Apr. 24, 1970, Ser. No. 22,628
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—4



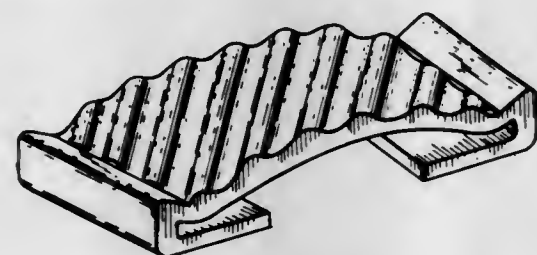
221,296
LINK CHAIN FOR A BRACELET OR
SIMILAR ARTICLE
 Yuen Sang Poon, 36 Kam Wah St., Hong Kong
 Filed Apr. 24, 1970, Ser. No. 22,626
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—4



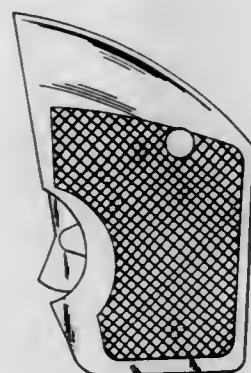
221,297
LINK CHAIN FOR A BRACELET OR
SIMILAR ARTICLE
 Yuen Sang Poon, 36 Kam Wah St., Hong Kong
 Filed Apr. 24, 1970, Ser. No. 22,627
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—4



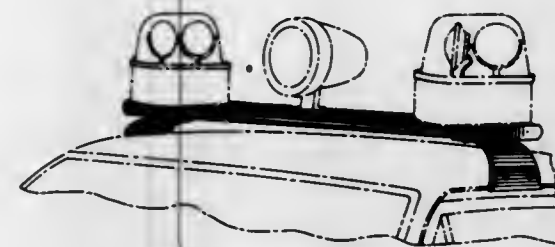
221,298
FLASHLIGHT
 Joseph G. Bacevius, Bridgeport, Conn., assignor to
 Paul G. Garrity, Stamford, Conn.
 Filed Jan. 6, 1970, Ser. No. 20,783
 Term of patent 14 years
 Int. Cl. D26—04

U.S. Cl. D48—24



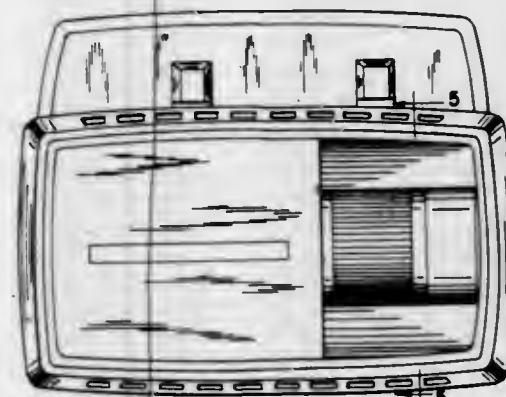
221,299
SUPPORT BAR FOR VEHICLES
 Oliver John Burland, 214 Rugley Road,
 Western Springs, Ill. 60558
 Filed Dec. 22, 1969, Ser. No. 20,590
 Term of patent 14 years
 Int. Cl. D12—99; D29—99

U.S. Cl. D48—32



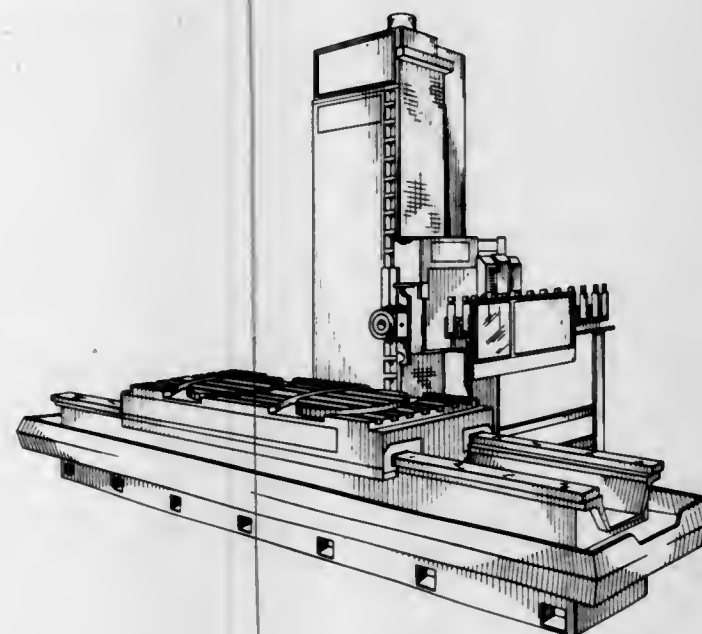
221,300
WALL THERMOSTAT
 Frederick M. Hill, Columbus, Ohio, assignor to
 Ranco Incorporated, Columbus, Ohio
 Filed Mar. 30, 1970, Ser. No. 22,098
 Term of patent 14 years
 Int. Cl. D10—07

U.S. Cl. D52—7



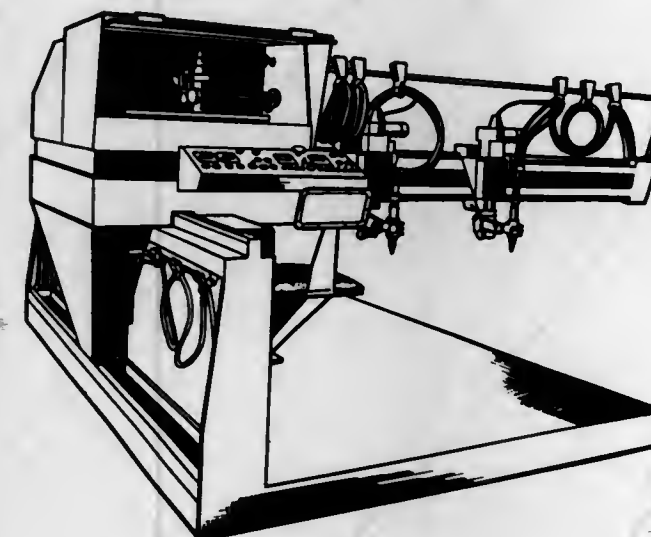
221,301
MACHINING CENTER
 Brooks Stevens, Fox Point, Wis., assignor to Kearney &
 Trecker Corporation, West Allis, Wis.
 Filed Apr. 27, 1970, Ser. No. 22,652
 Term of patent 14 years
 Int. Cl. D15—05

U.S. Cl. D54—14



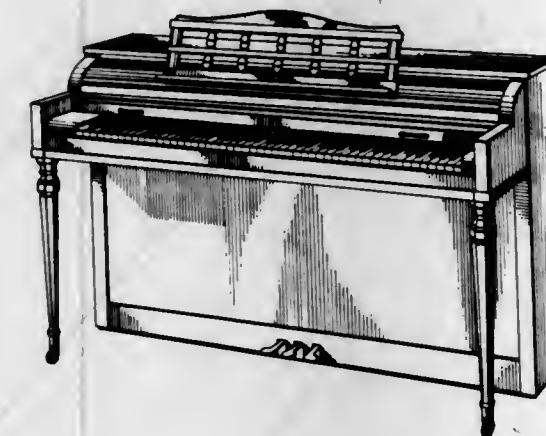
221,302
MACHINE FOR GAS-CUTTING OF SHEET METAL
 Shimon Abramovich Vainer, 43 Logovskaya Str.; Valentin
 Semenovich Sigarev, 17 Tsimlyanskaya; Savely Abramov-
 vich Vainer, 10 Greodnenskaya; Nikita Timofeevich
 Prosvirov, 21 Pr. Lenina; Solomon Avramovich Zan-
 berg, 4 Daugavskaya; Vadim Anatollevich Usoltsev,
 9 Tsimlyanskaya; Jury Ivanovich Lomakin, 16 Pr.
 Lenina; Dmitry Nikolaevich Ruze, Petrogradskaya Str.
 20; Feofilakt Miltiadovich Kolmshidi, 14 ulitsa Push-
 kina; and Anatoly Fedorovich Temerev, 9 Tsimlyana-
 skaya, all of Volgograd, U.S.S.R.
 Filed Nov. 14, 1969, Ser. No. 20,099
 Term of patent 14 years
 Int. Cl. D15—05

U.S. Cl. D55—1



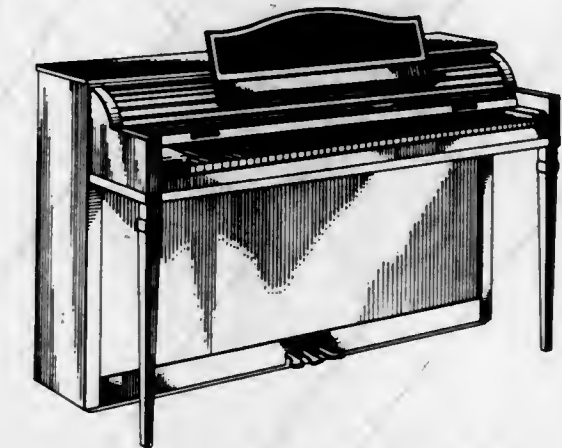
221,303
PIANO
 Winsor D. White, Jr., Blowing Rock, N.C., assignor to
 D. H. Baldwin Company, Cincinnati, Ohio
 Filed Feb. 24, 1970, Ser. No. 21,571
 Term of patent 14 years
 Int. Cl. D17—01

U.S. Cl. D56—9



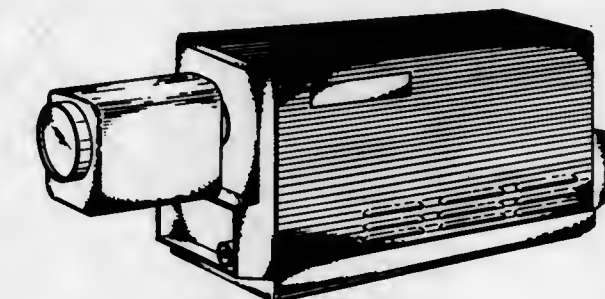
221,304
PIANO
 Winsor D. White, Jr., Blowing Rock, N.C., assignor to
 D. H. Baldwin Company, Cincinnati, Ohio
 Filed Feb. 24, 1970, Ser. No. 21,574
 Term of patent 14 years
 Int. Cl. D17—01

U.S. Cl. D56—9



221,305
TELEVISION CAMERA OR SIMILAR ARTICLE
 James W. Fitzgibbons, Palo Alto, and Kellogg Fleming
 and Gene Tepper, San Francisco, Calif., assignors to
 Sylvania Electric Products Inc.
 Filed June 29, 1970, Ser. No. 23,745
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D61—1



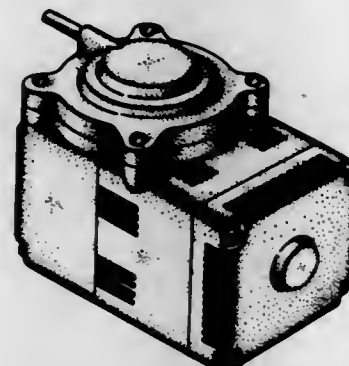
221,306
FONT OF TYPE
 Harry L. Preble, Mason, N.H., assignor to Viatron Com-
 puter Systems Corporation, Bedford, Mass.
 Filed Apr. 23, 1970, Ser. No. 22,588
 Term of patent 14 years
 Int. Cl. D18—04

U.S. Cl. D64—12

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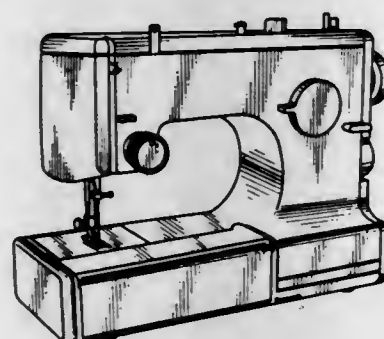
221,307
PUMP
Kenneth G. Bills, Trotwood, Ohio, assignor to
TRW Inc., Cleveland, Ohio
Filed Apr. 15, 1970, Ser. No. 22,431
Term of patent 14 years
Int. Cl. D15—02

U.S. Cl. D65—1



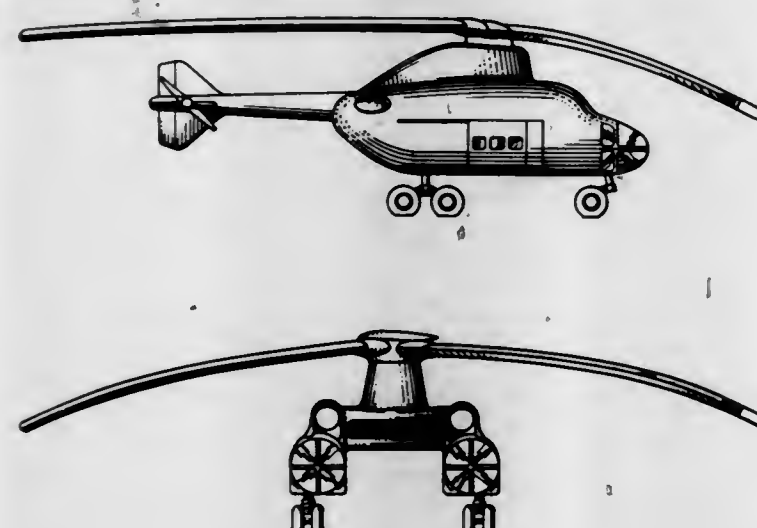
221,308
SEWING MACHINE
Kenneth Grange, London, England, assignor to Maruzen
Mishin Kabushiki Kaisha (Maruzen Sewing Machine
Co., Ltd.), Sata, Moriguchi, Osaka Prefecture, Japan
Filed May 4, 1970, Ser. No. 22,799
Term of patent 14 years
Int. Cl. D15—09

U.S. Cl. D70—1



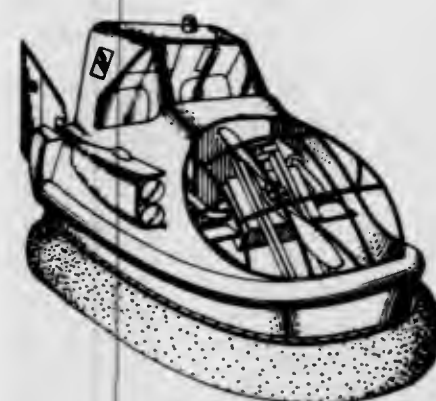
221,309
HELICOPTER
Roger L. Gamaunt, Manhattan Beach, Calif., assignor to
Hughes Tool Company, Aircraft Division, Culver City,
Calif.
Filed Feb. 6, 1970, Ser. No. 21,310
Term of patent 14 years
Int. Cl. D12—07

U.S. Cl. D71—1



221,310
AIRCUSHION VEHICLE
Harry A. Laufman, 1510 E. Colorado Blvd.,
Glendale, Calif. 91204
Filed Mar. 16, 1970, Ser. No. 21,914
Term of patent 14 years
Int. Cl. D12—13

U.S. Cl. D71—1



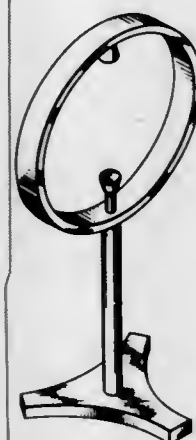
221,311
SUSPENSION HANGER FOR PANTS OR THE LIKE
Robert L. Hart, Manhasset Hills, N.Y., assignor to
W. R. Grace & Co., Duncan, S.C.
Filed Mar. 19, 1970, Ser. No. 21,968
Term of patent 14 years
Int. Cl. D20—2

U.S. Cl. D80—8



221,312
ORNAMENT DISPLAY SUPPORT
Arthur E. Court, 601 Ortega,
San Francisco, Calif. 94122
Filed Jan. 9, 1970, Ser. No. 20,856
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D80—9



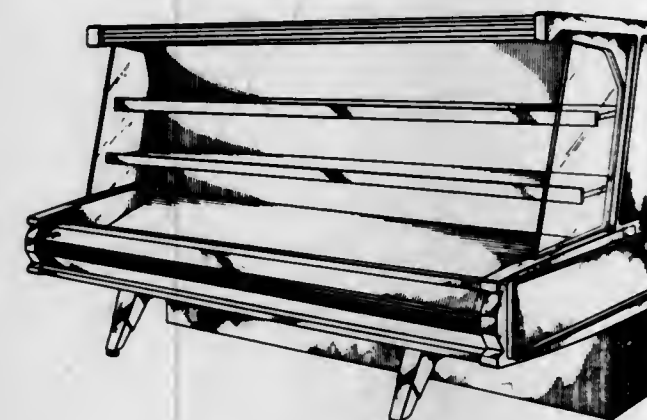
221,313
REFRIGERATED SELF-SERVICE DISPLAY CASE
Steven J. Toth, Kendallville, and Karl A. Emch, La
Grange, Ind., assignors to Streater Industries, Inc., Al-
bert Lea, Minn.
Filed Sept. 23, 1969, Ser. No. 19,267
Term of patent 14 years
Int. Cl. D15—10

U.S. Cl. D80—11



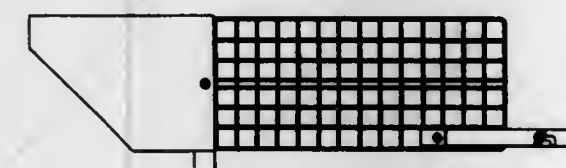
221,314
REFRIGERATED SELF-SERVICE DISPLAY CASE
Steven J. Toth, Kendallville, and Karl A. Emch, La
Grange, Ind., assignors to Streater Industries, Inc., Al-
bert Lea, Minn.
Filed Sept. 24, 1969, Ser. No. 19,292
Term of patent 14 years
Int. Cl. D15—10

U.S. Cl. D80—11



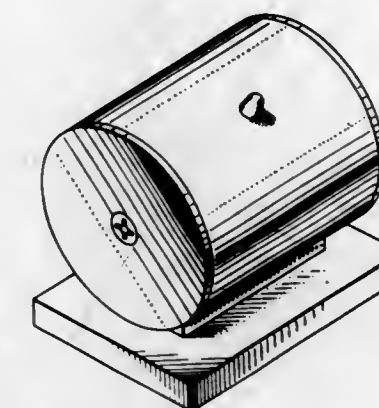
221,315
SAFETY GUARD FOR A COOKER OR COOKING STOVE
Rodney Stanley Landau, 13 Friern Mount Drive,
London N. 20, England
Filed Feb. 24, 1970, Ser. No. 21,573
Claims priority, application Great Britain Oct. 3, 1969
Term of patent 14 years
Int. Cl. D7—04

U.S. Cl. D81—25



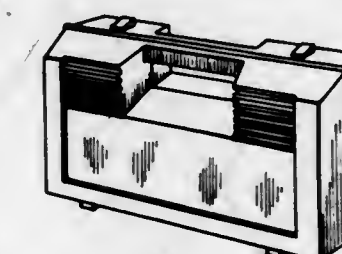
221,316
DEFIBRILLATOR TESTING DEVICE
Robert H. Dempsey, Napa, Calif., assignor to
Neurodyne-Dempsey, Inc., Napa, Calif.
Filed Apr. 13, 1970, Ser. No. 22,395
Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D83—1



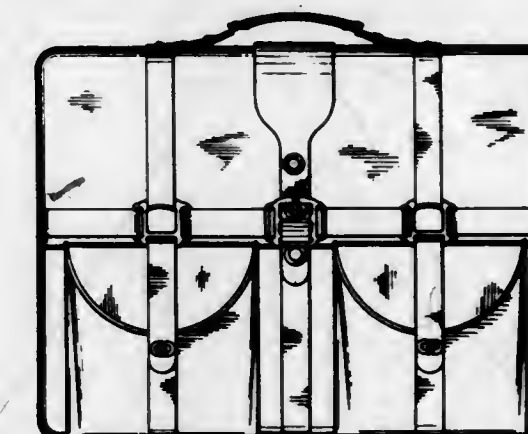
221,317
STORAGE CASE FOR POWER TOOLS
Richard Muller, Highland Park, Ill., assignor to
Imperial Marketing Ltd.
Filed Apr. 9, 1970, Ser. No. 22,353
Term of patent 14 years
Int. Cl. D3—99

U.S. Cl. D87—1



221,318
LUGGAGE BAG
Leslie Marshall, 15 Pine St., Woodmere, N.Y. 11598
Filed Jan. 28, 1970, Ser. No. 21,123
Term of patent 14 years
Int. Cl. D3—01

U.S. Cl. D87—5



221,319

UMBRELLA HANDLE

Richard Zimmerman, Leichlingen, Rhineland, Germany, assignor to W. Bauermann & Sohne G.m.b.H., Hilden, Rhineland, Germany

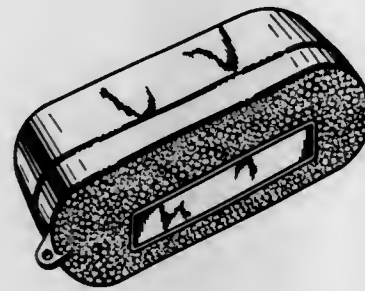
Filed Apr. 15, 1970, Ser. No. 22,455

Claims priority, application Germany Nov. 12, 1969

Term of patent 14 years

Int. Cl. D3—03

U.S. Cl. D88—3



221,320

BICYCLE CHAINGUARD

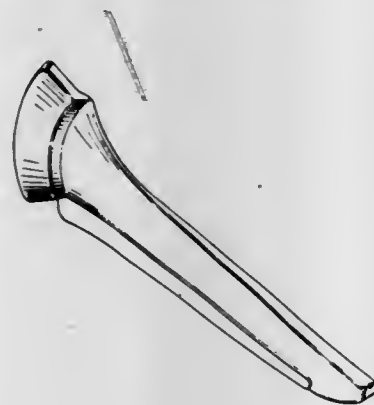
Charles E. Kerr, Little Rock, Ark., assignor to AMF Incorporated

Filed June 3, 1970, Ser. No. 23,288

Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D90—5



221,321

CHAIN GUARD FOR A BICYCLE

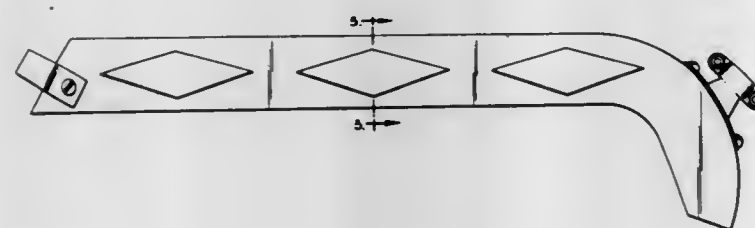
Norman W. Post, P.O. Box 230, Fire Road, Pleasantville, N.J. 08232

Filed Aug. 20, 1970, Ser. No. 24,596

Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D90—5



221,322

HANDLEBAR

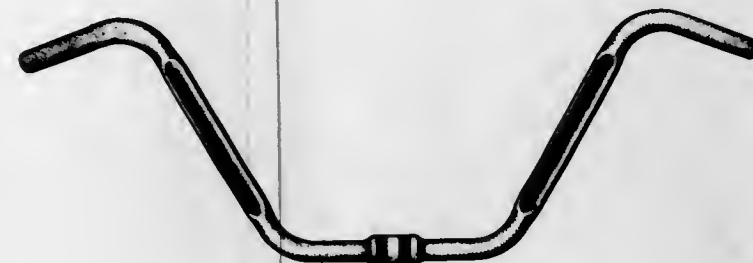
Carlton P. Pawsat and Robert F. Humlong, Maysville, Ky., assignors to Wald Manufacturing Company, Inc., Maysville, Ky.

Filed June 24, 1970, Ser. No. 23,645

Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D90—11



221,323

HANDLEBAR

Carlton P. Pawsat and Robert F. Humlong, Maysville, Ky., assignors to Wald Manufacturing Company, Inc., Maysville, Ky.

Filed June 29, 1970, Ser. No. 23,732

Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D90—11



221,324

HANDLEBAR

Carlton P. Pawsat and Robert F. Humlong, Maysville, Ky., assignors to Wald Manufacturing Company, Inc., Maysville, Ky.

Filed June 29, 1970, Ser. No. 23,733

Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D90—11



221,325

HANDLEBAR

Carlton P. Pawsat and Robert F. Humlong, Maysville, Ky., assignors to Wald Manufacturing Company, Inc., Maysville, Ky.

Filed June 29, 1970, Ser. No. 23,734

Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D90—11



221,326

SHAVER

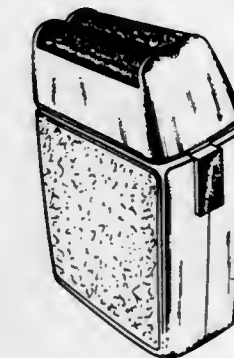
Hermann R. Schaefer, Bridgeport, Conn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed May 28, 1970, Ser. No. 23,192

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D95—3



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 27TH DAY OF JULY, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Abbat, Jean Pierre, to Brutoco Development Co. Amusement device. 3,594,925, Cl. 35-19.
- Abbott, James H.; Harakas, Nick K.; and Latinen, George A., to Monsanto Company. Continuous condensation polymerization finisher. 3,595,627, Cl. 23-285.
- Abbott Laboratories: See—
- Suyeoka, George M.; and Katerndahl, Dean R., 3,595,230.
- Abbott, Samuel, to Venavco, Inc. Automatic shutoff valve. 3,595,261, Cl. 137-403.
- Abitibi Corporation: See—
- Branson, Thomas A.; Huehmer, Joachim E.; and Klasell, Thomas A., 3,594,979.
- Ables, Eugene O. Roller attachments to hydraulic back hoe. 3,595,411, Cl. 214-145.
- Abos, Ralph L., to Anti-Pollution Devices, Inc., mesne. Filter apparatus. 3,595,397, Cl. 210-232.
- Abos, Ralph L.; and Stuewe, Carl A., to Anti Pollution Devices, Inc. Filter. 3,595,399, Cl. 210-266.
- Abrahamson, Henry M.: See—
- Lind, Jack H.; and Abrahamson, Henry M., 3,595,682.
- Abrecht, William A., to Dart Industries, Inc. Banding apparatus. 3,594,975, Cl. 53-3.
- ACF Industries, Incorporated: See—
- Rollins, Dallas W., 3,594,847.
- Acumeter Laboratories, Inc.: See—
- McIntyre, Donald B.; and McIntyre, Frederic S., 3,595,204.
- Adachi, Toshiyuki: See—
- Taukuma, Shin; and Adachi, Toshiyuki, 3,595,493.
- Adams, Charles T.; and Fruit, Richard E., to Shell Oil Company. Process for stabilization of diolefin-containing hydrocarbons. 3,595,780, Cl. 208-216.
- Adams, Frederick John, to Cam Gears (Luton) Limited. Implement carrying linkage means. 3,595,319, Cl. 172-9.
- Adams, Paul E.: See—
- Zimmerman, Rhoderick H., 3,596,076.
- Adams, Richard C.; Monahan, Thomas J.; and Picotte, George A., to Schjeldahl, G. T., Company. Apparatus for nesting bags. 3,595,139, Cl. 93-33.
- Adams, Robert B., to Moore Products Co. Diverting valve. 3,595,259, Cl. 137-81.5
- A.D.C.O. Mfg. Co., Inc.: See—
- Landers, Adrian L., 3,595,284.
- Landers, Adrian L.; and Byrd, Commodore B., 3,595,288.
- Adcock, Edmund Philip; Sutcliffe, Jeffrey Herbert; and Woodward, Colin Charles, to U.G. Closures and Plastics Limited. Closures for containers. 3,595,418, Cl. 215-40.
- Adler, Karl; and Ducommun, Georges, to Biviator S.A. Drill spindle drive for high speeds. 3,595,096, Cl. 74-206.
- AEG-Elotherm GmbH: See—
- Seulen, Gerhard; and Reinke, Friedhelm, 3,596,037.
- Afonso, Adriano, to Schering Corporation. Process for the preparation of 14 β hydroxy-17-keto-15-androstenes and novel intermediates produced thereby. 3,595,883, Cl. 260-397.45
- Agfa-Gevaert Aktiengesellschaft: See—
- Engelsmann, Dieter, 3,595,150.
- Maas, Dieter; and Schmieri, Richard, 3,595,151.
- Agulnek, Harry, to Singer Company, The. Retractable guard cam for pattern wheel knitting apparatus. 3,595,033, Cl. 66-50.
- Aichenegg, Paul C.: See—
- Emerson, Carl D.; and Aichenegg, Paul C., 3,595,915.
- Aigner, G. J., Company: See—
- Jones, Charles E.; and Gruenhut, Joseph H., 3,595,433.
- Air Preheater Company, Inc., The: See—
- Anderson, William M.; Bakker, Lubertus; and Stockman, Richard F., 3,595,181.
- Carr, George P.; and Hazzard, Noel D., 3,594,992.
- Air Reduction Company, Inc.: See—
- Newcombe, Robert, 3,595,226.
- Ajax Magnethermic Corporation: See—
- Ross, Nicholas V.; and Jennings, Reuhl E., 3,596,036.
- Shearman, Wilbur E., 3,595,979.
- Ajinomoto Co., Inc.: See—
- Ariyoshi, Yasuo; and Sato, Naotake, 3,595,912.
- Shimazaki, Hideo; Tsukamoto, Shuji; and Komata, Yasushi, 3,595,678.
- Akai, Norio; and Taniguchi, Tomizo, to Hitachi Maxell, Ltd. Magnetic recording tape. 3,595,694, Cl. 117-235.
- Akashi, Tsuneo: See—
- Tsubouchi, Norio; Takahashi, Masao; Ohno, Tomeji; and Akashi, Tsuneo, 3,595,795.
- Aktiebolaget Kanthal: See—
- Stenfors, Erik; Malm, Ewert; and Magnusson, Bengt, 3,595,978.
- Aktiebolaget Svenska Kullagerfabriken: See—
- Lemor, Pierre, 3,595,094.
- Aktiebolaget Svenska Kullaterfabriken: See—
- Skold, Erik Axel, 3,595,549.
- Aktiengesellschaft Brown, Boveri & Cie: See—
- Faust, Werner; and Langer, Jurgen, 3,596,166.
- Floessel, Dieter, 3,596,029.
- Akustische u. Kino-Gerate Gesellschaft m.b.H.: See—
- Fidi, Werner; and Weingartner, Bernhard, 3,595,998.
- Alaskaug, Inc.: See—
- Stull, William T.; and Story, Earl A., 3,595,529.
- Alcon Metal Products, Inc.: See—
- De Vito, Albert P., 3,596,233.
- Aldrich, Paul E., to Du Pont de Nemours E. I., and Company. Method of using 4-arylbicyclo [2.2.2] octyl urethans as antidepressants and compositions thereof. 3,595,962, Cl. 424-274.
- Alexander, Inc.: See—
- Tibbals, Edward Camp, Jr.; and Temple, Trevor, 3,596,060.
- Alexandrovich, George, to Fairchild Sound Equipment Corporation. Gain switching circuits. 3,596,011, Cl. 179-170.2
- Alfons Haar: See—
- Lorentz, Werner, 3,595,521.
- Alford, Andrew. Electrical measuring apparatus for providing an output signal at an output branch characteristic of the relationship of impedances presented at first and second side branches at the frequency of energy applied at an input branch. 3,596,175, Cl. 324-58.
- Allen, Dorothy K., to Noble, F. H., & Company. Multiple and selectable parts trophy construction. 3,595,727, Cl. 161-17.
- Allen Electric and Equipment Company: See—
- Heese, William E., 3,595,193.
- Allen-Bradley Company: See—
- Nelson, Terrance D., 3,596,112.
- Alley, Thomas R. Gas lift valve. 3,595,315, Cl. 166-224.
- Allied Chemical Corporation: See—
- Ameen, Jameil; and Furbush, Seymour A., 3,594,985.
- Beckham, Leland J., 3,595,609.
- Birenzvice, Amnon; and Weedon, Gene C., 3,595,936.
- Crescentini, Lamberto, 3,595,935.
- Gilbert, Everett E.; Herz, Jack L.; Murray, John J.; Price, Alson K.; and Sweeney, Richard F., 3,595,689.
- Klingelhofer, William C., 3,595,613.
- Mason, Paul J.; Moore, William P.; and Ulmer, Harry E., 3,595,639.
- Pietrusza, Edward W.; and Pendersen, Jack R., 3,595,872.
- Sweeney, Richard F.; and Liauw, Koei-Liang, 3,595,886.
- Allis-Chalmers Manufacturing: See—
- Baude, John, 3,595,699.
- Allis-Chalmers Manufacturing Company: See—
- Granda, Gerald L., 3,595,572.
- Allison, William M.; and Vail, Atlee, to Sprague Electric Company. Capacitor with laminar electrode. 3,596,152, Cl. 317-258.
- Alpert, Norman; Felchek, Marvin; and Kirschner, Wallace, to Pitney Bowes-Alpex, Inc., mesne. Transaction computer system having multiple access stations. 3,596,256, Cl. 340-172.5
- Aluminum Company of America: See—
- Zelley, Walter G., 3,595,985.
- Amano, Katsutaro: See—
- Nakagome, Yukio; Amano, Katsutaro; and Fukata, Yasuo, 3,596,246.
- Ameen, Jameil; and Furbush, Seymour A., to Allied Chemical Corporation. Acid gas removal from gas mixtures. 3,594,985, Cl. 55-44.
- American & Efrid Thread Mills, Inc.: See—
- Bourque, Archille O., 3,595,491.
- American Cyanamid Company: See—
- Booth, Robert Ben, 3,595,390.
- Oppelt, John Christian; Megson, Frederic Houghton; and Bechem, Michael Thomas, 3,595,602.
- Ross, Lawrence James; and Costello, Albert Joseph, 3,595,913.
- American Home Products Corporation: See—
- Bell, Stanley C.; and Wei, Peter H. L., 3,595,861.
- Lefebvre, Yvon, 3,595,856.
- Robinson, Charles A., 3,595,855.
- American Optical Corporation: See—
- Berkovits, Barouh V., 3,595,242.
- American Precision Industries Inc.: See—
- Brookman, Roger S.; and Phillippi, John F., 3,595,266.
- American Safety Equipment Corporation of Michigan: See—
- Webb, Daniel D.; and Raney, Dennis F., 3,594,816.
- American Velcro Inc.: See—
- Erb, George H., 3,594,863.
- Erb, George H., 3,594,865.

- Erb, George H., 3,595,059.
Hockmeyer, Clive E., Jr.; Ouellette, Marcel C.; and Ferron, Peter P., 3,594,873.
Ames, Jack; and Graham, Thomas Gilmour, to Imperial Chemical Industries Limited. Heating elements. 3,595,720, Cl. 156-51.
AMP Incorporated: See—
Dola, Frank Peter; and Vickery, John Roy, Jr., 3,594,900.
Dowling, Edward Camp; Eshenauer, Earl Wilbert, Jr.; Jones, Robert Earl; and Yaccino, Michael Joseph, 3,596,181.
Folk, Kenneth Foster; and Ross, Milton Dean, 3,594,888.
Over, William Roderick, 3,594,887.
Teurlings, Lucas Gerardus Christinus, 3,596,235.
Ampex Corporation: See—
Markevitch, Bob V.; and Fibush, David K., 3,596,064.
Anaconda American Brass Company: See—
Bray, Robert S., 3,595,705.
Anaconda Wire and Cable Company: See—
Perrone, Rosario J.; and Wade, Robert M., 3,595,737.
Analytics Incorporated: See—
Leibholz, Stephen W., 3,596,243.
Andale Company: See—
McNeal, Daniel R., Jr., 3,595,270.
Anderson, Amos R.: See—
Huerta, James R.; Anderson, Amos R.; and Meyer, Jeffrey G., 3,595,843.
Huerta, James R.; Anderson, Amos R.; and Meyer, Jeffrey G., 3,595,890.
Anderson Associates, Inc.: See—
Anderson, William R., 3,595,586.
Anderson, Bernard M. Load carrying rack for truck bodies and the like. 3,595,452, Cl. 224-42.1
Anderson, Howard C.; and Barrows, Gerald L. Fishing rod holder. 3,595,504, Cl. 248-42.
Anderson, Howard L., to Wyandotte Chemicals Corporation. Liquid level control device. 3,595,267, Cl. 137-558.
Anderson, Robert I.; and Hoffman, Paul R., to Brunswick Corporation. Golf green. 3,595,581, Cl. 273-176.
Anderson, William M.; Bakker, Lubertus; and Stockman, Richard F., to Air Preheater Company, Inc. The Air modulation for waste incinerator. 3,595,181, Cl. 110-8.
Anderson, William R., to Anderson Associates, Inc. Lubricant seal for mating cylindrical objects. 3,595,586, Cl. 277-164.
Anderson, Karl Ragnar: See—
Chlund, John Alex Ingvar; and Andersson, Karl Ragnar, 3,595,436.
Andersson, Per-Erik: See—
Bergholm, Carl Arne; Andersson, Per-Erik; and Hellerqvist, Gustaf Rune, 3,595,038.
Andersson, Ruth Ingrid Kerstin: See—
Chlund, John Alex Ingvar; and Andersson, Karl Ragnar, 3,595,436.
Ando, Kenichiro: See—
Okutomi, Isao; Suzuki, Kazuo; Mizutani, Hikohiro; Ando, Kenichiro; Hirata, Chiaki; Nabae, Akira; and Tsutsumi, Tadahito, 3,596,027.
Ando, Sumitoshi: See—
Teramura, Hiroichi; Hattori, Naohiko; and Ando, Sumitoshi, 3,596,259.
Andreatch, Anthony John. Catalytic analyzer. 3,595,621, Cl. 23-254.
Andresen, Egon, to Licentia Patent-Verwaltungs-G.m.b.H. Linear induction MHD generator. 3,596,117, Cl. 310-11.
Andrews, Harry N.: See—
Frisch, Erling; Andrews, Harry N.; and Braun, Howard E., 3,595,748.
Andrews, Roland E., to Tektronix, Inc. Converter circuit having a controlled output. 3,596,165, Cl. 321-2.
Anglo Paper Products, Limited: See—
Sepall, Ola, 3,595,743.
Anti Pollution Devices, Inc.: See—
Abos, Ralph L.; and Stuewe, Carl A., 3,595,399.
Anti-Pollution Devices, Inc.: See—
Abos, Ralph L., 3,595,397.
Anzen Products: See—
Lorenzen, Walter C., 3,595,395.
Apotheker, David, to Du Pont de Nemours, E. I., and Company. Diiminosuccinonitrile as a vulcanization retarder. 3,595,841, Cl. 260-79.5
Appel, Karl-Richard: See—
Ost, Walter; Thomas, Klaus; Jerchel, Dietrich; and Appel, Karl-Richard, 3,595,916.
Araya, Kumakichi. Chain including link plates having swaged portions. 3,595,097, Cl. 74-250.
Araya, Kumakichi. Pin link plate of chain having a detent means for pivot pin. 3,595,098, Cl. 74-250.
Archer, Bill; and Low, John L., III, to Arlo, Inc. Method for developing a multiple pole stand. 3,594,973, Cl. 52-741.
Archer, Gary L. Pump feed system. 3,595,268, Cl. 137-565.
Ariyoshi, Yasuo; and Sato, Naotake, to Ajinomoto Co., Inc. Process for removing allthreonine. 3,595,912, Cl. 260-534.
Arlo, Inc.: See—
Archer, Bill; and Low, John L., III, 3,594,973.
Arlo Industries, Inc.: See—
Tarantola, John J., 3,595,251.
Armand, Marcel; Charveriat, Michel; and Givord, Jean-Pierre, to Ujine Kuhlmann. Coating a piece of steel and a piece comprising zirconium. 3,595,686, Cl. 117-71.
Armco Steel Corporation: See—
Hutton, Andrew H., 3,595,056.
Armour and Company: See—
Schoch, Walter S.; and Lewis, Reese G., 3,595,679.
Armstrong Cork Company: See—
Hager, Nathaniel E., Jr., 3,596,059.
Arntz, Robert L.; and Leger, Ronald E., to Dominion Electric Corporation. Electric heating device. 3,596,057, Cl. 219-354.
Aronson, Orvil R. Machine tool chuck. 3,595,594, Cl. 279-117.
Asahi Kasei Kogyo Kabushiki Kaisha: See—
Hasegawa, Emiko; Fukinbara, Itaru; and Nobukuni, Taneo, 3,595,677.
Seko, Maomi; Mihara, Kazuhiko; Ogawa, Shinsaku; Kumazaki, Shoichiro; Komori, Ryozo; and Yoshida, Munio, 3,595,764.
Ash, Kenneth Owen; and Christianson, George, to General Mills, Inc. Gelatin composition. 3,595,675, Cl. 99-130.
Ashman, Neville David, to Fawham Developments Limited. Preheater using downwardly flowing, directly contacting, fluidizing vapors from calcining stage of calcereous material. 3,595,542, Cl. 263-21.
Associated Electrical Industries Limited: See—
Heath, John Stewart, 3,596,087.
Association of Motion Picture & Television Producers Inc.: See—
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Atkins, Carl E.; and Lennon, Edward, to Wagner Electric Corporation. Alarm circuit. 3,596,240, Cl. 340-52.
Atkinson, Earl E. Materials handling apparatus. 3,594,848, Cl. 15-314.
Atlantic Richfield Company: See—
Mekler, Arlen B.; Borchelt, Alfred E.; and Sauer, Richard W., 3,595,972.
Wayo, Stephen J., 3,595,889.
Atwood Vacuum Machine Company: See—
Douglass, Burdette L., 3,595,527.
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Austill, Robert J. Convertible freight-hopper car. 3,595,175, Cl. 105-243.
Automatic Systems of America, Inc.: See—
Conklin, Clayton E., 3,595,272.
Avco Corporation: See—
Norton, David C., 3,595,126.
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Maslyansky, Gdal Nosonovich; Rabinovich, Georgy Lazarevich; Avtonomova, Nina Khristanovna; and Brisker, Kira Lvovna, 3,595,932.
Axthammer, Ludwig, to Marker, Hannes. Toe iron safety ski bindings. 3,595,595, Cl. 280-11.35
Aylesworth, Robert D.; Froehlich, Philip A.; Hilton, Thomas B.; and Rodenberg, Herbert G., to Emery Industries, Inc. Polyester plasticizer for polyvinyl chloride fabrics. 3,595,824, Cl. 260-31.6
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Badische Anilin- & Soda-Fabrik Aktiengesellschaft: See—
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Baguelin, Yves M.: See—
Brille, Maurice G.; and Baguelin, Yves M., 3,595,013.
Bailey, Frank Gordon, to Ralphs Unified Limited. Shoe lasting machines. 3,594,839, Cl. 12-10.5
Bailey, Robert N.; and Strom, James L., to Continental Can Company, Inc. Digital transducer system. 3,595,084, Cl. 73-398.
Bajcar, Miles S.; Madsen, Ditlev Peder; and Sondej, Vincent S., to Chemetron Corporation. Method of treating strands of sausage products. 3,595,672, Cl. 99-109.
Baker, Hugh M., Jr., to HB Engineering Corporation. Resonator driven timepiece. 3,595,007, Cl. 58-23.
Baker, Kenneth H., to Nasco Industries, Inc. DNA-RNA teaching aid. 3,594,924, Cl. 35-18.5
Baker, Philip G.; Cook, Gerald; and Downey, Rogers B., to Polaroid Corporation. Apparatus for rupturing a processing fluid containing pod in a photographic cassette. 3,595,157, Cl. 95-89.
Baker, Richard William: See—
Mc Daniel, Carl Vance; Baker, Richard William; and Rundell, Clark Ace, 3,595,611.
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- Baldwin-Lima-Hamilton Corporation: See—
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Ball, Michael S.: See—
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Ball, William John, to BP Chemicals (U.K.) Limited. Production of unsaturated aliphatic carboxylic acids. 3,595,910, Cl. 260-530.
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Ballard, Wesley D.; and Staley, John H. Pair of stilt boots. 3,595,339, Cl. 182-230.
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Zeis, Steve E.; Trifunovic, Alexander L.; Harris, Billy Steve; and Kaczmarczyk, Steven Anthony, 3,594,879.
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Barber Greene Company: See—
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Barber, Herbert; and Freeman, Howard Irving, to Thiokol Chemical Corporation, mesne. Process for delustering synthetic ribbon yarns. 3,594,881, Cl. 28-72.
Barber, Hugh Philip, Jr.; and Greenlee, Paul H., to Grimes Manufacturing Co. Stroboscopic anti-collision beacon. 3,596,237, Cl. 340-25.
Barclay, Hugh G.: See—
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Bard, C. R., Inc.: See—
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Barker, George Paul, to Churchill, Charles Limited. Escapement mechanisms for articles to be discharged from a magazine along a chute. 3,595,434, Cl. 221-301.
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Schippers, Heinz; and Hassenbruch, Rolf, 3,594,870.
Barnard, Paul G.; Starliper, Aaron G.; and Kenworthy, Heine, to United States of America, Interior. Reclamation of refractory carbides from carbide materials. 3,595,484, Cl. 241-3.
Barnes, Leslie, to Rolls-Royce Limited. Sparking circuit for an ignition system for internal combustion engines. 3,595,212, Cl. 123-148.
Barnes, Philip E., to United Aircraft Corporation. Method of fabricating valve module. 3,594,886, Cl. 29-157.1
Barrett, Fred O., to Emery Industries, Inc. Polyamide composition. 3,595,816, Cl. 260-18.
Barrett, Glenn R. Auto pilot for boats. 3,596,163, Cl. 318-588.
Barrientos Luque, Jose Tomas. Photoelectric device for automatically correcting the carbons of projectors. 3,596,132, Cl. 315-151.
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Anderson, Howard C.; and Barrows, Gerald L., 3,595,504.
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McDonald, John A.; Scotti, James B.; Young, Teddy R.; and Bass, Roland K., 3,595,050.
Bastians, Cedric R., to Westinghouse Electric Corporation. Collapsible and disposable collecting cell for electrostatic precipitator. 3,594,989, Cl. 55-142.
Baude, John, to Allis-Chalmers Manufacturing. Fuel cell temperature control. 3,595,699, Cl. 136-86.
Bauer, Alfred F., to National Lead Company. Method of making intricate die castings. 3,595,301, Cl. 164-113.
Baumann, Edward J., to Beloit Passavant. Floating aeration rotor. 3,595,538, Cl. 261-92.
Baumann, Michael F.; and Loane, Thomas S., to Wyomissing Corporation. Device for the visual presentation of electronic intelligence. 3,596,283, Cl. 346-74.
Baumann, Willi, to Hiller & Lutz, Firma. Fly press. 3,595,163, Cl. 100-270.
Baxter Laboratories, Inc.: See—
Cayle, Theodore; and Creeley, Joseph W., 3,595,754.
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Beck, Earl J., Jr., to United States of America, Navy. Sea pressure operated power device. 3,595,012, Cl. 60-1.
Beck, Maurice Sidney; and Plaskowski, Andzej. Powder flow measurement. 3,595,078, Cl. 73-194.
Becker, Karl Eugene; Oberlander, Karl; Fessler, Hugo; and Jager, Kurt, to Wurttembergische Metallwarenfabrik. Device for copying on polishing or brushing machines for hollow articles. 3,594,954, Cl. 51-100.
Beckham, Leland J., to Allied Chemical Corporation. Cyclic process for producing potassium nitrate and ammonium chloride. 3,595,609, Cl. 23-100.
Beeman, Harriet Howes. Support means applicable to the hands of sufferers from arthritis and the like. 3,595,225, Cl. 128-77.
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Bell, F. W., Inc.: See—
Cunningham, George J., 3,596,144.
Bell, Samuel M. Inhibiting explosions in coal mines and the like. 3,595,317, Cl. 169-2.
Bell, Stanley C.; and Wei, Peter H. L., to American Home Products Corporation. Novel synthesis of 2-quinazoline- propionic acids and derivatives. 3,595,861, Cl. 260-251.
Bell Telephone Laboratories, Incorporated: See—
Goodman, David J., 3,596,267.
Patel, Chandra K. N., 3,596,202.
Perneski, Anthony J., 3,596,261.
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Bellet, Paul; and Van Thuong, Truong, to Roussel-UCLAF. Hydroxycycloalkanes. 3,595,902, Cl. 260-468.
Beloit Corporation: See—
Cormack, Alexander D.; and Bump, Philip G., 3,595,401.
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Bender, Jack N.; and Lashley, Raymond. Variable rate sinusoidal action machine gun. 3,595,129, Cl. 89-130.
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Bendix Corporation, The: See—
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Potter, Frederick M., 3,596,120.
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Beneke, Jene A., to Verson Manufacturing Company. Couplings with stationary spring and fluid motor. 3,595,353, Cl. 192-18.
Bennett, James R.; Chapman, Harvey W.; Matyas, Tibor; Moorhead, John P.; Oakley, Gilbert F.; and Shook, Jackson A., to Evans Products Company. Railway car. 3,595,177, Cl. 105-377.
Benoit, Alfred E. Arrow shafts with plastic vanes and method of fletching. 3,595,579, Cl. 273-106.5
Benrus Corporation: See—
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- Cooperstein, Raymond, to Eastman Kodak Company. Lead sulfide photoconductive cells. 3,595,690, Cl. 117-211.
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- Cornelius, Richard T.; and Snyder, Irving, to Cornelius Company, The. Beverage mixing and dispensing machine. 3,595,283, Cl. 141-174.
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- Cunningham, George J., to Bell, F. W., Inc. Automatic magnet charger and calibration system. 3,596,144, Cl. 317-123.
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- De Brebisson, Michel: See—
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187 : 3,594,828	25.12 : 3,594,882	390 : 3,594,968	181 : 3,595,052	92- 143 : 3,595,135	114- 5 : 3,595,189
237 : 3,594,829	15 : 3,594,883	392 : 3,594,969	190 : 3,595,053	93- 1 : 3,595,136	39 : 3,595,190
341 : 3,594,830	18 : 3,594,884	484 : 3,594,970	226 : 3,595,054	33 : 3,595,137	67 : 3,595,191
8- 4 : 3,595,601	157.1 : 3,594,885	648 : 3,594,971	302 : 3,595,055	93 : 3,595,138	72 : 3,595,192
74 : 3,595,602	195 : 3,595,630	716 : 3,594,972	339 : 3,595,056	94- 4 : 3,595,139	150 : 3,595,193
111 : 3,595,603	196.3 : 3,595,631	741 : 3,594,973	362 : 3,595,057	18 : 3,595,140	210 : 3,595,194
127.6 : 3,595,604	198 : 3,595,632	743 : 3,594,974	364 : 3,595,058	3,595,141	230 : 3,595,195
130 : 3,595,605	197.5 : 3,595,633	53- 3 : 3,594,975	381 : 3,595,059	45 : 3,595,142	3,595,196
1 : 3,595,606	203 : 3,594,887	31 : 3,594,976	73- 15 : 3,595,060	46 : 3,595,143	235 : 3,595,197
9- 2 : 3,594,834	255 : 3,594,888	162 : 3,594,977	23 : 3,595,061	50 : 3,595,144	115- 1 : 3,595,198
8 : 3,594,835	3,594,889	183 : 3,594,978	37 : 3,595,062	95- 1 : 3,595,145	3,595,199
340 : 3,594,836	451 : 3,594,890	209 : 3,594,979	3,595,063	12 : 3,595,146	116- 70 : 3,595,200
11- 1 : 3,594,837	450 : 3,594,891	386 : 3,594,980	3,595,064	13 : 3,595,147	114 : 3,595,201
12- 1 : 3,594,838	471.1 : 3,594,892	55- 33 : 3,594,981	3,595,065	31 : 3,595,148	174 : 3,595,202
10.5 : 3,594,839	470.5 : 3,594,893	3,594,982	3,595,066	3,595,149	117- 36.4 : 3,595,203
136 : 3,595,074	471.1 : 3,594,894	3,594,983	3,595,067	53 : 3,595,150	47 : 3,595,204
18 : 3,595,075	492 : 3,594,895	44 : 3,594,984	66 : 3,595,068	3,595,151	63 : 3,595,205
25 : 3,595,076	493.1 : 3,594,896	53 : 3,594,985	67.2 : 3,595,069	3,595,152	71 : 3,595,206
29 : 3,595,077	492 : 3,594,897	64 : 3,594,986	73 : 3,595,070	3,595,153	93.31 : 3,595,207
14- 1 : 3,594,840	604 : 3,594,898	68 : 3,594,987	88 : 3,595,071	3,595,154	121 : 3,595,208
15- 4 : 3,594,841	622 : 3,594,899	142 : 3,594,988	134 : 3,595,072	3,595,155	136 : 3,595,209
21 : 3,594,842	626 : 3,594,900	162 : 3,594,989	155 : 3,595,073	3,595,156	201 : 3,595,210
83 : 3,594,843	628 : 3,594,901	237 : 3,594,990	178 : 3,595,074	3,595,157	211 : 3,595,211
97 : 3,594,844	34.1 : 3,594,902	294 : 3,594,991	194 : 3,595,075	90.5 : 3,595,158	218 : 3,595,212
250.02 : 3,594,845	249 : 3,594,903	302 : 3,594,992	3,595,076	94 : 3,595,159	227 : 3,595,213
306 : 3,594,846	360 : 3,594,904	524 : 3,594,993	204 : 3,595,077	96- 1.5 : 3,595,160	235 : 3,595,214
314 : 3,594,847	33- 23 : 3,594,905	56- 7 : 3,594,994	213 : 3,595,078	3,595,161	118- 2 : 3,595,215
321 : 3,594,848	126.4 : 3,594,906	10.2 : 3,594,995	231 : 3,595,079	3,595,162	8 : 3,595,216
405 : 3,594,849	172 : 3,594,907	7 : 3,594,996	339 : 3,595,080	3,595,163	61 : 3,595,217
16- 136 : 3,594,850	174 : 3,594,908	17.1 : 3,594,997	389 : 3,595,081	3,595,164	126 : 3,595,218
150 : 3,594,851	3,594,909	290 : 3,594,998	398 : 3,595,082	3,595,165	420 : 3,595,219
163 : 3,594,852	3,594,910	328 : 3,594,999	410 : 3,595,083	3,595,166	637 : 3,595,220
17- 32 : 3,594,853	184.5 : 3,594,911	338 : 3,595,000	421 : 3,595,084	3,595,167	119- 29 : 3,595,221
42 : 3,594,854	225 : 3,594,912	57- 58.89 : 3,595,001	422 : 3,595,085	3,595,168	123- 8.41 : 3,595,222
3,594,855	34- 5 : 3,594,913	77.45 : 3,595,002	424 : 3,595,086	3,595,169	119 : 3,595,223
3,594,856	12 : 3,594,914	81 : 3,595,003	425.6 : 3,595,087	3,595,170	148 : 3,595,224
3,594,857	96 : 3,594,915	81 : 3,595,004	432 : 3,595,088	3,595,171	124- 23 : 3,595,225
44.4 : 3,594,858	98 : 3,594,916	58- 1 : 3,595,005	433 : 3,595,089	3,595,172	24 : 3,595,226
48 : 3,594,859	131 : 3,594,917	23 : 3,595,006	434 : 3,595,090	3,595,173	52 : 3,595,227
3,594,860	151 : 3,594,918	23 : 3,595,007	435 : 3,595,091	3,595,174	126- 271 : 3,595,228
3,594,861	35- 8 : 3,594,919	90 : 3,595,008	436 : 3,595,092	3,595,175	127- 5 : 3,595,229
3,594,862	11 : 3,594,920	126 : 3,595,009	437 : 3,595,093	3,595,176	23 : 3,595,230
3,594,863	3,594,921	3,595,010	438 : 3,595,094	3,595,177	128- 2 : 3,595,231
3,594,864	16 : 3,594,922	59- 8 : 3,595,011	439 : 3,595,095	3,595,178	0.06 : 3,595,232
3,594,865	18 : 3,594,923	60- 1 : 3,595,012	440 : 3,595,096	3,595,179	3,595,233
3,594,866	5 : 3,594,924	13 : 3,595,013	441 : 3,595,097	3,595,180	3,595,234
3,594,867	19 : 3,594,925	19 : 3,595,014	442 : 3,595,098	3,595,181	3,595,235
3,594,868	24 : 3,594,926	30 : 3,595,015	443 : 3,595,099	3,595,182	3,595,236
3,594,869	48 : 3,594,927	39.16 : 3,595,016	444 : 3,595,100	3,595,183	3,595,237
6 : 3,594,870	50 : 3,594,928	28 : 3,595,017	445 : 3,595,101	3,595,184	3,595,238
17 : 3,594,871	36- 44 : 3,594,929	61 : 3,595,018	446 : 3,595,102	3,595,185	3,595,239
19 : 3,594,872	61 : 3,594,930	52 : 3,595,019	447 : 3,595,103	3,595,186	3,595,240
30 : 3,594,873	37- 2 : 3,594,931	204 : 3,595,020	448 : 3,595,104	3,595,187	3,595,241
19- 250 : 3,594,874	53 : 3,594,932	243 : 3,595,021	449 : 3,595,105	3,595,188	3,595,242
21- 74 : 3,595,607	33 : 3,594,933	258 : 3,595,022	450 : 3,595,106	3,595,189	3,595,243
23- 92 : 3,595,608	40- 2.2 : 3,594,934	260 : 3,595,023	451 : 3,595,107	3,595,190	3,595,244
100 : 3,595,609	33 : 3,594,935	261 : 3,595,024	452 : 3,595,108	3,595,191	3,595,245
107 : 3,595,610	107 : 3,594,936	267 : 3,595,025	453 : 3,595,109	3,595,192	3,595,246
111 : 3,595,611	124.1 : 3,594,937	61- 5 : 3,595,026	454 : 3,595,110	3,595,193	3,595,247
157 : 3,595,612	129 : 3,594,938	62- 158 : 3,595,027	455 : 3,595,111	3,595,194	3,595,248
165 : 3,595,613	156 : 3,594,939	176 : 3,595,028	456 : 3,595,112	3,595,195	3,595,249
184 : 3,595,614	46- 16 : 3,594,940	177 : 3,595,029	457 : 3,595,113	3,595,196	3,595,250
193 : 3,595,615	33 : 3,594,941	441 : 3,595,030	458 : 3,595,114	3,595,197	3,595,251
203 : 3,595,616	44 : 3,594,942	63- 14 : 3,595,031	459 : 3,595,115	3,595,198	3,595,252
204 : 3,595,617	47 : 3,594,943	65- 157 : 3,595,032	460 : 3,595,116	3,595,199	3,595,253
209.4 : 3,595,618	74 : 3,594,944	318 : 3,595,033	461 : 3,595,117	3,595,200	3,595,254
9 : 3,595,619	76 : 3,594,945	66- 20 : 3,595,034	462 : 3,595,118	3,595,201	3,595,255
213 : 3,595,620	116 : 3,594,946	50 : 3,595,035	463 : 3,595,119	3,595,202	3,595,256
225 : 3,595,621	119 : 3,594,947	177 : 3,595,036	464 : 3,595,120	3,595,203	3,595,257
230 : 3,595,622	202 : 3,594,948	12 : 3,595,037	465 : 3,595,121	3,595,204	3,595,258
254 : 3,595,623	240 : 3,594,949	18 : 3,595,038	466 : 3,595,122	3,595,205	3,595,259
259.5 : 3,595,624	244 : 3,594,950	181 : 3,595,039	467 : 3,595,123	3,595,206	3,595,260
269 : 3,595,625	51- 7 : 3,594,951		468 : 3,595,124	3,595,207	3,595,261
273 : 3,595,626			469 : 3,595,125	3,595,208	3,595,262

132-48	3,595,249	165-47	3,595,305	198-36	3,595,371	219-10.53	3,596,035	240-7.1	3,596,079	260-18	3,595,816
134-45	3,595,250		3,595,306	37	3,595,372		3,596,036	22	3,595,817		3,595,817
65	3,595,251		3,595,307	45	3,595,373		3,596,037	23	3,595,818		3,595,818
109	3,595,252	107	3,595,308	50	3,595,374	69	3,596,038	26	3,596,082		3,595,820
115	3,595,253	162	3,595,309	65	3,595,375		3,596,039	41	3,596,083		3,595,821
122	3,595,254	181	3,595,310	163	3,595,376	76	3,596,040	52.1	3,596,084		3,595,822
167	3,595,255	166-5	3,595,311	181	3,595,377		3,596,041	108	3,596,085		3,595,823
	3,595,256		3,595,312	184	3,595,378	80	3,596,042	241-3	3,595,484		3,595,824
136-6	3,595,697	55.6	3,595,313	198	3,595,379	83	3,596,043	4	3,595,485		3,595,825
86	3,595,698	192	3,595,314	202	3,595,380	86	3,596,044	5	3,595,486		3,595,826
	3,595,699	224	3,595,315	211	3,595,381	121	3,596,045	21	3,595,487		3,595,827
120	3,595,700	303	3,595,316	200-11	3,596,013		3,596,046	35.6	3,595,488		3,595,828
135	3,595,701	169-2	3,595,317	38	3,596,015	123	3,596,047	25	3,595,489		3,595,829
137	3,595,702	17	3,595,318	44	3,596,016	125	3,596,048	75	3,595,831		3,595,830
138	3,595,703	172-9	3,595,319	46	3,596,017	131	3,596,049	8	3,595,832		3,595,831
137-1	3,595,257	513	3,595,321	47	3,596,018	136	3,596,051	85	3,595,833		3,595,832
81.5	3,595,258	781	3,595,320	51	3,596,019	137	3,596,052	9	3,595,834		3,595,833
	3,595,259	173-66	3,595,323	09	3,596,020	138	3,596,053	46.5	3,595,835		3,595,834
251	3,595,260	101	3,595,324	61.89	3,596,021	146	3,596,054	47	3,595,836		3,595,835
403	3,595,261	117	3,595,325	93	3,596,022		3,596,055	77.5	3,595,837		3,595,836
457	3,595,262	122	3,595,326	67	3,596,023	216	3,596,056	99	3,595,838		3,595,837
491	3,595,263	174-15	3,595,327	83	3,596,024	300	3,596,057	149	3,595,839		3,595,838
493	3,595,264	31.5	3,595,328	86.5	3,596,025	354	3,596,058	49	3,595,840		3,595,839
513.5	3,595,265	72	3,595,329	144	3,596,026	367	3,596,059	75	3,595,841		3,595,840
519	3,595,266	119	3,595,330		3,596,027	432	3,596,060	77.5	3,595,842		3,595,841
558	3,595,267	175-73	3,595,331		3,596,028	5	3,596,061	78.4	3,595,843		3,595,842
565	3,595,268	410	3,595,332	148	3,596,029	10	3,596,062	87.1	3,595,844		3,595,843
577	3,595,269	176-36	3,595,333		3,596,030	15	3,596,063	89.5	3,595,845		3,595,844
595	3,595,270	177-1	3,595,334	166	3,596,031	20	3,596,064	92.3	3,595,846		3,595,845
596.2	3,595,271	210	3,595,335		3,596,032	31	3,596,065	93.7	3,595,847		3,595,846
612	3,595,272		3,595,336	168	3,596,033	35	3,596,066	94.3	3,595,848		3,595,847
624.12	3,595,273	224	3,595,337		3,596,034	39	3,596,067	158	3,595,849		3,595,848
625.25	3,595,274	178-2	3,595,338		3,596,035	42	3,596,068	211.5	3,595,850		3,595,849
138-114	3,595,275	5.2	3,595,339	202-173	3,596,036	44	3,596,069	230	3,595,851		3,595,850
139-11	3,595,276	4	3,595,340	185	3,596,037	72	3,596,070	239.1	3,595,852		3,595,851
140-147	3,595,277		3,595,341	204-14	3,596,038	90	3,596,071	3	3,595,853		3,595,852
141-1	3,595,278		3,595,342	30	3,596,039	265	3,596,072	55	3,595,854		3,595,853
2	3,595,279		3,595,343	38	3,596,040	310	3,596,073	65	3,595,855		3,595,854
40	3,595,280		3,595,344	59	3,596,041	222-4	3,596,074	83.3	3,595,856		3,595,855
46	3,595,281		3,595,345	73	3,596,042	61	3,596,075	106	3,595,857		3,595,856
73	3,595,282	6.6	3,595,346	89	3,596,043	67	3,596,076	121	3,595,858		3,595,857
174	3,595,283	8	3,595,347	180	3,596,044	80	3,596,077	146	3,595,859		3,595,858
144-27	3,595,284		3,595,348		3,596,045	95	3,596,078	240	3,595,860		3,595,859
28.5	3,595,285	23	3,595,349		3,596,046	107	3,596,079	247	3,595,861		3,595,860
34	3,595,286	179-1	3,595,350		3,596,047	146	3,596,080	251	3,595,862		3,595,861
136	3,595,287	6	3,595,351	181	3,596,048	180	3,596,081	257	3,595,863		3,595,862
309	3,595,288	15	3,595,352		3,596,049	213	3,596,082	283.3	3,595,864		3,595,863
146-119	3,595,289		3,595,353	192	3,596,050	250	3,596,083	286	3,595,865		3,595,864
123	3,595,290	90	3,595,354	196	3,596,051	327	3,596,084	290	3,595,866		3,595,865
148-6.15	3,595,291	100.2	3,595,355	298	3,596,052	386	3,596,085	297	3,595,867		3,595,866
	3,595,292		3,595,356		3,596,053	421	3,596,086	299	3,595,868		3,595,867
11.5	3,595,293		3,595,357	206-45.31	3,596,054	44	3,596,087	299.4	3,595,869		3,595,868
12.3	3,595,294		3,595,358		3,596,055	62	3,596,088	299.7	3,595,870		3,595,869
16	3,595,295		3,595,359		3,596,056	65	3,596,089	299.8	3,595,871		3,595,870
31	3,595,296		3,595,360		3,596,057	74	3,596,090	300.6	3,595,872		3,595,871
144	3,595,297		3,595,361		3,596,058	77	3,596,091	307	3,595,873		3,595,872
162	3,595,298		3,595,362		3,596,059	80	3,596,092	309	3,595,874		3,595,873
175	3,595,299		3,595,363		3,596,060	83	3,596,093	326.3	3,595,875		3,595,874
	3,595,300		3,595,364		3,596,061	86	3,596,094	342	3,595,876		3,595,875
187	3,595,301		3,595,365		3,596,062	89	3,596,095	347.7	3,595,877		3,595,876
149-19	3,595,302		3,595,366		3,596,063	92	3,596,096	348	3,595,878		3,595,877
150-5	3,595,303		3,595,367		3,596,064	95	3,596,097	349.4	3,595,879		3,595,878
152-225	3,595,304		3,595,368		3,596,065	98	3,596,098	397.4	3,595,880		3,595,879
243	3,595,305		3,595,369		3,596,066	101	3,596,099	398	3,595,881		3,595,880
	3,595,306		3,595,370		3,596,067	104	3,596,100	401	3,595,882		3,595,881
156-2	3,595,307		3,595,371		3,596,068	107	3,596,101	409	3,595,883		3,595,882
17	3,595,308		3,595,372		3,596,069	110	3,596,102	410.6	3,595,884		3,595,883
51	3,595,309		3,595,373		3,596,070	113	3,596,103	429	3,595,885		3,595,884
148	3,595,310		3,595,374		3,596,071	116	3,596,104	448.2	3,595,886		3,595,885
177	3,595,311		3,595,375		3,596,072	119	3,596,105		3,595,887		3,595,886
190	3,595,312		3,595,376		3,596,073	122	3,596,106		3,595,888		3,595,887
405	3,595,313		3,595,377		3,596,074	125	3,596,107		3,595,889		3,595,888
157-13	3,595,314		3,595,378		3,596,075	128	3,596,108		3,595,890		3,595,889
159-2	3,595,315		3,595,379		3,596,076	131	3,596,109		3,595,891		3,595,890
4	3,595,316		3,595,380		3,596,077	134	3,596,110		3,595,892		3,595,891
6	3,595,317		3,595,381		3,596,078	137	3,596,111		3,595,893		3,595,892
280	3,595,318		3,595,382		3,596,079	140	3,596,112		3,595,894		3,595,893
161-1	3,595,319		3,595,383		3,596,080	143	3,596,113		3,595,895		3,595,894
3.5	3,595,320		3,595,384		3,596,081	146	3,596,114		3,595,896		3,595,895
17	3,595,321		3,595,385		3,596,082	149	3,596,115		3,595,897		3,595,896
53	3,595,322		3,595,386		3,596,083	152	3,596,116		3,595,898		3,595,897
69	3,595,323		3,595,387		3,596,084	155	3,596,117		3,595,899		3,595,898
89	3,595,324		3,595,388		3,596,085	158	3,596,118		3,595,900		3,595,899
150	3,595,325		3,595,389		3,596,086	161	3,596,119		3,595,901		3,595,900
159	3,595,326		3,595,390		3,596,087	164	3,596,120		3,595,902		3,595,901
160	3,595,327		3,595,391		3,596,088	167	3,596,121		3,595,903		3,595,902
162	3,595,328		3,595,392		3,596,089	170	3,596,122		3,595,904		3,595,903
165	3,595,329		3,595,393		3,596,090	173	3,596,123		3,595,905		3,595,904
168	3,595,330		3,595,394		3,596,091	176	3,596,124		3,595,906		3,595,905
169	3,595,331		3,595,395		3,596,092	179	3,596,125		3,595,907		3,595,906
229	3,595,332		3,595,396		3,596,093	182	3,596,126		3,595,908		3,595,907
254	3,595,333		3,595,397		3,596,094	185	3,596,127		3,595,909		3,595,908
162-5	3,595,334		3,595,398		3,596,095	188	3,596,128		3,595,910		3,595,909
30	3,595,335		3,595,399		3,596,096	191	3,596,129		3,595,911		3,595,910
89	3,595,336		3,595,400		3,596,097	194	3,596,130		3,595,912		3,595,911
150	3,595,337		3,595,401		3,596,098	197	3,596,131		3,595,913		3,595,912
159	3,595,338		3,595,402		3,5						

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

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Kansas.....	20	Oklahoma.....	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1 : 3,595,308	6 : 3,595,281	6 : 3,596,187	9 : 3,596,173	17 : 3,594,894	17 : 3,595,820
3,595,606	3,595,285	3,596,192	3,596,247	3,594,898	3,595,865
4 : 3,594,907	3,595,358	3,596,193	3,594,879	3,594,910	3,595,887
3,595,006	3,595,389	3,596,200	3,595,626	3,594,920	3,595,945
3,595,216	3,595,395	3,596,204	3,595,758	3,594,923	3,595,992
3,595,218	3,595,397	3,596,250	3,595,807	3,594,965	3,596,008
3,595,489	3,595,399	3,596,255	3,595,841	3,595,037	3,596,009
3,595,641	3,595,440	3,596,257	3,595,870	3,595,047	3,596,022
5 : 3,595,321	3,595,442	3,596,275	3,595,878	3,595,050	3,596,023
3,595,515	3,595,445	3,596,284	3,595,901	3,595,077	3,596,108
6 : 3,594,813	3,595,495	3,594,915	3,595,925	3,595,079	3,596,114
3,594,823	3,595,513	3,595,105	3,595,951	3,595,093	3,596,118
3,594,831	3,595,516	3,595,182	3,595,952	3,595,121	3,596,142
3,594,836	3,595,524	3,595,215	3,595,962	3,595,124	3,596,143
3,594,848	3,595,525	3,595,228	3,595,972	3,595,166	3,596,146
3,594,885	3,595,566	3,595,240	3,596,215	3,595,176	3,596,155
3,594,913	3,595,571	3,595,426	3,595,007	3,595,214	3,596,183
3,594,925	3,595,574	3,595,471	3,595,159	3,595,230	3,596,184
3,594,941	3,595,583	3,595,540	3,595,391	3,595,243	3,596,205
3,594,943	3,595,585	3,595,624	3,596,253	3,595,248	3,596,211
3,594,945	3,595,599	3,596,060	3,594,900	3,595,265	3,596,216
3,594,946	3,595,600	3,594,886	3,594,963	3,595,271	3,596,221
3,594,947	3,595,619	3,594,936	3,595,000	3,595,273	3,596,225
3,594,949	3,595,630	3,594,938	3,595,001	3,595,298	3,596,227
3,594,951	3,595,664	3,594,955	3,595,032	3,595,333	3,596,233
3,594,952	3,595,668	3,594,993	3,595,126	3,595,337	3,596,242
3,594,961	3,595,726	3,595,054	3,595,172	3,595,347	3,596,285
3,594,980	3,595,759	3,595,080	3,595,380	3,595,371	3,596,285
3,594,982	3,595,776	3,595,108	3,595,392	3,595,372	3,595,087
3,594,983	3,595,811	3,595,194	3,595,414	3,595,376	3,595,111
3,595,012	3,595,868	3,595,235	3,595,559	3,595,402	3,595,373
3,595,042	3,595,942	3,595,310	3,595,609	3,595,456	3,595,433
3,595,043	3,595,958	3,595,383	3,596,010	3,595,520	3,595,447
3,595,082	3,595,987	3,595,390	3,596,069	3,595,527	3,595,478
3,595,104	3,595,999	3,595,453	3,596,088	3,595,541	3,595,526
3,595,107	3,596,006	3,595,554	3,596,135	3,595,567	3,595,577
3,595,115	3,596,016	3,595,592	3,596,282	3,595,572	3,595,729
3,595,132	3,596,041	3,595,608	3,594,997	3,595,576	3,595,737
3,595,161	3,596,044	3,595,631	3,595,015	3,595,578	3,595,799
3,595,175	3,596,064	3,595,633	3,595,084	3,595,584	3,595,889
3,595,189	3,596,068	3,595,684	3,595,345	3,595,644	3,595,927
3,595,190	3,596,070	3,595,705	3,595,450	3,595,650	3,595,956
3,595,206	3,596,076	3,595,712	3,595,510	3,595,654	3,595,957
3,595,219	3,596,091	3,595,761	3,595,534	3,595,667	3,595,993
3,595,239	3,596,095	3,595,775	3,596,043	3,595,672	3,596,049
3,595,250	3,596,111	3,595,800	3,594,814	3,595,679	3,596,078
3,595,253	3,596,123	3,595,831	3,594,853	3,595,723	3,596,109
3,595,255	3,596,134	3,595,922	3,594,855	3,595,727	3,596,163
3,595,257	3,596,164	3,596,019	3,594,872	3,595,745	3,596,223
3,595,278	3,596,177	3,596,161	3,594,891	3,595,785	3,596,223

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

19	: 3,595,213	25	: 3,596,213	34	: 3,595,226	36	: 3,595,404	39	: 3,595,448	42	: 3,595,544
	3,595,410		3,596,214		3,595,237		3,595,419		3,595,449		3,595,558
	3,596,017	26	: 3,594,816		3,595,249		3,595,427		3,595,488		3,595,588
	3,596,107		3,594,842		3,595,279		3,595,429		3,595,509		3,595,615
	3,596,174		3,594,882		3,595,296		3,595,458		3,595,529		3,595,636
	3,596,218		3,594,883		3,595,356		3,595,466		3,595,586		3,595,701
	3,596,219		3,595,016		3,595,357		3,595,475		3,595,598		3,595,748
20	: 3,595,268		3,595,051		3,595,385		3,595,477		3,595,637		3,595,752
	3,595,411		3,595,064		3,595,405		3,595,483		3,595,642		3,595,756
	3,595,522		3,595,174		3,595,421		3,595,504		3,595,669		3,595,796
	3,595,560		3,595,177		3,595,454		3,595,511		3,595,673		3,595,797
	3,595,591		3,595,205		3,595,465		3,595,553		3,595,674		3,595,804
	3,596,103		3,595,211		3,595,505		3,595,557		3,595,690		3,595,809
	3,596,244		3,595,224		3,595,507		3,595,563		3,595,698		3,595,810
21	: 3,595,028		3,595,267		3,595,546		3,595,620		3,595,786		3,595,828
	3,595,036		3,595,269		3,595,564		3,595,628		3,595,790		3,595,834
	3,595,045		3,595,343		3,595,601		3,595,638		3,595,791		3,595,855
	3,595,058		3,595,374		3,595,602		3,595,663		3,595,793		3,595,861
	3,595,286		3,595,386		3,595,618		3,595,680		3,595,816		3,595,891
	3,595,327		3,595,412		3,595,621		3,595,681		3,595,824		3,595,920
	3,595,623		3,595,425		3,595,689		3,595,683		3,595,826		3,595,931
	3,596,026		3,595,428		3,595,708		3,595,700		3,595,851		3,595,985
22	: 3,594,835		3,595,468		3,595,718		3,595,735		3,595,860		3,595,989
	3,595,256		3,595,506		3,595,730		3,595,740		3,595,933		3,596,025
	3,595,284		3,595,531		3,595,754		3,595,742		3,595,943		3,596,028
	3,595,288		3,595,555		3,595,784		3,595,746		3,595,950		3,596,038
	3,595,313		3,595,565		3,595,805		3,595,747		3,595,967		3,596,047
	3,595,363		3,595,581		3,595,813		3,595,750		3,595,973		3,596,059
	3,595,408		3,595,594		3,595,817		3,595,770		3,595,979		3,596,066
	3,595,514		3,595,687		3,595,821		3,595,771		3,595,991		3,596,102
	3,596,104		3,595,706		3,595,827		3,595,772		3,596,018		3,596,106
23	: 3,594,971		3,595,707		3,595,842		3,595,778		3,596,036		3,596,116
24	: 3,594,828		3,595,711		3,595,857		3,595,779		3,596,057		3,596,181
	3,594,829		3,595,733		3,595,869		3,595,789		3,596,071		3,596,194
	3,594,859		3,595,762		3,595,872		3,595,794		3,596,125		3,596,208
	3,594,868		3,595,787		3,595,880		3,595,875		3,596,144		3,596,243
	3,595,072		3,595,832		3,595,881		3,595,903		3,596,169		3,596,248
	3,595,192		3,595,843		3,595,883		3,595,904		3,596,237		3,596,248
	3,595,362		3,595,844		3,595,884		3,595,907		3,596,273		3,596,265
	3,595,417		3,595,866		3,595,886		3,595,919	40	: 3,594,849		3,596,283
	3,595,479		3,595,867		3,595,898		3,595,963		3,594,862	43	: 3,595,199
	3,595,611		3,595,873		3,595,913		3,595,965		3,594,864	44	: 3,595,139
	3,595,651		3,595,874		3,595,918		3,595,990		3,594,919		3,595,318
	3,595,710		3,595,882		3,595,930		3,596,011		3,594,956		3,595,324
	3,595,823		3,595,890		3,595,939		3,596,034		3,594,999		3,595,369
	3,595,899		3,595,934		3,595,949		3,596,082		3,595,101		3,595,398
	3,596,005		3,595,955		3,595,960		3,596,094		3,595,116		3,595,494
	3,596,033		3,596,032		3,595,969		3,596,121		3,595,217		3,595,632
	3,596,065		3,596,189		3,595,981		3,596,133		3,595,305		3,596,197
	3,596,077		3,596,220		3,596,035		3,596,158		3,595,314	45	: 3,594,890
	3,596,139		3,596,234		3,596,042		3,596,172		3,595,422		3,594,942
	3,596,140		3,596,263		3,596,050		3,596,182		3,595,499		3,595,070
	3,596,231		3,596,264		3,596,056		3,596,185		3,595,508		3,595,125
25	: 3,594,838	27	: 3,594,926		3,596,099		3,596,191		3,595,622		3,595,144
	3,594,850		3,595,089		3,596,105		3,596,206		3,595,777	47	: 3,594,819
	3,594,873		3,595,113		3,596,113		3,596,226		3,595,840		3,594,880
	3,594,889		3,595,283		3,596,120		3,596,230		3,595,941		3,595,184
	3,594,895		3,595,438		3,596,131		3,596,238		3,595,968		3,595,614
	3,594,897		3,595,451		3,596,136		3,596,249		3,596,007		3,595,765
	3,594,911		3,595,481		3,596,137		3,596,256		3,596,089		3,595,863
	3,594,934		3,595,512		3,596,138		3,596,266	41	: 3,594,998		3,595,946
	3,594,944		3,595,582		3,596,201		3,596,277		3,595,153	48	: 3,594,924
	3,595,004		3,595,666		3,596,202		3,596,281		3,595,452		3,594,981
	3,595,005		3,595,670		3,596,217	37	: 3,594,878		3,595,460		3,594,994
	3,595,069		3,595,675		3,596,240		3,595,034		3,595,996		3,595,029
	3,595,076		3,595,717		3,596,254		3,595,282		3,596,165		3,595,062
	3,595,130		3,595,732		3,596,261		3,595,491		3,596,170		3,595,085
	3,595,152		3,595,839		3,596,267		3,595,501	42	: 3,594,815		3,595,245
	3,595,157		3,595,900		3,596,272		3,595,682		3,594,834		3,595,272
	3,595,165		3,596,063	35	: 3,596,130	38	: 3,595,682		3,594,851		3,595,312
	3,595,187		3,596,074	36	: 3,594,817	39	: 3,594,825		3,594,887		3,595,315
	3,595,204		3,596,093		3,594,854		3,594,875		3,594,888		3,595,316
	3,595,242		3,596,188		3,594,876		3,594,884		3,594,909		3,595,323
	3,595,258		3,596,260		3,594,892		3,594,892		3,594,989		3,595,326
	3,595,263		3,596,269		3,594,902		3,594,922		3,594,996		3,595,339
	3,595,275	28	: 3,594,939		3,594,904		3,594,931		3,595,075		3,595,353
	3,595,401		3,594,964		3,594,928		3,594,972		3,595,090		3,595,437
	3,595,459		3,594,973		3,594,933		3,594,978		3,595,143		3,595,464
	3,595,487		3,595,295		3,594,935		3,595,011		3,595,207		3,595,497
	3,595,579	29	: 3,595,304		3,594,937		3,595,014		3,595,227		3,595,536
	3,595,643		3,595,484		3,594,948		3,595,044		3,595,246		3,595,589
	3,595,652		3,595,570		3,594,967		3,595,056		3,595,254		3,595,610
	3,595,655		3,595,627		3,594,992		3,595,057		3,595,259		3,595,780
	3,595,657		3,595,692		3,595,009		3,595,068		3,595,270		3,595,782
	3,595,658		3,595,774		3,595,018		3,595,074		3,595,277		3,595,814
	3,595,659		3,595,808		3,595,033		3,595,109		3,595,280		3,595,845
	3,595,661		3,595,905		3,595,103		3,595,120		3,595,289		3,595,888
	3,595,693		3,595,915		3,595,112		3,595,136		3,595,317		3,595,921
	3,595,719		3,596,058		3,595,122		3,595,141		3,595,335		3,595,928
	3,595,803		3,596,148		3,595,123		3,595,164		3,595,346		3,595,997
	3,595,822	30	: 3,594,847		3,595,148		3,595,179		3,595,348		3,596,055
	3,595,862		3,595,580		3,595,180		3,595,193		3,595,350		3,596,081
	3,595,909	32	: 3,595,645		3,595,181		3,595,225		3,595,365		3,596,171
	3,595,984		3,596,020		3,595,202		3,595,247		3,595,367		3,596,258
	3,596,013		3,596,287		3,595,209		3,595,264		3,595,377		3,596,262
	3,596,083	33	: 3,596,129		3,595,223		3,595,301		3,595,393		3,596,276
	3,596,096		3,596,241		3,595,234		3,595,307		3,595,406	49	: 3,594,917
	3,596,128	34	: 3,594,869		3,595,325		3,595,325		3,595,435		3,595,129
	3,596,145		3,594,950		3,595,251		3,595,328		3,595,446		3,595,262
	3,596,147		3,594,958		3,595,261		3,595,336		3,595,455		3,595,342
	3,596,151		3,594,968		3,595,266		3,595,340		3,595,470		3,595,379
	3,596,152		3,594,975		3,595,329		3,595,341		3,595,485		3,595,381
	3,596,167		3,595,030		3,595,360		3,595,354		3,595,486		3,595,400
	3,596,175		3,595,183		3,595,375		3,595,403		3,595,518		3,596,141
	3,596,196		3,595,188		3,595,382		3,595,441		3,595,532	50	: 3,594,863
	3,596,209		3,595,200		3,595,388		3,595,443		3,595,543		3,594,865

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

50 : 3,595,059	51 : 3,595,575	53 : 3,595,118	54 : 3,594,966	55 : 3,595,065	55 : 3,595,741
3,595,128	3,595,613	3,595,203	3,595,135	3,595,236	3,595,766
3,595,169	3,595,639	3,595,332	3,595,871	3,595,300	3,595,767
3,595,722	3,595,935	3,595,415	3,595,897	3,595,366	3,595,768
3,596,228	3,595,936	3,595,416	3,595,917	3,595,431	3,596,084
51 : 3,594,881	3,596,024	3,595,569	3,596,280	3,595,439	3,596,112
3,594,906	3,596,052	3,595,607	55 : 3,594,818	3,595,538	3,596,153
3,594,985	3,596,160	3,595,629	3,594,820	3,595,568	3,596,157
3,595,146	53 : 3,594,860	3,595,994	3,594,921	3,595,688	56 : 3,595,769
3,595,384	3,594,995	3,596,236	3,595,010	3,595,699	3,596,079
3,595,573	3,595,031				

Design Patents

6 : 221,276	6 : 221,316	18 : 221,283	21 : 221,323	34 : 221,290	39 : 221,278
221,279	9 : 221,273	221,284	221,324	221,320	221,300
221,281	221,288	221,285	221,325	221,321	221,307
221,286	221,298	221,313	25 : 221,272	36 : 221,311	48 : 221,280
221,305	221,326	221,314	221,291	221,318	55 : 221,277
221,309	17 : 221,299	19 : 221,274	33 : 221,306	37 : 221,303	221,287
221,310	221,317	21 : 221,322	34 : 221,289	221,304	221,301
221,312	18 : 221,282				

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